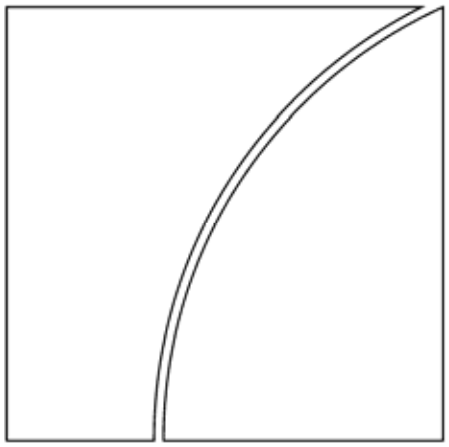
Irving Fisher Committee on Central Bank Statistics



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Contents

Opening speech

Hervé Hannoun[1]

Good morning ladies and gentlemen. It is my pleasure to welcome you to Basel and the BIS. For those who have visited us before, I hope you feel a bit like coming home. For those who are here for the first time, I hope that we can make you feel at home during the next two days.

Central bankers should, indeed, feel at home at the BIS. We are an international organisation owned by central banks and servicing central banks. In recent years, we have also increasingly been involving other financial authorities in BIS activities, such as bank and insurance supervisors, but our core stakeholders are and will continue to be central banks.

I am very pleased to note that some 66 central banks from all regions of the world are represented at this conference. This confirms the increasingly global reach of the BIS which is also reflected in its membership. Indeed, over the last decade, BIS membership has expanded to 56 central banks from all major financial centres in the world, including Asia, the Middle East, Europe, Africa and the Western Hemisphere. At the last Annual General Meeting in June this year which was held in this very room, Governors or senior officials from more than 100 central banks were represented.

The BIS remains very attentive to the needs of its central bank members. Within the budgetary constraints set by the Board, we try to adapt the services we provide to the central banking community in line with these changing needs. This applies to our financial services, our meeting support, our research and statistical activities and the provision of secretariats to various international groups.

We were pleased, for instance, to host the conferences of the Irving Fisher Committee on Central Bank Statistics in 2002 and 2004. We were also pleased when you, Mr Smets, approached the BIS at the end of last year, on behalf of a large number of our central banks members, with the request for us to provide the Secretariat for the Irving Fisher Committee. After careful consideration, we were happy to accept this and accounted this decision to the Governors of the BIS shareholding central banks, here in Basel in January.

The IFC will now function alongside other Basel-based groups such as the Basel Committee on Banking Supervision or the Committee on the Global Financial System. I can reassure you, Mr Smets as well as the other IFC Council members represented here today, that the BIS staff assigned to provide support to the IFC will serve you with all the professional expertise and personal dedication they have.

The support for the IFC is a natural extension of a number of existing statistical activities involving our member central banks, such as the BIS Data Bank and our International Financial Statistics. More generally, it reflects how statistical data and related methodological issues are becoming increasingly important to central banks, from the perspective of monetary as well as financial stability.

I recall that the IFC sponsored a workshop last year with the Bank of Canada on “Data Requirements for Analysing the Stability and Vulnerability of Mature Financial Systems”. This was very topical, indeed. In January this year, you organised a workshop on the “Measurement of Consumer Price Inflation”. This workshop addressed many issues that

[1] Deputy General Manager of the Bank for International Settlements.

have been discussed at various BIS meetings recently, including at Governors level. I understand that the first meeting of the IFC Council yesterday discussed a number of potential topics for future work by the IFC, some of which are also on the agenda of other Basel groups.

I feel it is very appropriate that the Committee devotes its third Conference to the household sector. In fact, there are many challenges posed by measuring the financial position of households. We need to know how good are our statistics that allow us, or should allow us, to understand what influences the behaviour of households. How do households respond to changes in asset prices, for instance for houses and financial instruments? How does this impact on the economy through aggregate demand and on financial stability through credit risk incurred by the financial sector? From what I can see from the programme, your conference will address all the important issues. I am sure it will identify a number of challenges and also a number of areas for improvement.

Another very important sector of the economy is the government or public sector. Good data on the government's financial position are equally important to central banks, other economic policy makers, and market participants. The General Manager of the BIS, speaking at the Bank's Annual General Meeting here in this room in June, described fiscal deficits in large countries as "too high" and said that the medium-term prospects for fiscal positions in many industrial countries were "worrying". How confident can we be that the available government finance statistics are appropriate? Do we have good enough data, not only to evaluate current fiscal positions, but also future public sector liabilities?

In that respect, I note with satisfaction that the ECB has recently issued more specific guidelines that should go a long way to improve the government finance statistics in the euro area.

But, there is no doubt that further efforts should be made to make government finance statistics more comparable at the international level. Moreover, they should also meet the challenges of producing projections for fiscal sustainability. Several of the papers you will discuss during your conference are on the measurement of the value of funded and unfunded pension schemes. In many cases the unfunded schemes constitute the liabilities of the public sector. How can we assess the sustainability of public finances, if we are not able to measure the future commitments of the government for pensions and health care? In many cases, this commitment is very substantial and could require, at some period in the future, significant cuts in public sector spending or tax increases. Yet, households are largely unaware of this, in particular those who live in countries with generous but unfunded retirement and health schemes.

You will hear today and tomorrow about the value of regular and fully consistent institutional sector accounts for the household sector. I am sure that another major challenge for data compilers and users in the future will be for the government sector accounts. I would personally like to encourage the IFC to look closely at these questions and, through future Workshops and Conferences, to provide peer pressure for the surveillance of fiscal methodologies and fiscal data.

Welcoming remarks

Jan Smets[1]

Good morning ladies and gentlemen. It is a pleasure - as Chairman of the Irving Fisher Committee on Central Bank Statistics - to welcome you to this Conference. The fact that we are welcoming to the BIS 130 experts from 66 Central Banks is certainly exciting!

And it is indeed a pleasure for the Irving Fisher Committee, to return home to meet here in Basel. On behalf of all the central banks represented here today, and the IFC institutional members in particular, Mr. Hannoun, I would like to thank the BIS for accepting to take over the secretariat of the Committee from the National Bank of Belgium. It will be an interesting challenge for us to operate alongside the other illustrious Basel-based groups that you mentioned. The IFC has come a long way since its inception in 1997 and I would like to take the opportunity to thank the many people who have helped us to come to where we are today. I would like to single out, in particular, the former chairpersons of the IFC as well as the previous members of its Executive and Secretariat. They should feel proud to see how the IFC has grown and developed.

If you allow me, ladies and gentlemen, I would like to take a few words to report to you on the meeting of the IFC Council which I chaired yesterday. Those of you who have followed the recent development of the IFC will know that the Council includes all the Committee's institutional central bank members. Yesterday we agreed to also invite the International Monetary Fund as well as two important regional central bank groups, one in Asia and the other in Latin America, to become institutional member.

Yesterday we also discussed the final version of the draft statutes and the constitution of the IFC Executive. Mr. Barman from the Reserve Bank of India and Mr. Taub from the Federal Reserve Bank of New York will be the new vice chairmen. Mr. Cadete Matos from the Bank of Portugal, Mr. Mnyande from the Reserve Bank of South Africa and Mr. Keuning from the ECB will also be members of the Executive. We also agreed to ask interested Council members to step forward as candidates for the remaining five seats on the Executive. In proposing nominations to the remaining positions on the Executive to the Council, I will ensure that there is proper representation of all regions of the world.

The Council took a number of decisions regarding the operation of the Committee, including to merge its website and its publication into the respective formats of the BIS as well as to develop a room in eBIS for the economists and statisticians of the institutional members which will include contact information as well as information on international statistical activities. Finally we discussed future activities of the IFC, including statistics on securities markets and the possible organisation of regional events. Your suggestion for the IFC to look closely at issues related to government finance is very interesting, Mr. Hannoun and I will put it on the agenda of the Executive. I don't think we will be short of topics for discussion in the future!

And the Executive should come up with an agenda of priorities in the next months, with a focus on what the main purpose of the IFC should be: to promote the exchange of views amongst economists, statisticians and policy makers, bringing producers and users together and paving the way and anticipating new demands and needs.

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[1] Chairman of the Irving Fisher Committee on Central Bank Statistics and Director at the National Bank of Belgium.

I should also mention that the Council confirmed its intention, as stated in the IFC statutes, to continue the Committee's association with the International Statistical Institute (or ISI). The IFC has operated informally under the umbrella of the ISI since its inception and we will be discussing the precise form of its future association with the ISI in the coming year. The Committee will organise a number of so-called "Invited Paper Meetings" and "Contributed Paper Meetings" at the Biennial ISI Conference to be held in Lisbon in August next year. Some of these meetings will be co-sponsored with other ISI groups. In just a few days the IFC will also contribute to a conference organised by the International Association of Official Statistics (IAOS), one of the major official groups of the ISI. The topic of this conference is "People on the Move" and the IFC will organise a plenary session on the financial aspects of migration, in particular the measurement of remittances, something we will hear about later this morning also.

Let me now turn to our conference. Since the Committee announced plans for this conference in April, this event has really caught the imagination of the central bank community. There are no less than 42 papers being presented over the next two days from all corners of the world. I would like to thank all the presenters for the preparation of papers and presentations. The chairpersons of the different sessions will play a key role and I would like to thank them in advance for their contribution, in particular for trying to leave as much time as possible for a general discussion. You may have noticed from the programme that we did not include discussants for the sessions, precisely to allow more time than at other conferences for such an open discussion. Moreover, the Secretariat has prepared short issue papers for each session with some key questions to help stimulate the debate.

Just a quick preview of the programme:

In the first session, we will look at the statistical framework in which to measure the household sector.

Session 2 will provide a general preview of all the different aspects relating to household finances, including housing finance issues such as home equity withdrawal, the household balance sheet, and international remittances which I mentioned just a minute ago.

Session 3 will consist of two parallel break-out sessions. They will both look at the same set of issues related to the measurement of household wealth and savings, claims on pension schemes and households' securities holdings. But, each break-out session will have different background papers.

For session 4, we will reassemble here to look at the liabilities side of household finances, including debt burden ratios and margins.

Session 5 will again consist of two parallel break-out sessions. The focus this time will be on income, wealth, borrowing, debt and debt repayment across different categories of households.

Finally, we will close with a panel discussion. The focus will be on the use of surveys to inform on household finances and how central banks are starting to use surveys more and more in order to complement information available from traditional macro-economic sources.

I am very pleased that Bill White has accepted to provide the keynote speech to the conference, scheduled for tomorrow morning. Bill will speak on "Measured Wealth, Real Wealth and the Illusion of Saving". Having had the pleasure on other occasions to hear Bill speak, I look forward to a very stimulating presentation. As I can't be present here tomorrow, Bill will be introduced by Mr. Barman, one of our new Vice Chairmen.

There is no doubt, ladies and gentlemen, that this conference has hit a topical note! You will find that many of the data issues discussed over the next two days are directly related to policy debates in which the Governor and other senior officials from your central bank are involved here at the BIS and elsewhere. Enjoy the conference and contribute as actively as you can.

Session 1

An analytical framework for measuring the financial position of the household sector

Chair: Steven Keuning
European Central Bank

Papers:

Using the balance sheet approach in surveillance: framework, data sources, and data availability
Johan Mathisen and Anthony Pellechio, International Monetary Fund

The savings of households in the national accounts
Catherine Rigo, National Bank of Belgium

Household saving and wealth accumulation in the U.S.
Charles Steindel, Federal Reserve Bank of New York

The household sector in the integrated euro area accounts
Andreas Hertkorn, Jung-Duk Lichtenberger and Pilar Velilla, European Central Bank

Japan's approach to capturing the household sector
Satoru Hagino, Bank of Japan, Paris Office

Using the balance sheet approach in surveillance: framework, data sources, and data availability[1]

Johan Mathisen and Anthony Pellechio[2]

I. Introduction

A distinguishing feature of emerging market crises in the 1990s and early 2000s was the sudden disruption in the capital accounts of key sectors of the economy. Capital account crises typically occur as creditors quickly lose confidence, prompting sudden and large-scale portfolio adjustments, such as massive withdrawals of bank deposits, panic sales of securities, or abrupt halts of debt rollovers. As the exchange rate, interest rates, and other asset prices adjust, the balance sheet of an entire economy can sharply deteriorate.

These crises highlighted the need for closer attention to vulnerabilities in sectoral balance sheets. As a result, the International Monetary Fund (IMF) intensified development of the balance sheet approach (BSA) to examining macroeconomic vulnerabilities.

Since the start of this more intense effort in 2002,[3] the BSA has been increasingly applied as part of the IMF's bilateral surveillance activities (Box 1).[4] This paper draws on this experience and on progress made in meeting the data demands for the BSA in order to draw lessons for the most effective framework for this type of analysis. The main objectives are to provide guidance on how best to design the analytical framework - in terms of delineation of sectors and financial instruments - in order to address particular country circumstances, and to give an update on recent improvements in statistical methodologies and data availability that are enhancing the BSA's potential as a surveillance tool by allowing for a more detailed and timely analysis.

The BSA examines the balance sheets of key sectors of an economy in a framework that facilitates the identification and analysis of vulnerabilities. It tries to explain the dynamics of a capital account crisis by examining stocks of assets and liabilities. As such, the BSA departs from the traditional financial programming approach whose flow-based analysis examines the build-up of unsustainable fiscal and current account positions over time. By focusing instead on shocks to stocks of assets and liabilities, which can trigger large adjustments in capital flows, the BSA can be a useful complement to the traditional flow analysis. As such, it encourages analysts to look more broadly in monitoring and assessing economic and financial conditions.

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[1] This paper was previously published as IMF Working Paper WP/06/100.

[2] The authors are indebted to many colleagues, as predecessors, collaborators, and reviewers including, in the Policy Development and Review Department, Mark Allen, Juha Kahkonen, Tessa van der Willigen, Dominique Desruelle, Christoph Rosenberg, Brett House, and Johannes Wiegand; in the Statistics Department, Rob Edwards, William Alexander, Edgar Ayales, Neil Patterson, Roberto Rosales, Robert Heath, Jaroslav Kucera, José Carlos Moreno , Simon Quinn, and Justin Matz; and, in other departments, Andreas Billmeier, Marcos Chamon, Mark De Broeck, Robert P. Flood, Dale Gray, Cheng Hoon Lim, Paolo Manasse, Paolo Mauro, and Mariana Torres. Authors' E-Mail Addresses: jmathisen@imf.org and apellechio@imf.org.

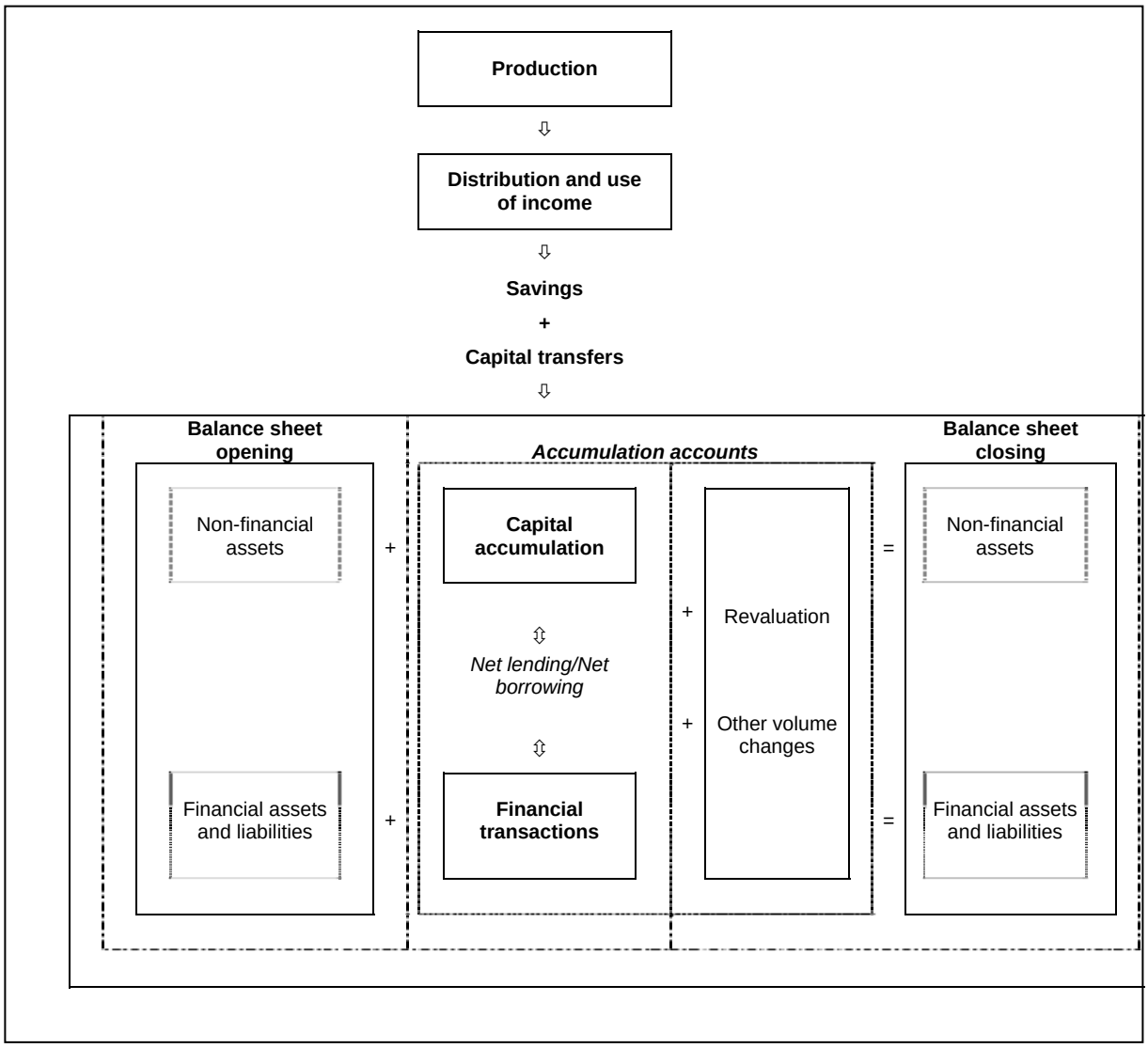
[3] While the paper by Allen and others (2002) marked the launch of a systematic application of the BSA, development of crisis models based on analysis of sectoral balance sheets date at least to the Mexican crisis of 1994–95. This included work at the IMF such as Bussière and Mulder (1999) and Johnston, Chai, and Schumacher (2000).

[4] See Rosenberg and others (2005) and the IMF's biennial surveillance review (IMF, 2004a).

The basic sequence of accounts of the IMF's *System of National Accounts 1993* (known as the *1993 SNA*) provides the internationally accepted, comprehensive, and integrated framework for both flows and stocks for an economy and, thus, the BSA (Figure 1). The current accounts at the beginning of this sequence record the production of goods and services, income generation and distribution, and use of income for consumption and saving. This is followed by the accumulation accounts that record the acquisition and disposal of financial and non-financial assets and liabilities, and changes in net worth. Finally, the balance sheets show the value of the stock of assets and liabilities of institutions and sectors at the beginning and end of the accounting period. The balance sheet completes the sequence of accounts, showing the final result of the entries in the production, distribution, and use of income, and accumulation accounts. These balance sheets are the building blocks of the BSA.

Figure 1

Interrelationships of the balance sheets and accumulation accounts



Box 1

Recent country examples of balance sheet analysis

Chile:	http://www.imf.org/external/pubs/ft/scr/2003/cr03312.pdf
Ecuador:	http://www.imf.org/external/pubs/ft/scr/2003/cr0391.pdf
Thailand:	http://www.imf.org/external/pubs/ft/scr/2004/cr0401.pdf
Peru:	http://www.imf.org/external/pubs/ft/scr/2004/cr04156.pdf
Bulgaria:	http://www.imf.org/external/pubs/ft/scr/2004/cr04177.pdf
Ukraine:	http://www.imf.org/external/pubs/ft/scr/2005/cr0520.pdf
Colombia:	http://www.imf.org/external/pubs/ft/scr/2005/cr05162.pdf
Belize:	http://www.imf.org/external/pubs/ft/scr/2005/cr05353.pdf
Russia:	http://www.imf.org/external/pubs/ft/scr/2005/cr05379.pdf
Turkey:	*Turkey at a Crossroads - From Crisis Resolution to EU Accession*, IMF Occasional Paper 242, 2005.

In addition, some of the key results of the balance sheet analysis of Brazil are published at http://www.imf.org/external/np/pdr/bal/2004/eng/070104.htm.

The data requirements of the BSA depend on its specification of sectors and financial instruments, as well as on the vulnerabilities being analyzed. The analyst should try to specify a framework based on the important risks or mismatches to be analyzed and on the available data for a country. The BSA can be applied without having a full set of data for all sectors and could be pursued to the extent that data are available and timely for useful empirical and policy analysis. To the extent possible, data used in the BSA should be produced following internationally accepted methodologies based on the *1993 SNA* to minimize inconsistencies.

The availability of data for applying the BSA, whose gaps in the past hindered the assessment of vulnerabilities for macroeconomic policymaking, has improved.[5] Efforts to incorporate the balance sheet approach into the IMF's work have been supported by recent statistical and transparency initiatives. Requirements for the special data dissemination standard (SDDS) have improved the dissemination of data and metadata on public and external debt, international reserves and foreign currency liquidity, international investment positions, and analytical accounts of the banking sector. This, in turn, has led to improvements in methodologies and data availability, including the following:

- Recently introduced standardized report forms (SRFs) for monetary and financial sector data, which represent a significant step in providing the breakdown by currency and maturity for assets and liabilities required by the BSA. The SRF data are submitted monthly with a high level of detail standardized across countries.
- The online quarterly external debt statistics (QEDS) introduced in 2004 and the international investment position (IIP) data, which constitute a significant advance in the availability of data for the BSA. The QEDS is based on the External Debt Statistics Guide for Compilers and Users, developed by an inter-agency task force chaired by the IMF to measure and monitor external debt. The guide meets BSA data requirements, notably currency and maturity breakdowns (IMF, 2003).

[5] The latest review of data provision to the IMF for surveillance purposes indicated that balance sheet analysis had been generally hampered by lack of availability of currency and maturity breakdowns, particularly on public debt and assets and liabilities of the non-financial private sector.

- The joint external debt hub (JEDH), which is an online database based on creditor and market sources for the external debt of 175 countries. The JEDH was launched jointly in March 2006 by the Bank for International Settlements (BIS), the IMF, the Organization for Economic Cooperation and Development (OECD), and the World Bank.
- The coordinated portfolio investment survey (CPIS), which has improved the availability and comparability of statistics on countries' portfolio investment positions.

II. Main objectives of the balance sheet approach

The purpose of the BSA is to analyze vulnerabilities of sectors and transmission mechanisms among them. Key vulnerabilities that the BSA framework aims to capture can be summarized as follows:[6]

- Maturity mismatches between short-term liabilities and longer-term assets expose borrowers to rollover risk (ie, the inability to refinance maturing debts) and interest rate risk (the differential impact of interest rate movements on asset and liabilities, depending upon interest rate structure). For instance, maturity mismatches in foreign currency may create difficulties if, due to a change in market conditions, domestic borrowers do not have enough liquid foreign currency assets to cover short-term foreign currency debt. Financial entities that borrow in the short term to invest in long-term debt instruments with fixed interest rates would suffer from a rise in interest rates (eg, due to cyclical developments or an interest rate defense of an exchange rate peg), which may have a significant impact on their liquidity or solvency.
- Currency mismatches arise when borrowers' liabilities are denominated in a foreign currency but their assets are in domestic currency. In the event of a sharp depreciation, these borrowers may well have trouble paying their creditors. Experience in a number of countries has shown that, in certain circumstances (eg, longstanding fixed exchange rate regimes), borrowers and lenders may well underestimate exchange rate risk.
- Capital structure mismatches may occur when a firm or a country relies on debt rather than equity to finance investment. Equity provides a buffer during hard times, because dividends drop along with earnings, whereas debt payments remain unchanged. At the country level, financing current account deficits with debt (particularly short-term debt) rather than direct investment has typically been seen as generating greater vulnerability.

In times of crisis, these risks are typically manifested as liquidity or solvency problems. Liquidity problems are generally associated with inadequate resources to cover short-term payment requirements. Solvency problems might arise when an entity's liabilities are not commensurate with its assets and the net present value of future net income streams - for example, when government debt is too high in comparison with government assets and the net present value of primary surpluses. Liquidity and solvency problems might be separate events, but can be related, as when, for example, solvency problems spill over into liquidity problems or repeated liquidity problems raise concerns about solvency.

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[6] As described in Rosenberg and others (2005). Other market risks that stem from potential sharp declines in the price of assets, such as government bonds, real estate, or equities, should be considered key balance sheet risks if exposure is sufficiently large.

Maturity, currency, and capital structure mismatches can all increase the risk that a negative shock will cause liquidity problems or drive large parts of one or more sectors into insolvency (Calvo and Reinhart, 2002, Reinhart and others, 2003a).

Often these problems are not evident, as maturity or currency mismatches are hidden in indexed or floating-rate debt instruments, making them less apparent. In some emerging market economies, liabilities may be formally denominated in local currency, but indexed to the exchange rate. Similarly, the nominal maturity of an asset may be long, but the interest rate it bears may be floating.

The BSA is designed to identify key indicators of a sector's vulnerability, including the following:

- Net financial position, defined as financial assets minus financial liabilities:[7] a large negative position can point to solvency problems, especially if leverage - debt as a share of total liabilities - is high;
- Net foreign currency position, defined as foreign currency assets minus foreign currency liabilities: a sector with a large negative (positive) position is vulnerable to exchange rate depreciation (appreciation); and
- Net short-term position, defined as short-term assets minus short-term liabilities: a large negative short-term position indicates vulnerability to interest rate increases and to rollover risk.

III. Key features of the framework for analysis

The particular framework of a BSA application - a matrix of intersectoral balance sheets (Table 1) in terms of sectors of the economy and components of the balance sheet - depends on the focus of analysis and, as a practical matter, availability of data. Allen and others (2002) provide a generic matrix encompassing four sectors (government, financial, non-financial, non-resident) with assets and liabilities broken down by (short- and long-term) maturity and currency (domestic, foreign). The framework presented in this paper uses the same breakdown of assets and liabilities but expands it to seven sectors.[8]

This framework follows standard practice in balance sheet analysis: a sector's liabilities to other sectors (debtor positions) are presented along the horizontal axis and its claims (creditor positions) on other sectors on the vertical axis. Each row of the framework presents the sector's liability structure by currency, maturity, and creditor, and each column presents the corresponding asset structure, that is, its holdings of other sectors' liabilities.

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[7] Balance sheet analysis is largely based on financial statistics. Real assets, such as real estate - often a major component of public assets - are therefore not included, as they are not sufficiently liquid to be usable in a crisis. The concept of net financial position is therefore different from the net worth (or implied capital) often used to assess whether the operations of the entity (or sector) can be sustained over the medium to long term. A balance sheet analysis is not intended to reflect the "true economic position" of an economy or sector, but merely its macroeconomic vulnerability.

[8] The *1993 SNA* defines five broad sectors: (1) general government; (2) financial corporations (including the central bank); (3) non-financial corporations (including public non-financial corporations); (4) households and non-profit institutions serving households; and (5) rest of the world. This paper follows the sectorization of the *Monetary and Financial Statistics Manual* (IMF, 2000) and defines three subsectors within the *1993 SNA*'s financial corporations sector - the central bank, other depositary corporations, and other financial corporations - as separate sectors, bringing the number of sectors to seven.

Table 1

Intersectoral asset and liability position matrix

Holder of Liability (Creditor) / Issuer of Liability (Debitor)	Central bank	General government	Other depository corporations	Other financial corporations	Non-financial corporations	Other resident sector	Non-residents
Central bank							
Monetary Base							
Total Other liabilities							
Short-term							
Domestic Currency							
Foreign Currency							
Medium-and long-term							
Domestic Currency							
Foreign Currency							
General government							
Total liabilities							
Short-term							
Domestic Currency							
Foreign Currency							
Medium-and long-term							
Domestic Currency							
Foreign Currency							
Other depository corporations							
Total liabilities							
Short-term							
Domestic Currency							
Foreign Currency							
Medium-and long-term							
Domestic Currency							
Foreign Currency							
Other financial corporations							
Total liabilities							
Short-term							
Domestic Currency							
Foreign Currency							
Medium-and long-term							
Domestic Currency							
Foreign Currency							
Non-financial corporations							
Total liabilities							
Short-term							
Domestic Currency							
Foreign Currency							
Medium-and long-term							
Domestic Currency							
Foreign Currency							
Other resident sector							
Total liabilities							
Short-term							
Domestic Currency							
Foreign Currency							
Medium-and long-term							
Domestic Currency							
Foreign Currency							
Non-residents							
Total liabilities							
Short-term							
Domestic Currency							
Foreign Currency							
Medium-and long-term							
Domestic Currency							
Foreign Currency							

Table 2

South Africa: intersectoral asset and liability matrix (December 2004)

In million of rand

Holder of Liability (Creditor) / Issuer of Liability (Debtor)	Public sector						Financial Private Sector						Non-financial Private Sector						Rest of the World		
	Central bank			General government			Other depository corporations			Other financial corporations			Non-financial corporations			Other resident sector			Non-residents		
	Claims	Liabilities	Net pos.	Claims	Liabilities	Net pos.	Claims	Liabilities	Net pos.	Claims	Liabilities	Net pos.	Claims	Liabilities	Net pos.	Claims	Liabilities	Net pos.	Claims	Liabilities	Net pos.
Central bank				11,594	32,426	-20,831	34,312	16,174	18,139	21	14	7	0	302	-302	1,332	1,861	-529	21,472	82,929	-61,457
In domestic currency				11,594	32,426	-20,831	34,312	16,174	18,139	21	14	7	0	302	-302	1,332	1,861	-529	1,784	31	1,753
Currency and deposits				11,584	...	11,584	22,366	159	22,207	21	0	21	0	...	0	1,332	..	1,332	1,784	0	1,784
Securities other than shares				0	16,585	-16,585	11,947	1,076	10,871	0	0	0	0	0	0	0	0	0	0	0	0
Loans				0	15,746	-15,746	...	14,938	-14,938	...	0	0	...	32	-32	0	1	-1	0	31	-31
Shares other than equity				...	...	...	...	0	0	...	10	-10	...	267	-267	...	...	...	...	0	0
Insurance technical reserves				...	...	...	...	...	...	...	4	-4	...	...	...	...	...	...	...	0	0
Financial derivatives				0	0	0	...	0	0	...	0	0	...	0	0	0	0	0	0	0	0
Other accounts receivable[1]				10	95	-85	...	1	-1	...	0	0	...	3	-3	...	1,860	-1,860	0	0	0
In foreign currency				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19,687	82,898	-63,211
Currency and deposits				0	...	0	0	0	0	0	0	0	0	...	0	0	...	0	0	75,420	-75,419
Securities other than shares				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,429	-7,429
Loans				0	0	0	...	0	0	...	0	0	...	0	0	0	0	0	19,687	0	19,687
Shares other than equity				...	0	0	...	0	0	...	0	0	...	0	0	...	...	...	...	0	0
Insurance technical reserves				...	...	...	...	...	...	...	0	0	...	...	...	...	...	...	...	0	0
Financial derivatives				0	0	0	...	0	0	...	0	0	...	0	0	0	0	0	0	0	0
Other accounts receivable[1]				0	0	0	...	0	0	...	0	0	...	0	0	...	0	0	0	49	-49
General government	32,426	11,594	20,831				101,263	80,643	20,620	396,424	6,920	389,504	...	...	...	...	...	...	145,204	0	145,204
In domestic currency	32,426	11,594	20,831				101,263	80,579	20,684	396,202	6,920	389,282	...	...	...	...	...	...	0	0	0
Currency and deposits	...	11,584	-11,584				...	78,261	-78,261	...	0	0	...	...	...	...	...	...	...	...	...
Securities other than shares	16,585	0	16,585				95,487	2,318	93,169	378,333	0	378,333	...	...	...	...	...	...	...	...	...
Loans	15,746	0	15,746				5,776	1	5,775	17,884	100	17,784	...	...	...	...	...	...	...	...	...
Shares other than equity	...	...	...				0	...	0	0	...	0	...	...	...	...	...	...	...	...	...
Insurance technical reserves	...	...	...				...	0	0	...	0	0	...	...	...	...	...	...	...	...	...
Financial derivatives	0	0	0				0	0	0	0	0	0	...	...	...	...	...	...	...	...	...
Other accounts receivable[1]	95	10	85				0	0	0	-15	6,820	-6,836	...	...	...	...	...	...	...	...	...
In foreign currency	0	0	0				0	64	-64	222	0	222	...	...	...	...	...	...	145,204	0	145,204
Currency and deposits	...	0	0				...	64	-64	...	0	0	...	...	...	...	...	...	...	...	...
Securities other than shares	0	0	0				0	0	0	222	0	222	...	...	...	...	...	...	118,572	...	118,572
Loans	0	0	0				0	0	0	0	0	0	...	...	...	...	...	...	26,632	...	26,632
Shares other than equity	0	...	0				0	...	0	0	...	0	...	...	...	...	...	...	...	...	...
Insurance technical reserves	...	...	...					0	0	...	0	0	...	...	...	...	...	...	...	...	...
Financial derivatives	0	0	0				0	0	0	0	0	0	...	...	...	...	...	...	...	...	...
Other accounts receivable[1]	0	0	0				0	0	0	0	0	0	...	...	...	...	...	...	...	...	...
Other depository corporations	16,172	34,312	-18,140	80,643	101,263	-20,620				341,903	56,243	285,660	281,223	440,422	-159,199	288,007	485,049	-197,042	59,852	146,861	-87,009
In domestic currency	16,172	34,312	-18,140	80,579	101,263	-20,684				333,242	56,243	276,999	272,487	436,681	-164,194	287,134	483,896	-196,762	40,967	46,959	-5,992
Currency and deposits	159	22,366	-22,207	78,261	...	78,261				198,085	0	198,085	231,770	...	231,770	283,953	..	283,953	12,286	6,295	5,991
Securities other than shares	1,076	11,947	-10,871	2,318	95,487	-93,169				104,128	5	104,123	24,198	32,834	-8,636	2,079	0	2,079	416	5,775	-5,359
Loans	14,938	...	14,938	1	5,776	-5,775				31,029	50,425	-19,396	0	343,620	-343,620	0	478,741	-478,741	7,539	10,004	-2,465
Shares other than equity	0	...	0	...	0	0				...	5,813	-5,813	...	12,305	-12,305	...	...	...	...	4,205	-4,205
Insurance technical reserves	...	...	...	0	...	0				0	0	0	0	...	0	0	...	0	0	0	0
Financial derivatives	0	...	0	0	0	0				0	0	0	0	47,442	-47,442	0	0	0	20,709	20,603	106
Other accounts receivable[1]	0	...	0	0	0	0				0	0	0	16,519	480	16,039	1,101	5,155	-4,053	17	77	-61
In foreign currency	0	0	0	64	0	64				8,661	0	8,661	8,737	3,741	4,995	873	1,154	-280	18,885	99,903	-81,017
Currency and deposits	0	0	0	64	...	64				0	0	0	8,737	...	8,737	873	...	873	13,212	263	12,949
Securities other than shares	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0
Loans	0	...	0	0	0	0				8,661	0	8,661	0	3,741	-3,741	0	1,154	-1,154	5,673	99,639	-93,966
Shares other than equity	0	...	0	...	0	0				...	0	0	...	0	0	...	...	...	...	0	0
Insurance technical reserves	...	...	...	0		0				0	0	0	0	...	0	0	...	0	0	0	0
Financial derivatives	0	...	0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0
Other accounts receivable[1]	0	...	0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0
Other financial corporations	14	21	-7	6,920	396,424	-389,504	56,243	341,903	-285,660				19,022	965,810	-946,788	1,495,586	77,709	1,417,877	11,291	166,862	-155,571
In domestic currency	14	21	-7	6,920	396,202	-389,282	56,243	333,242	-276,999				19,022	965,810	-946,788	1,495,586	77,709	1,417,877	8,310	753	7,556
Currency and deposits	0	21	-21	0	...	0	0	198,085	-198,085				0	...	0	2,738	...	2,738	0	0	0
Securities other than shares	0	0	0	0	378,333	-378,333	5	104,128	-104,123				1,155	100,849	-99,694	2,996	0	2,996	490	0	490
Loans	0	...	0	100	17,884	-17,784	50,425	31,029	19,396				12,031	21,590	-9,559	4,035	77,709	-73,675	7,779	753	7,026
Shares other than equity	10	...	10	...	0	0	5,813	...	5,813				...	843,371	-843,371	...	...	...	...	0	0
Insurance technical reserves	4	...	4	0	...	0	0	0	0				0	...	0	22,941	..	22,941	0	0	0
Financial derivatives	0	...	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0
Other accounts receivable[1]	0	...	0	6,820	-15	6,836	0	0	0				5,836	0	5,836	1,462,877	0	1,462,877	41	0	41
In foreign currency	0	0	0	0	222	-222	0	8,661	-8,661				0	0	0	0	0	0	2,982	166,109	-163,127
Currency and deposits	0	0	0	0	...	0	0	0	0				0	...	0	0	...	0	0	4,493	-4,493
Securities other than shares	0	0	0	0	222	-222	0	0	0				0	0	0	0	0	0	3	13,392	-13,388
Loans	0	...	0	0	0	0	0	8,661	-8,661				0	0	0	0	0	0	668	54	614
Shares other than equity	0	...	0	...	0	0	0	...	0				...	0	0	...	...	...	...	135,264	-135,264
Insurance technical reserves	0	...	0	0	...	0	0	0	0				0	...	0	0	...	0	137	0	137
Financial derivatives	0	...	0	0	0	0	0	0	0				0	0	0	0	0	0	0	48	-47
Other accounts receivable[1]	0	...	0	0	0	0	0	0	0				0	0	0	0	0	0	2,173	12,858	-10,686

Table 2 (cont)

South Africa: intersectoral asset and liability matrix (December 2004)

In million of rand

Holder of liability (Creditor) / Issuer of liability (Debtor)	Public sector						Financial private sector						Non-financial private sector						Rest of the world		
	Central bank			General government			Other depository corporations			Other financial corporations			Non-financial corporations			Other resident sector			Non-residents		
	Claims	liabilities	net pos.	Claims	liabilities	net pos.	Claims	liabilities	net pos.	Claims	liabilities	net pos.	Claims	liabilities	net pos.	Claims	liabilities	net pos.	Claims	liabilities	net pos.
Non-financial corporations	302	0	302	...	...	...	440,422	281,223	159,199	965,810	19,022	946,788				...	...	...	95,970	0	95,970
In domestic currency	302	0	302	...	...	...	436,681	272,487	164,194	965,810	19,022	946,788				...	...	...	0	0	0
Currency and deposits	...	0	0	...	...	...	...	231,770	-231,770	...	0	0				...	...	...	...	...	...
Securities other than shares	0	0	0	...	...	...	32,834	24,198	8,636	100,849	1,155	99,694				...	...	...	...	...	...
Loans	32	...	32	...	...	...	343,620	0	343,620	21,590	12,031	9,559				...	...	...	...	...	...
Shares other than equity	267	...	267	...	...	...	12,305	...	12,305	843,371	...	843,371				...	...	...	...	...	...
Insurance technical reserves	...	...	...	...	...	...	...	0	0	...	0	0				...	...	...	...	...	...
Financial derivatives	0	...	0	...	...	...	47,442	0	47,442	0	0	0				...	...	...	...	...	...
Other accounts receivable 1/	3	...	3	...	...	...	480	16,519	-16,039	0	5,836	-5,836				...	...	...	...	...	...
In foreign currency	0	0	0	...	...	...	3,741	8,737	-4,995	0	0	0				...	...	...	95,970	0	95,970
Currency and deposits	...	0	0	...	...	...	...	8,737	-8,737	...	0	0				...	...	...	...	...	...
Securities other than shares	0	0	0	...	...	...	0	0	0	0	0	0				...	...	...	...	...	...
Loans	0	...	0	...	...	...	3,741	0	3,741	0	0	0				...	...	...	95,970	...	95,970
Shares other than equity	0	...	0	...	...	...	0	...	0	0	...	0				...	...	...	...	...	...
Insurance technical reserves	...	...	...	...	...	...	...	0	0	...	0	0				...	...	...	...	...	...
Financial derivatives	0	...	0	...	...	...	0	0	0	0	0	0				...	...	...	...	...	...
Other accounts receivable 1/	0	...	0	...	...	...	0	0	0	0	0	0				...	...	...	...	...	...
Other resident sectors	1,861	1,332	529	...	...	...	485,049	288,007	197,042	77,709	1,495,586	-1,417,877	...	...	...				224,286	46,167	178,119
In domestic currency	1,861	1,332	529	...	...	...	483,896	287,134	196,762	77,709	1,495,586	-1,417,877	...	...	...				0	0	0
Currency and deposits	...	1,332	-1,332	...	...	...	...	283,953	-283,953	...	2,738	-2,738	...	...	...				...	...	...
Securities other than shares	0	0	0	...	...	...	0	2,079	-2,079	0	2,996	-2,996	...	...	...				...	...	...
Loans	1	0	1	...	...	...	478,741	0	478,741	77,709	4,035	73,675	...	...	...				...	...	...
Shares other than equity	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...				...	...	...
Insurance technical reserves	...	...	...	...	...	...	...	0	0	...	22,941	-22,941	...	...	...				...	...	...
Financial derivatives	0	0	0	...	...	...	0	0	0	0	0	0	...	...	...				...	...	...
Other accounts receivable 1/	1,860	...	1,860	...	...	...	5,155	1,101	4,053	0	1,462,877	-1,462,877	...	...	...				...	...	...
In foreign currency	0	0	0	...	...	...	1,154	873	280	0	0	0	...	...	...				224,286	46,167	178,119
Currency and deposits	...	0	0	...	...	...	...	873	-873	...	0	0	...	...	...				...	...	...
Securities other than shares	0	0	0	...	...	...	0	0	0	0	0	0	...	...	...				224,286	36,017	188,269
Loans	0	0	0	...	...	...	1,154	0	1,154	0	0	0	...	...	...				...	...	...
Shares other than equity	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...				...	10,150	-10,150
Insurance technical reserves	...	...	...	...	...	...	...	0	0	...	0	0	...	...	...				...	...	...
Financial derivatives	0	0	0	...	...	...	0	0	0	0	0	0	...	...	...				...	...	...
Other accounts receivable 1/	0	...	0	...	...	...	0	0	0	0	0	0	...	...	...				...	...	...
Non-residents	82,929	21,472	61,457	0	145,204	-145,204	146,861	59,852	87,009	166,862	11,291	155,571	0	95,970	-95,970	46,167	224,286	-178,119			
In domestic currency	31	1,784	-1,753	0	0	0	46,959	40,967	5,992	753	8,310	-7,556	0	0	0	0	0	0			
Currency and deposits	0	1,784	-1,784	...	...	...	6,295	12,286	-5,991	0	0	0	...	...	...	...	...	...			
Securities other than shares	0	0	0	...	...	...	5,775	416	5,359	0	490	-490	...	...	...	...	...	...			
Loans	31	0	31	...	...	...	10,004	7,539	2,465	753	7,779	-7,026	...	...	...	...	...	...			
Shares other than equity	0	...	0	...	...	...	4,205	...	4,205	0	...	0	...	...	...	...	...	...			
Insurance technical reserves	0	...	0	...	...	...	0	0	0	0	0	0	...	...	...	...	...	...			
Financial derivatives	0	0	0	...	...	...	20,603	20,709	-106	0	0	0	...	...	...	...	...	...			
Other accounts receivable 1/	0	0	0	...	...	...	77	17	61	0	41	-41	...	...	...	...	...	...			
In foreign currency	82,898	19,687	63,211	0	145,204	-145,204	99,903	18,885	81,017	166,109	2,982	163,127	0	95,970	-95,970	46,167	224,286	-178,119			
Currency and deposits	75,420	0	75,419	...	...	...	263	13,212	-12,949	4,493	0	4,493	...	...	...	...	...	...			
Securities other than shares	7,429	0	7,429	...	118,572	-118,572	0	0	0	13,392	3	13,388	...	...	...	36,017	224,286	-188,269			
Loans	0	19,687	-19,687	...	26,632	-26,632	99,639	5,673	93,966	54	668	-614	...	95,970	-95,970	...	...	...			
Shares other than equity	0	...	0	...	...	...	0	...	0	135,264	...	135,264	...	...	...	10,150	...	10,150			
Insurance technical reserves	0	...	0	...	...	...	0	0	0	0	137	-137	...	...	...	...	...	...			
Financial derivatives	0	0	0	...	...	...	0	0	0	48	0	47	...	...	...	...	...	...			
Other accounts receivable 1/	49	0	49	...	...	...	0	0	0	12,858	2,173	10,686	...	...	...	...	...	...			

Sources: Standardized report forms for monetary and financial data, JEDH, CPIS, and QEDS.

1/ Includes trade credit/advances, settlement accounts, new equity of households in life insurance and pension funds (if applicable).

By way of illustration, the BSA framework was completed for South Africa using data from the recently introduced SRFs for monetary and financial statistics, QEDS, and CPIS (Table 2). The high level of detail of these data provides a fairly comprehensive picture of net positions of one sector against another, along with the underlying claims and liabilities. Another advantage is the inclusion of currency denomination of all assets and liabilities.

The guiding principle in establishing the framework for balance sheet analysis is that it must appropriately support the macroeconomic analysis. The appropriate framework for policy analysis should be determined by the country-specific risks or mismatches to be analyzed. Thus, the framework is flexible, as it can be and has been adapted to meet the analytical requirements and data availability for particular cases. The level of complexity of the matrix can vary by delineation of economic sectors, financial instruments, maturity, and currency denomination, which is discussed below.

The BSA framework presented in this paper is closely related to the traditional flow-of-funds matrix, which aggregates sectoral assets, liabilities, and net positions, but differs by estimating intersectoral assets and liabilities, that is, each sector's position vis-à-vis that of other domestic sectors as well as non-residents. Many countries, especially developed and larger emerging market economies, have developed comprehensive financial statistics that easily lend themselves to flow-of-funds analysis. In those instances where the underlying data used to compile the financial statistics are sufficiently detailed to estimate intersectoral positions by currency and maturity, this data source would be the logical choice to compile the BSA matrix. A key benefit of this framework is to provide important information that is netted out in the consolidated country balance sheet. Sectoral balance sheets can reveal significant vulnerabilities and their potential transmission among sectors that remain hidden in the consolidated country balance sheet. A matrix of intersectoral positions can reveal how a high level of dollarization is a source of vulnerability by contributing to the creation of a country-wide balance of payments crisis. The intersectoral matrix of asset and liabilities - a key innovation of the balance sheet approach - can shed light on how difficulties in one sector spill over into other healthy sectors through financial linkages.

A. Sectorization

The main guidance for sectorization is to group institutional units into sectors of the economy based on the similarity of their objectives, principal functions, behavior, and the types of units that control them. The most important aspect of this methodology is control, which can be defined as the power to govern the financial and operating policies of another entity so as to benefit from its activities. Appropriate sectorization is essential to ascertain, for example, which assets the authorities can draw on in times of crisis.

Distinguishing between the public and private sector is by far the most important delineation for analysis of macroeconomic vulnerabilities (Figure 2). Identifying which financial assets are under control of the authorities - or would be in times of crisis - is essential because a policy response to a macroeconomic calamity such as the collapse of the banking system would most likely take the form of a transfer of resources between the public and private spheres. To estimate the public sector's financial positions vis-à-vis other sectors, it is important not only to identify public units, but also to properly distinguish between public and private corporations.[9] Although this might be very difficult to ascertain, a benchmark might be

[9] The *1993 SNA* distinguishes between public corporations and general government on the basis of economic activity. Public corporations are entities that are controlled by the government but are engaged in market activities. From the point of view of risk assessment, however, this may not be the only criterion to consider. For example, some corporations operating in the market may not be controlled by government, but still have their liabilities covered by explicit or implicit government guarantees, thus resulting in public sector contingent

whether government control over the corporation is currently exercisable. For example, do the authorities have the power, conferred by legislation, to appoint directors and influence dividend payments? General regulatory powers applicable to a class of entities or industry are not sufficient to distinguish between public and private enterprises.

The *1993 SNA*'s sectorization, which is based on economic activity rather than control, can be simplified to accommodate the BSA's data requirements. A fundamental requirement in many cases is the availability of data on the banking sector, as banks' balance sheets are central to the allocation and transmission of risk in any economy. The *1993 SNA*'s sectorization (Table 3) could be modified to be very close or identical to the sectorization described in IMF (2000), the *Monetary and Financial Statistical Manual* (MFSM) (Appendix I). The main advantage of this sectorization is its compatibility with the new SRFs for monetary and financial statistics, as published in *International Financial Statistics* (IMF, 2001a).[10] The sectorization of the SRFs will be maintained in the foreseeable future. In most countries these statistics are available owing to accounting and regulatory standards applied to the financial sector. This is important, as this sector's position can affect the health of many other sectors in the economy.

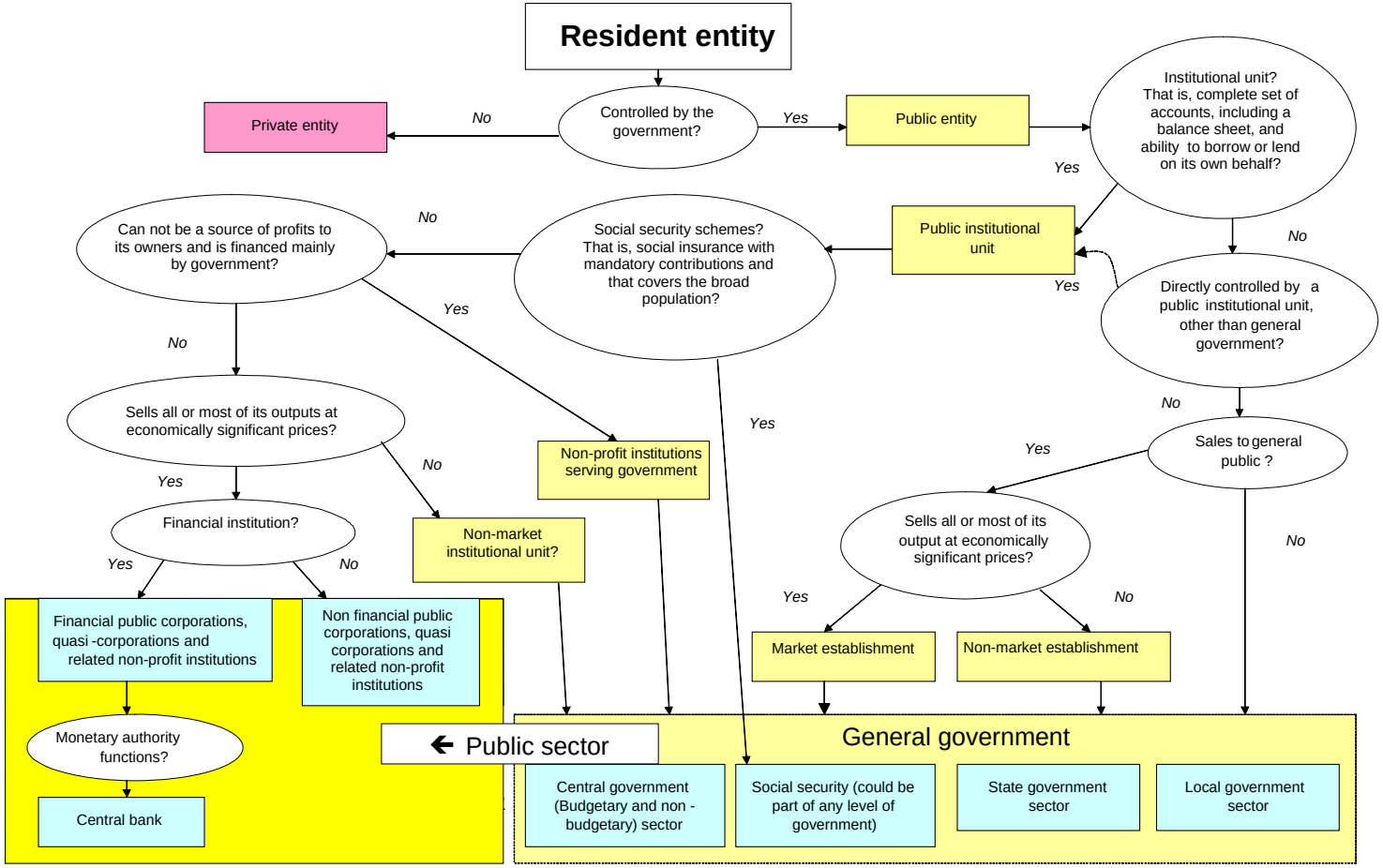
liabilities, as discussed in Board papers on public investment and fiscal policy and government guarantees and fiscal risk.

[10] The sectorization presented in this paper is also compatible with *External Debt Statistics: Guide for Compilers and Users* (IMF, 2003, paragraphs 3.4 to 3.12).

Figure 2

Sectorizing public entities

General government versus public corporations[1]



[1] The GFS system covers all resident public entities, that is all entities that have a center of economic interest in the economic territory of the domestic economy (see paragraphs 2.70-2.77 in the *GFSM 2001*).

Table 3

Sectors and financial instrument categories

Sectors[1]	**Financial instrument categories**[2]
Total economy	Gold and SDR
Non-financial corporations	Gold
Public non-financial corporations	SDR holdings
National private non-financial corporations	Currency and deposits
Foreign controlled non-financial corporations	Bank notes and coins
Financial corporations	Bank deposits
Central bank	Non-bank financial inst. deposits
Other depository corporations	Central government deposits
Deposit money corporations	Local government deposits
Public	Social security funds deposits
National private	Public non-financial corp. deposits
Foreign controlled	Other non-financial corp. deposits
Other depository corporations, except deposit money corporations	Other resident deposit
Public	Foreign notes and coins
National private	Deposits with/from non-residents
Foreign controlled	Securities other than shares
Other financial intermediaries, except insurance corporations and pension funds	Treasury bills
Public	Treasury bonds
National private	Local government securities
Foreign controlled	Financial corp. securities’
Financial auxiliaries	Public non-financial corporations securities
Public	Other non-financial corporations securities
National private	Securities issued by non-residents
Foreign controlled	Shares and other equity
Insurance corporations and pension funds	Financial corp. shares
Public	Non-financial corp. shares
National private	Foreign shares
Foreign controlled	SDR allocation
	Loans
	Central bank (CB) loans

Table 3 (cont)

Sectors and financial instrument categories

Sectors[1]	**Financial instrument categories**[2]
General government	Loans to banks other than CB loans
General government classification alternatives[1]	Loans to non-bank financial inst.
Central government	Loans to central government
State government	Loans to state and local government
Local government	Loans to public non-financial corp.
Social security funds	Loans to other non-financial corp.
Central government social security funds	Mortgage loans
State government social security funds	Other loans
Local government social security funds	Loans to other residents
General government classification alternatives[2]	Mortgage loans
Central government	Other loans
Central government	Loans to/from non-residents
Central government social security funds	Insurance technical reserves
State government	Insurance reserves for residents
State government	Insurance reserves for non-residents
State government social security funds	Pension reserves
Deposit money corporations	Financial derivatives
Local government	Other accounts receivable/payables
Local government social security funds	Other accounts with residents
Households	Other accounts with non-residents
Employers	Gold and SDR
Own account workers	Gold
Employees	SDR holdings
Recipients of property and transfer income	Currency and deposits
Deposit money corporations	Bank notes and coins
Deposit money corporations	Bank deposits
Deposit money corporations	Non-bank financial inst. deposits
Non-profit institutions serving households	Central government deposits
Rest of the world	Local government deposits

[1] System of National Accounts (1993), Classification of sectors (Annex V, Part I). [2] MFSM (2001) Section IV.

Sectorization can be customized, as in the application of the BSA to Colombia (Lima and others, 2006), where the balance sheets of individual institutions were aggregated into sectoral balance sheets, with sectors specifically defined to identify vulnerabilities and their transmission among sectors. All information was carefully checked by sector experts at the Colombian central bank for consistency, a time-consuming and exceptional undertaking. The economy was split into nine sectors: the non-financial public sector, the central bank, private banks, public banks, private non-bank intermediaries, public non-bank intermediaries, large and medium-sized companies, households and small companies, and the external sector. Based on this sectorization, the application of the BSA to Colombia analyzes the evolution of macroeconomic and financial vulnerabilities between 1996 and 2003, a period that encompasses a severe recession in 1999 and a currency and banking twin-crisis, both following the Russian crisis of 1998.

Even when balance sheet data for all main sectors are not available, the BSA can be applied to examine the vulnerabilities of a particular sector known to be problematic. The examination of important individual sectoral balance sheets can help to detect weaknesses that have the potential to spill over into other sectors, as follows:

- *Financial sector.* Balance sheets of the central bank and financial sector are key to assessing the main risks and overall resilience to shocks. Commercial banks' balance sheets are central to the allocation and transmission of risk in any economy. Analysis of the balance sheets of systemically important financial institutions is the core work in preparing Financial Sector Assessment Programs and other financial sector surveillance. Maturity transformation - taking in short-term deposits to extend longer-term loans - is fundamental to financial intermediation, giving rise to the well-known risk of deposit runs. The financial systems of emerging market countries often face challenges not typically found in advanced economies. To accommodate loan demand, banks may tap foreign credit lines; to attract depositors, banks may offer foreign currency deposits; as a consequence of high public sector deficits, banks may have a large exposure to government debt, enhancing the potential for spillovers between the financial and public sectors; and weak supervision may not identify increasing balance sheet risks in a timely manner or at all.
- *Public sector.* High levels of sovereign debt and weaknesses in its structure can make the balance sheets of government a potential source of vulnerability to the economy.
- *Non-financial corporate sector.* Balance sheets of the non-financial corporate sector can be a source of vulnerability if a significant part of corporate debt is owed by corporations with inadequate capital and liquidity or earning power (as in the case of Indonesian toll roads that owed debt in foreign currency).

Vulnerabilities of the non-financial corporate sector have been analyzed recently using micro-level data on corporations to fill the gap left by more readily available aggregate data for the public and financial sectors. A new database that combines balance sheet and debt issuance data at the firm level for 15 emerging market countries has been used to analyze vulnerabilities in corporate finance.[11] The analysis shows that emerging market corporations have substantial maturity and currency mismatches on their balance sheets that may become a source of financial instability if the external environment of low interest rates and appreciating emerging market currencies becomes less favorable. This suggests that firms' exposures to market risk factors, such as exchange rates and interest rates, should be considered jointly, with the associated vulnerability measures reflecting the interaction among these factors.

[11] The database was developed for the *Global Financial Stability Report* (IMF, 2005, Chapter IV).

B. Classification and valuation of financial instruments

The analysis should preserve the commonly used breakdown of financial instruments, if available in the source data (Appendix II). The key advantage of maintaining a high level of detail is that it facilitates estimating intersectoral assets and liabilities by financial instrument, which may be particularly useful if the economy is widely dollarized. However, this benefit should be weighed against the cost of handling a large dataset.

The main delineation of financial instruments for macroeconomic vulnerability analysis is between equity and nonequity instruments.[12] Countries that finance substantial current account deficits with debt from unrelated parties incur more risk than those receiving foreign direct investment and equity portfolio investment flows (Roubini and Setser, 2004). Firms relying on debt rather than equity financing may be more vulnerable during crisis, as debt repayments are required regardless of circumstances.

Country circumstances may call for a more detailed analysis of certain categories of financial instruments. For example, liquidity analysis requires estimates of liquid foreign currency assets and short-term foreign currency liabilities of the banking system. In particular, in economies where dollarization in the financial sector is pronounced and maturity mismatches between foreign currency assets and liabilities are pervasive, runs on foreign currency deposits in domestic banks can trigger external difficulties (IMF, 2004b, pp. 11-12).

Solvency risk analysis and debt sustainability analysis focus on characteristics of central government debt. Many emerging market governments had difficulty placing long-term debt in their own currency on the domestic market. The critical mass needed to develop a sufficiently deep market may be lacking, or investors may simply lack confidence in the stability of the domestic currency - an important factor in many Latin American and Middle Eastern countries where legacies of high inflation are still fresh. In this situation, governments resorted to issuing debt formally denominated in local currency, but indexed or linked to the exchange rate, as in the cases of Mexico and Brazil.[13] This creates currency risk similar to debt denominated in foreign currency, because a depreciation of the domestic currency increases the burden of foreign currency-linked debt in domestic currency terms for resident debt holders.

The nominal maturity of an asset may be long, but the interest rate it bears may be floating, effectively shortening duration. Such floating rate debt creates the same interest rate risk as if the maturity were as short as the frequency of interest rate adjustments. In this case, data should be compiled according to the frequency of interest rate adjustment.

The method of valuing financial assets and liabilities might depend on the focus of the analysis. In general, the standard market valuation principle applies, but nominal values might be useful in certain circumstances, in particular for debt instruments. For example, applying nominal values might help identify maximum exposure, which can be used to assess liquidity risk. Also, if the timing of recording between creditors and debtors in financial account transactions is not consistent, it may aggravate the level of discrepancies in the dataset to the extent it affects end-period stocks.

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[12] As indicated in footnote 5 the framework presented in this paper concerns financial assets and liabilities, and does not address the net worth of a sector or economy.

[13] Mexico has not issued exchange-rate-linked debt since its 1994 crisis. For Brazil, instruments indexed to the exchange rate have represented a small share of total domestic debt of government, as it has placed instruments indexed to inflation and interest rates in the domestic market as well. This share increased temporarily under extreme market pressures, but returned to low levels as exchange-rate-indexed instruments were replaced by other instruments when circumstances returned to normal.

Ideally, all financial claims should be examined in a macroeconomic vulnerability analysis based on their estimated market values subject to stress testing. The valuation of some instruments - deposits, for example - will not be affected when the economy is under stress. For other instruments, such as currency holdings and liabilities, a crisis could entail an offsetting or easily quantifiable impact on both sides of the balance sheet.

For a certain group of claims characterized by a high degree of uncertainty over their value[14] - such as insurance, financial derivatives, and contingent claims[15] - the impact of a crisis on their value could be asymmetric and significant. These claims might call for a different treatment than allowed by traditional financial statistics, which require that claims have demonstrable value. Several approaches have been developed to assess the risk posed by these claims in sectoral balance sheets. For example, stress testing examines scenarios corresponding to different degrees of risk exposure owing to these claims to help determine a likely range of exposure under each scenario.[16] A stochastic simulation can be employed to compute a probability distribution of possible debt outcomes around baseline estimates.

Government guarantees are potentially important contingent claims that need to be considered. There are two main types of government contingent future obligations: those that become due if certain events materialize, such as defaults on government guaranteed debt; and those that result from the government's implicit or "moral" commitment, for example, to protect depositors or pay pensions. The BSA can help assess the potential for problems with these contingent future obligations of the government by identifying vulnerabilities and potential pressures.

C. Levels of complexity

The complexity of the framework in terms of sectorization and delineation of financial instruments for macroeconomic balance sheet vulnerability analysis should be adapted to the particular country circumstances. As discussed above, the specification of sectors and financial instruments can vary according to the risks or mismatches to be analyzed and available data. However, the potential for a very detailed analysis, for example, based on the *1993 SNA* for the sectoral breakdown and MFSM for delineation of the financial instruments, is substantial (Table 3). The desired level of detailed analysis has to be weighed against the cost of obtaining and handling more detailed data.

Some of this complexity can be overcome by focusing on the key relationships between particular sectors and financial instruments, in particular for currency mismatch analysis (Figure 3). (Reinhart and others, 2003b,)

For example, in many countries the main foreign currency liabilities of the general government are its external debt, as the central bank is acting as its agent for other foreign currency transactions. Similarly, the foreign-currency-denominated assets of other financial corporations are traditionally confined to deposits in the banking system and holdings of securities (usually claims against non-residents) and, on the liability side, these corporations

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[14] See IMF (2003, Chapter 9) for a detailed discussion.

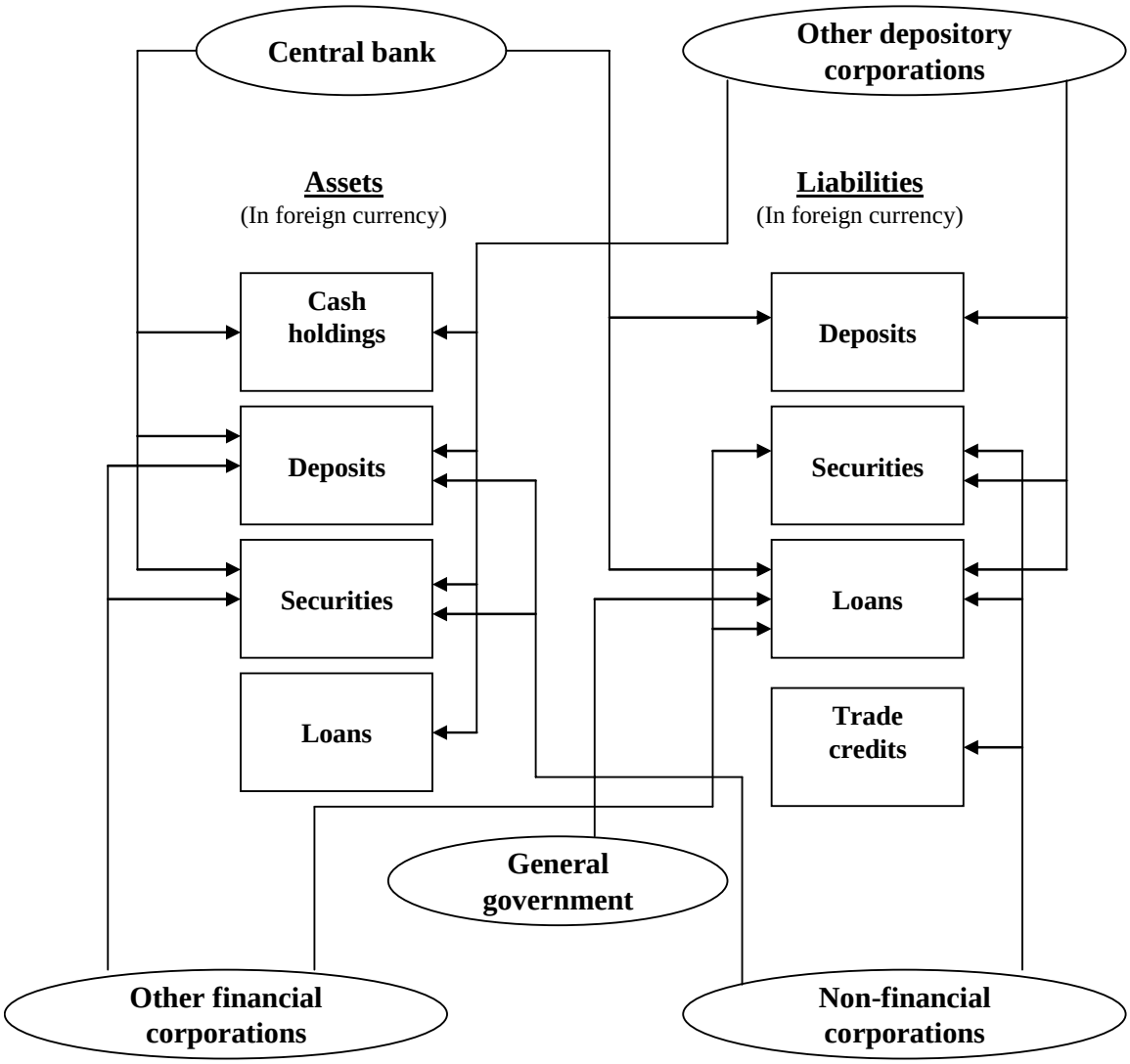
[15] The literature usually distinguishes between three types of contingent obligations: legally binding guarantees to take on an obligation should a clearly specified uncertain event materialize (eg, trade or exchange rate guarantees); a broader set of obligations that gives rise to an explicit contingent liability (eg, government insurance schemes, including deposit, pension, war-risk, crop, and flood insurance); and an implicit contingent liability when there is an expectation to take on an obligation despite the absence of a contractual or policy commitment to do so (eg, bailing out public enterprises).

[16] See Appendix IV of the IMF's "International Reserves and Foreign Currency Liquidity: Guideliens for a Data Template." Available via the Internet: http://dsbb.imf.org/Applications/web/sddsguide/.

might have issued securities or contracted loans in foreign currency (Goldstein, Morris, and Turner, 2004)

Figure 3

Common foreign currency balance sheet relationships in partially dollarized emerging market economies



IV. Data methodologies and availability for balance sheet analysis

Recent improvements in statistical methodologies and data availability are enhancing the potential for detecting and monitoring macroeconomic balance sheet vulnerabilities. In particular, some of the datasets introduced in recent years permit a much more frequent, detailed, and up-to-date analysis.

These databases are compiled according to particular statistical methodologies, which themselves are evolving partly due to the requirements of greater stock-based analysis. This chapter discusses these methodologies and datasets, and illustrates their usefulness in terms of meeting the data requirements for the BSA.

A. Relationship between the BSA and *1993 SNA* methodologies and datasets

The *1993 SNA* is the internationally-agreed upon integrated set of production, income, accumulation, and financial accounts, balance sheets, and supporting tables that describe all economic flows and stocks of assets and liabilities in an economy, with full reconciliation of flows and stocks. As such, the BSA framework is a component of the *1993 SNA* and is grounded in its methodology for defining transactions, institutions, sectors of the economy, classifications of assets and liabilities, and accounting rules. In addition, the *1993 SNA* provides the framework and methodology for the main sectors of an economy. Specific methodologies for these main sectors and their databases have drawn on the *1993 SNA*, but have adopted definitions of sectors and classifications of assets and liabilities that may differ in some respects (Box 2). The BSA can draw on the many sectoral methodologies based on the *1993 SNA*.

Box 2

Relevant data methodologies

Monetary and Financial Statistics Manual (MFSM) and Standardized Report Forms (SRFs);

Compilation Guide on Financial Soundness Indicators (FSIs);

Balance of Payments Manual, Fifth Edition (BPM5);

External Debt Statistics: Guide for Compilers and Users (External Debt Guide);

International Investment Position: A Guide to Data Sources (IIP);

Coordinated Portfolio Investment Survey, Second Edition, (CPIS);

International Reserves and Foreign Currency Liquidity, Guidelines for a Data Template (Reserves Template); and

Government Finance Statistics Manual 2001 (GFSM 2001).

The *1993 SNA* sequence of accounts applies in principle to any institution or sector. If the BSA is narrowed to examine the vulnerabilities of a particular sector known to be problematic - for example, the financial sector and its potential to trigger a macroeconomic crisis - then the balance sheet for that sector provides the framework for the BSA. Even in the case of applying the BSA to one sector, balance sheets for other sectors can be useful for cross-checking or filling in data missing in the balance sheet of the sector under examination.

B. Potential databases for the BSA

Databases based on methodologies relevant for the BSA are potential sources of data for its application. The BSA can be applied to an individual country or for cross-country analysis of vulnerability using information from statistical databases for the *1993 SNA* and its major component systems. These include monetary and financial statistics, in particular, and the SRFs data, balance of payments, IIP, QEDS, CPIS, and government finance statistics. Nearly all entries in the 7 x 7 intersectoral framework for the BSA can be filled using data from the SRFs, IIP, QEDS, and CPIS (Table 4).

Financial sector

The MFSM provides the guidelines on statistical methodology presenting monetary and financial statistics. The methodology set out in MFSM is harmonized with the *1993 SNA*, but does not prescribe the detail on currency and maturity required for the BSA.

Table 4

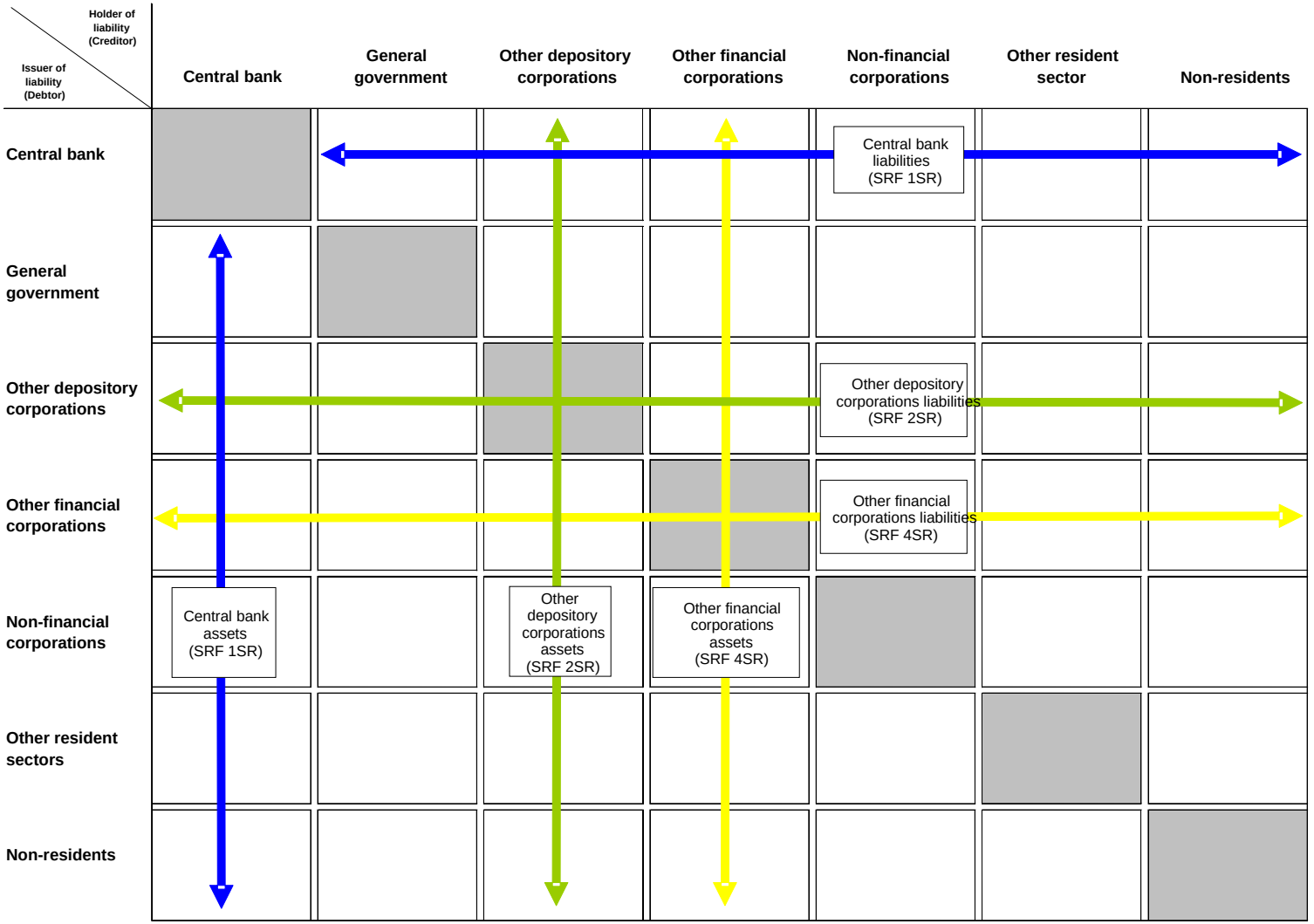
Potential data sources for estimating intersectoral asset and liability matrix

Issuer of Liability (debtor) \ Holder of Liability (creditor)	Central bank	General government	Other depository corporations	Other financial corporations	Non-financial corporations	Other resident sector	Non-residents
Central bank		1. SRF 1SR (Liabilities)	1. SRF 1SR (Liabilities) 2. SRF 2SR (Assets)	1. SRF 1SR (Liabilities)	1. SRF 1SR (Liabilities)	1. SRF 1SR (Liabilities)	1. SRF 1SR (Liabilities) 2. IIP 3. JEDH
General government	1. SRF 1SR (Assets)		1. SRF 2SR (Assets)	1. SRF 4SR (Assets)	n.a.	n.a.	1. IIP 2. QEDS
Other depository corporations	1. SRF 1SR (Assets) 2. SRF 2SR (Liabilities)	1. SRF 2SR (Liabilities)		1. SRF 2SR (Liabilities)	1. SRF 2SR (Liabilities)	1. SRF 2SR (Liabilities)	1. SRF 2SR (Liabilities) 2. IIP 3. QEDS
Other financial corporations	1. SRF 1SR (Assets)	1. SRF 4SR (Liabilities)	1. SRF 2SR (Assets)		1. SRF 4SR (Liabilities)	1. SRF 4SR (Liabilities)	1. SRF 4SR (Liabilities) 2. IIP 3. QEDS
Non-financial corporations	1. SRF 1SR (Assets)	n.a. [1]	1. SRF 2SR (Assets)	1. SRF 4SR (Assets)		n.a.	1. IIP 2. QEDS 3. JEDH
Other resident sectors	1. SRF 1SR (Assets)	n.a. [1]	1. SRF 2SR (Assets)	1. SRF 4SR (Assets)	n.a.		1. IIP 2. CPIS [2]
Non-residents	1. SRF 1SR (Assets) 2. IIP 3. CPIS	1. IIP 2. CPIS	1. SRF 2SR (Assets) 2. IIP 3. CPIS	1. SRF 4SR (Assets) 2. IIP 3. CPIS	1. IIP 2. CPIS	1. IIP 2. CPIS	

[1] This data gap can in the future be filled with data from the public debt data template (which also covers assets) which is being piloted in some countries.
[2] CPIS data acan be used to derive other resident sector's claims as residual.

Table 5

Uses of Standardized Report Form (SRF) data to estimate intersectoral asset and liability positions



The introduction in 2005 of the SRFs for monetary and financial sector data fills an important gap in data coverage for the BSA. The SRFs are based on sectoral balance sheets for the central bank (report form 1SR), other depository corporations (report form 2SR), and other financial corporations (report form 4SR), as defined in the MFSM. They provide the required breakdown by domestic and foreign currency as well as information on the maturity structure, sometimes indirectly,[17] for both domestic and external assets and liabilities, as well as the required decomposition by domestic sectors. For countries submitting SRFs, the BSA template can be populated with a high level of detail to provide an up-to-date analysis comparable across countries.

The new SRF data can provide the information needed to fill in a majority of entries in the 7 x 7 intersectoral framework for the BSA (Table 5). For entries where the assets and liabilities overlap for the central bank, other depository corporations, and other financial corporations, the assets reported by sector should match the corresponding liabilities reported by the other. This is not always the case and the analyst has to decide which information is more accurate. (Gulde and others 2003). Generally, data reported by the central bank are taken to be more reliable than that reported by other depository corporations, and by these two sectors more reliable than by other financial corporations.

Given that the SRF data are standardized across countries, the method of estimating intersectoral relationships based on SRF data can be replicated for other countries. The mapping of SRF variables into the BSA framework can be followed for all countries.[18] For remaining intersectoral relationships, other data sources, such as QEDS and CPIS, can be used.

The SRF submission for South Africa illustrates the usefulness of these new data for conducting up-to-date monthly analysis of balance sheet vulnerabilities. The monthly SRF data have been combined with data from the QEDS and CPIS in the BSA framework to estimate detailed intersectoral positions, by financial instrument and currency (Table 2). The framework also allows for a breakdown by claims and liabilities, which can be very useful when analyzing net financial positions.

Clearly one of the greatest advantages of this approach is that detailed monthly intersectoral positions can be estimated by financial instrument and by currency, permitting a detailed analysis of changes in macroeconomic vulnerability in an integrated framework over time (Figure 4). The sectoral position can also be investigated vis-à-vis a particular sector (Figure 5). Once a particular vulnerability is identified, any change can be analyzed in detail, including by currency, type of claim, and financial instrument (Figure 6).

The compilation of financial sector indicators supports the BSA. Based on the *Compilation Guide on Financial Soundness Indicators* (IMF, 2004c), 62 countries are making a concentrated and coordinated effort to compile financial sector indicators and publish results by the end of 2006. The financial sector indicator data, particularly data for the key non-financial sectors covered, will usefully support and complement BSA applications. In particular, the cross-border consolidated data underlying the financial sector indicators cover complex banking systems with significant foreign subsidiary and branch networks that may not be adequately covered in the BSA framework.

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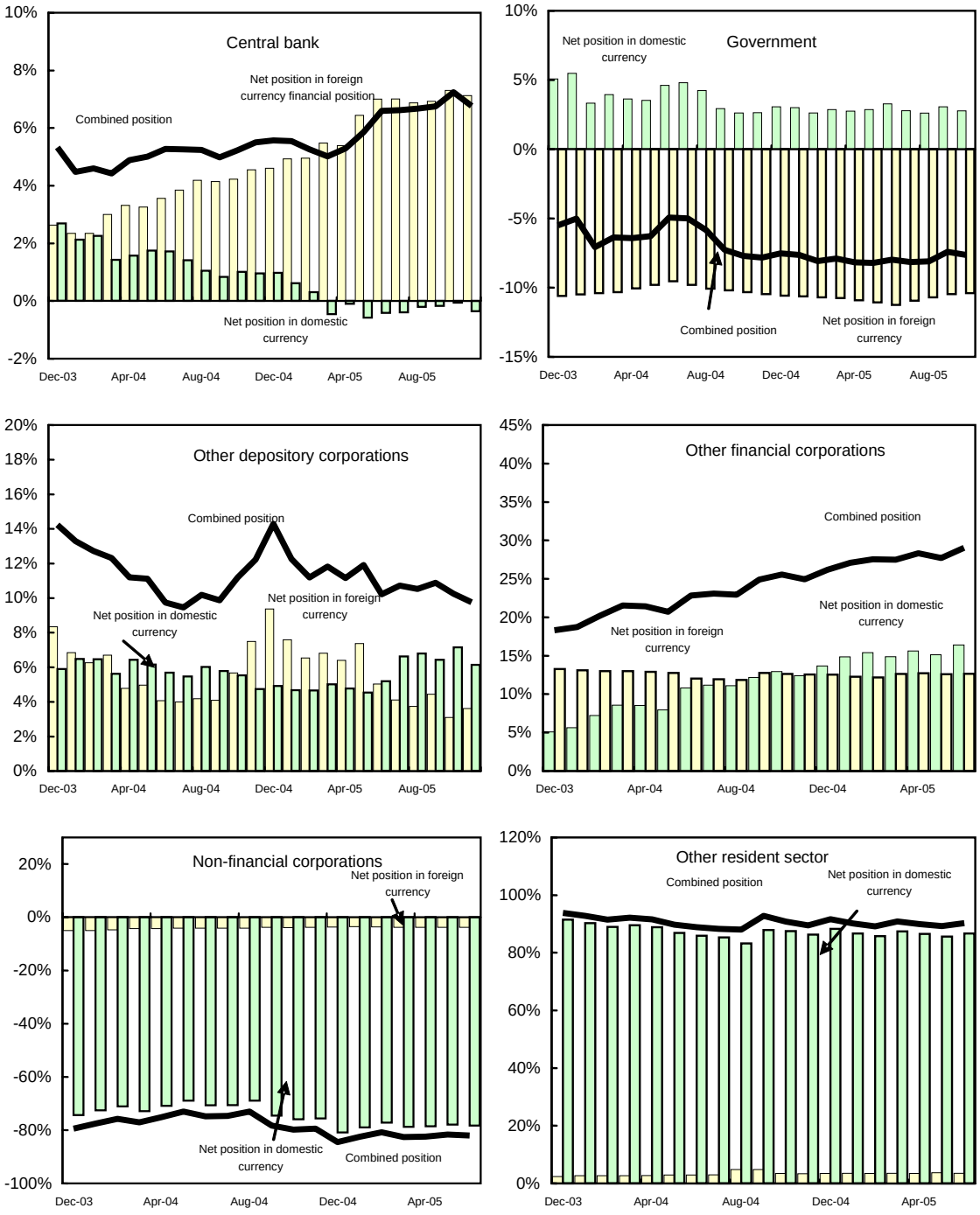
[17] The maturity structure can be derived by defining financial assets that are not included in broad money as long term. However, this classification might be inappropriate in a particular country; in those cases the SRF data should be complemented by, for example, information on the maturity structure of government securities.

[18] This mapping assigns the SRF variable codes standardized across countries to their appropriate cells in the 7 x 7 intersectoral framework for the BSA.

Figure 4

South Africa: sectoral net financial positions, by currency

In percent of GDP, December 2003-November 2005



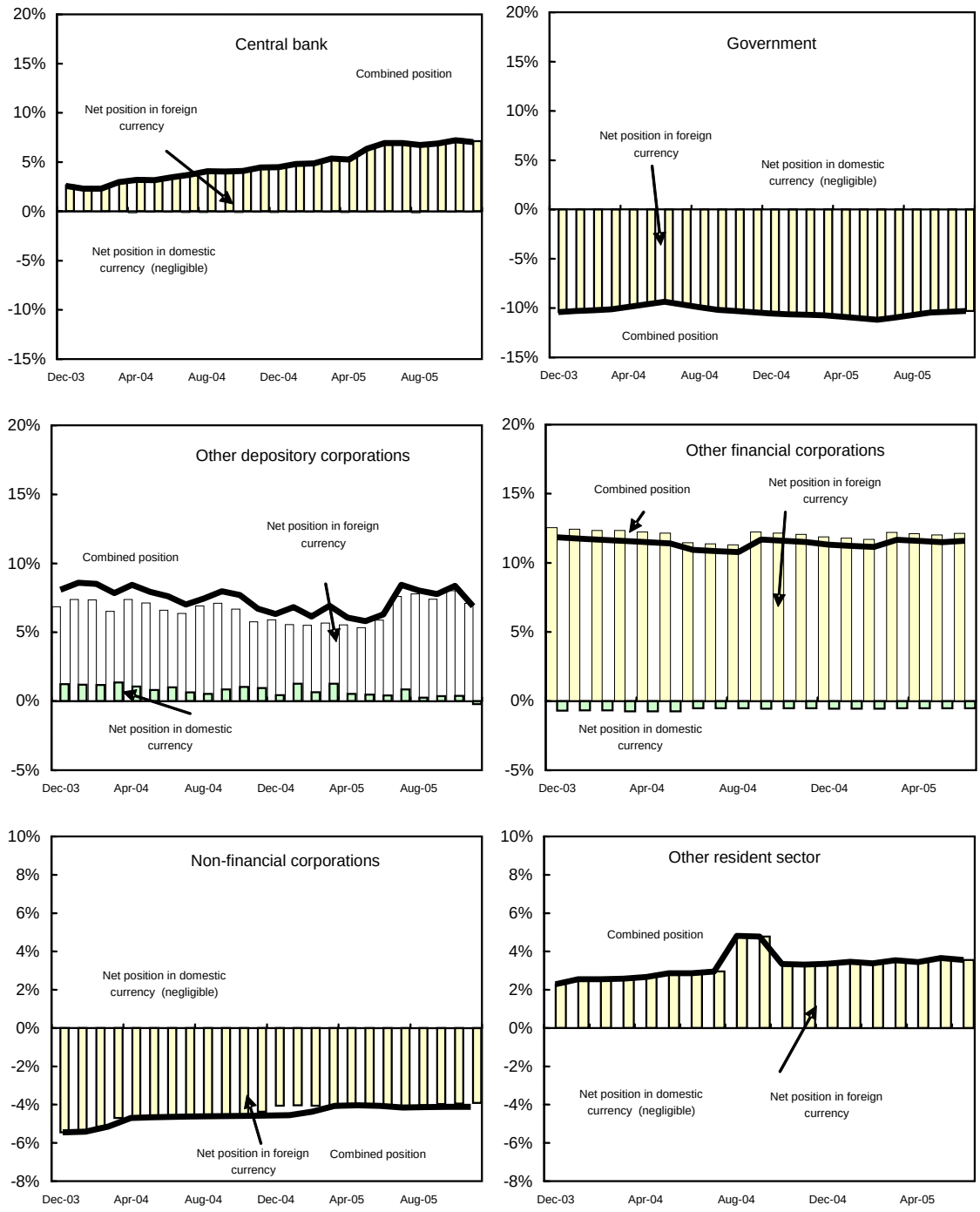
Note: Sectorial net financial positions represented in figure are total financial assets minus total financial liabilities.

Sources: Standardized report forms; joint external debt hub; coordinated portofolio investment survey; and quarterly external debt statistics.

Figure 5

South Africa: sectoral net financial positions vis-à-vis non-residents, by currency

In percent of GDP, December 2003-November 2005



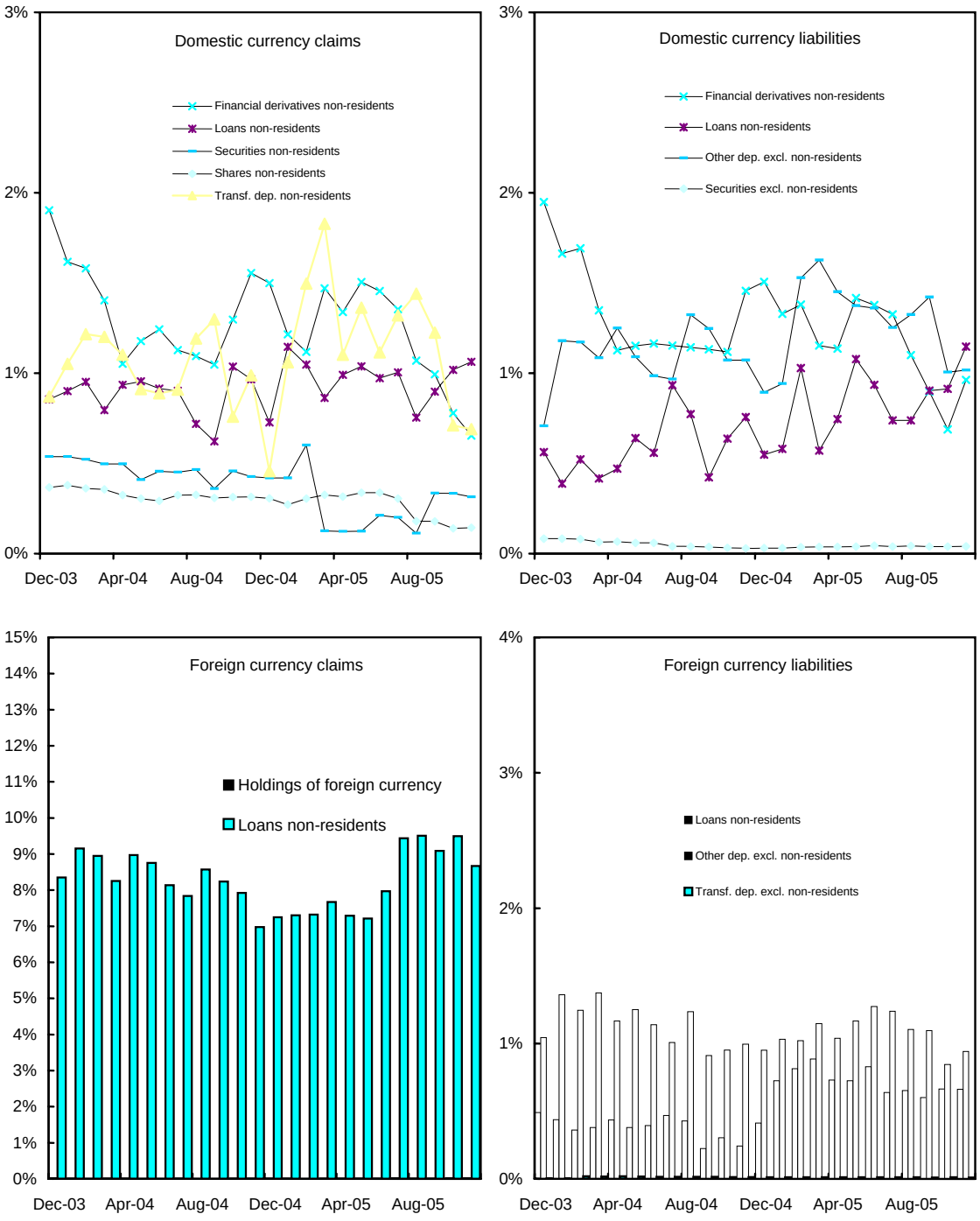
Note: Sectorial net financial positions represented in figure are total financial assets minus total financial liabilities.

Sources: Standardized report forms; joint external debt hub; coordinated portofolio investment survey; and quarterly external debt statistics.

Figure 6

South Africa: other depository corporations detailed positions vis-à-vis non-residents, by currency and instrument

In percent of GDP, December 2003-November 2005



Source: Standardized Report Forms.

External sector

The balance of payments accounts and IIP and QEDS data are closely linked to the *1993 SNA*. This linkage is reinforced by the fact that, in almost all countries, balance of payments, external debt, and IIP data are first compiled and subsequently incorporated into national accounts. Although the *Fifth Edition of the Balance of Payments Manual* (known as BPM5) (IMF, 1993b) does not explicitly call for a currency breakdown, this is not necessarily a serious problem for assets, as for nearly all countries the vast majority of external assets are denominated in foreign currency. IIP and QEDS data present a short- and long-term maturity breakdown on an original maturity basis consistent with the *1993 SNA*.

The introduction in 2004 of the online QEDS dataset, based on the *External Debt Statistics: Guide for Compilers and Users* (IMF, 2003), provides information on external liabilities with breakdowns by currency and maturity that can be used in the BSA framework. It is maintained by the World Bank and updated within one month after the end of each quarter. Breakdowns include short- and long-term maturity of debt based on original maturity, and financial instruments (currency, deposits, money market instruments, bonds and notes, loans, trade credits, other debt liabilities). QEDS also includes information on a remaining maturity basis. The online dataset brings together in a central location detailed quarterly external debt data from 55 of the 62 countries currently subscribing to the SDDS.[19] It facilitates both time-series analysis and cross-country data comparisons.

The joint external debt hub brings together external debt data for about 175 countries that are available from the BIS, IMF, OECD, and World Bank, including national external debt data for most SDDS subscribers. Data on selected external debt components (long- and short-term maturities), including bank loans, official bilateral loans, debt securities issued abroad and non-bank trade credits, are disseminated on a quarterly basis. The database complements external debt statistics based on national sources, filling important coverage gaps, particularly in the area of private sector external liabilities.

The IMF's Data Template on International Reserves and Foreign Currency Liquidity provides a consistent framework for assessing a country's official foreign currency liquidity position on a comprehensive and timely basis. It facilitates the disclosure of information on international reserve assets together with information on potential short-term foreign currency obligations (and claims) that affect the analysis of international reserve assets, including off-balance sheet activities (such as those arising from forwards, futures, and other financial derivatives operations). The institutional coverage applies to monetary authorities and the central government, and foreign currency flows are related to both residents and non-residents.

The IIP has been a useful data source for the BSA. The IIP presents data on a country's external financial position, with the primary focus on the stock of financial assets and liabilities. Data items include financial claims on and liabilities to non-residents, equity assets and liabilities, financial derivative instruments, monetary gold, and special drawing rights (SDRs). The liability component of the IIP data is closely related to QEDS.[20]

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[19] The availability of QEDS data is expected to expand in the near future. The number of potential countries covered by the database increases with the number of SDDS subscribers. Also, coverage is expected to improve, as SDDS countries are increasing the number of tables of the QEDS for which data are provided, with an emphasis on currency and maturity breakdown. Finally, some non-SDDS countries are expected in the near future to be able to prepare, at least, the SDDS prescribed external debt data category.

[20] The IIP includes some non-financial assets whose ownership is construed by convention as ownership of financial assets, owing to its definition as a financial claim of a non-resident on a resident entity that is considered the owner of the asset, as for example in the case of ownership of immovable assets such as land (IMF, 1993, paragraph 316).

The CPIS can complement the datasets above by providing survey data on cross-border holdings of securities (equities, long- and short-term debt) by counterpart jurisdiction of issuer. The CPIS is an annual survey of portfolio investment assets for 71 countries based on a methodology drawn from the BPM5. The CPIS has been undertaken on an annual basis since 2001, but data are also available for the 1997 CPIS. The CPIS collects comprehensive information on the stock of cross-border holdings of equities and short- and long-term debt securities valued at market prices and broken down by the economy of residence of the issuer. This global database includes data on reported cross-border holdings of securities and derived portfolio investment liabilities with the capacity for showing bilateral and partner economy data from the creditor or debtor perspective. The CPIS is a useful data source for estimating intersectoral asset and liability positions with non-residents both directly and through derived counterparty country information. It contains some information on the sector of holder and currency of issue, but lacks the necessary breakdown on sectoral liabilities to non-residents. The data are available with a lag of one year or more.

Public sector

Introduction of the *Government Finance Statistics Manual* (known as *GFSM 2001*) (IMF, 2001b) represented a significant step toward the presentation of general government statistics in a manner consistent with the BSA. An innovation of the *GFSM 2001* was the integration of a balance sheet in the framework for public sector statistics. As prescribed by the *1993 SNA*, this balance sheet integrates transactions and other economic flows with stocks of assets and liabilities. It is similar to balance sheets for other sectors, thereby facilitating intersectoral comparisons.

C. Data availability

Data availability for a high frequency and up-to date country balance sheet approach is improving. Currently, more than 40 countries, including most emerging market countries, have the required data coverage for the detailed BSA framework presented in this paper (Table 6). Clearly, the main improvement is the recently-introduced SRFs for monetary and financial sector data, which provide the vast majority of the required intersectoral balance. Moreover, the key advantage of these datasets - which so far encompass 72 countries - is that they are compiled monthly and with a high level of detail standardized across countries. The remaining gaps on government and non-financial corporations' liabilities to non-residents can be closed by the online QEDS introduced in 2004, which is available for 55 countries. IIP data - currently available for more than 100 countries - can be used to fill the remaining gaps on sectoral positions vis-à-vis non-residents. In cases where IIP data are not available, JEDH data can fill in some of the gaps, particularly for non-financial domestic sector liabilities to non-residents, and the CPIS provides information on domestic sector claims on non-residents, albeit with a substantial lag and on an annual frequency. However, the government liabilities to the non-financial domestic sectors are generally not readily available, nor are government claims on the non-financial domestic sectors or non-financial domestic sector holdings of claims on government, although the latter two gaps generally are considered to be minor.[21]

[21] These gaps are expected to be closed by the public debt template, which covers detailed sectoral claims of and liabilities to government.

Table 6

Available datasets for balance sheet vulnerability analysis as of Nov. 2006

Countries	Standard-ized report forms	Quarterly external debt statistics	Interna-tional invest-ment position data	Coordi-nated portfolio investment survey data	Joint external debt hub
Albania	X				X
Algeria[2]					X
Argentina[1]		X	X	X	X
Armenia[2]	X	X	X		X
Azerbaijan[2]			X		X
Bahamas, The[1]				X	X
Bangladesh[1]			X		X
Belarus	X	X	X		X
Belize	X				X
Bhutan	X				X
Bolivia[1]			X		X
Botswana	X		X		X
Bulgaria	EAP		X	X	X
Burundi[1]			X		X
Cambodia[2]			X		X
Canada	X	X	X	X	X
Chile	X	X	X	X	X
China, P.R.: Macao[1]				X	X
Costa Rica[1]		X	X	X	X
Croatia[2]		X	X		X
Czech Republic	EAP	X	X	X	X
Denmark	EAP	X	X	X	X
Eastern Caribbean Currency Union	X				
Anguilla	X				
Antigua & Barbuda	X				
Dominica	X				X
Grenada	X				X
Montserrat	X				
St. Kitts & Nevis	X				X
St. Lucia	X				X
St. Vincent & the Grenadines	X				X

For footnotes, see the end of the table.

Table 6 (cont)

Available datasets for balance sheet vulnerability analysis as of Nov. 2006

Countries	Standard-ized report forms	Quarterly external debt statistics	Interna-tional invest-ment position data	Coordi-nated portfolio investment survey data	Joint external debt hub
Ecuador	X	X	X		X
Egypt	X	X		X	X
El Salvador	X	X	X		X
Eritrea[2]					X
Estonia[1]		X	X	X	X
Ethiopia[1]					X
Euro Area	EAP				
Austria	EAP	X	X	X	X
Belguim	EAP	X	X	X	X
Finland	EAP	X	X	X	X
France	EAP	X	X	X	X
Germany	EAP	X	X	X	X
Greece	EAP	X	X	X	X
Ireland	EAP	X	X	X	X
Italy	EAP	X	X	X	X
Luxembourg	EAP		X	X	X
Netherlands	EAP	X	X	X	X
Portugal	EAP	X	X	X	X
Spain	EAP	X	X	X	X
Georgia	X				X
Ghana[1]					X
Guatemala	X				X
Guyana	X				X
India[2]			X	X	X
Indonesia	X		X	X	X
Kazakhstan	X	X	X	X	X
Kenya[1]					X
Korea[1]			X	X	X
Kuwait[1]					X
Kyrgyz Republic[1]			X		X
Lesotho[2]			X		X

For footnotes, see the end of the table.

Table 6 (cont)

Available datasets for balance sheet vulnerability analysis as of Nov. 2006

Countries	Standard-ized report forms	Quarterly external debt statistics	Interna-tional invest-ment position data	Coordi-nated portfolio investment survey data	Joint external debt hub
Malawi[1]					X
Malaysia	X	X	X	X	X
Malta[1]			X	X	X
Mauritius	X		X	X	X
Mexico	X	X	X	X	X
Moldova[2]		X	X		X
Mongolia[1]					X
Morocco[1]			X		X
Mozambique	X		X		X
Namibia	X		X		X
Nepal[1]					X
Nicaragua	X		X		X
Pakistan[1]			X	X	X
Papua New Guinea	X				X
Paraguay[1]		X	X		X
Romania	X		X	X	X
Rwanda[1]			X		X
Serbia	X				X
Seychelles[2]					X
Slovak Republic	EAP	X	X	X	X
South Africa	X	X	X	X	X
Sudan[1]					X
Suriname	X				X
Swaziland	X		X		X
Sweden	EAP	X	X	X	X
Tanzania[1]			X		X
Thailand	X	X	X	X	X
Tonga[2]					X
Tunisia[1]		X	X		X
Turkey[1]		X	X	X	X
Uganda[1]			X		X

For footnotes, see the end of the table.

Table 6 (cont)

Available datasets for balance sheet vulnerability analysis as of Nov. 2006

Countries	Standard-ized report forms	Quarterly external debt statistics	Interna-tional invest-ment position data	Coordi-nated portfolio investment survey data	Joint external debt hub
Ukraine	X	X	X	X	X
United States	X	X	X		X
Vanuatu[1]			X	X	X
Yemen[1]			X		X
Zambia	X		X		X

[1] SRF test data are being reviewed by IMF staff for quality. [2] Approval of SRF test data is expected to be completed by Nov. 2006.

EAP = Euro Area Presentation of the SRFs.

An X for IIP simply indicates that IIP data is provided to STA. No distinction is made for completeness of reporting.

D. Data reliability

Balance sheet analysis should ideally be based on comprehensive and consistent financial statistics appropriately delineated by sector and financial instruments. However, two types of data deficiencies typically prevent a complete sectoral analysis: lack of appropriate data and multiple (or overlapping) data for a particular financial instrument, either intrasectoral or intersectoral. To minimize discrepancies and determine the extent to which any remaining data deficiencies might undermine the results of the analysis, data reliability can be assessed by sector and financial instrument.[22]

Data reliability can vary significantly by sector (Table 7). In general, central bank data are most reliable, followed by data from commercial banks and other financial corporations, international investment position data, and government debt data. Secondary trading in government debt can substantially affect the ability to determine sectoral holdings of government securities. Data on households and non-financial corporations are typically very scarce in emerging markets and in many cases are nonexistent. In these circumstances, two basic techniques - counterpart data collection and residual data collection - can be used to obtain data. As CPIS data are allocated by type of security and country of issuer, they represent a useful source for deriving counterpart data on all sectors, particularly households and non-financial corporations.

[22] The data quality assessment framework (DQAF) for external debt statistics issued by the IMF's Statistics Department in June 2005 provides a useful tool to assess the quality of external debt statistics. The DQAF follows a comprehensive view of quality, which examines quality-related features of governance of statistical institutions, core statistical processes, and statistical outputs, and is intended to be applicable to any country.

Table 7

Data reliability, by sector

: High : Middle : Low

	Public sector		Financial private sector		Non-financial private sector		Rest of the world
	Central bank	General government	Other depository corporations	Other financial corporations	Non-financial corporations	Other resident sectors	
Central bank							
General government							
Other depository corporations							
Other financial corporations							
Non-financial corporations							
Other resident sectors							
Rest of the world							

Sectoral data reliability can also vary by methodology. In general, the most reliable data are those that follow the MFSM (financial corporations), BPM5 (balance of payments data), *International Investment Position: A Guide to Data Sources Guide* (IMF, 2002), and the *External Debt Statistics: Guide for Compilers and Users* (such as QEDS) (IMF, 2003). Data on non-financial corporations' positions vis-à-vis household and non-profit organizations are generally less reliable. The uncertainly of these data is exacerbated if derived on a residual basis.

Data reliability also varies by financial instrument (Table 8). In general, the most reliable data are currency and deposits, loans, and securities (which together comprise the majority of SRF data). Also very reliable are external debt data on specific financial instruments, which can be obtained from both national sources (such as QEDS) and market and creditor sources (such as JEDH external debt and BIS international banking statistics). Estimates of trade credits and many types of government financial assets are often judged to be less reliable, but source data are still available on a sample basis or with a frequency that is less than quarterly or annually. The least reliable estimates are usually for miscellaneous assets and liabilities, which are commonly derived on a residual basis.

Table 8

Data reliability, by financial instrument

: High : Middle :Low

	Financial corporations				General government		Non-financial corporations				Other residents		Rest of the world	
	Depository corporations		Other financial corporations				Public non-financial corporations		Other non-financial corporations					
	Asset	Liability	Asset	Liability	Asset	Liability	Asset	Liability	Asset	Liability	Asset	Liability	Asset	Liability
Currency and deposits														
Currency and deposits														
Deposits														
Loans														
Securities other than shares														
General government securities														
Other securities														
Structured-financing instruments														
Shares and other equities														
Financial derivatives														
Insurance technical reserves														
Other accounts														

Note: The darker areas indicate where the compiler placed a relatively “high” degree of reliability. The moderately shaded areas indicate series where estimates are judged to be less reliable, but still where source data are available on a sample basis or on a basis where the frequency is less than quarterly or annually. The lightly shaded areas are for series where there is virtually no source data; estimates for series in the non shaded area are based largely on residual calculation.

Source: IMF, *Compilation Guide for Monetary and Financial Statistics*, Chapter 8 (forthcoming).

Aggregating sectoral data sets to undertake a balance sheet analysis of intersectoral relationships poses special challenges. As noted above, sometimes estimates for a particular subsector (eg, households) or a group of financial instruments (eg, miscellaneous assets/liabilities) have been derived using a residual calculation (this subsector or category of financial instrument is often referred to as a balancing item). These estimates therefore might include substantial discrepancies resulting from imprecise (or missing) data, which, when aggregated, could be magnified.

Caution is therefore required when handling economy-wide datasets, as there is a significant risk that unreliable estimates might undermine the results of the balance sheet analysis. The sectoral discrepancies hidden in the balancing item contain potentially valuable information on the size of the statistical error. The balance sheet analysis should therefore acknowledge these weaknesses and, if judged to be substantial, focus on sectoral relationships that are less affected by imprecise data or stress the caveats for using the data.

V. Using timely and frequent balance sheet analysis in surveillance

The most important aspect of the new datasets is that they permit tracking the evolution of balance sheet vulnerabilities - the potential for liquidity or solvency problems - on a regular and timely basis for surveillance purposes. As the above example of South Africa illustrates, the new datasets - particularly the SRF, JEDH, QEDS, and CPIS - provide financial data with greater periodicity, detail, and timeliness, enabling better tracking of current vulnerabilities using the BSA. These data can be mapped into the 7 x 7 BSA framework for a monthly analysis of sectoral vulnerabilities. If needed, the framework also allows for a detailed breakdown by assets and liabilities by currency, which can be very useful when analyzing particular vulnerabilities. Recent applications of the BSA using these new databases illustrate some of the advantages for IMF surveillance. However, the full potential for detailed examination of a country's vulnerabilities and cross-country analysis based on comparable data will be realized in future applications of the BSA using these databases.

The recent BSA analysis for Belize (Mathisen and Torres, 2005) illustrates some of the usefulness of employing the new data in surveillance. The SRF data comprising the balance sheets of the central bank, commercial banks, and other financial corporations were combined with JEDH and QEDS data to analyze how vulnerabilities have been developing in that country. This analysis shows how the sharp increase in external public and publicly guaranteed debt - appearing as a major currency mismatch in the balance sheet analysis - is emerging as a maturity mismatch, with this debt increasingly rolled over on more costly, shorter terms. The balance sheet analysis also shows that a macroeconomic policy response is constrained, as external obligations derive mainly from the central government's external short-term debt and non-resident deposits. Consequently, a loss of the fixed exchange regime could exacerbate the government's solvency position, which could have systemic repercussions for the entire economy. If the emergence of these vulnerabilities had been monitored closely at an early stage, the range of remedial options would probably have been much larger.

The new datasets permit a closer integration of the BSA into surveillance activities, for example by discussing how a particular a country is coping with such risks. Applying the BSA to Georgia on a monthly basis using databases listed in Table 4, in particular the SRF data, supplemented by country authorities' data on public debt, Billmeier and Mathisen (2006) show how the overall level of vulnerability to currency mismatches has fallen recently, but sectoral trends vary. The high level of dollarization in Georgia creates sectoral currency mismatches and vulnerabilities to exchange rate shocks. Billmeier and Mathisen further describe how Georgia has pursued three main strategies for reducing vulnerabilities through the use of (1) buffers, primarily consisting of substantial foreign reserves in the banking system, as a general cushion against shocks; (2) hedges such as fixed interest debt mainly with long maturities, limits on banks' foreign positions, and the promotion of balancing income (such as remittances from abroad) with recurring foreign currency liabilities from abroad, primarily in the export sector; and (3) insurance against specific shocks through, for example, the IMF's shock facility.

The BSA based on the new datasets can be used as the basis for a dynamic, forward-looking analysis of risks in sectoral balance sheets. In particular, the data collected for the BSA analysis provide a useful input into the calibration of the contingent claims approach (CCA) to measuring and analyzing such risks (Gapen and others, 2004). To assess risk fully, volatilities of key assets and other macroeconomic variables, as well as information from forward-looking prices where possible, need to be combined with balance sheet data to apply the CCA approach. Detailed data on the maturity and currency composition of various liabilities are necessary for determining the distress barriers in the CCA calibration modeling, supplemented with information on volatility, forward-looking prices, and other matters. Timely reserve information is also necessary.

While helping to identify and track vulnerabilities in and among sectoral balance sheets, the CCA - being a dynamic framework for analyzing risk looking forward and computing probabilities of default - requires additional information and analytical modeling. It adapts widely-used finance and risk management tools to construct a marked-to-market balance sheet for the sovereign, financial, and corporate sectors and to derive a set of risk indicators that serve as a barometer of sovereign risk, financial sector vulnerability, and economy-wide risk. Using a structural model calibrated to a country's economy, the extent to which economic or financial shocks affect sovereign and sectoral balance sheets can be examined. This approach facilitates scenario and simulation analysis that permits assessment of potential market scenarios and estimation of probability distributions, spreads, and value-at-risk measures.

VI. Conclusions

Delineation of sectors and financial instruments in a matrix of balance sheets for an economy is central to specifying the BSA framework for analysis of the potential for emerging liquidity or solvency problems. The sectorization and financial instruments in the 7 x 7 matrix presented in this paper provide a useful baseline for applying the BSA and can be adapted to focus on particular sectors to assess vulnerabilities in the economy. This framework can also be modified to accommodate data limitations and still be useful for vulnerability analysis.

Datasets introduced in recent years, combined with existing data sources, have contributed substantially to improved balance sheet data for macroeconomic vulnerability analysis. Until recently, data readily available from public sources, such as the IMF's *International Financial Statistics* or World Bank or BIS data bases, often had to be complemented, sometimes with great effort, by specially compiled datasets. The databases that have become available recently - particularly SRFs, IIP, QEDS, and CPIS - can reduce the need for special compilation in the future.

This paper used this approach for South Africa to complete the 7 x 7 intersectoral framework presented here. The sectorization and classification of financial instruments are sufficiently detailed to show the variation in intersectoral positions, by financial instrument and currency. In general, the method presented in this paper for populating the 7 x 7 matrix of balance sheets of the BSA framework can be replicated for other countries to capture vulnerabilities relevant for macroeconomic analysis and policymaking.

BSA analysis based on the new datasets can enhance surveillance activities by tracking the evolution of balance sheet vulnerabilities on a regular and timely basis. This provides a more comprehensive, up-to date diagnosis of balance sheet vulnerabilities - perhaps even as they develop - at a detailed level if needed. Earlier detection of balance sheet vulnerabilities can expand the range of policy options to address emerging vulnerabilities. The results can also be used as a basis for assessing risks in sectoral balance sheets using the contingent claims approach.

Appendix I
Definitions of sectors

Central banks: In most countries, separately identifiable institutions that, across countries, are subject to varying degrees of government control, engage in differing sets of activities, and are designated by various names (eg, central bank, reserve bank, national bank, or state bank).

General government: Institutional units that, in addition to fulfilling their political responsibilities and their role of economic regulation, produce principally non-market services (possibly goods) for individual or collective consumption and redistribute income and wealth.

Other depository corporations: All resident financial corporations (except the central bank) and quasi-corporations that are mainly engaged in financial intermediation and that issue liabilities included in the national definition of broad money (eg, commercial banks, merchant banks, savings banks, savings and loan associations, building societies and mortgage banks, credit unions and credit cooperatives, rural and agricultural banks, and travelers' check companies that mainly engage in financial corporation activities).

Other financial corporations: The remaining financial corporations, consisting of resident corporations or quasi-corporations, including those non-profit institutions that are (1) mainly engaged in the production of financial services (such as insurance), or (2) financed by subscriptions from financial enterprises and have the objective of promoting or otherwise serving the interest of those enterprises.

Non-financial corporations: Institutional units that are principally engaged in the production of market goods and non-financial services.[23]

Other resident sector: Households (all physical persons in the economy) that have as their principal functions the supply of labor, final consumption and, as entrepreneurs, the production of market goods and non-financial (possibly financial) services. This sector also includes non-profit institutions that are legal entities principally engaged in the production of non-market services for households and whose main resources are voluntary contributions by households.

Non-residents: Consists of all institutional units outside the country that enter into transactions with resident units, or have other economic links with resident units.

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[23] An institutional unit, according to the *1993 SNA* is "an economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities ... [which] is able to take economic decisions and engage in economic activities for which it is itself held to be directly responsible and accountable at law," including entering into contracts. [(IMF, 1993aSNA, paragraph 4.2]). Finally, an institutional unit must be a resident unit in the domestic economy and be either (1) a household or (2) a legal or social entity whose existence is recognized by law or society independently of the persons or other entities that may own or control it (ie, government units, corporations, and non-profit institutions) [SNA 4.5]. (IMF, 1993a, paragraph 4.5).

Appendix II
Definitions of financial instruments

Financial assets are commonly defined as a subset of economic assets - entities over which ownership rights are enforced, individually or collectively, by institutional units and from which economic benefits can be derived by holding or using the assets over a period of time.[24]

Financial assets are usually classified according to two criteria; the liquidity of the asset and the legal characteristics that describe the form of the underlying creditor/debtor relationship. For vulnerability purposes, financial instruments can be categorized using the terms described below

Currency consists of notes and coins that are of fixed nominal values and are issued by central banks or governments. **Monetary gold** (if under the effective control of the central bank) and **SDRs** can also be considered part of currency. **Deposits** include all claims on the central bank, other depository corporations, government units, or other institutional units that are represented by evidence of deposit.

Transferable deposits comprise all deposits that are exchangeable on demand at par and without penalty or restriction and directly usable for making payments by check, draft, giro order, direct debit/credit, or other direct payment facility.

Other deposits comprise all claims, other than transferable deposits, that are represented by evidence of deposit (eg, savings and fixed-term deposits, foreign currency nontransferable deposits).

Debt securities are negotiable instruments serving as evidence that units have obligations to settle by means of providing cash, a financial instrument, or some other item of economic value (eg, treasury bills, government bonds, corporate bonds and debentures).

Loans are financial assets that are created when a creditor lends funds directly to a debtor, and are evidenced by non-negotiable documents (including leases).

Shares and other equity comprise all instruments and records acknowledging, after the claims of all creditors have been met, claims on the residual value of a corporation.

Insurance technical reserves consist of net equity of households in life insurance reserves and pension funds and prepayments of premiums.

A **financial derivatives** contract is a financial instrument that is linked to a specific financial instrument, indicator, or commodity, and through which specific financial risks (such as interest rate risk, currency, equity and commodity price risk, and credit risk) can be traded in their own right in financial markets.

Other accounts receivable/payable include trade credit and advances and other such accounts.

Trade credit and advances comprise trade credit extended directly to corporations, government, non-profit institutions, households, and the rest of the world, as well as advances for work that is in progress (or is to be undertaken) and prepayment for goods and services.

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[24] For a detailed discussion of the definition of financial instruments, see the *Monetary and Financial Statistics Manual* (IMF, 2000, Section IV) and *External Debt Statistics: Guide for Compilers and Users External Debt Guide* (IMF, 2003, paragraphsparas. 3.13 to -3.38).

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The savings of households in the national accounts

Catherine Rigo[1]

Introduction

The system of national accounts provides a harmonised accounting framework for analysing the accounts of the various sectors of the economy, be it households, non-profit institutions serving households (NPISHs), corporations, general government or the rest of the world. At the European level, that framework is defined by the ESA 95 (European System of Accounts).[2] The household account will be the particular focus of our attention at this conference, which is concerned with the measurement of the financial position of households.

Numerous studies have been conducted on the subject of household wealth. Some of them refer to saving, a concept defined in the national accounts. The following questions may be addressed in this connection: how is saving measured in the national accounts, what does this concept involve, what are the different concepts of savings, do they come to measures of saving which are influenced by institutional features; in what way does saving represent an indicator of the financial position of households and what link can be established with the financial statistics?

1. Household saving as defined in the national accounts

The ESA 95 defines the structure of the sector accounts. These accounts present for each institutional sector a systematic description of the different stages of the economic process: production; generation, distribution, redistribution and use of income; accumulation of financial and non-financial assets. The sector accounts also include balance sheets recording the stocks of assets and liabilities at the beginning and end of the accounting period.

The conceptual framework mentioned here can be tackled in two ways. The first would be to adopt a very formal approach, describing the strict framework of the national accounts: the non-financial sector accounts comprise a set of interlinked accounts. Each account corresponds to a stage of the production process, and shows the corresponding resources and uses. Since the resources and uses do not generally balance out, each account records a balance which has an economic significance (value added, operating surplus, primary incomes, disposable income, saving, net lending/borrowing), the balance of an account being carried forward to the start of the next account. The second way of tackling the subject - the approach adopted here - is more analytical. In that sense, shortcuts will be taken by omitting some details while remaining faithful to the philosophy of the accounts.

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[1] Financial and Economic Statistics, National Bank of Belgium. The views expressed in this paper are those of the author and do not necessarily reflect those of the National Bank of Belgium.

[2] The ESA 95 is the European transcription of the System of National Accounts "SNA 1993" defined at world level and published jointly by the United Nations, the IMF, the EC, the OECD and the World Bank. ESA 95 is totally consistent with that system.

1.1 Standard measurement of household saving

Conceptually, saving is not a directly measurable macroeconomic variable. The national accounts define this aggregate as a balance. More precisely, saving is the balance item of the "Use of income account".

Saving is defined according to the basic equation: S = YD – C + adj. pension funds.

Leaving aside the adjustment for pension funds which will be considered later on, households receive current income (disposable income YD), which is consumed in varying degrees (private consumption C), the balance representing their saving (S). These three variables constitute flows: they relate to a given period of time (one quarter, one year).

To find out what the concept of household saving covers, it is therefore necessary to answer the following questions:

- what does the concept of disposable income cover?
- what is meant by private consumption?
- why make an adjustment in respect of pension funds?

1.1.1 Household disposable income

Household disposable income is composed of two main income categories: primary incomes and transfers.

Primary incomes

These are the incomes accruing to the economic agents as a consequence of their direct involvement in the production process. They also include the incomes received by the owners of financial assets or of tangible non-produced assets (such as land) in return for making those assets available to other sectors of the economy.

Primary incomes therefore include:

- incomes derived from an occupation, be it the incomes of paid employees (including salaries in kind) or those earned by self-employed persons. The latter are included in what is referred as “mixed income”; they implicitly comprise an element of remuneration for the work done by individuals, which cannot be distinguished from those persons’ profits as entrepreneurs.
- incomes obtained from ownership of fixed assets (rents on buildings let out)
  - rents actually collected on residential property let out to third parties;
  - “imputed” rents in the case of owner-occupied housing (the owners are assumed to pay a notional rent to themselves).
- net property incomes: these are the incomes derived from the ownership of movable assets minus the cost of borrowings, ie the amount of the interest and dividends collected on the financial investments of households less the amount of interest paid by households on borrowings. Net property income also includes the rents on land.[3] Capital gains or losses are however never considered when assessing net property income.

[3] The ESA 95 also stipulates the recording of a notional flow relating to investment incomes earned by insurance companies and pension funds on the management of their technical reserves. These incomes are assumed to be paid to households in so far as the technical reserves are treated as assets belonging to the policyholders. That element is nevertheless neutralised to determine disposable income, since that income is in practice retained by the insurance companies and pension funds. It is therefore regarded as given back to them by households in the form of premium supplements and contributions additional to the premiums and contributions actually payable.

Current transfers

These transfers take place during the secondary redistribution of incomes. The redistribution operations are largely attributable to the government's intervention in the economy. But they may also be "private" in character, for example as a result of possible links between resident and non-resident households or also in consequence of transactions between households and non-life insurers.

The transfers in question here are flows which may be receivable or payable by households; ie, they may be positive or negative, increasing or reducing primary incomes.

The main items recorded as payable by households are current taxes on income and wealth, and social security contributions (to either public or private schemes). The main items recorded as receivable by households are social benefits under public or private schemes.

Table 1

Disposable income of households[1]

Data for the euro area in 2004

	Billions of euro	Percentage of gross national income
Primary income	5,762	74.4
Compensation of employees	3,747	
Operating surplus and mixed income[2]	1,253	
Net property income	762	
Current transfers	–633	–8.2
Current transfers received	1,765	
Current transfers paid	2,398	
Disposable income	5,129	66.2

[1] Including the non-profit institutions serving households (NPISHs). The data are "gross", ie before deducting the depreciation of capital from income (see point 2). [2] Rents on buildings and income from entrepreneurship activities.

Source: Eurostat.

1.1.2 Household consumption

Household consumption (commonly called private consumption) covers the final consumption of goods and services ie the expenditure incurred by households for the direct satisfaction of individual needs. That means both non-durable consumption goods and consumer durables such as domestic electrical appliances or cars.

The goods and services received by employees as wages in kind are recorded in consumption with no impact on saving as this is also considered as a wage item. The rents imputed to owner occupiers are also counted as household consumption. These imputed rents thus augment income and consumption by an equivalent amount so that, in the end, this element is also neutral for the measurement of saving.

Household consumption however excludes purchases of dwellings and land, and expenditure made by households owning unincorporated enterprises when incurred for business purposes.

1.1.3 Adjustment for pension funds reserves

The ESA 95 provides for an adjustment to take account of the change in the net equity of households in pension funds reserves. That adjustment is needed to make appear in the saving of household the change in the actuarial reserves on which households have a definite claim and which are fed by premiums and contributions recorded in the secondary distribution of income account as social contributions.

In the system's financial accounts and statements of assets and liabilities, households are regarded as the owners of the reserves of private funded schemes; it is therefore necessary to introduce an adjustment item in order to ensure that any excess or deficit of contributions over benefits (ie "transfers" payable over "transfers" receivable) does not affect household saving. In order to neutralise the effect of unbalanced contributions and benefits, an adjustment is made to the disposable income of the households to arrive at the amount of their saving.[4]

Thus, the household saving figure is the same as it would be if pension contributions and pension benefits were not recorded as current transfers in the secondary distribution of income account.

Table 2

Saving of households[1]

Data for the euro area in 2004

	Billions of euro	**Percentage of gross national income**
Disposable income	5,129	66.2
Adjustment pension funds reserves	61	0.8
Final consumption expenditure	4,428	57.1
Saving	762	9.8
Saving ratio	14.7%	

[1] Including the non-profit institutions serving households (NPISHs). The data are "gross", ie before deducting the depreciation of capital from income (see section 2).

Source: Eurostat.

[4] It is worth noting that the transactions (contributions and benefits) relating to individual life insurance funds never appear in the secondary distribution account of households.

1.2 Influence of institutional characteristics on the measurement of household saving

As it is difficult to gauge the absolute level of household saving, economic analyses in this field often deal with international comparisons which make possible to assess the relative position of a country. For purpose of international comparison, a common definition of household saving is needed. The national accounts, by providing a harmonized framework, are of great help.

However even with a single definition of saving, difficulties to compare and interpret data remain. Differences in institutional arrangements can interfere in the measure of saving, and even more with the measure of the savings ratio,[5] affecting their comparability across countries.

The first institutional feature, which relates to the size of individualised public services offered to households, has been managed in the ESA 95 by the introduction of the concepts of "actual final consumption" and "adjusted disposable income". It results in the definition of an adjusted saving ratio which is more suitable for international comparisons. The influence of other institutional features remains whatever the internationally agreed concept of saving is (standard or adjusted). Some studies have tried to bring accounting improvements but these must still be considered as tentative.[6] These attempts rely on simple and mechanical accounting adjustments and sometimes have to compose with the unavailability or some unreliability of data. They also often deal with numerous corrections.[7] Only a few of them, directly relating to the institutional environment, are briefly treated here.

1.2.1 Individually consumed public services

The extent to which individually consumed public services (such as health care, education) are provided to households differ according to countries. This is not without having an influence on the standard measure of household saving ratio.

In countries where many services are provided by the authorities and financed with tax revenue ("welfare states"), the disposable income of households will be relatively low as well as their personal expenditure as final consumption. If, in another country, households pay less taxes but have to buy these services on the market ("market-base countries"), their disposable income is higher as well as their final consumption. Compared to what happens in a welfare state, saving is the same (other things being equal) but the saving ratio is not. Welfare states tend to have relatively high saving ratio compared to market-base systems.

The introduction in the ESA 95 of both a concept of effective final consumption of households and a concept of adjusted disposable income helps to answer this question. The aim was to deal with a number of points: not only to ensure greater international comparability of the

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5 As the households saving ratio is the ratio of saving to disposable income (and the adjustment for change in pension funds reserves), it depends on the measure of saving (numerator), but also on the measure of disposable income (denominator). Some institutional features can be neutral on the measure of saving but not on the measure of disposable income so that the saving ratio is even more sensitive to cross-country institutional differences.

6 OECD (2005) "Comparing household saving rates across oecd countries"; OECD (2002) "The various measures of the saving rate and their interpretation"; OFCE (2003) "Taux d'épargne, le paradoxe franco-britannique".

7 For instance, some of them also propose corrections to incorporate capital gains or losses in the saving rate and to correct capital income for inflation. Corrections to the saving ratio can also aim at considering expenditure for durables as capital expenses.

data, but also to give a clearer picture of the role played by governments in the provision of services to households and to offer a more complete measure of household incomes.

While the concept of "final consumption expenditure", which is used in the standard definition of household saving, covers the consumption expenditure borne/financed directly by households, the concept of "actual final consumption" covers the goods and services at their disposal for individual consumption, whether the expenditure is ultimately borne by the households themselves or by the government.[8] It therefore includes, for example, expenditure on health care or education, paid for by the government but forming the subject of individual consumption by households.

However, the use of one consumption concept or the other is neutral as regards the estimate of the level of household saving: if one refers to the concept of effective final consumption, the additional consumption corresponding to the individual consumed public services is added to household resources in the form of transfers in kind. This gives a concept of adjusted disposable income, which in the case of households is higher than their disposable income.

While the level of saving is the same in both cases, the saving ratio - ie saving expressed as a percentage of disposable income - differs according to which definition of disposable income is used (standard ie unadjusted or adjusted). The "adjusted" saving ratio is lower than the standard one. Implicitly, this is linked to the fact that the "adjusted saving ratio" takes into account a revenue that is entirely consumed. The larger this revenue is, ie the most the government play a role in delivering individual public services in the economy, the greater the downwards adjustment of the saving ratio will be. The differences in standard saving ratios across countries will fade away when considering the adjusted saving ratio.

Schema 1

Definition of an adjusted saving ratio in the national accounts

Standard measurement of saving in the NA		Alternative measurement of saving in the NA
Disposable income		Disposable income + Social transfers in kind = Adjusted disposable income
Final consumption expenditure		Final consumption expenditure + Individually consumed public services = Actual final consumption
Saving	=	Saving
Saving ratio = saving / disposable income	>	Adjusted saving ratio = saving / adjusted disposable income

[8] Consumption expenditure paid for by non-profit institutions serving households (NPISHs) but benefiting households is omitted in this paper.

1.2.2 Indirect versus direct taxation

Whether taxation relies mainly on direct taxes or on indirect taxes can also affect the comparability of saving ratios because the denominator, disposable income, is affected. The absolute level of saving however is unchanged as it is neutral for household, as far as their saving is concerned, to pay taxes on revenue or on final consumption.

The more the taxation system relies on direct taxes (respectively indirect taxes), the higher (respectively the lower) the saving ratio is, the disposable income being relatively low (respectively high). This distortion can be offset by treating indirect taxes in the same way as direct taxes: they are deducted from both disposable income and consumption, leaving saving unchanged. The saving ratio is then revised upwards, all the more as indirect taxes are large. This correction needs to know the amount of indirect taxes which are paid by the only households on the only private consumption.

1.2.3 Pension schemes[9]

Both the absolute measure of saving and the measure of saving ratio are affected by the choice made by countries as regard pension system. Whether pension schemes are organised by the government through an unfunded pension system or whether households are encouraged to subscribe to funded private pension schemes is not neutral on the measurement of household saving.

In unfunded social security pension schemes, the excess (or deficit) of pension contributions over pension benefits has a negative (or positive) impact on the household disposable income and hence on the level of the saving and on the saving ratio. If the unfunded scheme runs a surplus, this will benefit the government and not the households.

In the case of funded private pensions schemes, imbalances between contribution and benefits have no impact on household saving as the latter is corrected by an adjustment made to disposable income to take into account the change in net equity of households in pension funds reserves (cf. 1.1.3). Moreover, as households are deemed to hold the assets of the funds, property income earned by investing the reserves comes to households and is added to their resources. That is not the case with unfunded public pension schemes.

Countries with widespread funded private pension schemes will tend to have higher saving ratios when those schemes are running a surplus. The increasing claim by households on the funds is considered to be part of their saving.

The different treatment of pension schemes in the national accounts reflects the fundamental specificity of each system. In the case of private funded pension scheme, households have a legal claim which is considered as part of their financial wealth. In social security schemes, they don't. In this view, the core question is the appropriateness of a common treatment to the two systems. Relating questions are: while the systems are different in their legal foundations, do households have a different perception of their future resources?; what would be the consequences of a change in the accounting of pension schemes for other institutional sectors such as government?; does a common treatment have to be applied to life-insurance which in some countries are more important than pension funds?

An assessment of the influence of the three institutional features described above, according to a recent study made by the OECD, is provided in annex.

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[9] The treatment of pension schemes in the national accounts is complex. This short paper does not aim at proposing a complete view in this matter. It will focus on the philosophy behind the treatment of the two main different systems : social security unfunded schemes and private funded schemes.

2. Gross/net saving

The level of saving can be defined in two ways, depending on whether or not allowance is made for the consumption of fixed capital by households. This concept refers to the depreciation of the capital stock of households, ie the writing down of the value of both housing and the equipment used by households for business purposes.

Net saving is defined by deducting depreciation from income.[10] This then constitutes saving after taking account of the depreciation of immovable assets. In economic terms, as net saving represents the flow of resources available for financing net additions to the stock of capital, it may be preferable to measuring gross saving, which does not incorporate any reduction to allow for depreciation.

On the other hand, since depreciation is not a real cash expenditure for households, gross saving offers a better definition of cash saving, closer to the ordinary perception of saving and closer to the concept of saving measured in budget inquiries. Moreover, in view of the problems of measuring depreciation, it may be preferable to refer to a gross saving concept in certain cases, particularly for the purpose of international comparison that could suffer from cross-countries inconsistent measures of depreciation.

Table 3

Range of households saving measurement[1]

Data for the euro area in 2004

	Gross	**Net (of capital depreciation)**
Relative to standard (unadjusted) disposable income	14.7%	9.6%
Relative to adjusted disposable income	12.4%	8.1%

[1] Including the non-profit institutions serving households (NPISHs).

Source: Eurostat, own calculations.

3. Allocation of savings

Savings, in so far as they consist of households' current financial resources remaining after consumption, will be used to build up either financial or non-financial assets.

Savings increased or reduced by net capital transfers[11], will be used to finance investment (acquisition of immovable property): housing and investments by unincorporated enterprises. Savings can therefore be used, over the years, to constitute non-financial assets.

[10] Primary incomes are reduced by an amount equivalent to fixed capital consumption, leaving "net primary incomes".

[11] These capital transfers received and paid by households are generally small. For the sake of simplicity, we prefer not to expand on them here.

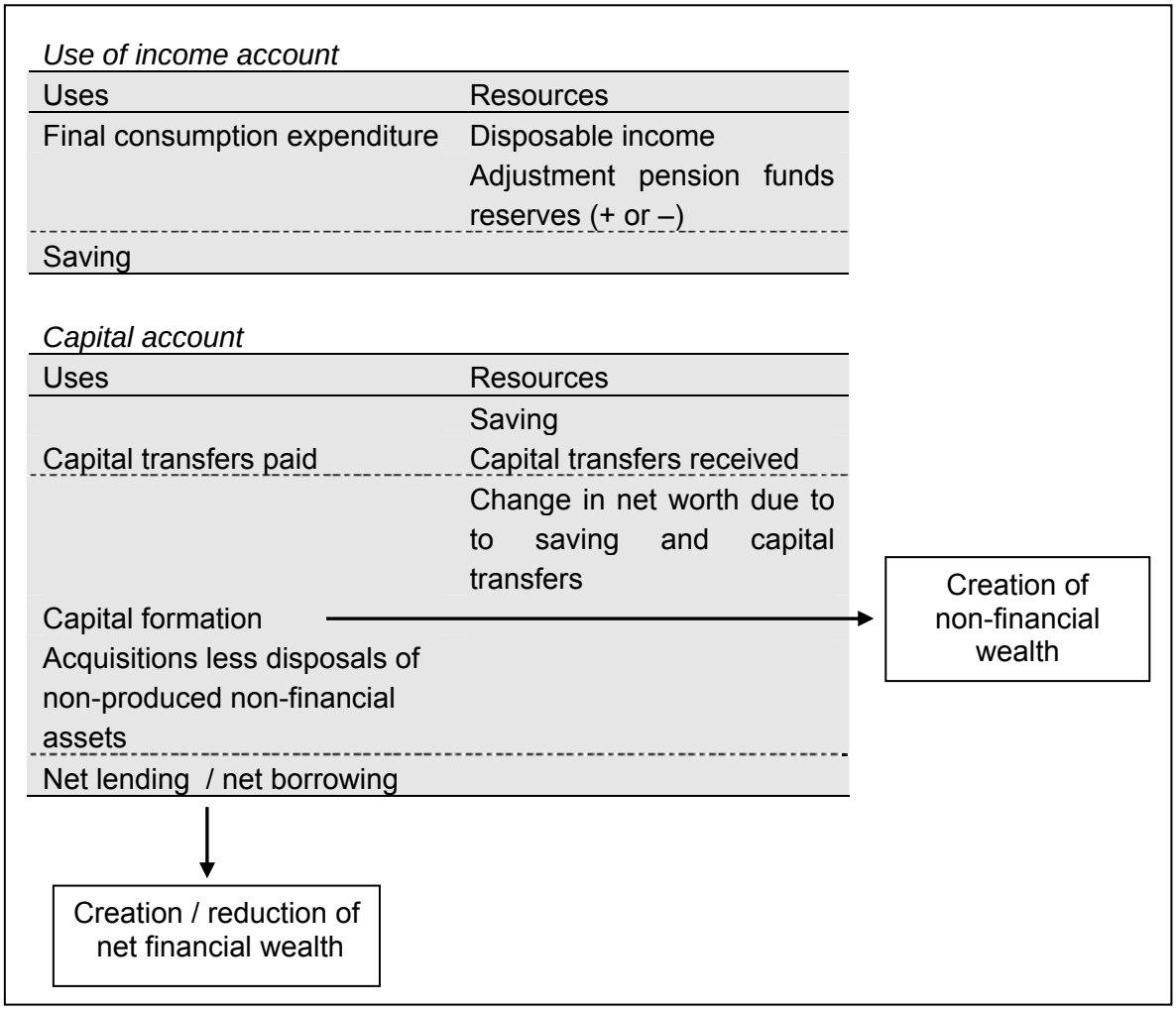
If the savings built up exceed capital formation, the surplus financial resources will be used to acquire financial assets and/or to pay off debts. There is then net financial wealth creation.

Conversely, if savings are insufficient to finance capital formation, that will have to be funded by selling financial assets or incurring debts. There is then a reduction in net financial wealth due to saving and capital transfers.

S + net capital transfers = Investments + ∆net financial assets

Schema 2

Allocation of savings and creation of non-financial and financial wealth



4. Saving: only one component of the formation of households' wealth

Households build up their financial wealth and immovable assets by accumulating savings. However, saving is only one component in the formation of wealth by households. Apart from the accumulation of savings year after year (cumulative financial flows), wealth may also increase or diminish as a result of changes in the price of the constituent assets, changes which are not recorded in the current resources of households. Capital gains or losses on the dwelling of households or on the financial assets which they hold (it is mainly shares that are

affected by price fluctuations) also influence the value of their assets, and this is not taken into account in household saving.

Households' wealth can also be influenced by other operations such as destruction of assets which are not taken into account in saving.

5. Link between saving and financial national accounts

In the national accounts, saving is therefore defined from the point of view of the non-financial accounts. Incomes, consumption, investments and other capital expenditure are assessed on the basis of a set of the most appropriate statistical sources to give an estimate of the financial position of households.

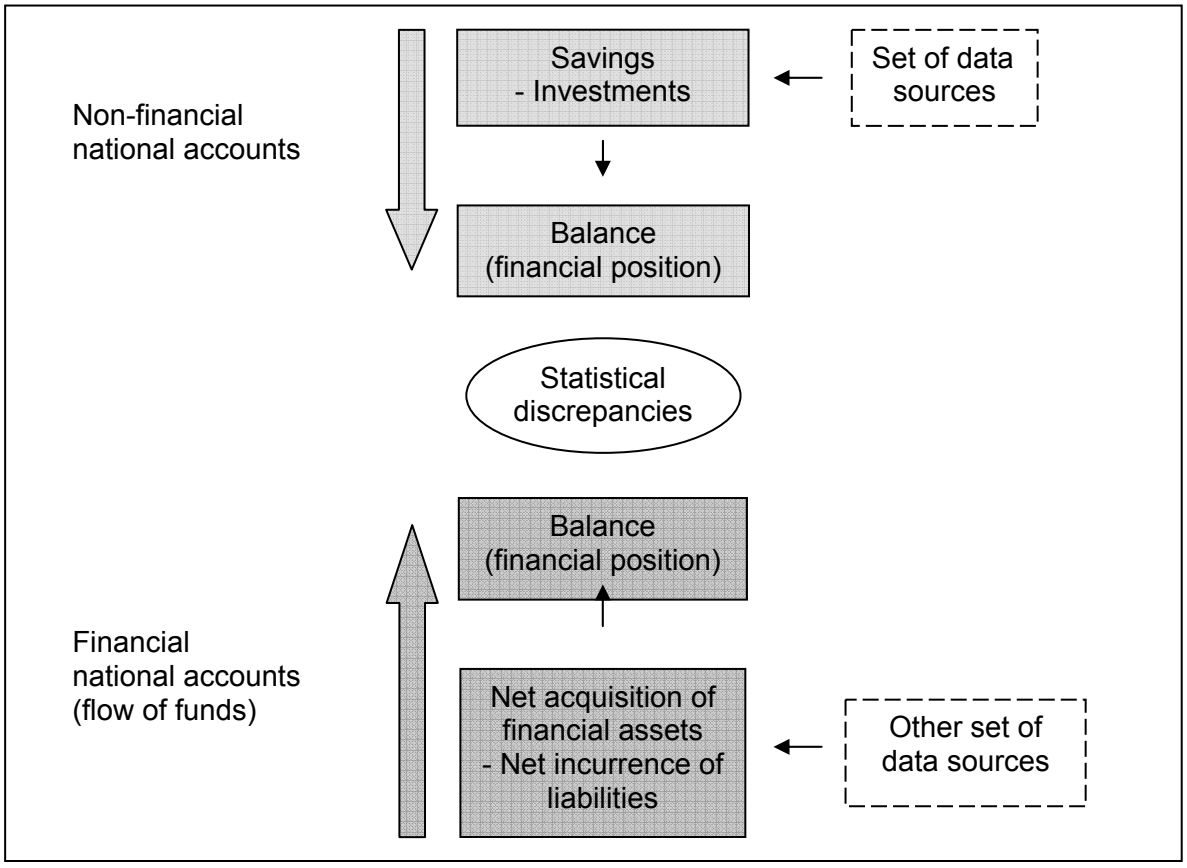
Using the financial statistics, it is possible to estimate a financial position on the basis of a set of other statistical sources that are used to assess financial assets and liabilities. The household financial balance is then defined as the difference between the change in the assets and the change in the liabilities.

Ideally, the two angles should be consistent: saving minus capital formation, after taking account of other capital transactions, should correspond to the change in the net assets of households.

In reality, however, since the two approaches are based on different statistical materials, statistical divergences are unavoidable.

Schema 3

Collect of data in the non-financial and in the financial accounts



Whether to use the non-financial accounts angle or the financial accounts approach is debatable, in the light of their respective strengths and weaknesses. The weakness of the measure of saving in the non-financial national accounts is that it is calculated as a balance. The measure of saving is therefore automatically affected by errors in the estimation of incomes and consumption. Besides, saving cannot take account of capital gains or losses resulting from the change in the price of assets. These gains or losses are not regarded as income, whereas households may view them as such, particularly when deciding on their consumption behaviour (wealth effect which varies from country to country).

Nevertheless, the non-financial national accounts are useful in that they can answer questions relating to the origin of the savings: where does saving come from?; do fluctuations in saving result from an increase or decrease in incomes (and which ones), or from an increase or decrease in consumption?

Furthermore, the level of saving can be assessed by looking at disposable income, giving a definition of a saving ratio, a variable often listed by analysts, despite the occasional question mark over the comparability of the saving ratio between countries.

The financial statistics offer a more comprehensive picture of the financial wealth of households. They give details of the composition of wealth in terms of assets and liabilities (and their components) while also taking account of capital gains and losses.

However, the financial statistics are not perfect. Many countries still have difficulties in measuring household wealth, such as problems concerning the valuation of unlisted shares or compilation of information about foreign assets. In addition, the assets and liabilities of households are estimated as a balance in certain cases, with households making up a residual sector in the compilation of the information (an asset or liability is attributed to households if it cannot be attributed to any other sector).

6. Conclusions

The non-financial national accounts and the financial national accounts complement one another. They are part of a whole for which the ESA 95 has constructed a coherent analysis framework.

The efforts to achieve convergence in the non-financial and financial statistics should most definitely be continued in order to attain the maximum possible consistency. This is an objective which the producers of statistics should pursue in the coming years. For the users, the decision on which of the two approaches to use depends on their own requirements.

The use of the statistics requires an investment on the part of analysts, who have to know the content of the aggregates and understand exactly what they include. Various definitions of the level of saving or the saving ratio are possible. Moreover, while the ESA 95 has resolved certain problems in order to facilitate the comparability of statistics between countries, it should be remembered that some institutional characteristics of the countries do have an influence on their statistics. Interpreting the data requires to know the statistical material and international comparisons must always be treated with caution.

Annex 1:
Publication of sector accounts by Eurostat

Eurostat has published for the first time in May 2006 a set of annual European accounts for institutional sectors covering the period 1999-2004. Non-financial accounts for the euro area, the EU25 and the individual Member States are now released.

The accounts for the institutional sectors follow the methodology of the European System of Accounts 1995 (ESA 95). They provide a comprehensive overview of the euro area and EU25 as single economies and allow for a wide-ranging analysis of the interactions among households, non-financial corporations, financial corporations and the government. The accounts also show interactions between these sectors in the euro area and EU25 and the rest of the world. The euro area and EU25 accounts are based on, but are not the simple sum of, the national accounts of the Member States.

The availability of annual euro area and EU25 accounts is in itself a milestone in the development of European statistics. These accounts will be followed by the regular publication of quarterly euro area and EU25 accounts from spring 2007, which will provide structural information on the European economy and give a better insight into the business cycle.

The table below show, for the year 2004, the main determinants of household saving according to the compilation of statistics made by Eurostat for the euro area.

Table

Saving of households[1] in the euro area - 2004

	Billions of euro	**Percentage of gross national income**
Gross primary income	5,762	74.4
Current transfers	–633	–8.2
Gross disposable income	5,129	66.2
Adjustment pension funds reserve	61	0.8
Final consumption expenditure	4,428	57.1
Gross savings	762	9.8
Gross saving ratio	**14.7%**	
Consumption of fixed capital	292	
Net savings	470	6.1
Net saving ratio	**9.6%**	

[1] Including the non-profit institutions serving households (NPISHs).

Source: Eurostat.

Annex 2

Adjustments to the standard saving ratio for institutional factors

Average 1998-2003

	AUS	AUT	BEL	CAN	CZE	DNK	FIN	FRA	DEU	GRC	ITA	JPN	KOR	MEX	NLD	NZL	NOR	PRT	SVK	ESP	SWE	CHE	GBR	USA
Gross saving ratio	9.0	12.7	15.9	8.6	9.5	4.9	7.9	15.8	16.0	10.3	15.9	15.3	16.2	10.6	15.9	-1.2	11.9	10.8	8.8	10.9	9.0	17.1	5.7	6.6
Consumption of fixed capital (in percent of gross disposable income)	8.8	4.8	5.5	4.8	5.3	8.0	7.4	5.1	6.3	6.3	6.1	7.0	5.9	2.5	5.9	3.1	5.6	6.8	4.5	6.0	3.3	6.2	4.6	4.2
Net saving ratio	0.3	8.3	11.0	4.0	4.5	-3.4	0.6	11.2	10.3	4.3	10.4	8.9	10.9	8.3	10.7	-4.4	6.7	4.2	4.5	5.3	5.9	11.6	1.1	2.5
Adjustment for individual public services	-0.1	-1.3	-2.1	-0.7	-0.8	1.0	-0.1	-2.3	-1.5	-0.4	-1.6	-1.2	-0.9	-0.7	-2.2	0.7	-1.6	-0.7	-0.6	-0.8	-1.7	-1.2	-0.2	-0.2
Adjustment for indirect taxes	0.1	2.0	2.7	0.7	1.1	-1.9	0.2	2.7	2.0	1.1	2.2	0.7	na	1.2	3.3	-1.0	2.7	1.2	1.1	na	2.1	na	0.3	0.2
Adjustment for net equity in pension funds	-10.9	-0.5	-0.1	*3.8*	-0.7	-2.5	-0.6	0.0	-0.9	0.0	-0.8	-1.8	-0.1	0.0	-7.1	-1.8	-3.5	-1.3	-0.2	-1.6	-4.1	-10.5	-1.5	-2.3
p.m. adjustment for net equity in life insurance	*1.5*	*-2.0*	*-7.3*		*-0.8*	*-7.6*	*-3.1*	*-6.3*	*-3.0*	*na*	*-3.9*	*0.0*	*-3.8*	*-0.5*	*-6.3*	*na*	*-0.6*	*-3.6*	*-0.7*	*-2.4*	*-4.6*	*na*	*-4.1*	*-0.8*

Source : OECD “Comparing household saving rates across oecd countries” (2005)

Household saving and wealth accumulation in the U.S.

Charles Steindel[1]

U.S. personal saving - the difference between after-tax personal income and consumer outlays - turned negative in the second quarter of 2005 and stayed below zero through year end. Thus, the personal saving rate (the percentage of income saved) also turned negative (Chart 1). For 2005 as a whole, the numbers available in mid-2006 show a personal saving rate of –.4 percent. This is a substantial reduction from the low 1999-2004 average of 2.2 percent, significantly below the 1993-1998 average of 4.6 percent, and very far away from the 1950-1992 norm of 8.6 percent.

These remarkably low levels of personal saving look worrisome. Negative saving would appear to suggest growing indebtedness and, perhaps, ultimately, a decline in living standards as the people of the nation tighten their belts to pay off their debts. Nonetheless, despite the plunge in saving, household wealth has grown steadily since the start of 2003, suggesting that immediate concerns are minimal. However, concerns about the ultimate implications of low saving for household well-being remain.

Such concerns are understandable. However, a systematic investigation suggests many worries can be alleviated, though not eliminated:

1. Given the historic record of revisions in the personal saving rate, it is not altogether clear that the 2005 figure will stay negative.

2. Even if the personal saving rate was truly negative in 2005, it appears that much of the recent drop may reflect the rather arbitrary exclusion from personal income and saving of certain transfers from corporations to shareholders. An alternative computation of the personal saving rate finds that it remains positive, though quite low.

3. As noted, aggregate household wealth has been on a strong uptrend, despite the low reported levels of personal saving. Historically, personal saving flows have played only a small role in household wealth formation, and the link between broader saving measures and wealth formation has not historically been that robust. It is possible that significant components of asset accumulation are omitted from the U.S. saving and investment data; moreover, capital appreciation has long played a significant role in household wealth formation.

The balance of this paper will describe the personal saving concept, discuss alternative concepts of personal saving, and sketch the connection between various saving measures and household wealth accumulation.

Basics of the personal saving measure

As mentioned above, personal saving is defined as the difference between after-tax personal income and personal outlays (personal outlays are somewhat broader than personal

[1] Thanks to Bart Hobijn and Kevin Stiroh for helpful comments, Carol Corrado for data, and Cartier Stennis and Kieran Walsh for research assistance. All comments in this paper represent the views of the author only and not necessarily those of the Federal Reserve Bank of New York or the Federal Reserve System.

consumption expenditures, also encompassing personal transfer payments to foreigners and personal interest expense). This definition is less transparent than it appears because income is rather arbitrarily defined. In particular, income does not include any capital gains, either accrued or realized, even when such gains can (in principle) be attributed to corporate retention of earnings. This arbitrariness is accentuated when it is realized that, as noted by Peach and Steindel (2000), taxes paid on realized capital gains are subtracted from pre-tax income to compute the after-tax series. Moreover, noncorporate business and other entities - non-profit institutions, and fiduciaries such as pension funds - are considered to be part of the household sector. Their income and saving (if any) is included in the personal income and saving data. The inclusion of accumulation by fiduciaries in the saving numbers means that all contributions, by employers and employees, to all pension plans (public and private, defined benefit and defined contribution), are counted in personal saving.[2]

An alternate view of personal saving comes from examination of household investment flows. Personal saving is used to invest in financial or tangible assets. In principle, one can observe how personal saving flows enter into the asset accumulation and borrowing process, and even derive an alternative estimate of personal saving from the asset purchase and borrowing data compiled in the Flow of Funds Accounts produced by the Federal Reserve's Board of Governors. In practice, there are often very large differences between these independent observations of personal saving.[3]

Personal saving data can be subject to substantial revision. Early readings on the personal saving rate for the mid- and late 1970s were quite low. After a number of rounds of revisions, by the mid-1980s the numbers suggested that this was a period with a rather high personal saving rate (see Chart 2). While subsequent years have not seen such dramatic upward revisions, this experience suggests a certain caution about drawing inferences from the currently reported negative saving rate for 2005. The negative figure might not be there after revision.[4]

Conceptual limitations of the personal saving measure and the recent drop

The personal saving measure is intrinsically connected to the concepts of income and expenditure used in its computation. It is not at all certain that the concept of after-tax income used correctly measures household income. There are significant difficulties connected to the treatment of income realized by corporate shareholders. As noted, one oddity is that taxes paid on capital gains realizations (many of which stem from sales of corporate stock) are viewed as reducing income, even though the gains themselves are not counted in the

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[2] Until the 2003 benchmark revision of the National Income and Product Accounts contributions to Federal employee pension funds were not included in personal saving. Instead, these contributions were credited to government saving. The revision meant that the historic data on personal saving was boosted modestly, and the historic data on government saving was reduced.

The Bureau of Economic Analysis intends to release historic annual data on saving by non-profit institutions. This paper will follow the usual practice and discuss saving and wealth accumulation for the more broadly defined household sector, including non-profit institutions.

[3] These statistical discrepancies can be enormous. As currently reported, household purchases of assets (less borrowing) in 2003 was $155 billion larger than can be accounted for by the currently-reported figure for personal saving, while in both 2004 and 2005 household purchases of assets (less borrowing) was more than $100 billion smaller than the personal saving numbers would suggest. If these recent discrepancies were included in personal saving, the personal saving rate would have been even more negative in 2005.

[4] Garner, 2006, discusses revisions to the saving rate and other conceptual issues connected with the measure.

pretax income data. A portion of the observed decline in personal saving in the late 1990s could be attributed to increased realizations of capital gains and increased payments of capital gains taxes, rather than to any fundamental change in household thrift or attitudes toward wealth accumulation (obviously, anybody who realizes a capital gain has the resources to pay the tax).

More germane to the recent decline in personal saving have been changes in corporate payments to shareholders. These payments may be viewed as "dividends" or "share repurchases." For tax reasons it is important to make this distinction (the tax implication of a capital gain or loss from a share repurchase can be quite different from that resulting from a dividend payment). Some models of corporate valuation also distinguish between these payments (management may be more reluctant to change dividends than to change the scale of share repurchases; thus the payment of a dividend might be viewed as a signal of increased managerial confidence in a corporation's prospects[5]). The U.S. National Accounts regard dividend payments to household, fiduciary, and non-profit shareholders as part of personal income; the repurchase of shares from the same parties is not included in personal income (even though, as has been noted, these distributions may result in a taxable capital gain).

The somewhat artificial distinction drawn between dividends and share repurchases in the construction of personal income and saving may normally viewed as a minor curiosity, but there is one recent reason to focus on it: The volume of net share repurchases (issuance less repurchases) by non-financial corporations has recently increased exponentially, rising from $42 billion in 2002 to $359 billion in 2005. The magnitude of the increase has been such that it is worth discussing some of the factors at work, and the potential implications of these payments for household behavior.

While the upswing in corporate share repurchases started a few years ago, the surge in 2005 was particularly noticeable. A 2004 tax law provided for a temporarily reduced rate of taxation for a U.S. corporation's receipt of dividends from foreign subsidiaries. This lower rate was only effective for calendar years 2004 or 2005 (at the corporation's choosing). Thus, there was a sharp incentive in those years for corporations to recognize undistributed earnings in foreign subsidiaries as dividends paid to the U.S. parent.

The parent corporations had several options available once these foreign source dividends entered their books (it should be kept in mind that these are accounting transactions - corporations essentially shifted the reported distribution of their equity capital from foreign to domestic subsidiaries). Two options - accelerating capital spending in the U.S., and boosting domestic dividends - apparently were not taken to any marked extent. The common timing suggests that many corporations offset the increase in their reported equity capital by repurchasing stock. In other words, the inflow was distributed to shareholders, but not directly in the form of higher dividends.

Looking beyond any special factors that may have influenced the actual volume of share repurchases, there are some issues involved in accounting for these transactions in the household saving and investment data. If share repurchases were viewed as equivalent to dividends, and counted in personal income, some further adjustment would be needed in the household investment data in the flow of funds. There is no suggestion that fundamental household investment flows or allocations would somehow be altered if we changed the aggregate income and investment accounting of share repurchases. Hence, adding share repurchases to income would create a fundamental distinction between the income less expenditure measure of saving and the household investment flow concept. A potential

[5] There's always an alternate view: the payment of a dividend might be viewed as a reflection of management's inability to find a profitable investment opportunity for the funds within the corporation's sphere of operations.

correction would be to add a series, perhaps labeled “corporate capital transfers to shareholders” to the list of household financial investments in the Flow of Funds and equate these to share repurchases. Doing so would allow the conceptual equation of the two saving concepts to continue. This series could be excluded when examining the sources of household wealth accumulation (which include capital gains as well as investment).

Another objection may arise to viewing share repurchases as equivalent to dividends from a consideration that a repurchase can be seen as a return of capital, while a dividend is a payment out of ongoing income. This argument is that both corporations and shareholders will regard repurchases as fundamentally different from dividends. However, this distinction between dividends and repurchases may be rather arbitrary. For instance, the very large ($32 billion) special dividend paid by the Microsoft Corporation to its shareholders in December 2004 - which swelled personal income and saving - could well be viewed as a return of capital by another name.

More substantive objections arise from some considerations of the process of share repurchases. In some cases corporations have restructured their balance sheet by offering debt to shareholders in return for equity. Transactions of this type do not result in shareholders directly obtaining cash from corporations, unlike dividends or straight cash repurchases.[6] Moreover, share repurchases by a corporation in the open market involving a voluntary, arms-length, transaction from an individual shareholder may have different implications for spending behavior than repurchases resulting from tender offers made to shareholders. Unfortunately, there is no easy way to differentiate the different types of share repurchases in the aggregate data.

One simple way to deal with the issue of share repurchases is to consolidate the corporate and household sectors. In other words, view corporations as fiduciaries acting on behalf of their shareholders, and count all corporate profits in personal income. In this treatment, dividends and share repurchases are simply transfers within the private sector. A revised personal saving rate can be constructed after adding undistributed corporate profits to the usual personal income and saving aggregates.

Chart 3 compares movements in this revised saving rate and the usual measure. Before 2003 the transformed saving rate fluctuates very much like the usual one, though at a slightly higher level. Over the past few years, however, the alternative saving rate has been basically flat, compared to the steady drop in the conventional measure. It then seems arguable that the reported plunge of the U.S. personal saving rate to negative territory could, in part, reflect unusual strength in undistributed profits and a shift in corporate payments to shareholders from dividends to share repurchases.[7] Nonetheless, the tentative nature of the recent numbers on undistributed profits needs to be acknowledged. For instance, there were substantial downward revisions in the numbers initially reported for 1998-2000 (Himmelberg, Mahoney, Bang, and Chernoff, 2004).[8]

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[6] Of course, a corporation may obtain the cash for a share repurchase by issuing debt - but the same could be true for the payment of a dividend.

[7] Older studies supporting the addition of undistributed profits to personal saving include Feldstein (1973) and Steindel (1977, 1981). The FRB/US model used by the Federal Reserve Board includes undistributed profits as a component of personal property income in its consumption block.

[8] Another factor that potentially reduced personal saving in recent years has been the increase in energy prices. If households regarded the increase in energy costs as transitory - in other words, they expected prices would soon fall to earlier levels - they may have paid for the increased costs by reducing saving. In other words, they would have sustained their energy usage and purchases of other goods and services, at the expense of increased overall outlays and reduced saving. The concern that arises from this mechanism is that if and when households change their perceptions of future energy costs they might reduce spending on other goods and services (as well as cut back on energy use).

Saving and wealth accumulation

While the inclusion of undistributed profits in saving modifies the recent decline, even this adjusted saving rate is quite low. Nonetheless, wealth accumulation has been rapid in the United States in recent years, reflecting strong growth in home values and the recovery of the equity market. It is clear that over short horizons capital appreciation may dominate saving as a source of wealth accumulation. Over longer horizons, there may be a view that there is a firmer link between saving and wealth accumulation. Holding to this view, a continuation of low saving could ultimately jeopardize U.S. household wealth accumulation.

An examination of the mechanics of wealth accumulation suggests that the longer-term connection to saving is incomplete. If the price of existing assets rises - likely for many assets in periods in which the overall price level is rising - wealth accumulation can be sustained, at least in nominal terms, without strength in saving. If the price of existing assets rises relative to price of currently produced goods and services, wealth can grow in real terms without strength in saving.

The balance of this section will examine the record on the connection between U.S. household saving and wealth accumulation over a number of horizons. A quick look at the data is in Chart 4. The top panel plots cumulated personal saving since 1952, as conventionally measured, against the cumulated increase in household wealth. The bottom panel plots the same two series in chained 2000 dollars, using the personal consumption expenditure price index of the National Accounts as the deflator (Corrado and Steindel [1980] discuss the computation of real saving and wealth accumulation). The very small fraction of wealth accumulation (either in current dollars or in real terms) over the last half-century that can be directly attributed to personal saving is striking.[9]

This exercise does understate the amount of wealth accumulation accounted for by explicit saving. As noted, undistributed corporate profits are not credited to personal saving, though any increases in the value of corporate equity due to the retention of earnings shows up in the wealth data. Moreover, the wealth data includes holdings of consumer durable goods, while purchase of these goods is not included in the saving numbers. It is a straightforward matter to reassign household investment in durables (net of depreciation) and corporate undistributed profits to saving.[10]

Charts 5 to 7 repeat the exercise of comparing cumulative nominal and real saving and changes in wealth from 3 vantage points: The periods since 1952, and every 5 and 10 year period ending in each year since 1957 and 1962, respectively. In general, the previous finding holds. Even this considerably broadened measure of saving has generally not accounted for the lion's share of U.S. household wealth formation, even over relatively long horizons such as 5 or 10 years, especially in the last generation.

Although this argument is plausible, it can not account for the entirety of the recent decline in saving. Current-dollar expenditures on energy use increased from 4.6% of after-tax income in 2003 to 5.7% in 2005. This 1.1 percentage point gain, though notable, is less than half of the recent drop in the personal saving rate.

[9] While the constant-dollar series are expressed in levels, the genuine comparison, which can be deduced by comparing the plotted series, is in terms of ratios - what fraction of the percentage growth of real wealth since 1952 can be accounted for by real saving?

[10] An alternative would be to remove durable good holdings from wealth. This is unattractive, since the purchase of these same goods - motor vehicles, furniture, computers, etc - by businesses is part of investment. In particular, in the usually reported data, household purchases of motor vehicles are included in consumer spending and charged against personal saving. However, household leases of new motor vehicles are counted in the data as investment by the lessor. Treating all household purchases of durables as investment eliminates this anomaly in the data.

Potential sources of the saving-wealth accumulation divergence

The divergence between saving and wealth accumulation in the United States could arise for a variety of reasons. The simplest would be problems in the measurement of saving. In particular, it is arguable that many business expenditures on activities such as R&D, employee training, and advertising should more properly be classified as investment (similar to the reclassification several years ago of software purchases as capital expenditures). Such a reclassification would boost the level of business earnings (corporate profits and proprietors' income) and corporate and personal saving, but would not affect the data on household wealth. Nakamura (2001) has noted the growing importance of investment in intangibles, while Corrado, Hulten, and Sichel (2005) estimate that spending on intangibles is approximately equal to business investment in more conventional physical capital types, and that growth in the associated stock of intangible capital would significantly increase estimates of capital deepening in the U.S. The inclusion of spending on intangibles in saving, net of estimates of depreciation on intangible assets, would boost aggregate saving, and could conceivably help to reconcile the data on saving and wealth accumulation.[11]

More fundamentally, a close connection between saving and wealth accumulation in the long-run rests on the stability of the prices of existing assets relative to the prices of currently produced goods and services. When we examine the U.S. household balance sheet, taking care to separately present the assets and liabilities of the non-profit and noncorporate sub-sectors (rather than the usual practice of just including their net worth in the list of household assets), it becomes apparent that real estate has traditionally accounted for a disproportionate share of household net worth (Table 1). At many times, more than half of all household wealth has consisted of real estate and typically, with the exception of the stock market peak around 2000, aggregate real estate holdings have been at least twice as large as holdings of corporate equity. At least for the housing portion, the long-run tendency has been for the price of home values to increase relative to consumption goods and services. Chart 8 shows annual movements sine the late 1960s in the median price of existing homes sold compared to those of the personal consumption expenditures index. The surge in home prices in the last decade is noticeable, but looking at the long term, what is also striking that in only 5 of the last the last 37 years has the relative price of homes dropped. The persistent growth in the nominal and relative price of homes (and, to some extent, other types of real estate, whose prices have often moved with housing values) has probably been another factor working to weaken the relationship between saving and household wealth accumulation. It may be the case that the longer-term strength of wealth accumulation relative to saving in the U.S. partly reflects continuing gains on real estate. Fluctuations in this process, and cycles in the stock market, complicate this relationship.

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[11] The simple addition of the Corrado, Hulten, and Sichel intangible investment data to net saving does not substantially change the view given by Charts 5-7. Their intangible capital series was computed assuming quite high depreciation rates (for instance, 60 percent for advertising, and 40 percent for spending on worker training and other firm-specific resources). Thus, while they report that gross investment in intangibles is comparable to gross investment in tangible goods, net investment in intangibles is considerably smaller than either net investment in tangibles or conventionally reported private sector saving. The upshot is that the inclusion of their estimate of net investment in intangibles in saving still leaves substantive divergences between saving and wealth accumulation.

Robert Hall (2000, 2001) has argued that movements in the accumulation of intangibles can be inferred from stock market movements. At an extreme, such arguments would work to enforce equality of saving (augmented to include accumulation of intangibles) and wealth accumulation.

Conclusion

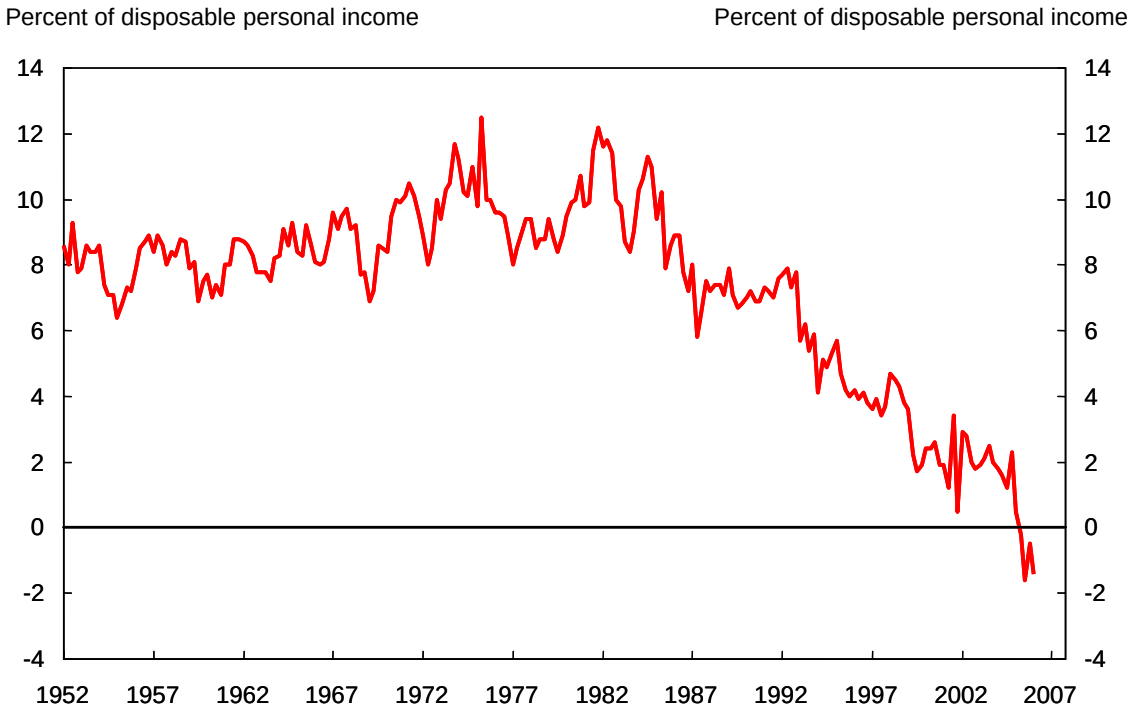
The fall in the reported U.S. personal saving rate to negative values has not prevented recent robust growth in household wealth. It is arguable that the standard U.S. personal saving data understates investment by, and on the behalf of, U.S. households, and that this discrepancy has been unusually large in the past few years. More fundamentally, though, saving, even more broadly, and arguably more accurately, measured to encompass investment in consumer durables and saving by corporations, has not often accounted for a predominant share of U.S. household wealth formation, even at longer-term horizons.

It is possible that broadening the definition of investment and saving to encompass business spending on intangible assets would reduce the discrepancy between saving and wealth formation, especially in an environment where the market valuation of businesses appears be becoming increasing sensitive to intangibles (Hall [2000,2001]). Thus, reformulations of the saving and investment accounts in the U.S. to recognize intangible assets could not only help in accounting for economic growth (Corrado, Hulten, and Sichel [2005]) but may shed light on wealth accumulation.

Nevertheless, it is likely that even reformulated data would show that high frequency movements in U.S. household wealth have been dominated by fluctuations in the prices of existing assets, most notably those of corporate equity. Moreover, appreciation in the value of homes and other real estate assets has, apparently, played an important role in U.S. household wealth formation over the long run. Looking at the current situation, if the recent unusually favorable moves in the stock and real estate markets were to falter, U.S. household wealth formation could weaken, even if saving were to strengthen. Likewise, sustained gains in these markets could keep wealth formation robust, even if saving were to remain lackluster.

Chart 1

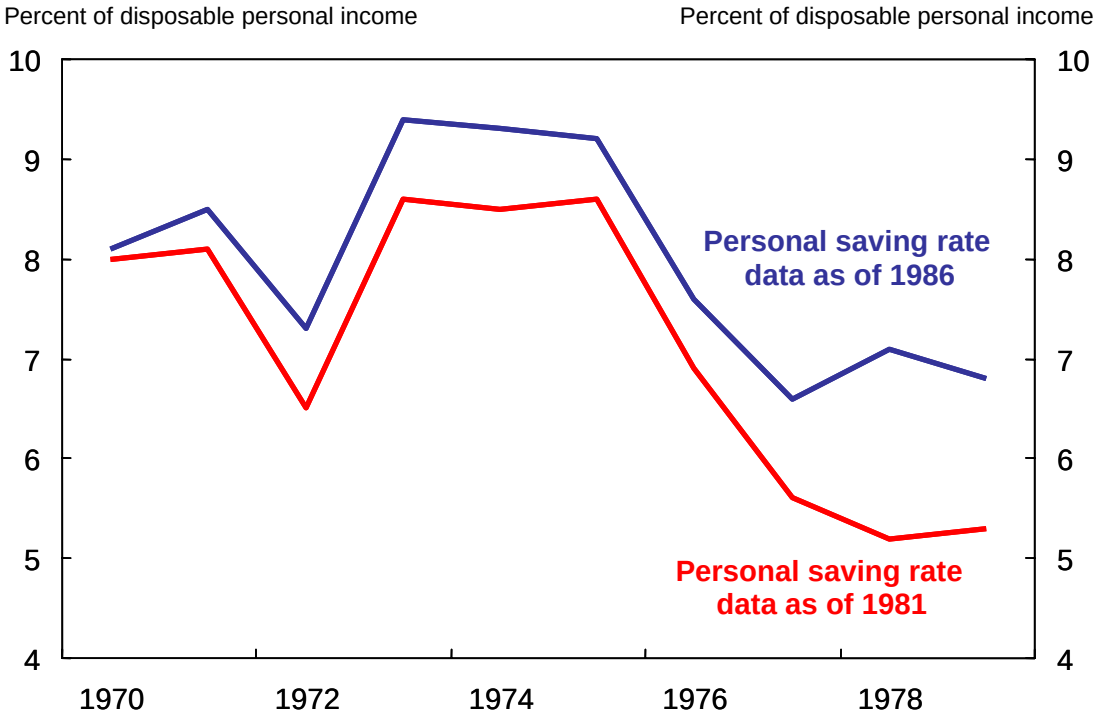
Personal saving rate



Source: U.S. Bureau of Economic Analysis.

Chart 2

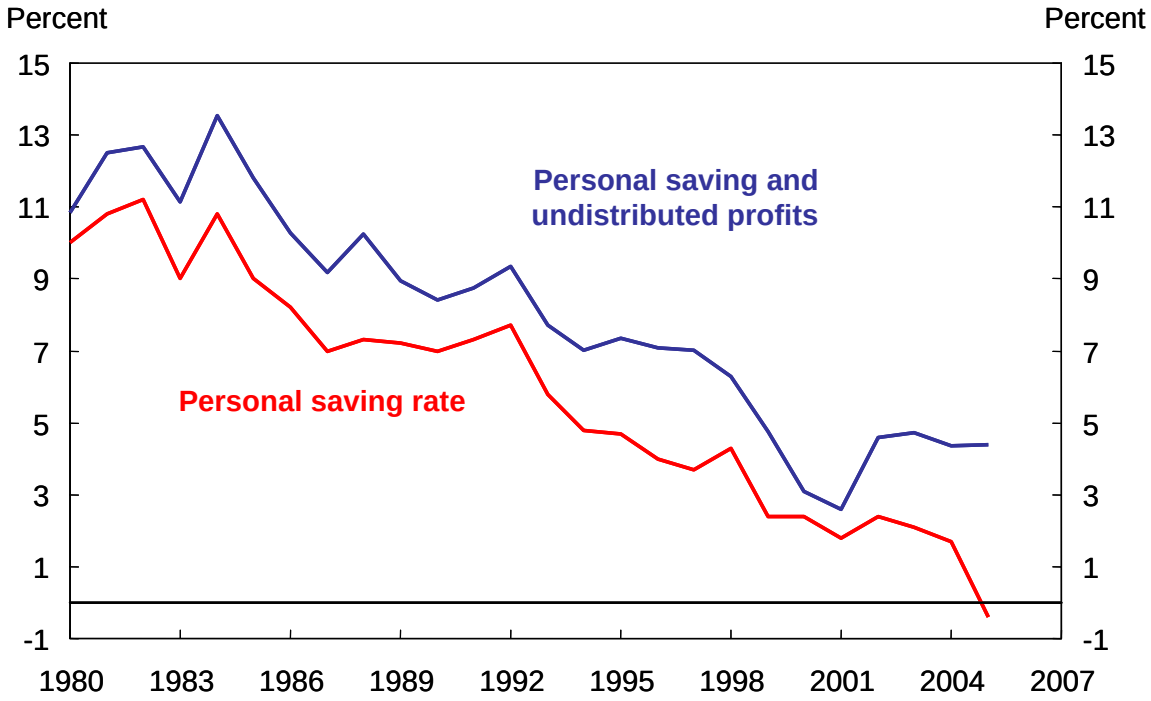
Revisions of 1970s saving data



Source: U.S. Bureau of Economic Analysis.

Chart 3

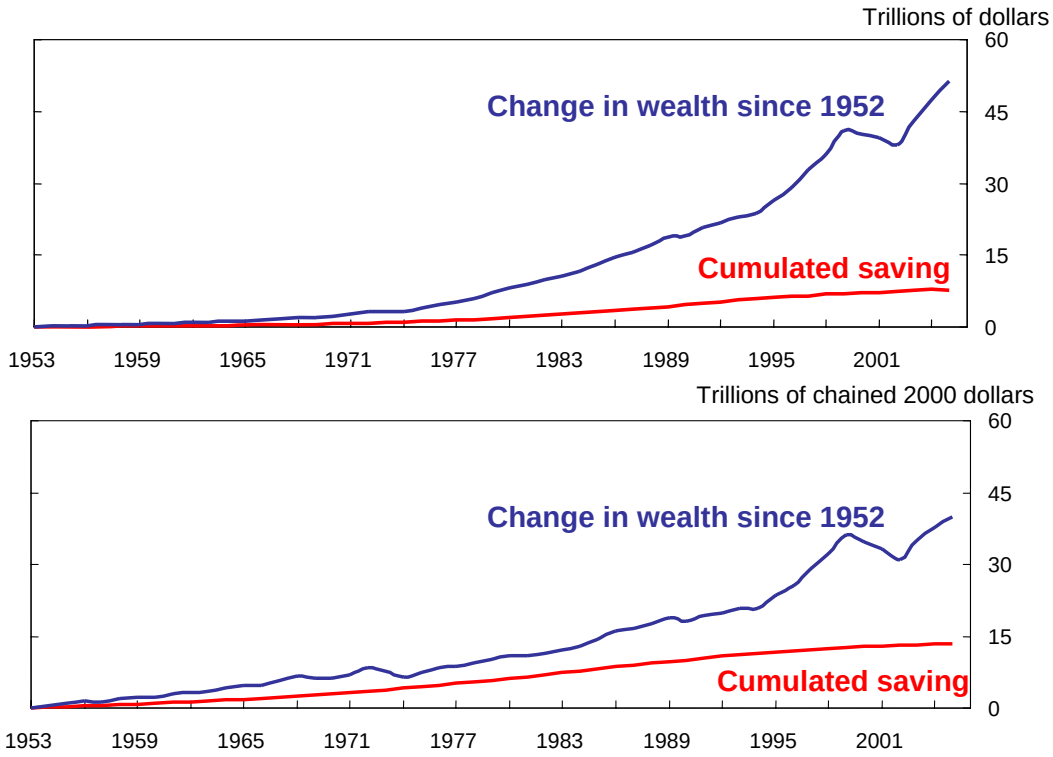
Personal saving rate and undistributed profits



Source: U.S. Bureau of Economic Analysis.

Chart 4

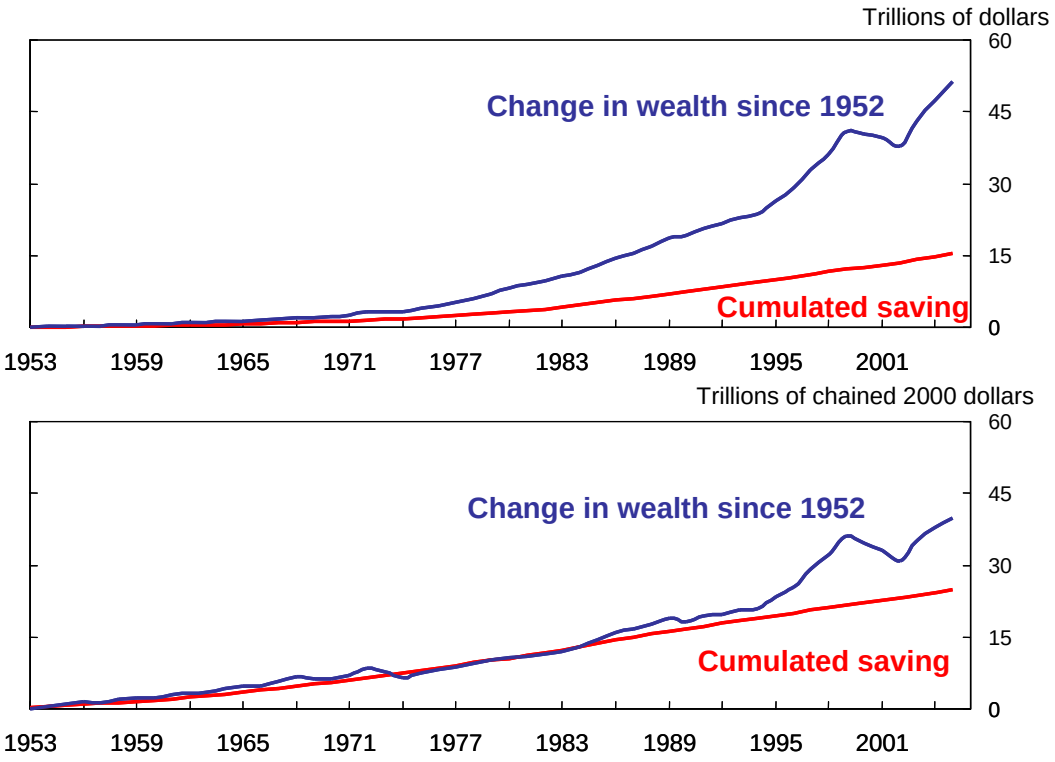
Cumulated personal saving and change in wealth



Source: Federal Reserve Board and U.S. Bureau of Economic Analysis.

Chart 5

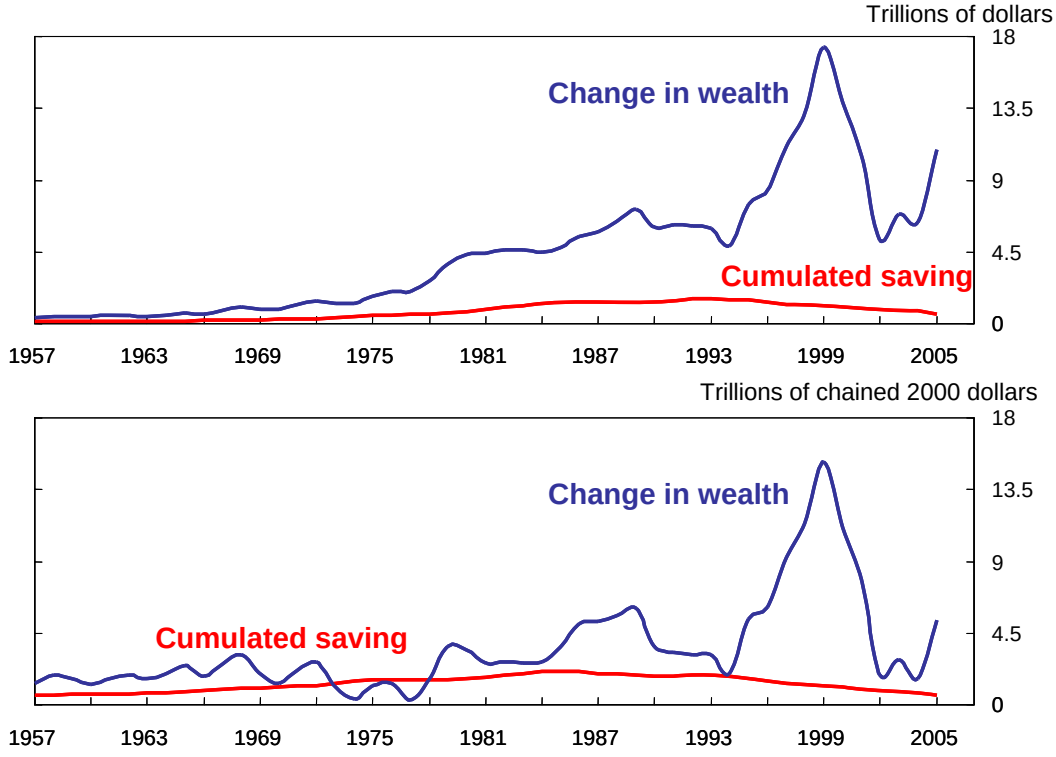
Cumulated broadly-defined saving and change in wealth



Source: Federal Reserve Board and U.S. Bureau of Economic Analysis.

Chart 6

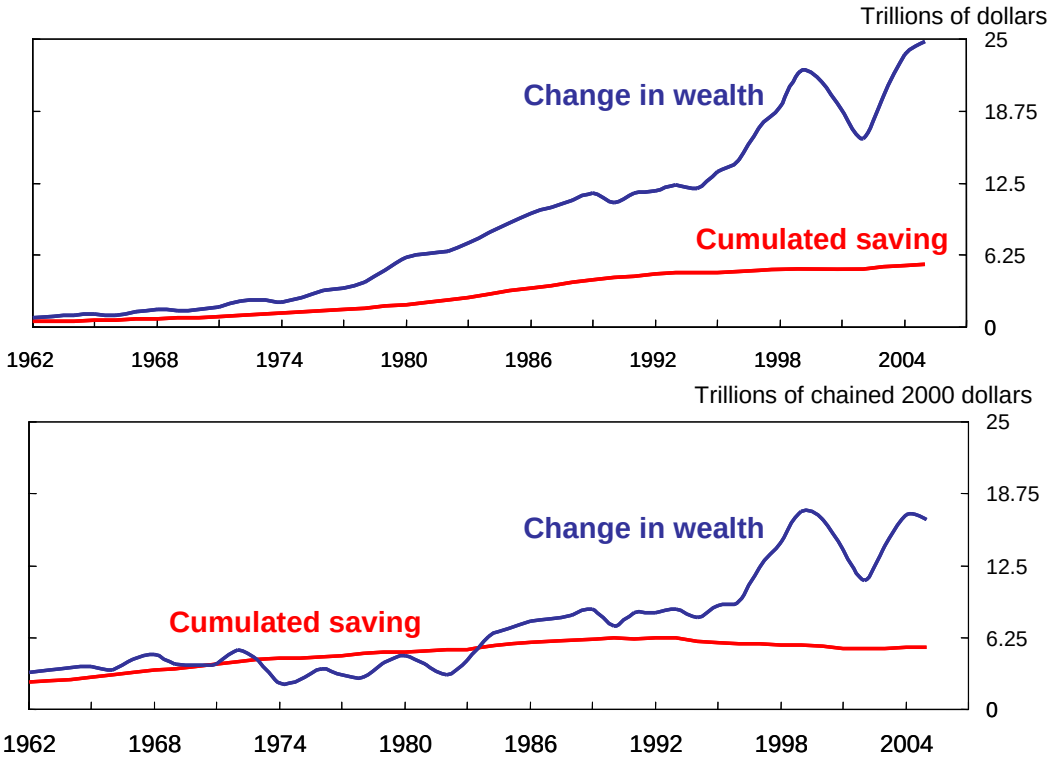
Cumulated broadly-defined saving and change in wealth over five-year intervals



Source: Federal Reserve Board and U.S. Bureau of Economic Analysis.

Chart 7

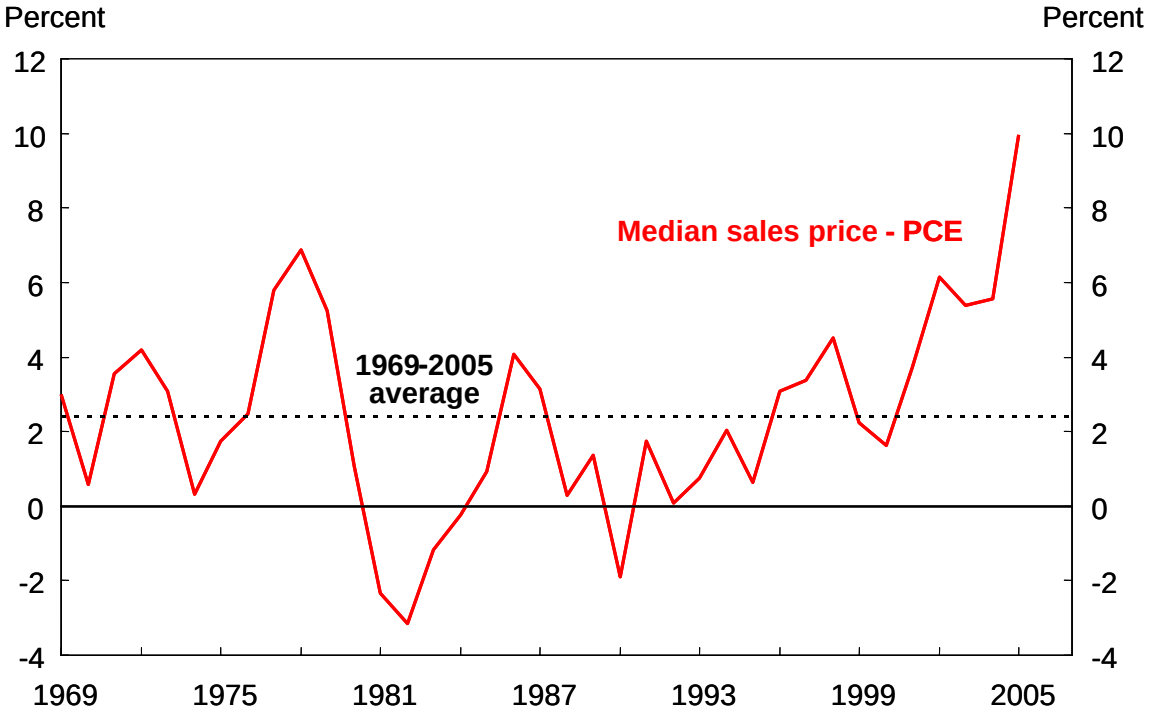
Cumulated broadly-defined saving and change in wealth over ten-year intervals



Source: Federal Reserve Board and U.S. Bureau of Economic Analysis.

Chart 8

Difference in yearly % change of median sales price of existing single-family homes and PCE: chain price index



Source: Bureau of Economic Analysis and National Association of Realtors.

Table 1
Composition of U.S. household net worth

Billions of dollars

	1960	**1970**	**1980**	**1990**	**2000**	**2005**
Real estate						
Household and non-profits	547.8	1025.2	3413.9	7377.4	12631.1	21647.5
Non-farm non-corporate	225.3	445.4	1564.2	3045.1	4562.7	6434.1
Farms	123.3	202.4	782.8	619.1	946.4	1227.1*
Total real estate	896.4	1673	5760.3	11041.6	18140.2	29308.7
Corporate equity	391.7	769.1	1340.1	3124.4	15336.5	14701.3
Total	1849.2	3415.1	9451.1	20239.1	41453.3	52429.8

Percent of net worth

	1960	**1970**	**1980**	**1990**	**2000**	**2005**
Real estate						
Household and non-profits	29.6	30	36.1	36.5	30.5	41.2
Non-farm non-corporate	12.2	13	16.6	15	11.1	12.3
Farms	6.7	5.9	8.3	3.1	2.3	2.3
Total real estate	48.5	49	60.9	54.6	43.8	55.6
Corporate equity	21.1	22.5	14.2	15.4	37	28

Source: Federal Reserve Board, U.S. Department of Agriculture. Corporate equity includes holdings of mutual funds and fiduciaries.
*2004 value.

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The household sector in the integrated euro area accounts

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1. Introduction

This paper sets out the main features and the analytical use of the newly compiled, comprehensive and consistent set of non-financial and financial accounts by institutional sector, henceforth referred to as the "euro area accounts". The analysis of the income, saving, (financial and non-financial) investment and financing of households and non-financial corporations is a primary example of how these statistics can be used in the economic and monetary analysis underpinning the ECB's monetary policy. This note starts by explaining the components of the integrated euro area accounts and the underlying concepts. It then presents the characteristics of the euro area as a whole, as well as specific features of the household sector. Subsequently, an analysis is made of some of the more important developments in recent years, with a particular focus on households.

2. Main features and concepts of the euro area accounts

The euro area accounts enable the analysis of economic developments of the institutional sectors (households, corporations and government) in the euro area, their interrelationships, and their relationships with the rest of the world. Macroeconomic developments, such as economic growth and inflation, are driven by the actions of the individual agents in an economy, while the economic behaviour of these agents varies quite substantially, depending on the institutional sector to which they belong. The euro area accounts present a complete, consistent set of economic indicators for all of these sectors. They also establish, for the first time, consistency between financial and non-financial statistics, thereby allowing for an integrated analysis of non-financial economic activities (such as consumption and gross fixed capital formation) and financial transactions (such as the issuance of debt securities and investment abroad). Finally, the accounts also contain consistent financial balance sheets, with the result that annual changes in the financial wealth of each euro area sector can now be investigated in depth.

The euro area accounts are generally presented on a non-consolidated basis. This means, for example, that a government unit's holdings of debt securities issued by another government unit of the same Member State are not netted out when compiling the financial balance sheet for the government sector. Transfers between government units are not

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[2] The views expressed in this paper are those of the authors and do not necessarily reflect the views of the European Central Bank. A related article on euro area accounts was published in the October 2006 Monthly Bulletin of the ECB.

removed in the non-financial accounts either.[3] The sequence of interlinked euro area accounts has been compiled following the methodology of the European System of Accounts 1995.

2.1 Institutional sectors

Each institutional sector brings together institutional units with a broadly similar behaviour: financial corporations, non-financial corporations, general government, households and non-profit institutions serving households (NPISHs). Transactions with non-residents and the financial claims of residents on non-residents, or vice versa, are recorded in the "rest of the world" account. The sector accounts thus show the interactions among the different sectors of the euro area economy and between the euro area economy and the rest of the world.[4]

The household sector comprises all households, as consumers of goods and services, as well as resident unincorporated enterprises, the latter category covering sole proprietorships and most partnerships that do not have an independent legal status. The household sector therefore also generates output and entrepreneurial income. In the euro area accounts, NPISHs (charitable organisations, trade unions, etc) are grouped together with households, their economic weight is relatively limited. The non-financial corporation sector comprises all private and public corporate enterprises that produce goods for and provide non-financial services to the market. Accordingly, the general government sector excludes such public enterprises and comprises central, state (regional) and local government and social security funds. Thus the general government sector differs from what is generally referred to as the public sector.

For the first time, a complete and consistent rest of the world account for the euro area has been compiled. This means that cross-border transactions and financial claims between euro area Member States have been removed from the euro area rest of the world account and that, in this process, the asymmetries in the bilateral trade statistics have been eliminated.[5] Consequently, imports and exports are much smaller than they would have been if simple aggregation of the national data had been used, given that about one-half of the external trade of the individual Member States is within the euro area.

2.2 From production to borrowing and lending

Euro area accounts record, in principle, every transaction between economic agents during a certain period and show the opening and closing stocks of financial assets and liabilities in financial balance sheets. These transactions are grouped into a sequence of accounts, each of which covers a specific economic process, ranging from production, income generation and income (re)distribution, through the use of income for consumption and investment, to financial transactions such as borrowing and lending. Each transaction is recorded as an increase in the "resources" of a certain sector and an increase in the "uses" of another sector. For instance, the resources side of the "interest" transaction category records the amounts of interest receivable by the different sectors of the economy, whereas the uses side shows interest payable. For each type of transaction, the total resources of all sectors

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[3] This treatment differs from the government finance statistics shown in Tables 6.1, 6.2 and 6.3 of the "Euro area statistics" section of the Monthly Bulletin, since these data are presented on a consolidated basis.

[4] This means that the euro area accounts incorporate (a slight transformation of) the euro area balance of payments and international investment position statistics.

[5] As a result, there has been a very small downward adjustment (by less than 1%) of nominal euro area GDP.

and the rest of the world equal total uses.[6] Each account leads to a meaningful balancing item, the value of which equals total resources minus total uses or total changes in financial assets minus total changes in liabilities. Typically, these balancing items, such as GDP or saving, are important economic indicators. They are carried over to the next account. Table 1 shows an abbreviated presentation of the euro area accounts. The production account, for example, records the output of goods and services as its main resource, to which taxes less subsidies on products are added to obtain total resources. The main use of the production account is "intermediate consumption" - ie the consumption of goods and services within another production process. The difference between resources and uses is the balancing item "gross value added" (or GDP for the total economy). This gross value added is then carried over as a resource in the next account, the distribution of income account, which yields "gross disposable income" as a balancing item. This conceptual and numerical inter-linkage of the accounts ensures the consistent derivation of key economic indicators. The link between the non-financial accounts and the financial accounts is established by the balancing item "net lending/net borrowing", which can be derived both from the last of the non-financial accounts (capital account) and from the financial transactions account. "Net lending/net borrowing" is derived from the capital account by comparing "gross capital formation" (mainly investment in capital goods) plus the net acquisition of "non-produced, non-financial assets" (such as land or licences) with "gross saving" plus net "capital transfers". If saving plus net capital transfers received exceed non-financial investments, a sector has a surplus of funds and becomes a net lender to other sectors. In the financial transactions account, this means that the sector acquires more financial assets than liabilities.[7]

[6] For transactions in assets, such as the incurrence of loans or the purchase of shares, a distinction is made between "changes in liabilities" and "changes in assets", rather than between resources and uses. The rest-of-the-world account view cross-border transactions and positions from the perspective of the rest of the world. It therefore follows that euro area imports are recorded as resources and exports as uses.

[7] The euro area financial and non-financial accounts and balance sheets have been compiled in a single process. Concomitantly, full consistency between the financial and non-financial accounts has been achieved for the government and financial corporation sectors and for the rest of the world (so there is no category "errors and omissions"). There are still discrepancies, equal in amount but opposite in sign, for the households and non-financial corporation sectors, but these are relatively small compared to a simple aggregation of the non-integrated national non-financial and financial accounts data.

Table 1

Euro area accounts 2004, abbreviated presentation

EUR billions, unless otherwise indicated

Uses						Non-financial accounts	Resources					
Households and NPISHs[1]	General government	Financial corporations	Non-financial corporations	Total economy	Rest of the world		Rest of the world	Total economy	Non-financial corporations	Financial corporations	General government	Households and NPISHs[1]
EXTERNAL ACCOUNT												
					1,490	Exports of goods and services						
						Imports of goods and services	1362					
PRODUCTION ACCOUNT												
						Output		14,229	9,539	676	1,342	2,672
992	384	341	5,577	7,294		Intermediate consumption						
						Taxes less subsidies on products[2]		793				
1,680	958	335	3,962	7,728		Gross value added/GDP[3]						
DISTRIBUTION OF INCOME ACCOUNT												
						Gross value added/GDP[3]		7,728	3,962	335	958	1,680
394	807	189	2,348	3,739	15	Compensation of employees	7	3,747				3,747
45	18	13	115	1,052		Taxes on production and imports[2]	24	1028			1,028	
	100			100	37	Subsidies[2]		137	51	1	4	12
136	243	1,030	977	2,385	245	Property income	303	2,327	315	1,054	60	898
708	1	44	126	880	4	Current taxes on income, wealth, etc	1	882			882	
1,432				1,432	2	Social contributions	4	1,431	73	144	1,210	4
5	1,287	98	62	1,451	3	Social benefits other than social transfers in kind	11	1,443				1,443
254	154	184	86	677	33	Other current transfers	105	606	39	184	65	318
5,129	1,598	160	727	7,613		Gross disposable income						
USE OF DISPOSABLE INCOME ACCOUNT												
						Gross disposable income		7,613	727	160	1,598	5,129
4,428	1,576			6,004		Final consumption expenditure						
1	0	49	12	62	0	Adjustment for the change in net equity of households in pension funds reserves	1	61				61
762	21	111	715	1,608		Gross saving						
CAPITAL ACCOUNT												
						Gross saving/current external balance	–13	1,608	715	111	21	762
38	101	11	10	160	24	Capital transfers	8	177	65	4	54	54
496	189	42	868	1,596		Gross capital formation						
–2	0	0	1	0	0	Acquisitions less disposals of non-produced non-financial assets						
283	–216	61	–99	29	–29	Net lending (+)/net borrowing (–)						

1 Non-profit institutions serving households. 2 Data relating to taxes on products (eg VAT) and subsidies on products are not available by sector. The sum of the resident sectors therefore differs from that of the total economy. 3 Gross domestic product is equal to gross value added of all domestic sectors plus taxes less subsidies on products. The sum of the resident sectors therefore differs from that of the total economy.

Table 1 (cont)

Euro area accounts 2004, abbreviated presentation

EUR billions, unless otherwise indicated

(Changes in) Financial assets						Financial accounts[4]	(Changes in) Liabilities and net financial assets					
House-holds and NPISHs	General govern-ment	Financial corpora-tions	Non-financial corpora-tions	Total economy	Rest of the world		Rest of the world	Total economy	Non-financial corpora-tions	Financial corpora-tions	General govern-ment	House-holds and NPISHs
FINANCIAL TRANSACTIONS ACCOUNT												
						Net lending (+)/net borrowing (–) (from capital accounts)	–29	29	–99	61	–216	283
						Statistical discrepancy	0	0	–14	0	0	14
						Net lending (+)/net borrowing (–) from financial accounts	–29	29	–85	61	–216	269
578	43	3,205	446	4271	808	Total changes in financial assets/liabilities	837	4,242	530	3,144	259	308
		–2		–2	2	Monetary gold and special drawing rights (SDRs)						
237	17	669	83	1,007	257	Currency and deposits	144	1,121	0	1,100	21	
63	19	614	–49	647	262	Debt securities, excluding financial derivatives	224	685	17	435	233	
–3	12	617	85	711	16	Loans	178	548	166	52	15	316
19	–4	340	165	520	255	Shares and other equity	269	507	171	336		0
246	0	4	7	258	3	Insurance technical reserves	1	259	13	244		2
15	–1	962	153	1,130	14	Other accounts (receivable/payable) and financial derivatives	21	1,122	164	977	–9	–10
OTHER CHANGES IN FINANCIAL ASSETS AND LIABILITIES ACCOUNT												
						Other changes in net worth	142	–146	–324	–36	–26	240
241	51	–525	194	–39	75	Total changes in financial assets/liabilities[5]	–66	106	518	–490	77	0
CLOSING FINANCIAL BALANCE SHEET												
						Net financial assets (+)/liabilities (–)[5]	1,182	–1,053	–6701	–49	–4,268	9,965
14,620	2,112	32,121	10,906	59,759	9,691	Total financial assets/total liabilities[5]	8,509	60,812	17,607	3,2170	6,381	4,655
		129		129		Monetary gold and special drawing rights (SDRs)[5]						
4,863	440	6,969	1,254	13,527	2,501	Currency and deposits	1,691	14,336	0	14,033	304	
1,482	190	7,310	327	9,308	2,251	Debt securities, excluding financial derivatives	1,839	9,719	629	4,360	4,730	
25	347	10,361	1,535	12,268	1,021	Loans	1,382	11,908	5,357	1,217	1,017	4,317
3,905	698	5,936	5,337	15,876	3,425	Shares and other equity	3,065	1,6236	9,011	7,220		5
4,040	3	115	118	4275	112	Insurance technical reserves	5	4,382	301	4,051		30
304	434	1,302	2,335	4,376	381	Other accounts (receivable/payable) and financial derivatives	526	4,231	2,309	1,289	330	303

[4] Non-consolidated data. [5] Monetary gold and SDRs are financial assets without compensating liabilities.

Sources: ECB and Eurostat.

2.3 Net financial wealth and revaluations

The financial balance sheets show the financial position of the sectors, broken down into categories of financial assets and liabilities (such as deposits, loans and shares), and how it has changed during the reference period. The financial assets and liabilities are valued at market prices. The financial balance sheets change as a result not only of the accumulated financial transactions but also of other changes in assets. Although the latter category mainly reflects revaluations due to changes in the market prices of financial instruments, it also covers other concepts, such as debt cancellations. The consistent derivation of holding gains and losses by holding sector and by financial instrument allows comprehensive analyses to be made, eg into the effects of these changes on the economic behaviour of households and non-financial corporations.

The external financial assets and liabilities account shows the financial position of the euro area vis-à-vis the rest of the world. Naturally, price changes resulting from exchange rate developments largely determine the other changes in the rest of the world account.

3. Contributions of sectors to macroeconomic aggregates

The euro area accounts comprise key economic indicators, both for the various sectors and for the euro area economy as a whole. This section presents some of the salient economic characteristics of the individual sectors in the euro area and their contribution to the development of important macroeconomic aggregates.

Most value added in the euro area (on average 58% in the period 1999-2004) is created in non-financial corporations, while slightly less than one-quarter is generated by household production activities in unincorporated enterprises and from owner-occupied dwellings (see Chart 1). General government accounts for slightly more than 10%. Most value added created in the corporate and government sectors is passed on to households in the form of wages or salaries and employers' social contributions. The vast majority of gross national income thus accrues to the household sector. Subsequently, it is somewhat reduced through the re-distribution of income by means of taxes, net social insurance payments and other transfers, which are largely paid to the government (cf. the distribution of gross national income and gross disposable income in Chart 1).

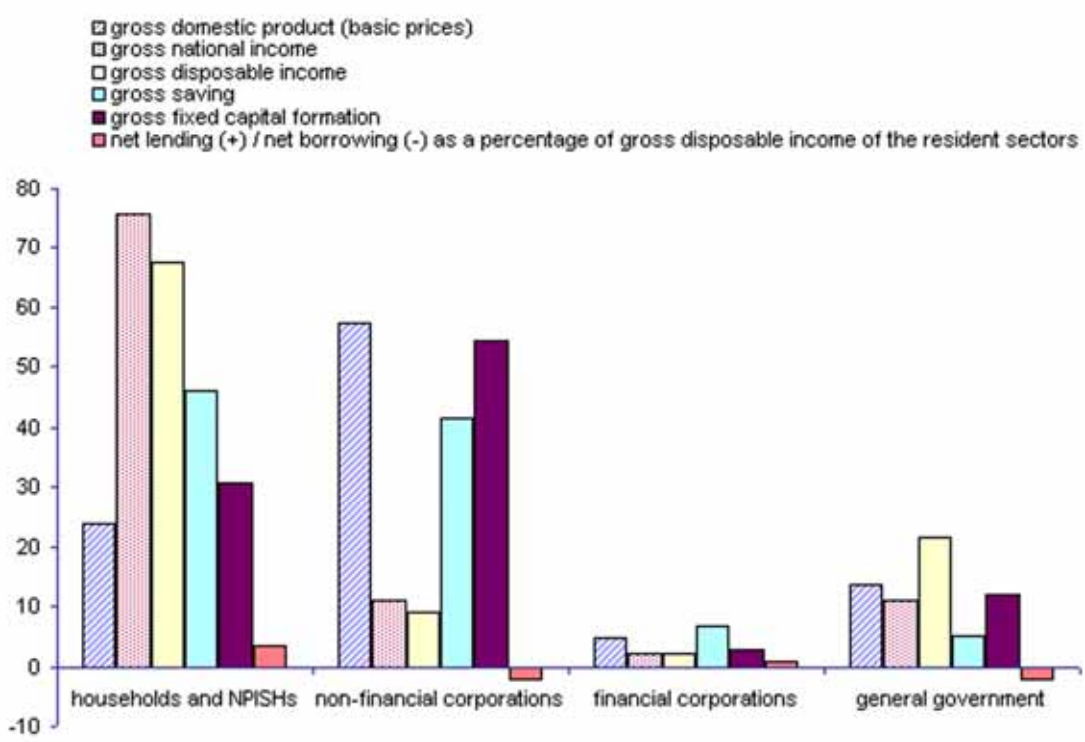
Disposable income is available for consumption or saving. Over the period under review, non-financial investment by non-financial corporations exceeded their saving (plus net capital transfers received) and thus this sector was a net borrower. The general government sector also had a deficit, in contrast to households, whose saving largely exceeded their non-financial investments (eg in new housing and in unincorporated enterprises), although their fixed capital formation still comprised more than 30% of the euro area total. Households thus provided financing to the other resident sectors and to the rest of the world, mostly through financial corporations. These institutions mainly act as financial intermediaries and typically also have a (relatively small) financial surplus.

The net lending and net borrowing of the resident sectors largely offset each other, which means that the euro area economy finances most of its (non-financial) investments through domestic savings. On balance, the euro area was a modest net borrower from 1999 to 2001 and a net lender from 2002 to 2004. The financial transactions account of the rest of the world shows these developments broken down by financial instrument.

Chart 1

Share of resident sectors in key economic aggregates in the euro area 1999-2004

Period average; percentage of the total, unless specified otherwise



Sources: ECB and Eurostat.

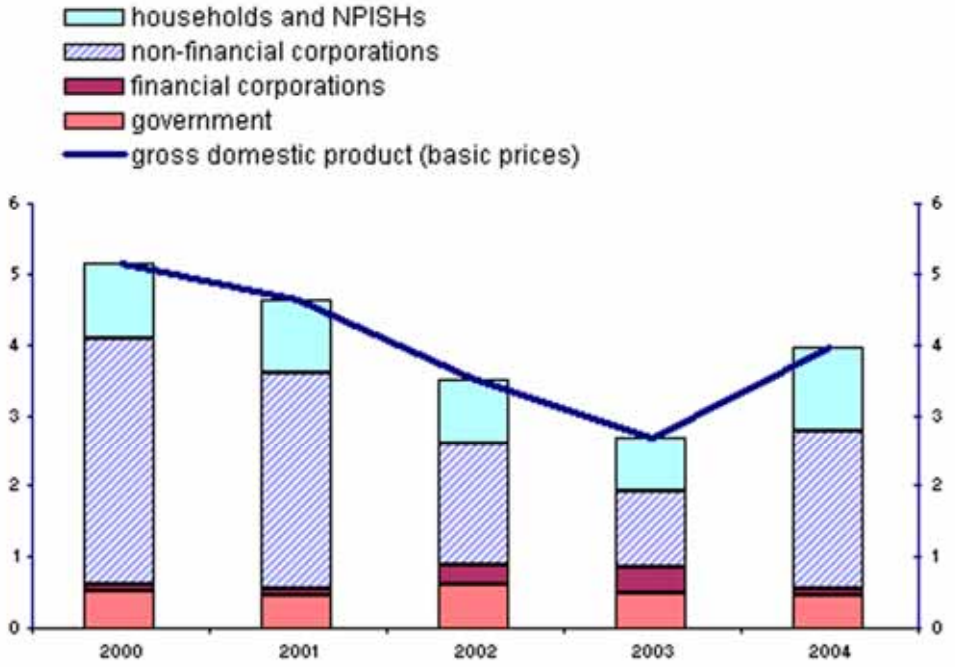
Turning to the contribution of the sectors to the development of key macroeconomic aggregates, Charts 2 and 3 show the contribution of each sector to the annual nominal growth rates of euro area GDP and gross capital formation from 2000 to 2004 respectively. From Chart 2, it is clear that the fluctuations in the GDP growth rates predominantly stem from changes in the contribution of non-financial corporations. The contribution to growth of value added generated in the household sector is more stable.

As expected, the growth of capital formation (in current prices) is quite volatile. In the period 2000-02 it fell to zero, before subsequently increasing again (see Chart 3). The fluctuations in investment by non-financial corporations were even larger. The contribution by the household sector was relatively large in 2004.

Chart 2

Contributions of sectors to the nominal growth rate of euro area GDP

Annual growth rate and percentage point contributions

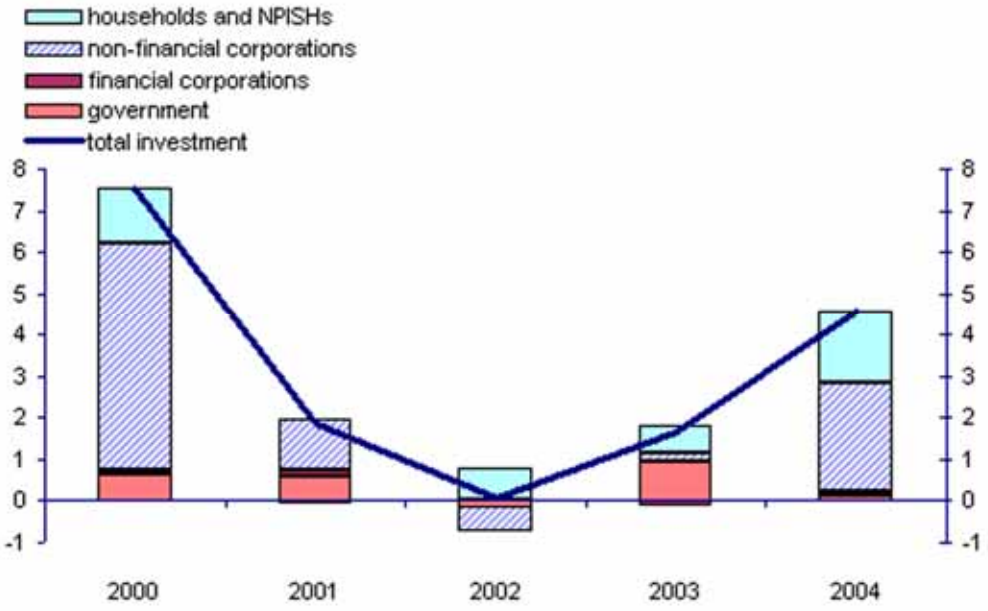


Sources: ECB and Eurostat.

Chart 3

Contributions of sectors to the nominal growth rate of gross fixed capital formation in the euro area

Annual growth rate and percentage point contributions



Sources: ECB and Eurostat.

4. Analysis of sector accounts for households between 1999 and 2004

As shown in Table 2, compensation of employees is the most important component of households' gross disposable income, with an average share of 74% in the period 1999-2004. Mixed income accruing to self-employed households and gross operating surplus from owner-occupied dwellings accounted for 24%, while net property income represented 16%. A large component of property income receivable is interest income on deposits and debt securities held by households, which clearly exceeds the interest payable by households on loans; net interest receipts amounted, on average, to 2% of gross disposable income in the period 1999-2004. Since direct taxes and social contributions collected by the government exceeded the various transfers to households over this period, the net effect of these re-distribution transactions on household disposable income has been negative, amounting on average to –13% of gross disposable income.

Table 2

Households and NPISHs[1]: from primary income to financial transactions

EUR billions, unless otherwise indicated

	1999	2000	2001	2002	2003	2004	in %[2, 3]
Compensation of employees	3,128	3,294	3,443	3,559	3,648	3,747	74
+ Gross mixed income + gross operating surplus	1,012	1,056	1,111	1,155	1,191	1,254	24
+ Property income (receivable - payable)	687	732	760	737	744	762	16
of which: Interest (receivable - payable)	126	129	128	108	106	99	2
Primary income	**4,828**	**5,082**	**5,314**	**5,450**	**5,583**	**5,762**	**113**
– Current taxes on income, wealth, etc	634	672	687	697	700	708	15
– Social contributions (payable - receivable)	1,194	1,247	1,289	1,334	1,386	1,428	28
+ Social benefits other than social transfers in kind (receivable - payable)	1,181	1,217	1,271	1,342	1,395	1,438	28
+ Other current transfers (receivable - payable)	49	54	58	64	67	64	1
Gross disposable income	**4,230**	**4,436**	**4,668**	**4,824**	**4,959**	**5,129**	**100**
+ Adjustment for the change in net equity of households in pension funds reserves	45	46	49	51	56	61	1
– Final consumption expenditure	3,666	3,870	4,040	4,156	4,279	4,428	87
Gross saving	**609**	**612**	**676**	**719**	**736**	**762**	**15**
+ Capital transfers (receivable - payable)	25	26	18	7	13	16	0
– Gross capital formation	434	451	446	457	469	496	10
– Acquisition less disposal of non-financial non-produced assets	–2	–4	–3	–4	0	–2	0
Net lending (+)/net borrowing (–)	**202**	**191**	**251**	**272**	**281**	**283**	**5**
= Transactions in financial assets	**511**	**462**	**485**	**491**	**517**	**578**	**11**
– Transactions in liabilities	**305**	**273**	**221**	**203**	**218**	**308**	**5**
+ Statistical discrepancy	–4	2	–13	–17	–19	14	0

[1] Non-profit institutions serving households. [2] Share of gross disposable income of households and NPISHs; average for 1999-2004. [3] Components may not add up due to rounding.

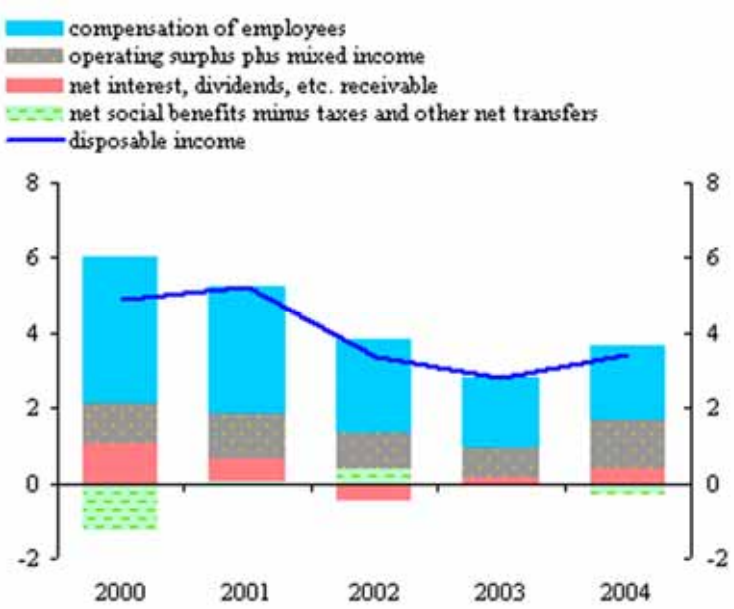
Sources: Eurostat and ECB.

The annual growth rate of nominal gross disposable income increased in 2004, after declining substantially from 2001. The increase in 2004 was largely related to a higher contribution of mixed income and operating surplus, while the preceding decline in income growth had been mainly due to lower growth in the compensation of employees. The redistribution transactions only had a limited impact on the pattern of income growth in the years under review.

Chart 4

Developments in the gross disposable income of households and NPISHs[1]

Annual growth rate and percentage point contributions



[1] Non-profit institutions serving households.

Sources: ECB and Eurostat.

Gross disposable income may be either consumed or saved. Saving includes the change in households' net equity in pension fund reserves, which mainly reflects payments made by employers into pension schemes. This relatively small component (see Table 2) is obviously not available for immediate consumption. Euro area households' gross saving (as a ratio to household gross disposable income) declined in 2000, but subsequently it has increased and remained broadly stable through 2004 at levels close to 15% (see Chart 5). This pattern is influenced by a number of factors. For instance, as a result of the strong growth in labour income and the positive income expectations prevailing at the end of the 1990s, households may have absorbed the concomitant rise in tax and social contribution liabilities by lowering their saving ratio. Moreover, the increase in financial and non-financial wealth at the end of the 1990s, in a context of favourable developments in equity and house prices, may have increased households' propensity to consume, thus leading to a reduction in the saving rate. The return to a somewhat higher saving ratio in the period 2002-04 is likely to reflect the protracted period of economic and financial uncertainty following the end of the "new economy" boom and concerns in a number of euro area countries related to the sustainability of social security systems.

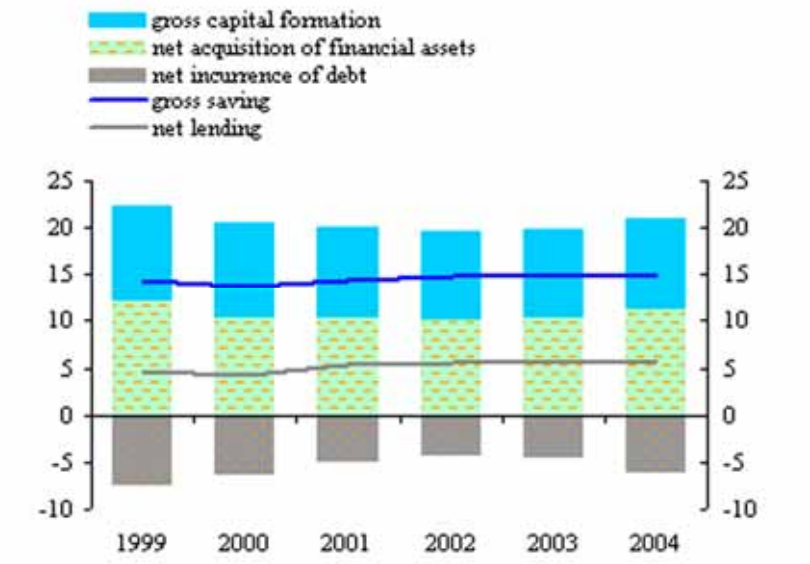
Households invest their savings in either financial or non-financial assets; the latter type of investment mainly consists of the purchase of new housing and the fixed investment by unincorporated enterprises. Households typically finance part of these investments by incurring debt in the form of loans. Through their decisions on saving, investment in assets and financing, households are able to transfer part of their income over time and thus to

spread their spending over the life cycle. Households' net incurrence of debt as a proportion of their gross disposable income declined between 1999 and 2002 but rose again subsequently, amounting to somewhat more than 5% in 2004. At the same time, households' gross fixed capital formation remained robust over the whole period (accounting, on average, for 10% of gross disposable income), due mainly to low mortgage interest rates and anticipated further rises in house prices. Through the incurrence of debt and the accumulation of financial and non-financial assets, households can accommodate changes in their incomes, whether expected (eg on retirement) or unexpected (eg on becoming unemployed). Between 1999 and 2004, euro area households' investment in assets amounted, on average, to somewhat more than 20% of their gross disposable income, with a slightly lower share in the case of non-financial assets than in the case of financial assets (see Chart 5).

Chart 5

Saving, investment and lending of households and NPISHs[1]

Percentage of gross disposable income



[1] Non-profit institutions serving households.

Sources: ECB and Eurostat.

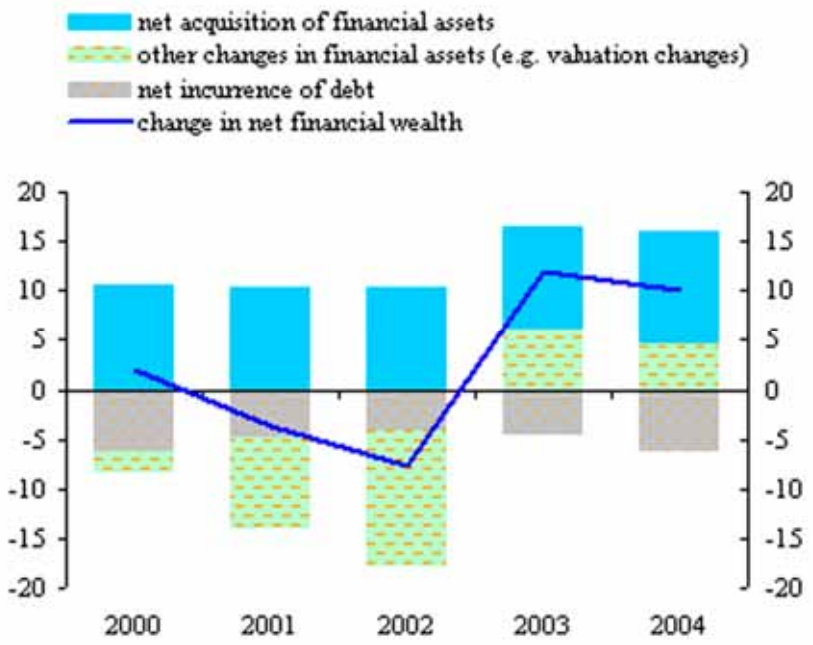
The net lending position of households has been quite stable over the period 1999-2004, with an average of 5% of their gross disposable income. This position of the household sector as a net lender has, in recent years, been compatible with an increasing indebtedness because higher borrowing has been accompanied by a more than proportional increase in financial and non-financial investment. Of course, these general trends conceal different developments within the household sector.

Looking at the information provided by the financial accounts, changes in the net financial wealth of households reflect the net acquisition of financial assets, changes in the prices of financial assets and borrowing net of repayments of outstanding debt. Chart 6 shows that the fluctuations of the changes in net financial wealth of euro area households over the period 2000-04 are mostly explained by changes in the market prices of financial instruments (mainly shares and other equity), while particularly the net acquisition of financial assets as a percentage of gross disposable income remained fairly stable. It is interesting to note that the incurrence of new debts decreased at the time of high economic and financial uncertainty (particularly in 2001 and 2002) and has gradually increased again in an environment of low levels of interest rates.

Chart 6

Changes in financial assets, debt and net financial wealth of households and NPISHs[1]

Percentage of gross disposable income



[1] Non-profit institutions serving households.

Sources: ECB and Eurostat.

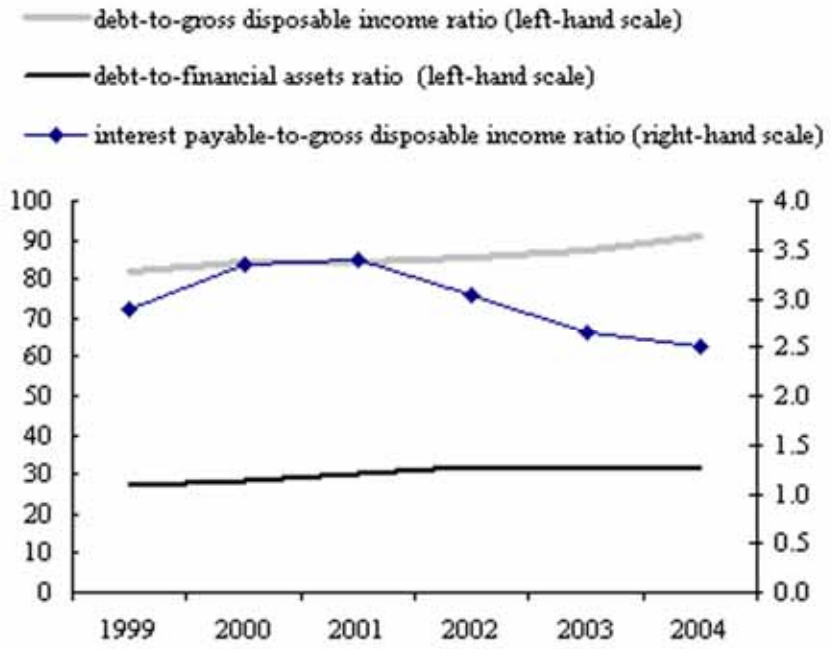
Over the period under analysis, developments in households' financial investment can be divided in two episodes. In 1999 and 2000, households invested heavily in shares and mutual fund shares, in an environment of strong rises in equity prices. From 2001 onwards, households increased the proportion of their investment in currency and deposits, as a reaction to the fall in stock prices and reflecting a general preference for safe and liquid assets. Investment in life insurance and pension funds has been more stable by nature and represented almost 40% of the total financial investment of households.

One development in the balance sheet position of the household sector that has received much attention, owing to its potential implications for the monetary policy transmission process, is the increase in household indebtedness in the period since the end of the 1990s. The expansionary financing behaviour of households, along with partly subdued income growth, has led to further rises in the sector's aggregate ratio of debt to gross disposable income. At the end of 2004, this ratio stood at somewhat over 90% (up from 82% in the late 1990s) (see Chart 7). At the same time, the debt-to-financial assets ratio also increased, from 27% in 1999 to 32% in 2004. The ratio of debt to total assets may have increased less strongly, as in an environment of strong house price increases households' non-financial wealth may have increased faster than their financial wealth. Another important factor in the assessment of this rising debt-to-income ratio is the development of interest payable by households. As interest rates have generally been declining since 2000, interest payable as a percentage of gross disposable income decreased over this period, despite the higher levels of outstanding debt.

Chart 7

Debt of households and NPISHs[1]

Percentages



[1] Non-profit institutions serving households.

Sources: ECB and Eurostat.

5. Conclusions and outlook

Euro area accounts provide a consistent framework for the analysis of economic and financial developments by institutional sector. They provide not only comprehensive information on the economic activities of euro area households, non-financial corporations, financial corporations and government, but also on the economic interactions between the euro area economy and the outside world by means of a complete rest-of-the-world account for the euro area. The consistency of these new statistics represents a major improvement, which, in the context of monetary and economic analysis at the ECB, enables a more accurate understanding of the production, income distribution, saving, investment and financing behaviour of economic agents in general and of households and non-financial corporations sectors in particular.

The annual euro area accounts will be followed, from spring 2007 onwards, by the regular publication of quarterly sector accounts. Such a timely availability of a consistent set of non-financial and financial statistics will allow a more detailed assessment of the monetary transmission mechanism, for example by providing consistent data on income and wealth effects on household consumption and gross capital formation.

Japan's approach to capturing the household sector

Satoru Hagino[1]

In Japan, flow and stock data of the household sector are provided by the flow of funds accounts on a quarterly basis. The Bank of Japan has compiled the accounts since 1954 and a historical revision was made in 2000 to introduce the recommendations of the 1993SNA.

In many countries, the breakdown of the domestic non-financial non-governmental units (ie, non-financial domestic sector excluding the general government sector) into the household, non-financial corporations, and non-profit institutions serving household sectors appears to be a challenging task for flow of funds compilers. The household sector is determined by allocating a certain portion of residual amounts of financial assets and liabilities after allocating them to the financial, general government, and rest of the world sectors. Therefore, the household sector depends on various financial data, rather than its own balance sheet data.

In the case of Japan, the household sector data are based on various sources, such as financial statements of financial institutions, statistics on deposits by sectors, statistics on loans by sector and industry, and the custody and financial market data on securities.

The key is that source data for the household sectors include the breakdown of holding sectors. In Japan, for the historical revision of 2000, the breakdown of the non-profit institutions serving household sector was created in those financial statistics, in addition to the household, private non-financial corporations, and other sectors. This made possible the separation of the non-profit institutions serving household from the household sector.

Looking at each financial instrument category, allocating insurance and pension reserves is relatively straightforward. Their total amount is based on the financial statements of insurance companies and pension funds and the data on the investment contract of corporate pensions. Such amounts are entirely allocated to the household sector. In conformity with the 93SNA, public pension funds are not treated as financial assets of the household sector.

Allocating the holding of currency to the household and private non-financial corporations sectors is generally a difficult task. In Japan, such allocation was made by using a fixed ratio on an assumption that 90 percent of residual amount is held by the household sector and 10 percent of that is held by the private non-financial corporations sector. This ratio is based on a study conducted by the Bank of Japan on the holding sectors of currency. However, given that such a study had not been updated, the reliability of the ratio was questioned.

Thus, the estimation method was revised in 2000. Specifically, the total amount of outstanding transferable deposits and time and savings deposits held by households, which is obtained from the statistics of deposits by sector, is multiplied by a currency-deposit ratio to obtain the holdings of currency by households. The currency-deposit ratio is calculated based on the data such as Public Opinion Surveys on Household Savings and Consumption conducted by the Bank of Japan. It is to be noted that the both old and revised estimation methods are based on fixed ratios, but using a fixed ratio vertically (ie, multiplying the data of other financial instrument in the same sector by a fixed ratio) was considered more reliable

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than using a fixed ratio horizontally (ie, multiplying the data of the same financial instrument in the other sector by a fixed ratio).

Deposits and loans can generally be allocated to the household sector using statistics on deposits and loans by sector. If the statistics for loans are only disaggregated by industry, as is the case of Japan, it is necessary to convert the industry breakdown into the sectoral breakdown. In Japan, ratios of sole proprietorships are estimated for each industry breakdown, and the amount of loans to each industry is multiplied by its own sole proprietorship ratio.

In contrast, loans to individuals in Japan are the sum of housing loans and consumer credits, which derive from statistics of loans to individuals and other data sources, including the financial statements of non-bank financial institutions. Given the significant weight of consumer credits extended by the non-bank financial institutions in Japan, the Bank of Japan decided, in the 2000 revision, to collect balance sheet data from major non-bank financial institutions for statistics purposes.

Estimation of trade credits is also a challenging task, as the household sector includes sole proprietorships. In the case of Japan, trade credits of the household sector are the residual after deducting the total assets from the total liabilities of other sectors. The total is obtained by using the financial statements statistics of corporations by industry and the balance of payments statistics. This is based on the assumption that the difference between trade credit assets and trade credit liabilities is assets or liabilities of sole proprietorships. If financial statistics on the sole proprietorships are developed, the sophistication of the estimation method could be explored.

Securities holdings of the household sector are generally based on the custody and financial market data, as well as balance of payments and international investment positions statistics for foreign securities. Given the limitation of the availability of source data, there are generally some difficulties in allocating some categories of securities to the household sector.

In Japan, household holdings of shares are estimated using the data on the distribution of shareholders, which derive from the statistics such as the Share ownership Surveys. The amount under “individuals” in the surveys is allocated to the household sector. Unlisted shares are allocated to the household sector proportionally with the private non-financial corporations sector by using the ratio calculated from the above-mentioned surveys.

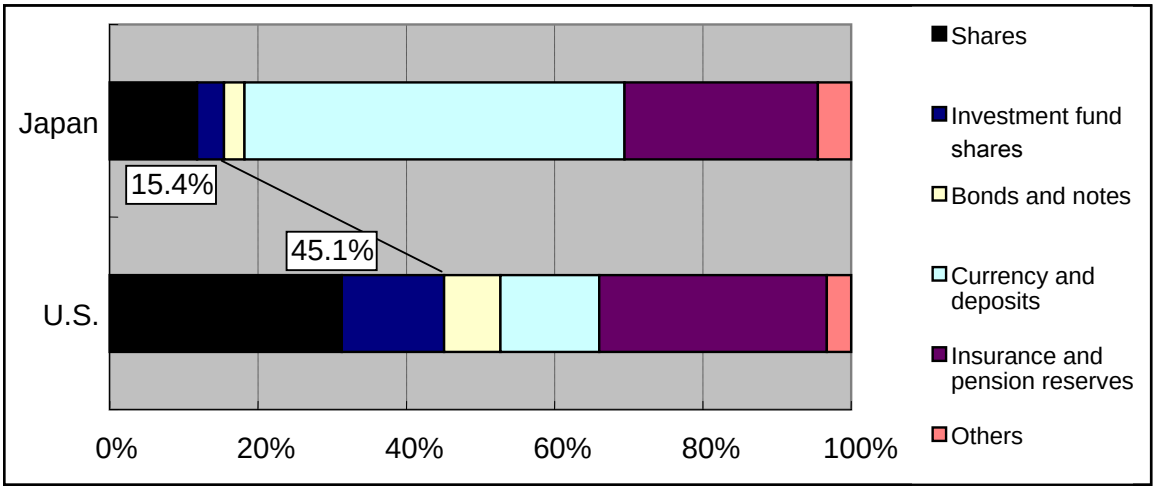
Investment fund shares are based on the data on total net assets published by the Investment Trusts Association, which is broken down by type of investment funds. The outstanding amount of each type of investment funds is obtained. Holdings of household are estimated for each type of instrument funds by using fixed ratios of household holdings.

In Japan, investments in shares, including investment funds shares, by households are increasing and such investments are drawing considerable attention on the part of financial markets. Japanese households were not keen on such investments due to their risks. When compared with the United States, for example, the Japanese ratio of shares in the total household assets represents one-third of that of the United States (see Chart 1).

Chart 1

Financial assets held by households

End of March 2006



Source: Japan's flow of funds accounts, U.S. flow of funds accounts.

Given the considerable interest in the data on shares held by households, a further improvement of the accuracy of those data is desirable. Estimation of the unlisted shares is a major challenge as the source data for the holding sectors and the market-equivalent value of those shares are limited.

For securities other than shares, custody data are used for securities traded in Japan. Household holdings of central government bonds are based on the data of registered government bonds by sector. Household holdings of local government bonds are estimated by deducting registered government bonds from the issue total, on the assumption that unregistered bonds are held by households. All discount bank debentures sold through over-the-counter of bond-issuing institutions and those sold through securities companies, as well as interest-bearing bank debentures sold to households are allocated to the household sector, taking account of the fact that they are infrequency traded in the secondary market.

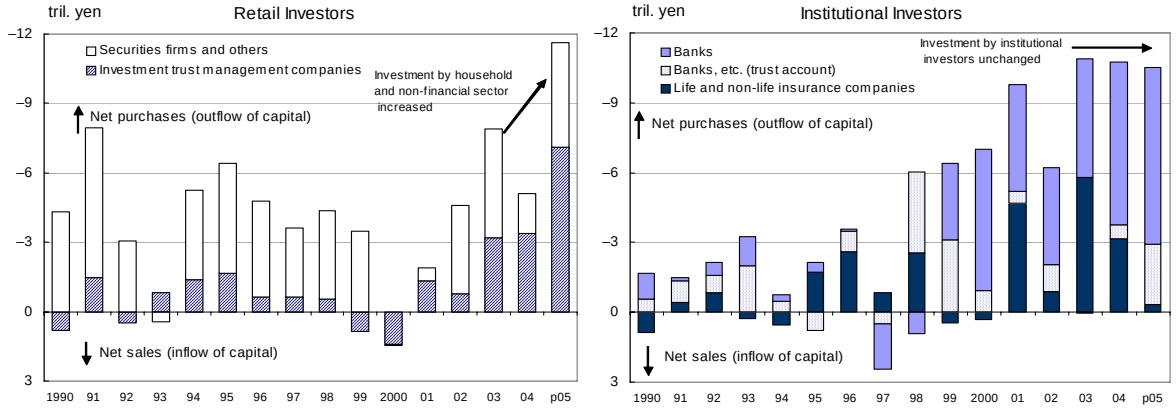
In Japan, investments in foreign securities (ie, securities issued by non-residents) by other sectors in the balance of payments and the international investment positions statistics are partly allocated to the household sector, using a fixed ratio. Such a ratio is based on an informal survey of securities companies.

The allocation of foreign securities to the household sector could be more accurate if more detailed data on the balance of payments and international investment positions were to be gathered. At present, balance of payments statistics, as per Balance of Payments Manual 5th edition do not contain the breakdowns into the household and non-financial private corporations sectors. Japan's balance of payments statistics follow this. This has tended to limit the use of balance of payments data in the flow of funds accounts.

For example, Japanese retail investors, ie, investors other than institutional ones (banks and insurance companies) and governments, invested actively in foreign securities, such as global sovereign bonds, emerging market bonds, and structured bonds, while investment in foreign securities by institutional investors remained relatively stable (see charts 2 and 3). It is considered that investments by household account for a major portion of the purchases of global sovereign bonds and equities of emerging economies. However, in the absence of separate data for household investments in foreign securities, the scope for a precise analysis is limited.

Chart 2

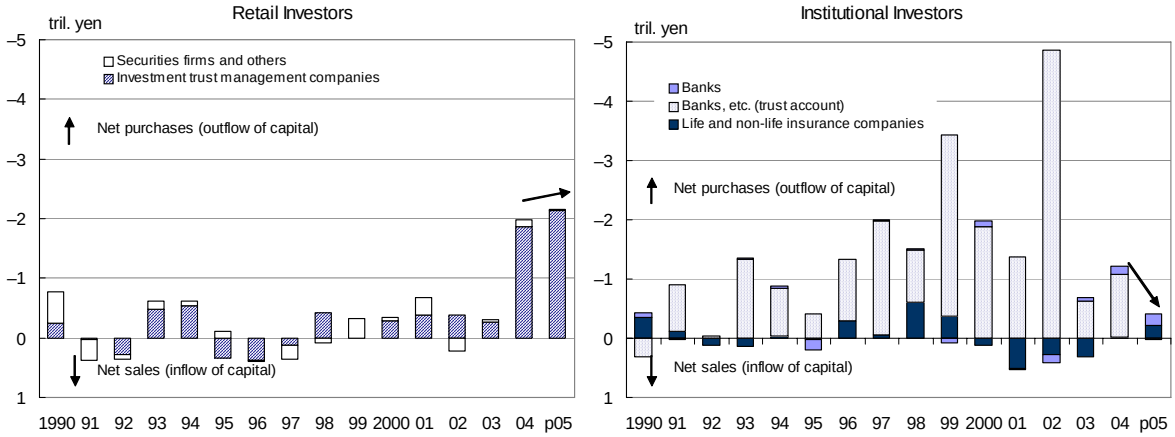
Investments in foreign bonds and notes by retail and institutional investors



Source: Japan's balance of payments statistics.

Chart 3

Investments in foreign shares by retail and institutional investors



Source: Japan's balance of payments statistics.

In conclusion, the flow of funds accounts provide useful information on the household sector. In the absence of balance sheet data for the household sector, the estimation of that sector tends to be complex. Flow of funds compilers need to explore the use of various statistics to improve the accuracy of data. For the international transactions and positions of the household sector, cooperation with the compilers of balance of payments and international investment positions statistics is very important.

Session 2

An overview of issues related to household finance

Chair: Már Gudmundsson
Bank for International Settlements

Papers:

Thailand's household sector balance sheet dynamics: evidence from microeconomic and macroeconomic data
Kiatipong Ariyapruchya, Bank of Thailand

Measurement problems in household international remittances
Kenneth Coates, Centre for Latin American Monetary Studies (CEMLA)

A survey of housing equity withdrawal and injection in Australia
Carl Schwartz, Tim Hampton, Christine Lewis and David Norman, Reserve Bank of Australia

Households' transactions with the rest of the world: the case of Russia
Lydia Troshina and Natalia Kupriyanova, Central Bank of Russia

Households' response to wealth changes: do gains or losses make a difference?
Robert-Paul Berben, Kerstin Bernoth and Mauro Mastrogiacomo, Netherlands Bank

Households' financial transactions with the rest of the world, with special reference to remittances
Veenus Padamadan and Balwant Singh, Reserve Bank of India

Thailand's household sector balance sheet dynamics: evidence from microeconomic and macroeconomic data

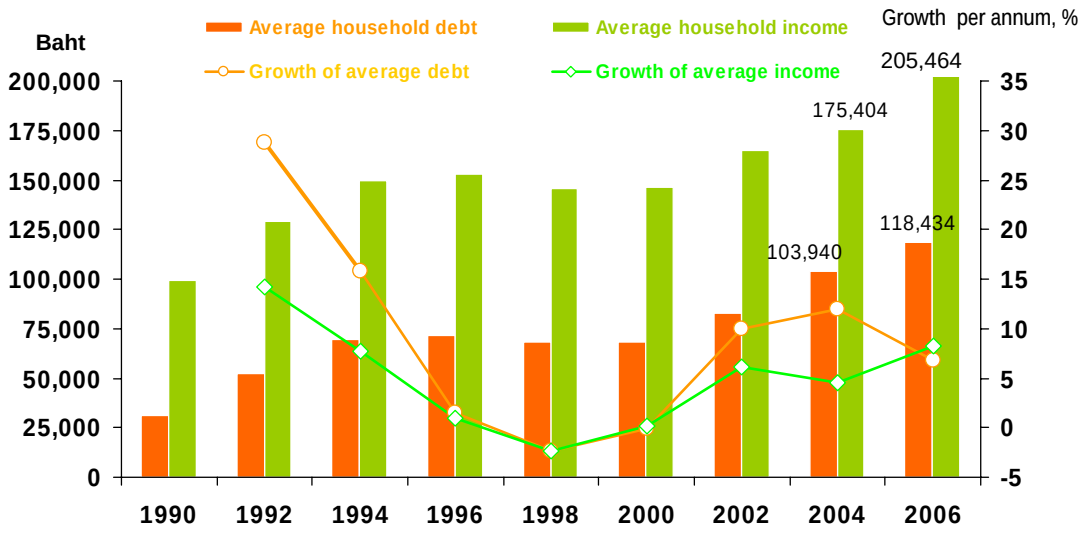
Kiatipong Ariyapruchya

1. Introduction

In the past few years, Thailand's average household debt has risen rapidly to unprecedented levels amid strong economic growth. The debt-to-income ratio has doubled since the pre-crisis years. This increase has been a widespread phenomenon. Debt has risen across all income and age groups across the country. A central economic debate of the day is whether we, as a society, should be concerned about the rising and unprecedented level of debt borne by the household sector. However, a balanced debate should focus on both sides of the household balance sheet. The purpose of this paper is to place concerns over household debt in perspective by constructing the household sector balance sheet.

Figure 1

Thailand's household debt



Source: Socioeconomic Survey, National Statistical Office, 1990-2006H1.

Rising household indebtedness is not necessarily a problem in itself, as it may simply reflect intertemporal decision-making on the part of households and the resulting desire to smooth their consumption over time. In principle, debt can be good for households. It allows households to bring forward future income and to afford expensive durables such as real estate, vehicles, refrigerators or home business equipment. It also allows households to maintain their standards of living in the face of unexpected shocks such as illness or unemployment.

Most macro-prudential indicators for the household sector at present do not point to an alarming level of debt or deterioration of household credit quality. Despite recent sharp increases, Thailand's level of household debt, expressed either as a share of GDP, or of disposable income, is still lower than or at least comparable to those of other regional and

advanced economies. Regarding credit quality, the rates of non-performing loans for consumer credits, albeit remaining relatively high as a result of the crisis legacy, have been declining steadily.

Nevertheless, risks are present. Increased leverage renders household consumption and its ability to service its debt become more sensitive to future adverse income and interest rate shocks. As such, the issue has important and wide-ranging implications on five levels: the household's financial health, financial sector stability, the macro-economy, the integrity of the social fabric, and the appropriate responses of policy-makers.

Unfortunately, debate concerning the sustainability of household debt has been dominated by debt growth figures. However, a sound analysis of household debt should occur within the context of the household balance sheet. The household balance sheet is composed of both liabilities and assets. The liability side includes household debt such as mortgage, home business, vehicle leasing and informal loans. The asset side includes household real estate, financial wealth, vehicles, and home business equipment. This paper seeks to measure aggregate household debt and household assets using data from household surveys and financial institutions. We define household debt as any debt incurred by the household, regardless of source or purpose. As a result, loans borrowed from informal sources are also included. We find that different sources produce dramatically different measures of household debt. We reconcile the different measures to obtain an estimate of the household sector's financial position. International comparisons and the level of household assets suggest that Thailand's household sector position at the macroeconomic level is not precarious.

2. Data

Tackling these issues requires analysis and data at the microeconomic level. As such, this paper analyses and synthesizes findings from three sources: the National Statistical Office's Socio-economic Survey (2004), a Bank of Thailand Household Survey on Household Attitudes towards Debt and Savings (2004).

An in-depth study of the household sector requires household data at the microeconomic level. As such, this paper relies on two household surveys: the National Statistical Office's socio-economic survey and the Bank of Thailand survey on household attitudes towards debt and savings. Details of the surveys follow.

2.1 The Socioeconomic Survey (SES)

The Socioeconomic Survey (SES), conducted by the National Statistical Office (NSO), collects information on household income, expenditures, debt, and household characteristics, covering country-wide samples of private, non-institutional households both in municipal and non-municipal areas. It is Thailand's preeminent source of microeconomic information of households. The survey is usually conducted every other year, except after the 1997 crisis to 2002 where it was conducted on annual basis but with a substantially smaller number of household samples in the odd year. Under the NSO methodology on collection period, all the sample households were divided into twelve equally representative sub-samples, with each sub-sample being interviewed during the period of one month.

The (SES) is Thailand's most comprehensive and representative household survey. In 2004, the survey covered approximately 34,000 households. The survey sample was generated from a stratified three-stage sample design in which regions are selected first, provinces second, and clusters of households last. Given the standard stratified design, household sampling weights are calculated for use in obtaining estimates of population parameters. We use the SES survey to produce estimates of household debt and household real estate.

2.2 Survey on Household Attitudes toward Debt and Saving (HADS)

In order to improve our understanding of household debt, the Bank of Thailand carried out a survey on Household Attitudes toward Debt and Saving (HADS). The survey was conducted during June 2004 and covered 2,800 households in all five regions of Thailand. The aim was to gather a national database with a more qualitative nature to complement the quantitative data from the SES. The questionnaire is divided into 5 parts, (1) respondent and household characteristics, (2) household financial position with emphasis on debt holdings and perceived debt burden, (3) attitudes towards on borrowing and default, (4) attitudes towards savings, and (5) financial literacy.

The survey sample was generated from a stratified three-stage sample design in which regions are selected first, provinces second, and clusters of households last. Given the standard stratified design, sampling weights are calculated for use in obtaining estimates of population parameters. The National Statistical Office's Sampling Department provided and implemented the sampling methodology as well as providing maps of sampled household blocks.

We use the HADS survey to produce estimates of informal debt and the macroecononomic level. The HADS survey is notable in that it requests each household's total amount of informal debt. Prior to the HADS survey no such information existed.

2.3 Financial sector data

We also utilize data from financial sector institutions in measuring household debt and assets. Financial institutions include commercial banks, special financial institutions, finance firms, cooperatives, the village fund, the Bank of Thailand, and the stock market.

To construct aggregate household debt, we sum up loans to households issued by commercial banks, special financial institutions, finance firms, cooperatives, the village fund and transfers to the asset management committee. This is by no means a simple exercise given the large universe of household credit providers in Thailand.

Measuring household financial assets is somewhat easier; we simply sum up household deposits in commercial banks, special financial institutions, and cooperatives. We assume that all the deposits in the special financial institutions are household deposits. This is a reasonable supposition given that the special financial institutions, such as the Government Savings Bank (GSB), the Government Housing Bank (GHB), and the Bank for Agriculture and Agricultural Cooperatives (BAAC) were set up by the government to provide financial services to low-income households. Household assets in the form of mutual funds, stocks, and treasury bonds are included. Household assets in the form of mutual funds and treasury bonds are reported by financial institutions.

Furthermore, household assets in the form of real estate is estimated using average housing prices obtained from mortgage loan appraisals in the Bangkok metropolitan area. We note that actual amounts of stock and real estate assets in the ownership of households are not reported by the financial institutions. Using flow data on share purchases, we estimate Thai households as holding 32 percent of stock market capitalization directly, in addition to those held through mutual funds. We use household survey data and mortgage loan appraisal data from banks to estimate household assets in the form of real estate and stocks. Table 1 summarizes available data on the household balance sheet at the micro and macro levels.

Table 1

Thai household sector balance sheet data availability

Household balance sheet statistics	Currently available	Additional data available from 2007 onwards
Aggregate debt	**Formal household debt** from formal sector data (e.g. commercial banks, specialized financial institutions, cooperatives, village fund). **Total household debt** aggregated from the SES.[1]	**Informal debt** to be aggregated from the SES 2006.
Aggregate financial assets	**Saving deposits** from formal sector data (e.g. commercial banks, specialized financial institutions, cooperatives), **bonds**, **stocks** (imputed), **mutual funds**, **government pension fund**.	**Stocks** directly owned by households may be aggregated from SES 2006Q4.[2]
Aggregate non-financial assets	**Real estate sssets** estimated from (1) housing rent reported in the SES and (2) mortgage housing valuation from major financial institutions.	**Real estate, vehicles, livestock**, **home business assets** can be aggregated from household-level data from the SES.
Household-level debt	SES, 1996-2006 every two years, National Statistical Office.	**Formal and informal debt**, SES, 2006 onwards, *yearly basis*, National Statistical Office.
Household-level assets		**Financial, real estate, vehicles, livestock home business assets** from the SES) 2006. A detailed breakdown of financial assets (e.g. **savings account, stocks, pension, cash, gold**) will be available for the SES 2006Q4.[3]

[1] The Socioeconomic Survey (SES) is Thailand's most representative household survey. The 2006 survey covers 48,000 households across the country. [2] This estimate may under-measure as high-income households are difficult to survey. [3] Detailed information on financial assets to be attained from a special SES survey module jointly implemented by the National Statistical Office and the Bank of Thailand. The sample covers approximately 12,000 households across the country.

Source: Compiled by author.

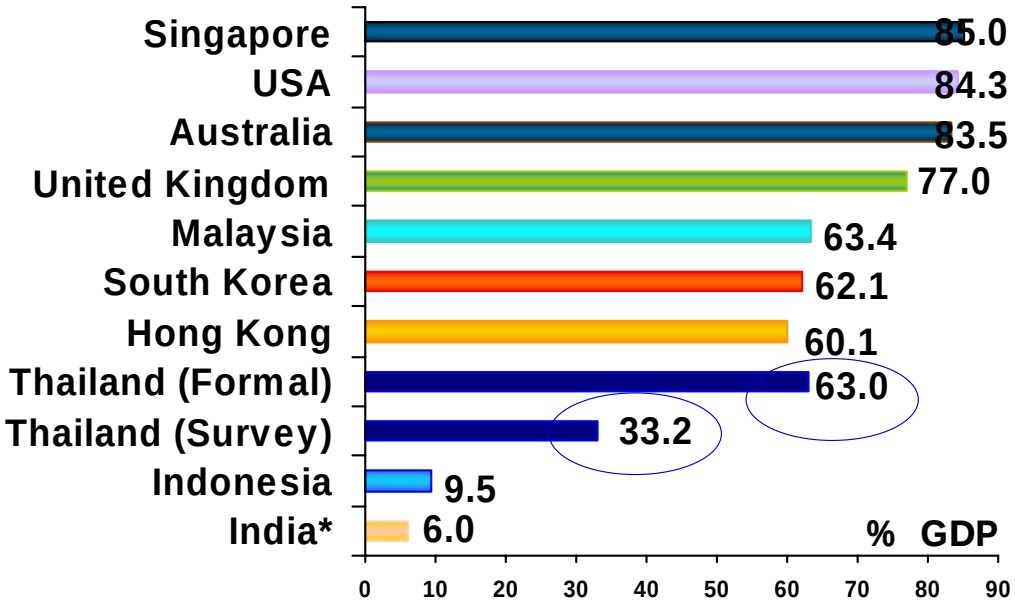
3. Measuring household debt

Measuring Thailand's household debt poses a number of problems. First, many households borrow from moneylenders in the informal economy. Informal loans do not appear in official databases on financial transactions. Informal loans should not be ignored give the large size of the informal sector. Fortunately, household survey data offer a solution, albeit imperfect, since household debt figures obtained from surveys and financial institutions are not compatible. In this section we suggest a method for estimating Thailand's overall household debt, formal and informal, and a way to reconcile survey and formal sector data.

We address the problem of estimating informal debt by using household survey data in which households are asked to report all their household debt regardless of their sources. A difficulty arises because the survey does not ask households about amounts of informal loans.[1] Rather, each household is asked about total outstanding debt which should include both formal and informal loans. Next, households are asked to specify their primary and secondary loan sources from a list which includes commercial banks, Special Financial Institutions, cooperatives, and "private persons outside the household." Informal debt is defined as loans from "private persons outside the household". Using this information, we estimate the upper and lower bounds for informal household debt. The lower bound is defined as the sum of household debt for those households borrowing from informal sources alone. The upper bound is defined as the sum of household debt for those households borrowing from two sources of which one source is informal. We find that informal loans account for 15-30 percent of household debt. Low income households are more reliant on informal loans.

Figure 2

International comparison: household debt to GDP



Note: data from 2003, * denotes data from Q2 2003 Thai data from NSO SES 2004 and BOT 2004.

Source: NSO, CEI C, HSBC.

The SES reports aggregate household debt to be approximately 33 percent of GDP in 2004 whereas the household debt figure from financial institutions comprises 63 percent of GDP in 2004. The two figures can be reconciled to arrive at a third and more accurate measure of total household debt. We bear in mind that each source has its own particular advantage: the survey data contains information on informal loans; formal sector data, as opposed to survey data, has less risk of under-reporting and therefore is a better measure of household debt from formal sources.

[1] The Socioeconomic Survey for 2006 will ask households to report household debt amounts from informal sources.

It is not surprising that the two measures differ significantly. Households tend to under-report. In addition, the distribution of household debt is highly skewed with rich households accounting for a major share of debt. Rich households are also likely to be under-sampled in survey data. As a result, the formal sector statistic exceeds the survey statistic. We take the view that true level of household should be around 73 percent of GDP given that formal sector debt accounts for already 63 percent with an additional portion arising from informal sources. An additional 10 percent for informal loans is added, given that informal loans are concentrated in low-income households.

4. Measurement of household financial assets

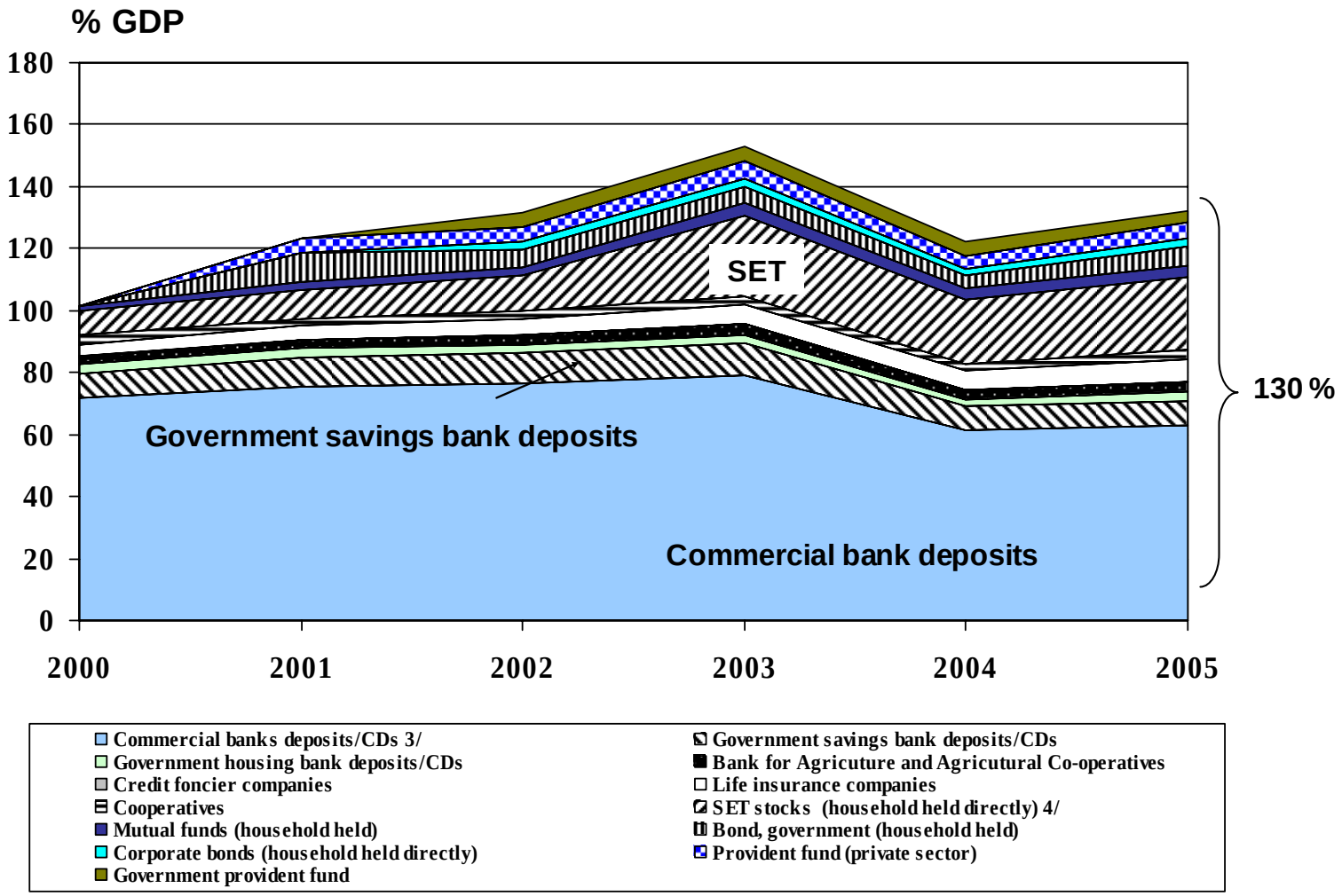
We utilize data from financial institutions, such as commercial banks, special financial institutions[2], finance firms, cooperatives, the village fund[3] and the Bank of Thailand, and the stock market in order to measure aggregate household financial assets. Financial institutions are required by law to report the state of their balance sheets. Aggregate financial assets comprised 130 percent of GDP in 2005 and significantly exceeds overall household debt. Most of household financial assets are in the form of commercial bank deposits. This is to be expected given the Thai economy's reliance on the banking sector. However, household assets in the form of stocks have been expanding in line with of capital market development. In comparison, household holdings of treasury and corporate bonds remain low. Provident fund holdings are also negligible.

[2] Government financial institutions, such as the Government Housing Bank, the Government Savings Bank and the Bank for Agricultural and Agricultural Cooperatives, with social objectives such as poverty alleviation and housing affordability.

[3] A government microfinance program.

Figure 3

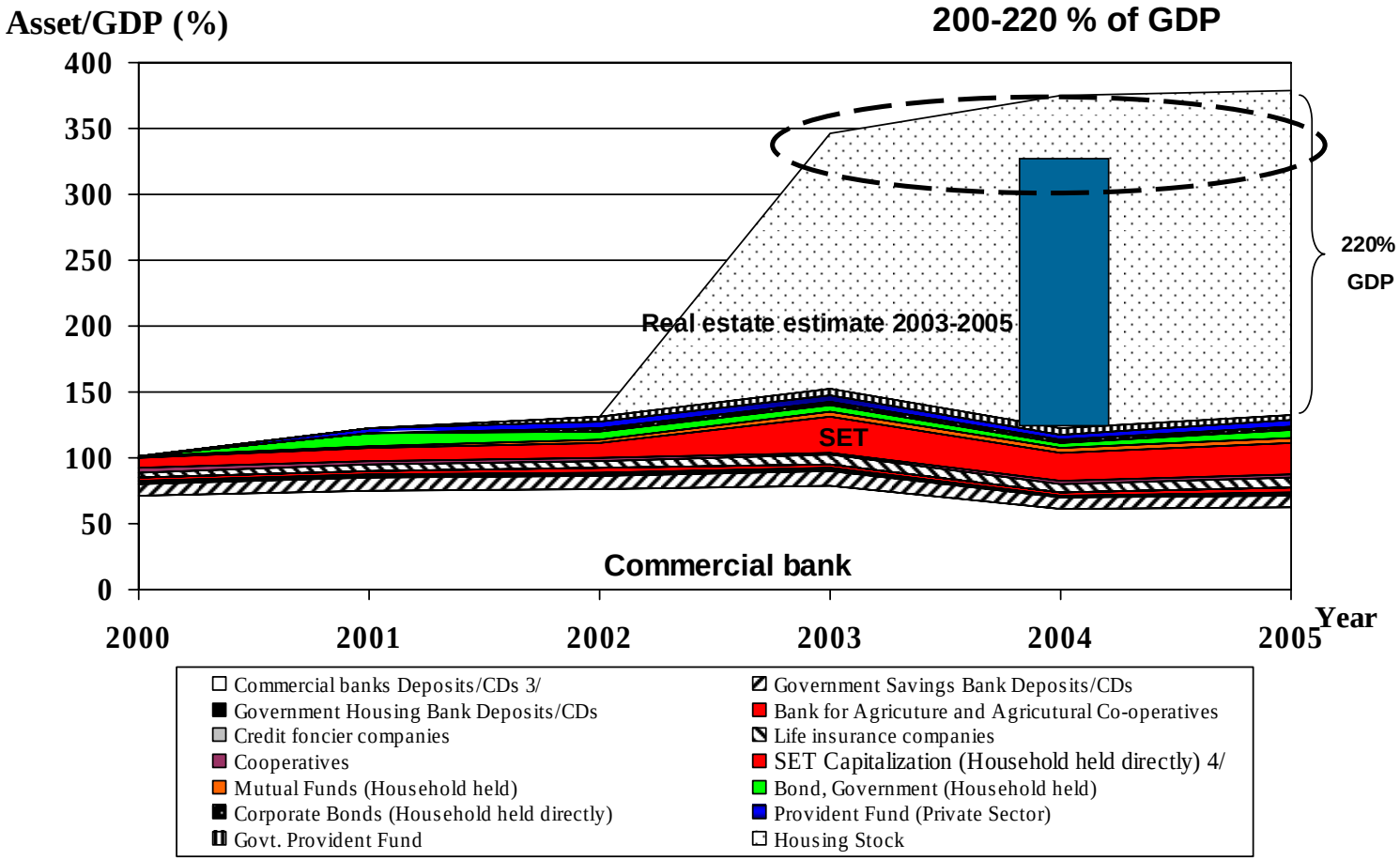
Household financial assets



Source: Bank of Thailand, Ministry of Finance, Bond Exchange, Stock Exchange of Thailand.

Figure 4

Financial and housing assets of Thai households



Note: Real estate assets are estimated.

Source: BOT, BEX, MOF.

5. Measurement of household real estate assets

We estimate household real estate assets using two approaches. The first approach entails using housing prices obtained from mortgage appraisals by commercial bank and specialized financial institutions. The prices are multiplied by the number of dwellings as reported by the National Statistical Office's Census. We find that real estate assets comprise 260 percent of GDP. However, this measure may have an upward bias as many poor households do not have access to mortgage loans. As a result, we use a second measure that is not vulnerable to this bias. We obtain imputed rent from the SES. Modelling housing assets as perpetual assets, we find that housing assets account for 180 percent. This figure, however, may be downwardly biased as rich households are under sampled. However, using both biased measures together allows us to mitigate the problem of bias by pitting one bias against the other. The two figures can serve as lower and upper bounds on the true value housing assets in Thailand. We find that Thailand's real estate assets should be in the range of 200-220 percent of GDP.

6. Conclusion

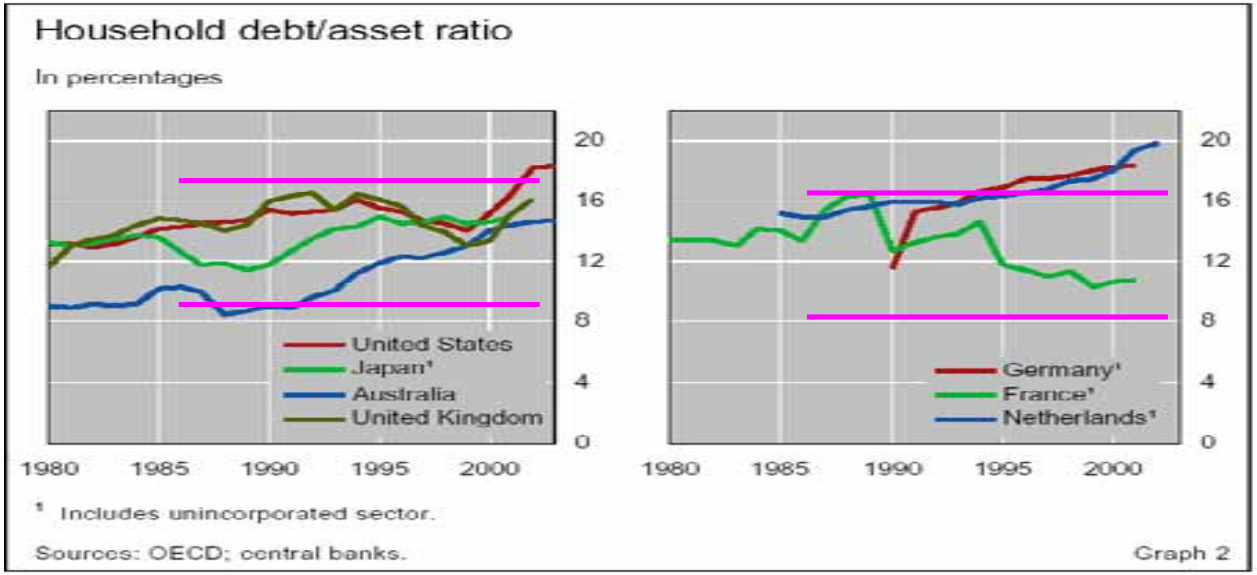
The question of whether Thailand's household debt is excessive remains. Combining all our measures of household debt and assets, we find that Thailand's household debt-to-asset ratio is in the neighborhood of 8 percent to 16 percent, which is not excessive by international standards. We emphasize that our measure of assets include only financial and real estate assets. Although not complete, our measure should capture most of household assets. Adding other household assets such as automobiles, motorcycles and home business equipment should lower the debt-to-asset ratio even more.

An international comparison of Thailand debt-to-asset ratio shows that Thailand's household debt ratio is comparable to other OECD economies. Measures of household debt-to-asset ratios among developing countries are not available. We caution that comparing ratios across a wide range of countries is not enough to discern whether a country's household balance sheet is in a precarious position. Different economies have varying degrees of financial access, financial literacy, and experience different types of shocks. International comparisons can therefore only provide a rough sense of whether the household sector position is fragile. It is also worth noting that debt and assets are intertwined. Households with financial access accumulate assets through borrowing. It would therefore be natural to see a rise in household debt preceding a rise in household assets. As Thailand is an emerging economy undergoing financial liberalization, its household sector position would probably see an increase in debt relative to assets for some time.

Figure 5

Thailand's estimated ratio of household debt to household asset

$$\frac{Debt^{household}}{Financial\ Asset^{household} + Real\ Estate^{household}} \cong [8.5 - 17]$$



Measurement problems in household international remittances

Kenneth Coates

Introduction

Although remittances have been a standard component of the balance of payments for many years, it has not been until very recently that attention has come to focus on the need for greater accuracy in their statistical measurement. For the most part this is simply a reflection of the practical fact that in an environment of limited compilation budgets, priority in the assignment of resources is determined by the relative importance of BOP flows.

In most industrialized economies, for example, the net flow of remittances is outward, but does not represent a significant fraction of total BOP flows nor of GDP. Obviously it does not make sense to allocate scarce resources for the measurement of a phenomenon which is of limited macroeconomic effect in the host country, and where improved accuracy would have only a marginal impact on the overall BOP accounts. In these countries the traditional approach to the measurement of remittances has been that of estimation on the basis of certain demographic and behavioral parameters pertaining to the immigrant population, although lately there has been increasing resort to ITRS data and direct reporting.

In many emerging economies, on the other hand, the net flow of remittances is inward and their macroeconomic impact is of substantial and growing importance (see Tables 1 & 2). Their effect must be considered by macroeconomic and monetary policy-makers, thereby giving rise to the need for more accurate measurement. This poses a methodological challenge to central bank compilers, given the absence of established “best practices” in remittances measurement.

This paper discusses some of the issues involved in improving the accuracy of the remittances statistics, in the face of a daunting array of obstacles comprising conceptual aspects, the complex structure of the remittances market and their channels of delivery, the nature of the different sources of data and, of course, the limited budget availability for the task.

It begins by describing the growing importance of remittance flows to emerging economies in the Latin American and Caribbean (LAC) region, and their macroeconomic implications. It proceeds to discuss conceptual ambiguities and ongoing efforts to clarify them with a new set of definitions of remittances in a BOP context. The structure of remittances markets in the region is analyzed in an effort to provide some indication of the appropriate compilation methodology to be employed, while a survey of different data sources and their availability is presented as another determining factor in the choice of measurement techniques.

The tentative conclusions of this work recommend that, in our region, compilation efforts should focus on direct reporting systems by the main intermediaries in the remittances market, to be complemented by additional information stemming from the use of household surveys. Discrepancies arising from data confrontation with estimates from other sources, where possible, should be regularly employed as a means for re-evaluating the methodology.

These issues have arisen in the context of ongoing work by CEMLA and others to develop a compilation guide on remittances for Latin American and Caribbean central banks, to be applied in a regional effort to improve information and measurement of remittance flows. The project is partially financed by the Multilateral Investment Fund (MIF) of the Inter-American Development Bank. A Working Group on Remittances (WGR) comprising 24 central banks

from the LAC region is the implementing body, while technical guidance is provided by a Remittances International Steering Committee (RISC) composed of international stakeholder institutions and collaborating central banks. CEMLA provides the project Secretariat.

The growing importance of remittances

There appears to be a new element in modern migration that refers to the structure of the household. In traditional migratory patterns the family was eventually reunited in the host country, once the pioneer migrants had established certain stability of prospects. Remittances were a temporary flow of sustenance until the family regrouped geographically, at which point "remittance decay" set in.

Today, along with everything else, the household and the job market have gone global. Cross-border households are increasingly common, generating income where there is work to be found and spending it closer to home where the elderly and more dependent members remain. Many migrant workers do not intend to remain their entire lives in the host country, just their productive years. Remittances are merely a way of getting the money from where it is earned to where it is most needed. Contributing to this phenomenon are the vast improvements and declining costs in modern international travel, communications and financial transactions.

As a result, remittances tend to be more stable flows nowadays that do not drop off after a certain number of years. While there is a consensus that remittances are growing fast, with total international remittance flows estimated to surpass USD 200 billion for 2006, there is at the same time an underlying feeling that the statistical evidence is sketchy and that we are dealing more in the realm of orders of magnitude than accurate statistical measurement. There is also a presumption that the high growth rates we are witnessing in recent years may be overestimating the actual situation, since they are probably also reflecting improved measurement procedures. The following table provides estimates of remittances to the LAC region, showing an average annual cumulative growth rate of 19% over the period 2003-05:

Table 1

Remittance inflows to Latin America and the Caribbean

USD billions

Area	2005	2004	2003	a.a.c.r[1]
Mexico	20.0	16.6	13.3	23%
Central America, Dominican Rep. & Panama	11.7	10.2	8.8	15%
Andean Block (including Venezuela)	9.8	7.6	6.6	22%
Caribbean and English-speaking	3.2	2.9	2.7	9%
Mercosur	7.9	6.5	5.5	20%
Total for region	**52.6**	**43.8**	**36.9**	**19%**

[1] Average annual cumulative rate (of growth, i.e. the annual rate that applied during the period would produce the witnessed growth).

Source: MIF-IADB.

Regardless of the exactness of these figures, the fact remains that remittance flows now exceed the sum of Foreign Direct Investment (FDI) and Overseas Development Assistance (ODA) to the LAC region. In many countries they have displaced tourism and the main commodity exports as the largest credit item on the BOP current account, and in

several of the smaller economies their equivalence in terms of GDP is in the double digits (see Table 2)[1] with the consequent impact on GNDI.

The economic importance of these flows, both at the micro and macro levels, must be taken into account by policy-makers in view of their positive development impact in various ways:

1) First and foremost, by permitting remittance recipients to accede to higher levels of consumption and improved living standards, including better health and education, these flows are contributing to the long-term development potential of the economy.

2) Secondly, and given the role played by the banking sector as either a direct or indirect intermediary in the remittance process, these flows represent an opportunity for broadening the financial inclusion of beneficiaries, providing access to bank credit for housing and microfinance to the lower-income population segments.

3) Last but not least, by strengthening the balance of payments and relaxing the traditional foreign exchange constraint faced by these economies, the a-cyclical nature of remittance flows improves creditworthiness and access to international capital markets, while reducing the cost of new debt.

Table 2

Current BOP transfers to LAC countries

1995 and 2004

BOP current transfer receipts			
USD millions	**1995**	**2004**	
			As % of GDP
Argentina	823	1,091	1%
Aruba	71	40	
Bahamas, The	25	265	5%
Barbados	57	127	5%
Belize	38	54	5%
Bolivia	248	488	6%
Brazil	3,861	3,582	1%
Chile	482	1,395	1%
Colombia	1,033	3,917	4%
Costa Rica	165	371	2%
Dominican Republic	1,008	2,672	14%
Ecuador	506	1,913	6%
El Salvador	1,393	2,634	17%
Guatemala	508	3,049	12%

[1] While the flows in Table 2 refer to total current transfer receipts, the “workers remittances” component accounts for, on average, 80% of the total.

Table 2 (cont)

Current BOP transfers to LAC countries

1995 and 2004

BOP current transfer receipts			
USD Millions	**1995**	**2004**	
			As % of GDP
Guyana	67	140	18%
Haiti	553	907	26%
Honduras	244	1,359	18%
Jamaica	670	1,892	22%
Mexico	3,995	17,124	3%
Netherlands Antilles	366	320	11%
Nicaragua	138	619	14%
Panama	184	323	2%
Paraguay	200	196	3%
Peru	837	1,467	2%
Suriname	13	76	7%
Trinidad and Tobago	34	101	1%
Uruguay	84	98	1%
Venezuela	413	180	0%
Anguilla	22	9	
Antigua and Barbuda	78	23	3%
Dominica	16	21	8%
Grenada	22	32	7%
Montserrat	14	28	
St. Kitts and Nevis	23	28	7%
St. Lucia	28	29	4%
St. Vincent & Grenadines	17	24	6%
Regional total	**18,236**	**46,594**	**3%**

Source: IMF BOP Statistical Yearbooks, as presented in Wilson, John "Manual on Best Practices for the Compilation of International Remittances" (draft), CEMLA, July 2006.

Central banks and the need for more accurate measurement of remittance flows

There are several good reasons why central banks should be directly concerned with the improved statistical measurement of remittances, but above all there is a practical aspect relating to a specific responsibility: central banks in our region are the primary compilers and

main purveyors of economic and financial statistics to the government and the market. While the scope of this responsibility may vary from country to country, it encompasses at the very least, monetary, financial and balance of payments statistics, and in many cases extends to national accounts and price indices. From the operational viewpoint, however, there are primary central bank mandates that justify close involvement in the monitoring and measurement of remittances:

1) In the narrow terminology of payments systems analysis, what we commonly call remittances are in fact "small-value, cross-border, household-to-household transfers". As such they are of limited interest from a systemic viewpoint, in that their clearance and settlement should not normally pose a threat to the integrity of domestic payments systems, which is in many instances throughout the region a direct central bank responsibility under its mandate for financial stability.

2) It is their cross-border nature which makes them interesting to central banks, since that makes them fall squarely in the province of the international balance of payments. Remittances also occur within borders (for example, from the North to the South of Italy), but do not provoke very much interest in that context. In addition, the fact that as unilateral and unrequited transfers they are non-debt-creating flows adds to their fascination.

3) The balance of payments is very much central bank territory since it has impact on the exchange rate and the level of reserves, which are both primary preoccupations of the monetary authority. This in itself is a strong justification for greater central bank scrutiny of remittances as flows that are increasingly influential in the determination of both, as well as on the fiscal implications of monetary sterilization. As a growing component of the balance of payments, therefore, remittances warrant more focused attention and greater precision in their measurement.

4) As implied above, their impact goes beyond the narrow confines of the exchange market, and ventures into the mainstream of monetary and interest rate policy. For the many central banks in the region who have adopted inflation targeting as a monetary policy regime, inflation forecasting must take into account the pass-through to prices from movements in the exchange rate.

5) From a national accounts viewpoint, remittances increase the national disposable income of the receiving country over and above its gross domestic product. If remittance flows are underestimated, the estimation of such key variables as the national savings rate may be prone to systematic error. And since monetary policy must also take into account the deviation of actual from potential GDP, this is also an important consideration for inflation targeting regimes.

6) For central banks who still act as financial agent for the Treasury, the availability of foreign exchange for debt service should be of major interest (despite that today the dollar is at an anomalous discount rather than the traditional premium).

The case, then, for a better understanding and improved measurement of remittances is strong, although there are several important obstacles to be overcome in order for progress to be made. These can be of a conceptual, operational or co-operational nature, as illustrated in the following list:

- Lack of agreement on a precise definition of remittances
- Discrepancy of information from different sources
- Lack of knowledge of market structures and channels
- Lack of registration for market operators (informality)
- Lack of precision in measurement techniques

- Little use of household surveys
- Insufficient resources at central banks and other agencies
- Insufficient coordination at the national and international levels

The need for improved measurement of remittances was emphasized at the 2004 G-8 Summit at Sea Island, and with this objective in mind the G-7 Ministers of Finance called for the establishment of an international working group on improving data on remittances. This group met for the first time in January 2005 at the World Bank in Washington.[2]

It was agreed there that the conceptual aspects of the challenge, focusing on the need for new BOP definitions of remittances, should be coordinated by the Technical Sub-Group on the Movement of Natural Persons (TSG), as part of the UN Interagency Task Force of Statistics in International Trade in Services. The TSG has prepared new definitions and submitted them to the IMF BOPCOM, the Advisory Expert group on National Accounts and the Interagency Task Force for approval.[3]

It was also agreed that the operational issues relating to the compilation of remittance data would be referred to a "city group" of BOP compilers. Thus the Luxembourg Group met for the first time at Eurostat headquarters in June 2006, and is now in the process of preparing an annotated outline for a manual on compilation guidance.[4]

Conceptual and definitional aspects

Part of the problem of measurement lies in the contemporarily employed definitions contained in BPM5,[5] which tend to reflect the static post-war world of limited capital and labour mobility where cross-border financial transactions were subject to control and immigrant status was clear-cut. The situation today is very different, and from the recipient countries' perspective the need is to quantify these flows with greater precision and determine their macroeconomic impact on the home economy, rather than to inquire as to the specific source of the funds or the duration of residence in the host country of the remitter.

The current "narrow" BOP definition of remittances presents three major shortcomings: i) from a formal viewpoint, the accounting for different components has different implications for 1993 SNA in terms of GDI and GDNI; ii) from the perspective of coverage, the definition excludes certain transactions whose nature and economic impact would suggest, in a contemporary context, that they should be included as "bona fide" remittances; and iii) from the measurement angle, certain conceptual ambiguities regarding the term "migrant" provide compilers with little practical guidance on the classification of transactions into the different categories.

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2 See "International Working Group on Improving Data on Remittances: Interim Report", World Bank Development Data Group, IMF Statistics Department and UN Statistics Division, November 2005.

3 See "Outcome Paper: Definition of Remittances" (draft), TSG June 2006.

4 See "Main Conclusions of First Meeting", Luxembourg Group on Remittances, July 2006.

5 "Balance of Payments Manual", 5th Edition, IMF.

The current account items[6] associated with remittances in BPM5 are the following,[7] although only the first two are traditionally included in working definitions of the term:

a) **Compensation of employees.** This item refers to the earnings of short-term (less than one year) and cross-border workers, ie non-migrants. Their gross earnings are booked as a credit to the home country (country of origin), while their personal expenses abroad are debited under "travel", and taxes and social security contributions paid in the host country under "current transfers". Thus there is an imputed "net remittance" on current account, although this does not reflect actual financial transaction flows.

b) **Workers' remittances.** This is the lion's share of remittances, and is defined as *"current transfers by migrants who are employed in new economies and are considered residents there"* (ie have stayed or intend to stay for more than one year). In contrast to the previous item, workers' remittances refer to the actual cross-border transfers of funds to households in the country of origin. The empirical difficulties of identifying and measuring these flows are compounded by the following issues: a) The transfers refer only to income from employment, excluding other possible sources of funds; b) The definition refers to transfers from "migrants", which is a descriptive term rather than a clearly defined category such as legal resident or non-resident; c) there is a presumption of family relationship between the parties, which is difficult to establish in practice; and d) the remitter universe is confined to employed migrants, excluding all others from this category.

c) **Other current transfers.** This is a "catch-all" category aimed at including all current transfers that do not originate from the employment income of migrant workers. As such it has not normally been added to the working definition of remittances, although as pointed out in the previous section, there are many transactions excluded by the definition of workers' remittances that both common parlance and economic analysis would tend to treat as remittances. These include other household-to-household transfers (gifts, dowries, inheritance, alimony), but also comprise transfers involving other institutional sectors such as the government (social security contributions and payments, taxes), NPISH or Non-profit Institutions Serving Households (charitable donations) and corporations (lotteries, private pensions, etc).

The TSG has recommended several modifications to the BOP presentation of remittances, aimed at eliminating some of these problems. The main thrust of these modifications, in consonance with the analytical need to concentrate on the economic impact of remittances, is to increase the focus on the beneficiary household and de-emphasize the "migrant" status of the remitter. The new definitions build up step-by-step (see Figure 1) according to the source of funds received by the beneficiary household, as follows:

a) **Personal transfers**. This item would replace "workers' remittances" as a standard BOP item. Personal transfers are defined as *"all current transfers in cash or in kind made, or received, by resident households to or from other non-resident households."* They would therefore include all household-to-household current

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[6] BPM5 also includes "Migrants' Transfers" as a capital account component, reflecting an imputed transfer of net assets and liabilities of a household that changes residence status, although the link to remittances is tenuous.

[7] For an in-depth discussion of BOP remittance definitions and their relation to SNA 1993, see "Issue Paper #1: Definition of Remittances and Relevant BPM5 Flows", Alfieri, Havinga & Hvidsten, United Nations Statistics Division, February 2005.

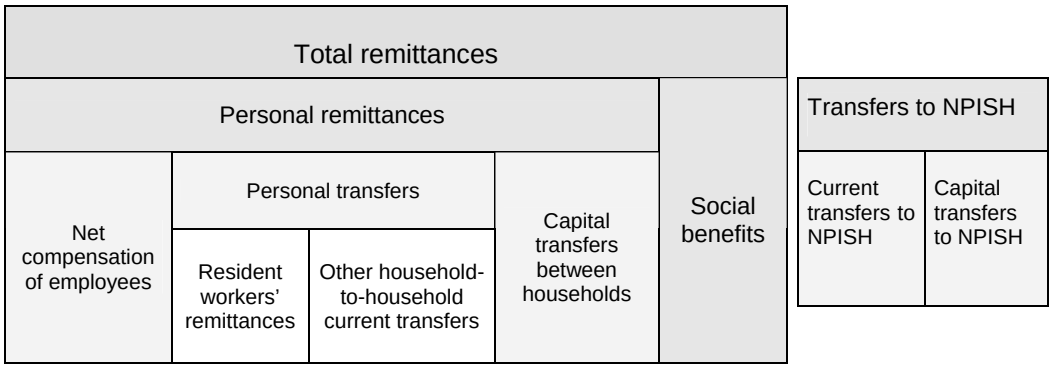
transfers, regardless of the remitter's source of funds, relationship to beneficiary or motivation.

b) **Personal remittances.** This item is defined as *"Personal transfers + net compensation of employees + capital transfers.* This is a broader household-to-household concept than personal transfers. Short-term and cross-border worker compensation is included on a net rather than gross basis, together with capital transfers between households.

c) **Total remittances.** This item completes the concept of total **direct** remittances received by households by incorporating non-household sector remitters. It is defined as *"Personal remittances + social benefits"*, with the latter payable directly to households by governments, corporations or NPISH.

d) **Total remittances and transfers to NPISH.** This final item, which is self-defining, rounds out the concept of total cross-border support to households by recognizing that some of it may be received indirectly through the intermediation by domestic NPISH of funds received directly from abroad.

Figure 1
New BOP remittance definitions recommended by TSG[8]



Source: See footnote 8.

Remittances and the household financial position

As mentioned above, the TSG has recommended the adoption of a new standard item "***personal transfers***" to replace the BPM5 component "workers remittances". Personal transfers are defined as "*all current transfers in cash or in kind made, or received, by resident households to or from other non-resident households."* By adding the *net compensation of employees* and *capital transfers between households* to personal transfers, a concept of "***personal remittances"*** is arrived at. The further addition of *social benefits* provides a concept of "***total remittances"***.

All these items have in common that the direct beneficiary is a household, although the senders may either be other households (in the case of personal transfers, net compensation of employees and capital transfers between households) or governments and corporations

[8] The chart presentation is adapted from Maldonado, René "Problemas en la Medición de Remesas", CEMLA, 2006.

(social benefits). Most are ***flow*** concepts, with the exception of capital transfers between households which add and detract from ***stocks.***

Capital transfers are defined as those which transfer ownership of fixed assets, or funds conditional on the purchase or disposal of fixed assets by either or both parties. Clearly these are more likely to contribute to the financial position of households, to the extent that the latter contemplates the ownership of fixed assets.

The additional income represented by the flow concepts, however, may raise total beneficiary household income above the zero savings threshold and allow for the accumulation of financial assets. Since the remittance beneficiary households are likely to be concentrated in the lower income segments of the population, it would appear reasonable to assume that the flow concepts will be directed mostly towards consumption. However, to the degree that remittances may catalyze the inclusion of beneficiary households in the formal banking sector, their impact on the financial position of these households may be more significant.

Distinguishing among personal and capital transfers between households for purposes of compilation will prove challenging. While the former are likely to be smaller and periodic, the latter will tend to be larger and less frequent. In this context the data provided by ITRS and direct reporting systems may require complementary information arising from household surveys that include sections on remittances. For this purpose the IWGIDR recommended that the International Household Survey Network could provide a useful tool in comparison of data, metadata and methodology.

The structure of remittances markets

While the conceptual simplification provided by the new definitions should improve matters (and certainly make them no worse) as far as knowing which flows are to be measured and included under the different categories of remittances, the actual compilation methodologies to be employed will depend on the availability of data.

Understanding a concept is no guarantee of the ability to measure it precisely. Everyone understands the concept of trade in foreign merchandise, and it is generally accepted that customs data are a good proxy for the flows in question. However, it is also recognized that customs do not verify 100% of the contents of bills of lading, that invoicing may not be entirely transparent and that a certain amount of “informal” trade does not pass through customs.

Similarly, a more precise measurement of remittances will require a better understanding of the channels through which they flow, and the relative importance of each. This is liable to vary by national markets, according to such factors as regulation (or the absence of it), financial inclusion, cost, available payments systems technology and even cultural habits.

The following Figure 2 illustrates in a very schematic manner the various channels through which personal remittances may flow from origin to destination.[9] As with international trade, a primary distinction is drawn between institutional and informal channels, the former comprising the delivery of remitted funds through established business entities whether or not they are authorized to engage in such activity. The informal channels consist mainly of the physical transportation of cash or gifts brought into the home country by individuals (the actual remitter, friends and relatives, or couriers), or the use of non-established outfits such as the “hawala” type systems.

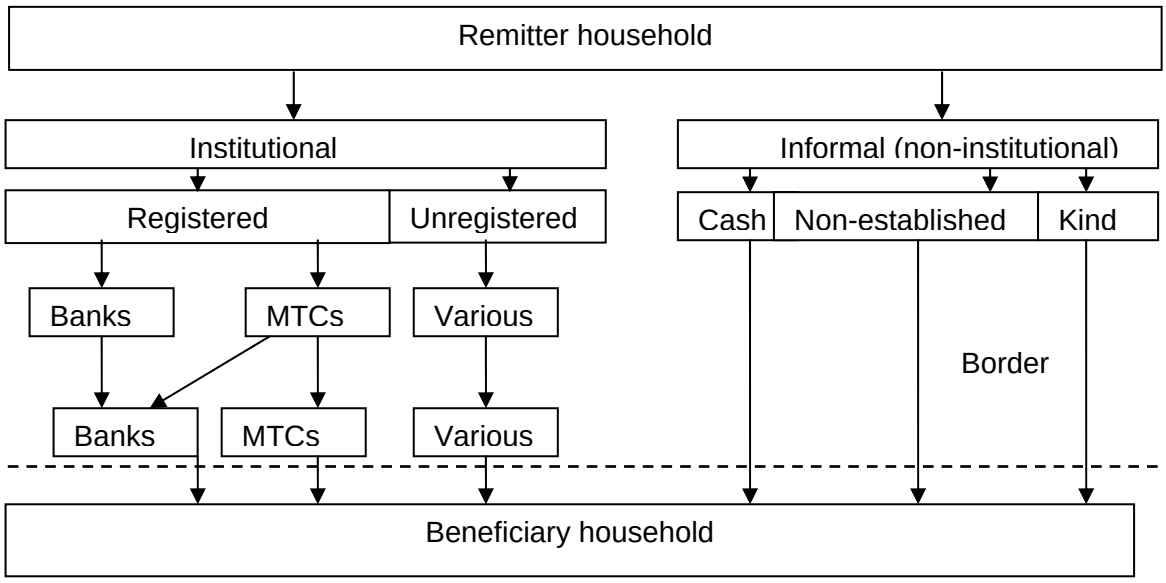
[9] Adapted from Wilson, John *op. cit.*

Within the institutional channels there are registered and unregistered intermediaries, the latter consisting of entities formally established for other commercial purposes that offer money transfer services as an irregular side activity to their own cross-border transactions. They should not be confused with the agent network of the registered intermediaries, which usually consists of small commercial establishments on both sides of the border operating under contractual, commission-based arrangements.

The registered intermediaries themselves are banks (as well as other depository institutions) that offer international money transfer services in their product menu, and the specialist money transfer companies (MTCs) such as Western Union or Moneygram. Some MTCs use banks for the actual cross-border transfer of funds from the gathering points to the distribution centre, as illustrated by the diagonal arrow in Figure 2.

Figure 2

Possible channels of delivery for personal remittances



Source: See footnote 9.

Clearly the availability and quality of data from registered intermediaries is far superior to that from others. This provides a strong justification for regulators to require registration and impose obligatory reporting requirements on companies wishing to participate in the remittances industry. To the extent that the industry is able to provide sound, efficient, cost-effective, competitive and transparent services,[10] the incentive to resort to unregistered or informal channels should be reduced, and the quality of statistical coverage should improve.

Data on the unregistered and informal channels must obviously come from the users rather than the providers, and it is in this context that household surveys at both ends of the remittance corridors can prove useful in estimating the overall volume of the flows and arriving at approximate conclusions regarding the market shares of the different channels. The following table provides illustrative figures for remittances markets for selected Latin American recipient countries and for the USA and Japan as originating markets.

[10] See "General Principles for International Remittances Services" (draft), The World Bank and the Committee on Payment and Settlement Systems (BIS), March 2006.

Table 3

Remittance delivery channel shares in selected LAC recipient and originator markets

	MTC	Banks	Other
	%	%	%
Recipient markets			
Bolivia	29	33	38
Brazil	1	94	5
Dominican Republic	79	9	12
Ecuador	68	16	16
El Salvador	47	34	19
Guatemala	79	7	14
Honduras	64	18	18
Mexico	47	44	9
Originating markets			
United States	79	8	13
Japan		93	7

Sources: (1) MIF-IADB Survey of Remittance Beneficiaries, as reported in Orozco, Manuel "Conceptual Considerations, Empirical Challenges and Solutions for the Measurement of Remittances", CEMLA, August, 2005 (2) Bendixen & Associates, presentation by Sergio Bendixen "Understanding Remittances to Latin America", at Joint Conference on Remittances, ADB, Manila, Philippines, September 2005.

The first point to be made regarding Table 3 is that the figures should be interpreted with some caution. Beneficiary respondents receiving payment through bank branches may not be sure if the bank is acting on own account or as an agent for an MTC. Other channels may not be entirely informal or unregistered (for example, the use of the postal system or courier services), and may even include some of the more innovative delivery systems (such as stored value card ATM withdrawals) that the respondent does not associate with a depository institution.

Nevertheless, some clear conclusions may be drawn: (a) while informality is a non-negligible factor in most markets, the bulk of transactions flows through registered institutional channels; (b) with the exception of the Japan-Brazil corridor, MTCs appear to have a significantly larger market share than banks throughout the region; and (c) market structure by channel can vary significantly from country to country, both within the region and in originating countries (in this respect, the contrast between USA and Japan is striking).

The multiplicity of delivery channels and participants is not the only structural aspect of remittances markets that complicates measurement, however. Other structural features of institutional channels to be considered from a compilation viewpoint are:

1) The very high number of very low value transactions.

2) The large networks of originating and delivery agents on both sides of the border.

3) Funds do not always flow in a direct path from remitter to beneficiary. MTCs often use banks as origination and payment agents, and must use them for the actual cross-border transfer of funds.[11]

4) Batching and netting of transactions at the agent, MTC and bank levels makes it difficult to interpret raw data on financial flows.

5) Geographical allocation of origin is sometimes hindered by the use of regional processing centres by intermediaries.

6) At some point in the flow there is normally a currency conversion, which can involve new parties to the transaction.

In this context, following the intertwining "flow of funds" may prove frustrating for compilation purposes. Fortunately, however, the "information flows" are far more transparent than the "financial flows" and must remain under control of the service provider throughout the entire transaction. At the very least the service provider must retain data on origination, amount, destination and payment mode.

Different approaches to remittance compilation

As mentioned at the outset, different countries employ different compilation methodologies, or some combination of them. The resources invested in these efforts can usually be related to the importance of remittances to the economy in question. The growing impact of remittance flows on recipient economies calls for an improvement in the methodologies employed, and the choice of compilation techniques should reflect the structure of the remittance markets in question and the data sources available.

It is in fact somewhat misleading to speak of compilation methodologies as if these were ready-made alternatives to be applied according to the particular characteristics or constraints of a given situation. It is more appropriate to think in terms of data sources, and perhaps then refer to "families of methodologies" according to the relative weight they attach to each data source.

The main ***institutional*** data sources for remittance compilation are the following:

1) **International transactions reporting systems**. The provision of ITRS data is for the most part a responsibility of the banking system, with origins in exchange controls and more recent AML-CFT provisions. Banks are required by regulators to report individual cross-border transfers carried out on behalf of their customers (usually exceeding a given threshold level), and to provide information pertaining to the nature of the transaction and the origin or destination of funds in a standardized format. Given the advances in information technology, this reporting requirement places a low burden on the banking system and makes available to compilers a large volume of raw data at a low cost. Nevertheless, there are various shortcomings associated with ITRS data for the specific purpose of measuring remittances: (a) since typically remittances fall beneath the reporting threshold,[12] they would be included in the lump sum reported for small transactions, thus making their extraction subject to estimation and creating the potential for misclassification; (b) MTC financial flows through the banking system will be reported through ITRS

[11] In certain cases (such as the US-Mexico ACH "Directo a México"), central banks provide substitute facilities for private correspondent banking relationships.

[12] Currently set at 12,500 euros in the Eurozone countries.

subject to the netting, batching and geographical uncertainties mentioned in the context of financial flows; and (c) the ITRS data does not cover flows through informal or unregistered delivery channels.

2) **Direct reporting systems.** Given the difficulties of interpreting financial flow data through bank ITRS, a more attractive alternative from the compilation viewpoint would be to require institutional providers of remittance services to supply more detailed reports on a regular basis according to a pre-designed format, based on the "information flows" accompanying transactions. MTCs and banks directly engaged in remittance activity on own account would provide from their data bases a list of all transactions into and out of the national jurisdiction below a given "remittance threshold", including information on origin (geographical, institutional vs. personal) and mode of delivery (cash pick-up vs. credit to bank account). While this would allow for greater accuracy in identifying and estimating remittances through institutional channels, it would still not solve the "informality problem". Although it would imply a "start-up" burden for institutional reporters, once installed the running costs should not be excessive. From the compiler's perspective, DRS are superior to ITRS.

Despite the difficulties in interpretation, institutional data has the indisputable advantage of reflecting actual transactions and therefore providing more certainty. Other sources of data require a more inferential approach to compilation, relying more on estimation than actual measurement. In addition to institutional reporting systems, other sources of data are:

3) **Household surveys.** Information obtained from surveys can be very useful in complementing institutional data, especially since it can help estimate the degree of informality in the remittances market (thus allowing for the "grossing up" of institutional data) and provide information on innovative delivery channels. Information can be obtained by inserting appropriate questions (frequency, amount, mode of delivery, relationship to remitter, etc) in existing household surveys in recipient countries, or by implementing independent surveys of migrant communities abroad or of travelers at border entry points. The main drawbacks of household surveys are that: (a) they are costly from the sampling viewpoint, since neither remitters nor beneficiaries are distributed evenly among the respective populations; in this respect a sub-sample of positive respondents to a regular survey may be useful; (b) the information obtained may be subject to "recall" uncertainties and upward/downward disclosure bias.

4) **Demographic data.** The existence of reliable statistics on migrant population abroad and immigrant population at home, combined with behavioral information obtained from surveys ("propensity to remit"), can provide broad estimates of both inward and outward remittance flows.

5) **Counterpart data**. This implies employing the data compiled by "partner" countries in cases where a geographical breakdown of remittances is available. Given the uncertainties attached to data quality and the various methodologies employed by compilers abroad, this does not appear as a reliable source for aggregation.

As mentioned above, different countries will have varying degrees of access to the different data sources and, what is more important, may or may not be prepared to invest more time and effort in improving them. In all cases, even where institutional data is the main input, some degree of estimation will be required. This will call for certain assumptions that must be regularly checked and updated.

As far as remittance compilation methodologies are concerned, one can imagine a spectrum of possibilities ranging from the intensive use of directly reported institutional data complemented by informality estimates from household surveys, to a complete reliance on data models based on population statistics and behavioral parameters. Furthermore, different approaches may apply to the different components of total remittance flows.

Conclusions

In view of the particular features inherent to each market, it is difficult to recommend a standardized compilation methodology down to the last detail for universal adoption. However for regions and countries sharing common characteristics, a set of “best practices” aimed at harmonizing efforts with a view to promoting comparability and aggregation is both a feasible and worthwhile undertaking.

Given the preponderance of registered institutional delivery channels in the LAC region, and indeed the dominant market share of MTCs within them, there would appear to be a prima facie case for relying on direct institutional reporting as the primary source of quality data for purposes of statistical measurement of remittance flows to the region. Periodical household surveys should complement these efforts by providing additional information on informal delivery channels. All other available data sources should be regularly tapped upon to provide overall estimates of remittance flows through data models, as a means of confronting and validating results.

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A survey of housing equity withdrawal and injection in Australia[1]

Carl Schwartz, Tim Hampton, Christine Lewis and David Norman[2]

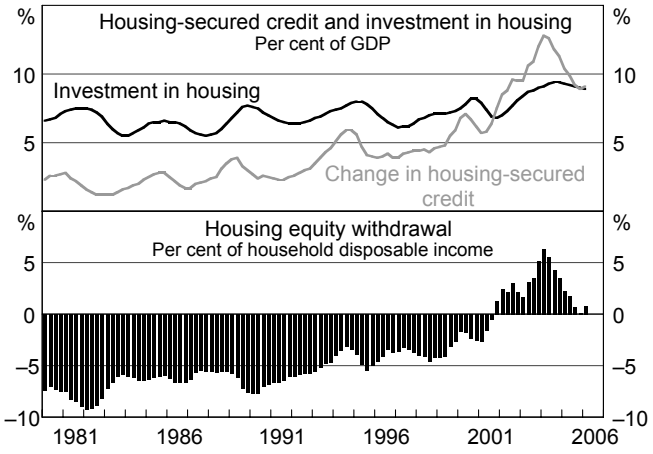
1. Introduction

Over recent years in Australia, housing-secured debt has increased by more than household spending on new housing, renovations and housing transfer costs. As a result, the household sector has extracted equity from the housing stock, in contrast to the experience of previous decades (Figure 1). The move from a situation of net equity injection to one of net equity withdrawal has coincided with strong household consumption growth and a decline in the household saving rate. A similar phenomenon has been experienced in many other countries.

Figure 1

Housing equity withdrawal

Four-quarter moving average



Sources: ABS; APM; Australian Treasury; RBA.

The trend towards housing equity withdrawal in Australia over the past 15 years or so reflects fundamental changes to both the demand and supply side of housing finance. Lower nominal interest rates associated with lower inflation have allowed households to take on larger debts, and the relative stability of interest rates and the economy have given households greater confidence that they can service larger debt burdens. Competition among intermediaries has further driven down interest rates on housing loans and increased households' ability to access equity using more flexible mortgage products. These

[1] This paper was prepared for the Irving Fisher Committee Conference on Measuring the Financial Position of the Household Sector, Basel, August 30-31, 2006, and is based on Schwartz *et al* (2006). The views expressed in the paper do not necessarily reflect those of the Reserve Bank.

[2] Reserve Bank of Australia (RBA).

developments have been associated with strong growth in house prices, which has increased the amount of equity accessible by property owners.[3]

While we can identify macroeconomic factors conducive to housing equity withdrawal in Australia, little is known about the household behaviour underpinning it. Given this lack of information, the Reserve Bank of Australia commissioned a survey to better understand how households were withdrawing and injecting housing equity, the characteristics of households engaging in these activities, and how the withdrawn funds were used. The survey covered flows over 2004 associated with housing debt, housing transactions, and renovation spending. In addition to being the first of its kind in Australia, this comprehensive survey represents an important extension to the more narrowly focused international literature on this topic.[4]

2. Concepts and survey design

2.1 Concepts

Housing equity withdrawal and injection refer to the net cash flow by households from transactions in housing-secured debt and housing assets. Withdrawals and injections can occur in many different ways. One way for a household to *withdraw* housing equity is to increase the level of debt secured against a property they already own through methods such as refinancing and increasing the size of the loan, or drawing down a home-equity style loan. Another is by reducing property holdings (for example, by downsizing).[5] Households can *inject* equity into a property they already own by paying down housing debt or undertaking renovations financed, at least partly, from their own funds. Households increasing their property holdings often also inject equity through a deposit.

There are many factors potentially underlying a household's flow of housing equity, including their preferences regarding:

- consumption and saving, such as a desire to smooth consumption over a life-time or in response to temporary changes in income;
- financial management, such as asset diversification (by using accumulated housing equity to purchase other non-housing assets), replacing higher interest-rate personal debt with housing-secured debt, or using surplus funds to either pay down housing debt or invest in property; and
- living arrangements, often associated with their stage of life (for example, an elderly household selling a long-held owner-occupied property to move into a retirement home is likely to withdraw equity, while a first-home buyer will typically inject equity).

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[3] These fundamental changes have been discussed at length in many Reserve Bank of Australia publications and elsewhere. See, for example, Reserve Bank of Australia (2002a) and (2002b).

[4] Surveys of mortgage holders were carried out in the US (Canner, Dynan and Passmore 2002) and Netherlands (de Nederlandsche Bank 2000; van Els, van den End and van Rooij 2005). Two English surveys extended these to include some transactions (Davey and Earley 2001; Benito and Power 2004) but these still did not capture last-time sales.

[5] The household sector as a whole typically does not withdraw equity in this way since it implies sales to other sectors of the economy or non-residents.

2.2 Design

The Bank's survey of Australian households builds on earlier international surveys in several important respects. This survey focuses on net injection or withdrawal over the course of a calendar year, rather than being event-based. This approach ensures coverage of injections as a result of regular or lump-sum principal repayments - important forms of injection not captured by earlier international surveys. Other forms of injection, including renovations, are also dealt with more comprehensively by capturing renovations that were financed without debt. In another advance, the survey asked respondents about inherited residential property and funds received from the sale of inherited property. This is necessary because sales of deceased estates result in an equity withdrawal, which otherwise would not be captured. The survey also collected information on the features of each household's mortgage, to assist in gauging the importance of financial innovations to housing equity flows.

The Bank engaged an external company, Roy Morgan Research, to assist in questionnaire design and conduct the survey. The results in this paper are based on 4 500 respondent households, interviewed by telephone in February 2005.

The myriad of ways in which households can withdraw or inject housing equity required a questionnaire with different paths depending on the behaviour of the household. At its core, the questionnaire asked for data relating to changes in housing-secured debt and housing-related transactions over 2004. Respondents were asked about the characteristics of their property holdings, followed by questions to determine how their housing equity had changed over 2004. From these responses, it was possible to determine whether the household was a net withdrawer, injector or neither. Finally, there were questions about the use of funds by withdrawers and source of funds for injectors.

2.3 Calculating equity withdrawal and injection

Over a given period, households may undertake a number of housing equity withdrawals and injections or take no such actions at all. For the purpose of analysis, households were divided into withdrawers and injectors on the basis of the net result of their actions over 2004. That is, over 2004, a household made a net equity *withdrawal* if the change in housing debt minus the change in housing equity from property transactions (including inheritances flowing from the sale of property) minus renovation expenditure was greater than zero. Similarly, a household made a net equity *injection* if this calculation was less than zero. These calculations are described in further detail in Appendix A.

In analysing the results, households identified as having withdrawn or injected net equity over 2004 were classified into a further two broad sub-groups: transactors in the property market, and non-transactors.

The group of households that undertook *property transactions* includes: households that reduced their property holdings; households that increased their property holdings, often as a first-home buyer or an investor; and those that were both buyers and sellers. For the bulk of this group, the housing equity flows associated with their transactions were the main drivers of whether they made a net withdrawal or injection over 2004.

Non-transacting property owners that injected equity did so by paying down principal on existing debt or through renovations financed, at least partly, from their own funds. Those that withdrew equity increased housing-secured debt, via methods such as refinancing or drawing down a home-equity style loan. Households that withdrew in this way included some renovators, where the increase in housing-secured debt exceeded the amount spent on renovations.

3. How was equity withdrawn and injected?

According to the survey, 42 per cent of households changed their housing equity over 2004; 12 per cent of households made a net withdrawal of equity over 2004, while 30 per cent made a net injection (Table 1). The remaining households neither withdrew nor injected equity, largely because they did not own any property, or owned their property outright.

By number, the bulk of households changing housing equity were non-transactors - 33 per cent of households versus 9 per cent that were property transactors. Around 7¼ per cent of households made a net equity *withdrawal* by increasing debt on their existing property; for these households, the median increase in debt over the year was A$20 000, while the mean was considerably larger. A much larger number of households *injected* equity into their existing property, with 19 per cent of all households injecting equity through scheduled and additional payments on their housing loans, and a further 6½ per cent injecting equity through renovations. The median value of injections by non-transactors was considerably smaller than the median withdrawal made by non-transactors.

Table 1

How equity was withdrawn and injected

	Share of all households (per cent)	Median value (A$)	Mean value (A$)
Non-transactors in property	**32.8**	**6 000**	**9 400**
Withdrawal of equity by increasing debt	7.3	–20 000	–36 700
Injection of equity by:			
Paying down debt	19.0	9 000	19 500
Renovating	6.5	14 000	31 800
Property transactors	**9.0**	**1 400**	**–15 100**
Withdrawing equity	4.4	–82 700	–159 100
Injecting equity	4.6	55 100	122 200

Source: RBA.

The finding that 9 per cent of households were involved in at least one property transaction in 2004 is broadly consistent with the available housing turnover data. These households were almost equally split between those withdrawing and injecting equity. However, the median change in equity resulting from these transactions was considerably larger than for non-transactors, such that property transactions contributed the bulk of the value of gross injections and withdrawals.

3.1 Withdrawals

Almost three quarters of the value of all (net) withdrawals by households that were net withdrawers over 2004 were accounted for by those that engaged in property transactions (Table 2). Of the net withdrawals by property transactors, around three quarters of the value was accounted for by the 2.7 per cent of households that sold more properties than they

bought. This large contribution in part reflects the larger median withdrawal by such households - A$125 900 versus A$33 500 for withdrawals based on other combinations of property transactions. These other property transactions were fewer in number and smaller in value, but nonetheless remained significant as a share of overall withdrawn equity - accounting for almost one fifth of the total value withdrawn.

Table 2

Housing equity withdrawal by method

	Share of all households (per cent)	Median value (A$)	Share of value withdrawn (per cent)
Non-transactors in property	**7.3**	**20 000**	**27.9**
Refinancing and new loans	4.5	28 000	20.3
Redraw facilities	1.4	11 000	3.0
Revolving credit	0.7	20 000	3.4
Withdrawal from offset account	0.3	8 000	0.6
Cannot say/other	0.5	6 000	0.6
Property transactors	**4.4**	**82 700**	**72.1**
Sold more properties than bought	2.7	125 900	54.1
Bought more properties than sold	0.9	18 300	10.7
Bought and sold equal number of properties	0.8	54 000	7.4

Notes: Components may not sum due to rounding. The “sold more properties than bought” category includes households that sold a property they inherited, and households that received a bequest funded by the sale of a deceased estate.

Source: RBA.

Sales of owner-occupied property - which include last-time sales of elderly households’ properties - appear to be associated with larger net equity withdrawals than sales of investment property. This is consistent with the finding that for those that sold more properties than they bought, the median loan-to-valuation ratio (LVR) of owner-occupied properties sold was slightly lower than it was for investment properties (Table 3); this is not surprising given the tax advantages of interest deductibility for investment properties in Australia.[6] This is despite the fact that the typical investment property had been held for slightly longer than were the owner-occupied properties, allowing more time to accumulate capital gains and pay down debt. Owner-occupied properties also tended to sell for more than investment properties and second homes, consistent with investment property being generally more concentrated in cheaper housing stock such as units.

[6] Valuations were provided by the household. However, we believe that our analysis is unlikely to be biased by subjective valuations for the same reasons described in Ellis, Lawson and Roberts-Thomson (2003). In addition, it may be that households’ *perceptions* of their financial position are more relevant to our analysis than is their actual position.

Table 3

Sales by withdrawers that sold more properties than they bought

Variable	Units	Owner-occupied property	Investment property	Second home/land
Share	Per cent	36.6	29.1	34.3
Median sale price	A$	274 000	258 000	160 000
Median time held	Years	5	6	6
Median debt at sale	A$	110 000	104 000	–
Median LVR at sale	Ratio	0.50	0.58	–

Notes: Debt and LVR are only for properties that had debt outstanding at the time of sale. Medians are not reported where sample size is very small.

Source: RBA.

Of the non-transacting households that withdrew equity, by far the most common methods were to refinance an existing loan and increase the outstanding balance or to take out a new loan.[7] Two other common methods were drawing upon previous excess principal payments or drawing on a revolving or home-equity type facility. Around 20 per cent of non-transactor households that withdrew equity undertook renovations. The methods these renovating households employed to increase their debt were in similar proportions to the overall group, though the median amount these households withdrew was slightly larger at A$22 500.

3.2 Injections

In contrast to the results for households withdrawing equity, for households that made a net equity injection over 2004, the value of injections was split fairly equally between non-transactors and transactors. This reflected a large number of non-transacting households making small injections by paying down debt or renovating, balanced by a small number of households making large injections through property transactions (Table 4).

Within the 19 per cent of households that injected equity by *reducing debt on their existing property*, 9.6 per cent reported that they simply made the regular scheduled repayments, while an additional 6.7 per cent made regular repayments above those required by their lender. A further 2.1 per cent indicated that they made irregular lump-sum repayments. These one-off lump-sum payments tended to be relatively large, so that they accounted for a disproportionately high share of the total equity injected.

Around 6½ per cent of households injected equity over 2004 through *renovations*, financed, at least partly, from their own savings. In total, this amounted to around 18 per cent of the total amount of equity injected by households that made a net injection over 2004.

[7] In Australia most loans are at variable interest rates, so that refinancing decisions are less commonly motivated by reducing interest costs than in countries where fixed-rate loans are dominant.

Table 4

Housing equity injection by method

	Share of all households (per cent)	Median value (A$)	Share of value injected (per cent)
Non-transactors in property	**25.5**	**10 000**	**50.7**
Reducing debt on existing property	19.0	9 000	32.5
Renovations	6.5	14 000	18.3
Property transactions	**4.6**	**55 100**	**49.3**
Sold more properties than bought	0.4	52 400	2.0
Bought more properties than sold	3.6	58 800	41.0
Bought and sold equal number of properties	0.6	35 600	6.2

Notes: Components may not sum due to rounding. The "sold more properties than bought" category includes households that sold a property they inherited, and households that received a bequest funded by the sale of a deceased estate. Medians are not reported where sample size is very small.

Source: RBA.

Within the 4.6 per cent of households that injected equity and undertook a *property transaction*, most purchased more properties than they sold, accounting for the bulk of equity injected by property transactors. Over half of the properties purchased by this sub-group were owner-occupied homes, with around 40 per cent these purchased by first-home buyers. The owner-occupier purchases tended to be associated with more expensive properties and lower debt levels compared to those for other properties. These results are consistent with investors' preferences for relatively cheaper property and higher gearing mentioned in Section 3.1.

A comparison of the results regarding the methods of housing equity withdrawal and injection underscores the importance of transactions to overall flows of housing equity withdrawal. In particular, for the groups of property transactors most important for overall housing equity flows - withdrawers that sold more properties than they bought and injectors that bought more properties than they sold - sellers typically withdrew more equity than buyers injected, partly reflecting much higher debt levels among buyers. This is consistent with the influences of life-cycle factors and house price gains discussed in Sections 3 and 6. It also follows that shifts in the level of aggregate transaction activity will likely be associated with changes in the value of aggregate housing equity withdrawal.

4. Characteristics of households withdrawing and injecting equity

Having identified the various methods through which households withdrew and injected equity during 2004, it is of interest to consider whether there are common characteristics across households that withdrew or injected equity.

The survey data confirm that age and income are key variables in distinguishing households that altered their housing equity from the rest of the population. The results are consistent with previous work that show age and income to be important determinants of the incidence

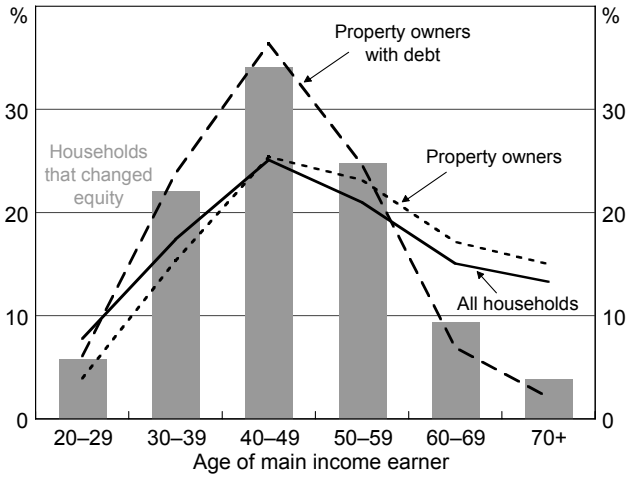
of home ownership with debt.[8] They also confirm that households that own property, particularly those with housing debt, are most readily able to withdraw or inject equity.

Figure 2 shows the age profile of households in the survey - where age is determined by that of the household head, defined as the main income earner. Clearly, those aged between 40 and 49 accounted for the highest proportion of households that changed housing equity, and the highest proportion of property owners with housing debt. In comparison, the age profiles for all households and all property owners are much flatter. Also, withdrawers and injectors tended to have higher household incomes than the general population, as did property owners - particularly indebted property owners.

Figure 2

Housing equity actions by age

Per cent of households in each group[1]



[1] Households with main income earner under 20 years not shown.

Source: RBA.

Age also differed notably between households that withdrew equity and those that injected, with withdrawer households typically older. The breakdown of average net housing equity flows from the survey data by age shows that, over 2004, households with a household head aged between 20 and 49 years were typically equity injectors (Figure 3). In contrast, older households were typically net withdrawers, with the size of the average net withdrawal increasing with age. This is consistent with the typical life-cycle pattern whereby younger households inject equity when they purchase their first home and trade up to more expensive housing in mid-life, before withdrawing equity when they sell property in their later years. Such a profile is also implied by the use of housing as an investment vehicle, given households will typically accumulate equity in their peak earning years. Indeed, of households that engaged in a property transaction and withdrew equity, just over half were 50 years of age or older, and they accounted for 61 per cent of the value of equity withdrawn

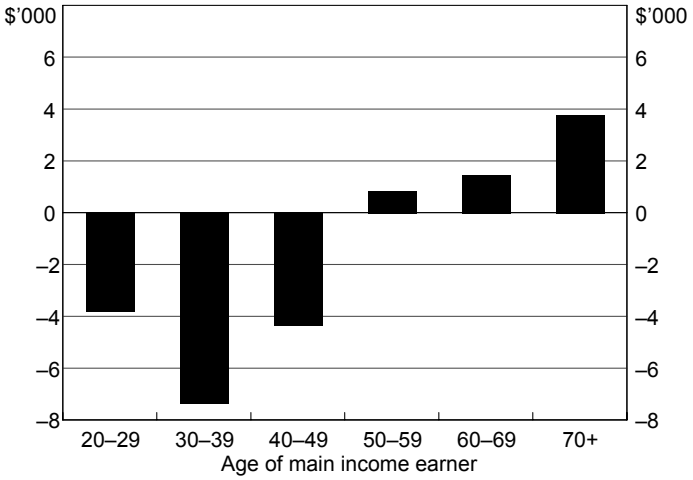
[8] See Ellis *et al* (2003).

by property transactors. In comparison, the same age bracket accounted for less than 40 per cent of total net injections.[9]

Figure 3

Average net housing equity withdrawal by age

All households[1]



[1] Households with main income earner under 20 years not shown.

Source: RBA.

5. Uses and sources of funds

5.1 Uses of funds for equity withdrawers

The survey asked all households that withdrew equity (in net terms) over 2004 what they did with the funds withdrawn. Respondents were prompted with a number of possible answers, including using the funds for various types of consumption, the purchase of various assets, and the repayment of non-housing-related debt. Overall, the results suggest that, while a significant share (18 per cent) of the equity they withdrew over the year was used mainly for consumption, the bulk (58 per cent) was used mainly for asset accumulation, with an additional 8 per cent used mainly to pay down other debt (Table 5).[10] Around 10 per cent of funds withdrawn were associated with a respondent that could not (or would not) say how the funds had been used.

[9] Logit analysis also showed the life-cycle played an important role in influencing both the propensity and value of property transactors' withdrawals and injections. Age aside, there were few differences in the characteristics of households that injected without transacting and those that withdrew without transacting, although access to flexible mortgage features appeared to play some role in explaining household behaviour. See Schwartz, *et al* (2006) for details of the modelling undertaken.

[10] This analysis apportions the full value of equity withdrawn by each household to the main use. An alternative approach is to split the withdrawn funds evenly between the identified uses when multiple uses were identified, and to assume that all households that did not report a use used the funds for consumption. This suggests that around 30 per cent of the funds withdrawn by all households withdrawing equity over 2004 were used for consumption.

Table 5

Households withdrawing equity: main use of funds

Per cent

	Non-transactors		Property transactors		All methods	
	Share of all households	**Share of value withdrawn by this method**	**Share of all households**	**Share of value withdrawn by this method**	**Share of all households**	**Share of total value withdrawn**
Household expenditure	**3.4**	**29.7**	**0.7**	**13.0**	**4.0**	**17.6**
Of which:						
Redecorations/ durables etc	1.5	13.0	0.3	6.9	1.8	8.6
Car	1.3	12.0	0.2	3.6	1.5	5.9
Holiday	0.5	2.9	0.2	1.3	0.6	1.7
Living expenses	0.1	1.8	0.1	1.2	0.2	1.4
Asset accumulation	**1.6**	**41.0**	**2.3**	**65.2**	**3.9**	**58.5**
Of which:						
Deposits	0.6	18.6	1.3	38.6	1.9	33.0
Superannuation	0.0	1.5	0.2	5.8	0.2	4.6
Household business	0.3	4.9	0.1	2.0	0.5	2.8
Commercial property	0.1	5.9	0.1	0.4	0.1	1.9
Other non-property investments	**0.5**	**10.2**	**0.6**	**18.4**	**1.2**	**16.1**
Repay other debt	**0.7**	**8.3**	**0.4**	**7.4**	**1.2**	**7.7**
Other	**0.6**	**4.6**	**0.4**	**7.1**	**1.0**	**6.4**
Cannot say	**1.1**	**16.4**	**0.6**	**7.3**	**1.7**	**9.8**
Total	**7.3**	**100.0**	**4.4**	**100.0**	**11.7**	**100.0**

Notes: Components may not sum due to rounding and calculations involve some imputation. Also, for each household, the full value of withdrawn equity has been apportioned to the specified main use of funds.

Source: RBA.

The largest category of accumulated assets was deposits, accounting for around one third of all withdrawn funds. Over a half of these deposits (by value) were from households that intended to use these funds to purchase or renovate residential property at a later date, with only 16 per cent (by value) intended to be left on deposit during 2005. Other forms of asset accumulation included investing in household businesses (3 per cent of withdrawn funds), commercial property (2 per cent), superannuation (5 per cent) and other non-property investments (16 per cent) such as equities.

The results also show that the use of funds varied considerably with the method of equity withdrawal. Non-transacting households that withdrew equity were much more likely to use the funds to finance consumption than were households that engaged in a property

transaction and withdrew equity. Of non-transactors that withdrew equity and identified a specific use for the funds, over half indicated consumption spending, including home decorations, holidays, consumer durables and motor vehicles. A further 5 per cent of these households cited consumption as one, but not the main, use of the withdrawn equity.

In contrast, only about one fifth of transactors that withdrew equity and identified a specific use for the withdrawal indicated that the main use was to finance consumption. The more typical response was that the funds withdrawn were allocated to other assets. Households that withdrew larger amounts were more likely to specify a use of funds, probably reflecting the greater significance attached to larger expenditures.

5.2 Alternative sources of funds for equity withdrawers

Households that withdrew equity over 2004 were also asked what they would have done had they not been able to withdraw equity from their residential property. This provides some indication as to the role of housing equity in facilitating these transactions. Over half of those that withdrew equity during 2004 said that they would not have otherwise raised the funds; over a quarter said they would have applied for a loan or used their credit card; and around 10 per cent said they would have run down their savings (Table 6).

Table 6

Alternative source of funds if not withdrawn housing equity

Per cent of net withdrawers that would have:

	Non-transactors	Property transactors	Total
Not raised funds at all	54.4	61.0	56.8
Other secured loan	19.5	11.9	16.7
Run down savings	9.9	10.5	10.1
Credit card	8.6	5.9	7.6
Other unsecured loan	8.7	2.4	6.3
Other property-secured loan	1.1	0.0	0.7
Other sources	6.6	8.3	7.2
Cannot say	1.1	3.6	2.0

Notes: Columns sum to more than 100 per cent as some households provided multiple answers. Calculations involve some imputation.

Source: RBA.

Transactors were less likely than non-transactors to seek alternative sources of funds if they had not been able to access them via housing equity withdrawal, perhaps because transactors' decisions to withdraw or inject equity may often be secondary to their decisions to undertake property transactions. Those households using the funds for consumption were slightly more likely than other withdrawers to say that they would have accessed the funds from other sources if housing equity withdrawal had not been available to them.

The large proportion of non-transactor households that would not have otherwise raised funds suggests that their withdrawal of equity was in large part supported by the ease and relatively low cost of obtaining funds in this way. For transacting households the implications

are less clear - raising funds may have been a by-product of their decision to transact for other reasons.

5.3 Sources of funds for equity injectors

Just as the use of withdrawn funds has implications for household spending, so too may the source of injected funds, since these funds could otherwise have been used for consumption purposes. For the 16 per cent of households that injected equity solely by making regular payments on their mortgage, income was presumably the main source of funds. Of the households making typically larger lump-sum injections, around half reported that they financed those injections primarily through drawing on savings and other assets, and around a quarter reported that they financed them from their regular income, with the remainder coming from various other sources (Table 7).

Table 7

Source of funds for lump-sum injectors

	Non-transactors (per cent)	Property transactors (per cent)	Total (per cent)	Median (A$)
Savings	34.8	22.9	30.4	19 000
Income	25.0	23.7	24.5	20 000
Sale of other assets	15.0	30.4	20.6	73 000
Inheritance	4.1	2.7	3.5	80 000
Loan from friends or family	0.5	2.7	1.3	–
Gift received	1.0	2.7	1.6	–
Other	19.6	15.0	17.9	20 900

Note: Medians are not reported where sample size is very small.

Source: RBA.

6. Aggregate implications of the survey

Thus far, we have concentrated on the microeconomic results for 2004 arising from the survey. This section aims to draw some aggregate implications from these results. We consider factors contributing to movements in aggregate housing equity withdrawal in Australia over time, followed by the implications of housing equity withdrawal for key uses, such as consumption. As the survey was only for 2004, inference on earlier periods assumes that the findings are broadly representative of how equity was withdrawn and used in other years.

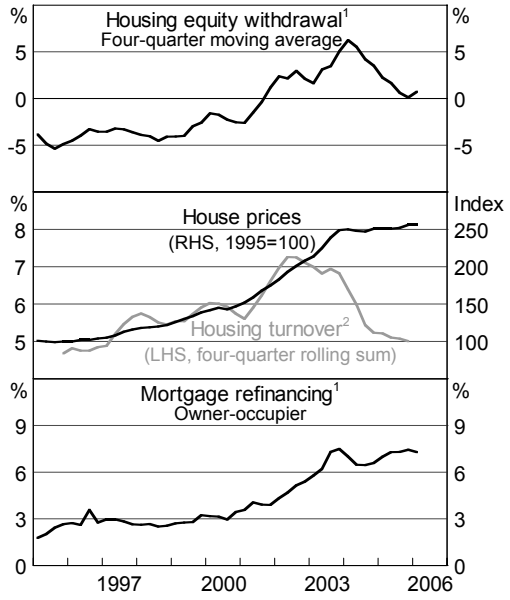
6.1 Housing equity flows over time

Section 3 shows that, over 2004, the largest aggregate flows of housing equity came from households *transacting* in the housing market. The typical housing transaction gave rise to net equity withdrawal, with vendors tending to have less debt remaining than was taken on by buyers, a pattern likely to be exacerbated by a period of rising house prices.

These findings suggest that movements in turnover and house prices are important for movements in housing-secured credit and aggregate net housing equity withdrawal, a point borne out by the data. Figure 4 shows that the turnover rate of the national housing stock rose consistently over the mid to late 1990s, reaching a high level in 2002 and 2003 - a period in which housing equity withdrawal was also strong. Turnover then fell sharply through 2004, at the same time as housing equity withdrawal declined. Similarly, nationwide house prices rose rapidly up to late 2003, but have subsequently increased only modestly.

Figure 4

Drivers of housing equity withdrawal



[1] Per cent of household disposable income.
[2] Per cent of housing stock.

Sources: ABS; APM; Australian Treasury; RBA.

Another relevant consideration for housing equity flows is the activity of property investors. The share of housing loan approvals made to investors rose from around ⅓ in 2000 to a peak of around 45 per cent in 2003, followed by a subsequent decline. This may have contributed to rising housing equity withdrawal up to 2003 because, according to the survey results, investors tend to purchase with relatively higher LVRs.

The survey results suggest that flows of housing equity due to non-transactors are of less importance. Nonetheless, partial data on these flows, where available, are also consistent with developments in aggregate housing equity withdrawal in recent years. The survey identifies mortgage refinancing as one of the main methods of *withdrawing* equity by non-transacting households. Australian Bureau of Statistics (ABS) data on refinancing of owner-occupier mortgages show rapid growth in loan refinancing during 2002 and 2003. In addition, borrowing through home-equity line-of-credit products increased by more than 30 per cent over 2003, before slowing. Movements over time in equity *injection* by non-transactors, however, are difficult to gauge, with various influences likely to have shaped any overall trend in principal repayments over recent years. These include ongoing growth in wealth and income, the increased share of interest-only loans and flexibility of many mortgage products.

6.2 Housing equity flows and economic activity

The survey results suggest that movements in housing equity withdrawal need not be associated with large swings in consumption. To the extent that property transactions are a key driver of movements in net housing equity flows, and the bulk of equity extracted from transactions appears to be used to acquire non-housing assets, changes in housing equity flows are likely to be only partly reflected in changes in consumption. Nevertheless, it remains likely that the trend rise in equity withdrawal evident in Australia for much of the past 10 to 15 years has been one of the factors supporting strong growth in consumption over that period.

For 2004, the results suggest that around 18 per cent of the aggregate equity withdrawn by net withdrawers was used for consumption, which represents around 2½ per cent of the level of aggregate household consumption. However, this estimate may understate the amount of gross withdrawals used for consumption (see footnote 9).

The static nature of the survey means that it is not possible to assess contributions to growth from the survey data alone. Nonetheless, it seems likely that the strong growth in housing equity withdrawal over 2001 to 2003 contributed to very strong growth in consumption relative to income (and a corresponding decline in the saving rate) over that period. Trends in aggregate financial variables over that period are also consistent with the survey findings on uses of withdrawn equity. Flows into financial assets were above average, and personal credit growth was well below that of housing credit, consistent with households withdrawing housing equity as a substitute for other debts. These trends have subsequently abated.

Another channel through which swings in household borrowing affect economic activity is spending on renovations. Borrowing to finance this form of spending does not necessarily lead to a withdrawal of equity, if the borrowed funds are used solely to increase the value of the household sector's housing assets. Nevertheless, the effect on overall activity can be significant. Over recent years, annual spending on renovations has averaged around 4½ per cent of household disposable income, up from an average of around 3½ per cent between 1990 and 1998. The survey data suggest that, in many cases, renovations have been partly funded by drawing down on the equity built up as a result of the large house prices increases the mid 1990s. Around 11 per cent of surveyed households spent money on renovations in 2004, with the median amount spent on the main home equal to A$14 000. Around 40 per cent of these households used housing debt to at least partly finance their renovation expenditure, with debt finance being used more often for larger renovations.

7. Conclusion

The survey results provide a wide range of information relating to housing equity flows. In addition to being the first survey of its kind in Australia, the comprehensive approach extends the more narrowly focused surveys conducted internationally on this topic. This survey captured flows of both housing equity withdrawal and injection by all households including flows associated with deceased estates, non-transaction-related debt repayments, and non-debt-financed renovations. Another innovation is information gathered on the features of each household's mortgage, to help gauge the importance of new financial products to housing equity flows.

The results of the survey suggest that any aggregate series for net housing equity withdrawal or injection masks large aggregate withdrawals and injections by households. Over 2004, 30 per cent of households made net equity injections, while 12 per cent made net equity withdrawals. The values injected were, however, typically much less than those withdrawn. The most common methods of withdrawing or injecting housing equity were through altering debt levels on already-owned property holdings. Though fewer in number, withdrawals and

injections of housing equity associated with property transactions were typically significantly larger in value, accounting for the bulk of the value of housing equity flows.

The survey data show a significant life-cycle influence on housing equity flows, particularly among property transactors. Over 2004, the bulk of equity withdrawal was undertaken by older households, while younger households typically injected through deposits for property purchase or mortgage repayments. To our knowledge this intuitive result has not previously been demonstrated empirically.

The use of equity withdrawn tended to vary with the method by which it was accessed. Withdrawals associated with property transactions were used significantly more for accumulation of non-property assets than consumption, a preference less evident for non-transaction-based withdrawals. Overall, around two thirds of equity withdrawn by net withdrawer households in 2004 was mainly invested in other assets or used to pay down other loans.

These results have some potentially important aggregate implications. Swings in housing equity withdrawal are likely to be heavily influenced by turnover in the property market, given the importance of such transactions to gross flows and the observation that the typical property transaction results in net equity withdrawal. This effect is likely to be amplified following a period of sustained house price growth, and is consistent with the large increase in aggregate housing equity withdrawal in Australia between 2001 and 2003, along with its subsequent decline. Secondly, the survey results also suggest that a significant number of households have used refinancing opportunities over recent years to increase the size of their debts, for purposes including consumption and renovation. Thirdly, only a relatively small portion of overall equity withdrawn from the housing stock in 2004 was used for consumption.

Appendix A:
Defining equity injectors and withdrawers

Table A1

Classification of equity injectors and withdrawers

Component	Calculation	Notes
Change in housing debt	Outstanding housing debt at end 2004 *minus* Outstanding housing debt at end 2003	Households with offset accounts separately provided information on offset account balances at end 2003 and end 2004, which were used to obtain net loan balances.
Change in housing equity from transactions	Value of properties purchased (including transfer costs) over 2004 *minus* Value of properties sold (net of transfer costs) *minus* Value of funds obtained through sale of inherited property.	Households provided information on the value of residential property purchases and sales, including funds flowing from the sale of inherited property, either by the household selling the property directly, or receipt of funds arising from trustee sale. This ensured that equity withdrawals arising from death were captured. The value of any properties inherited and retained during the year were not counted as an injection, largely because such transfers did not involve spending by the inheriting household. Transfer costs associated with the acquisition were, however, counted as housing spending.
Renovations	Amount spent on renovations	Attempts were made throughout the survey to ensure that renovation spending captured only alterations of a structural nature in accordance with national accounts definitions; that is, not redecorations and maintenance such as repainting, for example.

Note: Housing equity withdrawal is calculated as change in housing debt, minus change in housing equity from transactions, minus renovations.

Source: RBA.

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Households' transactions with the rest of the world: the case of Russia

Lydia Troshina and Natalia Kupriyanova[1]

Introduction

The effect of the household sector's activities on economic growth has been increasingly the subject of research in recent years.

This paper provides a general review of the Bank of Russia's practices of compiling statistical data on household sector transactions with non-residents. It also deals with some aspects of the theory of sectorising the balance of payments, particularly compiling the household sector balance of payments, and represents the result of an attempt to calculate it. Although the overall result cannot meet the users' needs and must be seriously improved, in some areas statistics on household sector cross-border transactions is quite satisfactory. The paper considers the Russian model of statistical accounting for cross-border remittances, mentioned in as the most accurate measure of the economic role played by households in transactions with non-residents. A new indicator, *personal remittances*, has been calculated according to the latest methodology recommended by international organisations and allowing for Russian conditions.

In addition, the report describes the practice of collecting statistical data on cross-border remittances by all individuals staying in Russia, both residents and non-residents. Although not dealt with specifically in international standards, this information has been highly praised by users, as it has provided them with some clues to understanding the current trends in the area of cross-border money transfers.

Household sector balance of payments compilation options

If one sets the task of compiling a balance of payments for each sector of the domestic economy as a comprehensive description of its transactions with the rest of the world and for this purpose sectorises the country's balance of payments, the following problems will arise: (i) according to the accepted practices, foreign trade in goods and services in the current account is not sectorised; (ii) financial transactions and income from these transactions and current and capital transfers are sectorised only partly; (iii) sectorisation in the balance of payments is more aggregated than in the system of national accounts and the other sectors aggregate applies to several SNA sectors; (iv) there is no generally accepted methodology of sectorising the balance of payments transactions.

Therefore, the result of our attempt to compile the household sector balance of payments on the basis of data used in compiling the country's balance of payments has been inconclusive.

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[1] Bank of Russia.

Table 1

Households' transactions with non-residents in 2005

Bn $

Item	Balance of payments of resident households[1]	Cross-border transactions of resident households[2]
Current account		
Trade balance	–0,5	–0,7
Export	0,0	0,2
Individual sale of personal goods (cars, antiques, etc)	0,0	0,1
Shuttle trade	0,0	0,2
Merchandise produced by households	…	0,0
Import	–0,5	–1,0
Catalogue trade	–0,02	–0,5
Shuttle trade	–0,5	–0,5
Other merchandise consumed by households	…	0,0
Services balance	–19,1	–9,4
Export	0,1	0,1
Royalties and license fees	0,02	0,02
Other business services	0,1	0,1
Other services rendered by households	…	…
Import	–19,2	–9,5
Transportation	–1,0	–0,01
Travel	–17,8	–9,4
Construction services	…	–0,01
Insurance services	…	–0,03
Other business services	…	–0,02
Personal, cultural, and recreational services	–0,4	–0,01
Other services received by households	…	0,0
Income balance	2,2	2,2
Compensation of employees, receivable	1,7	1,7
Investment income	0,4	0,4
Receivable	0,4	0,4
Payable	0,0	0,0

Table 1 (cont)

Households' transactions with non-residents in 2005

Bn $

Item	Balance of payments of resident households[1]	Cross-border transactions of resident households[2]
Current transfers	–2,2	–2,2
Workers' remittances	–2,2	–2,2
Receivable	0,8	0,8
Payable	–3,1	–3,1
Other transfers	0,01	0,01
Receivable	1,0	1,0
Payable	–1,0	–1,0
Other transfers	–0,8	–0,8
Taxes	–0,2	–0,2
Financial account		
Direct investment	–2,4	–2,4
Abroad - purchase of real estate	–2,4	–2,4
In reporting economy - sale of real estate		0,02
Portfolio investment	–0,05	1,6
Assets	–0,05	–0,05
Liabilities		1,7
Other investment	1,1	1,1
Assets	0,9	0,9
Loans	–0,1	–0,1
Currency and deposits	1,0	1,0
Foreign currency in cash	1,0	1,0
Deposits	…	…
Liabilities	0,1	0,1
Loans	0,1	0,1

[1] For compilation the following principles are applied: for goods and services - producer/consumer principle, for income and current transfers - ultimate beneficiary/payer principle, for financial assets/liabilities - debtor/creditor principle. A lot of data are missing, mainly for goods and services account. [2] Compilation is based on transactor principle.

Source: Bank of Russia.

The least difficult part of the job was the capital and financial account compilation. As regards the household sector capital transfers, only the migrants' transfers are accounted for in Russia. However, the new balance of payments manual being drafted by the IMF will not consider migrants' transfers as transactions. As they will be shown in the other changes in financial assets and liabilities account, they are not analysed in this paper. In the balance of payments financial account household sector transactions are a part of other sectors transactions and they are more difficult to account for statistically than, say, non-financial corporation because households don't provide the reporting in the literal sense of the word. However, the ITRS, macroeconomic models and the surveys of households make it possible to estimate their transactions with non-residents for inclusion in the balance of payments.

Transactions with foreign assets predominate in household sector financial transactions. This particularly applies to the use of such a simple instrument as cash foreign currency. It is the balance of household sector transactions with foreign cash that is included in the balance of payments. People regard foreign exchange as both a means of payment and a store of value. It was especially so during the years when the ruble was rapidly depreciating against the major world currencies. Foreign cash is used to pay for the services related to travel and in small-scale "shuttle" trade, including the import of cars and other luxury goods by order. Migrants and short-time workers take their savings in freely convertible currencies with them when they move to another country. Individuals also actively conduct conversion and deposit transactions with the banking sector and make remittances. Three quarters of all foreign currency transactions in 2005 were conducted in US dollars, the rest in euros; the share of other currencies was negligible. In the past three years there has been a rise in household sector interest in cash euros on the market where the US dollar used to rule supreme before. Even now the dollar accounts for 97% of the foreign currency savings Russians keep "under the mattresses."

Table 2

Resident households' transactions in foreign cash

Bn $

	2001	2002	2003	2004	2005
Total households' transactions in foreign cash	**–9,1**	**–3,3**	**–11,4**	**–4,8**	**–1,0**
Transaction with banks					
Currency conversion	–2,9	5,4	–2,0	5,5	8,4
Withdrawn from/Placed to accounts	2,4	3,9	1,7	8,7	15,2
Received/Paid as remittances	–5,4	1,5	–3,8	–3,2	–5,3
Transactions with non-residents	…	…	…	…	–1,4
Related to travel	–6,2	–8,7	–9,3	–10,3	–9,4
Related to shuttle trade, including cars	–5,1	–7,6	–8,0	–9,5	–8,8
Exports by emigrants	–1,0	–1,3	–1,5	–0,8	–0,7
Imports by immigrants	–0,3	–0,2	–0,2	–0,2	–0,2
Imports by short-term workers	0,2	0,2	0,1	0,2	0,3

"+" means increase of cash with households, "–" means decrease of cash.

Source: Bank of Russia.

Real estate in other countries is another foreign asset that has always interested the household sector. The purchases by resident households of homes and apartments abroad and expenses involved in the maintenance of housing bought earlier are considered as direct investment in the economy of the rest of the world. These assets are evaluated on the basis of the assumption that the share of expenditures on the purchase of housing inside the country and abroad in aggregate household sector current expenditures is stable while the economic situation remains stable. For the first time this share was determined on the basis of one-time matched data on the number of foreign-based housing units owned by Russian nationals as of the beginning of 2001 and the Russian Statistical Office data on annual household sector investment in housing construction in Russia.

In addition, households buy small amounts of securities issued by non-residents (portfolio investment), extend loans and keep deposits in foreign banks. These deposits are not accounted for in the balance of payments because there is no data on the further use of funds transferred by private individuals to their bank accounts abroad. It is assumed that these funds are spent entirely on real estate and foreign securities transactions and the import of services.

Household sector foreign liabilities are confined to loans. Admittedly, although the borrower is a private individual rather than an unincorporated entrepreneur, it is not clear whether it is appropriate to classify lending transactions involving private individuals as household sector transactions rather than the transactions of quasi-corporations.

Special mention should be made of the question of classifying transactions with real estate sold by residents to non-residents (bought by residents from non-residents). When real estate owned by a resident household becomes the property of a non-resident, it is assumed that a notional corporation is established and it is treated as a part of a resident non-financial corporation sector. The ensuing conflict of this real estate sector attribution (household or non-financial corporation sector) is settled by reclassification shown in the other changes in financial assets and liabilities account. But what happens first, the change of ownership or reclassification? In other words, what sector of the reporting economy passes the asset to a non-resident when it is obvious that it is the household sector that gets the money (or other compensation)? It appears that the household sector internal asset is first reclassified as a non-financial corporation asset and only then the transaction is recorded as Direct investment in reporting economy/equity, which is an impossible entry for the household sector. As a result, the balance of payments transaction is recorded as a non-financial corporation transaction rather than a household transaction.

We have spoken so far about the classification of transactions with foreign assets and liabilities by sector according to the debtor-creditor principle rather than the transactor principle. Under the transactor principle, changes in the claims and liabilities are allocated to the sector of the resident party participating in the transaction, but not to the sector of the debtor or creditor. Under the transactor principle, as applied to transactions of the households, these household transactions also include transactions with resident securities issued by other sectors of the economy but resold to non-residents by the households that play the role of intermediaries between the resident debtor and non-resident creditor. From this point of view, the sale of resident housing to non-residents, which raised so many questions in the case of the classification under the debtor-creditor principle, can be unquestionably classified as a household sector transaction.

The problem of sectorising current transactions, especially their main part, exports/imports of goods and services, has not yet been dealt with in Russia and international experience, if there is any, is not known to us. We have confronted the following difficulties, some of which we have failed to overcome.

Firstly, the fundamental question of what theoretical principle should form the basis of the classification, the transactor principle or the real economic value producer/consumer principle, remains open. The possible principles are set out here by analogy with the financial transaction classification principles described in BPM5.

In respect to exports/imports of goods, the question is put like this: should we classify as household sector transactions only the goods to which the ownership title passes directly from a household to a non-resident (or vice versa), according to the transactor principle, or, according to the final consumer principle, in the case of imports, all goods intended for domestic consumption by households, including those bought from non-residents by, say, foreign trade companies?

The first approach is possible in principle. As for the second, it can only be discussed theoretically, because a vast amount of goods imported may be consumed by various sectors of the domestic economy. In the first case, the same standards are used for the export and import classification by sector, in the second, different standards are used, which means asymmetries.

The same applies to international trade in services: the first approach is possible, whereas the second is not, for the reasons stated above (the accounting methods used today cannot tell us for which sector communication services, for example, have been imported). At the same time, only the final consumer principle fits in the definition of services as outputs that are realised by the activities of producers at the demand of the consumers. Under the final consumer principle, travel services, for example, will mostly be allocated to the household sector (with the exception of, perhaps, the part of expenses that cover the accommodation of corporation employees on business trips). Under the transactor principle, payments for the tours transferred to non-residents by tourist companies and other payments by intermediaries should be treated as non-financial corporation travel service imports rather than the country's households travel service imports.

These arguments are not at all exhaustive as far as the methodology of foreign trade sectorisation is concerned, but they pinpoint the problem and show that the transactor principle is the only possible solution.

As for separating resident household transactions from the transactions of all sectors of the economy accounted for in the balance of income and current transfers of the balance of payments, there are also two possible principles known from the previous analysis of the financial transactions and foreign trade in goods and services: the transactor principle and the ultimate beneficiary/payer principle. Humanitarian aid received from non-residents by the general government sector and reallocated to households may serve as an example of the different classifications by sector under these two different principles. However, in respect to the income and current transfers account, these classifications are closer than in respect to the other current account components and this makes it possible to compile this part of the household sector balance of payments according to both principles.

The abovementioned methodological and information problems in separating foreign trade transactions of the household sector from the transactions of all sectors with non-residents have become so obvious that the need to upgrade statistics in this field has been recognised at the highest level. Specifically, the G8 Summit, held in 2004, set the task of improving statistics on remittances.

Compilation of a new aggregated indicator of personal remittances

In response, international statistical forums such as the Balance of Payments Committee, the United Nations Technical Subgroup on the Movement of Natural Persons and the Advisory Expert Group on National Accounts put forward the proposal to change the effective balance

of payments methodology in respect to accounting for current transfers and calculate the aggregated indicator of personal remittances as a memorandum item of the balance of payments.

The concept of personal remittances was introduced by the United Nations Technical Subgroup on the Movement of Natural Persons and includes all household-to-household transfers (current and capital) as well as net compensation of employees (net of taxes on income, social security contributions, travel and passenger transportation). At the same time, it was proposed to replace the balance of payments component of workers' remittances with a new component of personal transfers that covers all current household-to-household transfers.

The experimental calculation of the aggregate of personal remittances was made on the basis of Russia's balance of payments time series.

Table 3

Comparison of available data on remittances

Bn $

	2001	2002	2003	2004	2005
A. BOP data (BPM5)					
Income - compensation of employees					
Receivable	0,6	0,7	0,8	1,2	1,7
Payable	–0,5	–0,5	–1,0	–1,8	–3,6
Current transfers - other sectors					
Workers' remittances					
Receivable	0,4	0,2	0,3	1,1	0,8
Payable	–0,4	–0,8	–1,3	–2,7	–3,1
Other transfers					
Receivable	0,1	0,5	0,9	1,2	2,0
Payable	–0,8	–1,0	–1,3	–1,3	–2,1
Capital transfers - other transfers - other					
Receivable	0,0	0,0	0,0	0,0	0,0
Payable	0,0	0,0	0,0	0,0	0,0
Total receivable (BPM5)	*1,1*	*1,4*	*2,0*	*3,5*	*4,5*
Total payable (BPM5)	*–1,7*	*–2,3*	*–3,6*	*–5,8*	*–8,7*
B. Personal remittances, receivable and payable (new methodology)					
Personal remittances, receivable	0,7	0,6	0,8	1,6	2,6
Net compensation of employees	0,4	0,4	0,5	0,5	0,7
Compensation of employees	0,6	0,7	0,8	1,2	1,7
less					
Taxes on income	–0,1	–0,1	–0,1	–0,1	–0,2
Import of travel services	–0,2	–0,2	–0,2	–0,6	–0,8
Personal transfers	0,4	0,2	0,3	1,1	1,8
Workers' remittances	0,4	0,2	0,3	1,1	0,8
Other household-to-household transfers*	0,0	0,0	0,0	0,0	1,0
Other transfers	0,1	0,5	0,9	1,2	2,0
less					
Humanitarian aid, contributions to different organizations, pensions, etc	0,1	0,5	0,9	1,2	0,9
Capital transfers	0,0	0,0	0,0	0,0	0,0

Table 3 (cont)

Comparison of available data on remittances

Bn $

	2001	2002	2003	2004	2005
Personal remittances, payable	–0,6	–1,0	–2,0	–4,1	–6,8
Net compensation of employees	–0,2	–0,3	–0,7	–1,4	–3,0
Compensation of employees	–0,5	–0,5	–1,0	–1,8	–3,6
less					
Taxes on income	0,0	0,0	0,0	0,1	0,2
Export of travel services	0,2	0,2	0,3	0,3	0,5
Personal transfers	–0,4	–0,8	–1,3	–2,7	–3,9
Workers' remittances	–0,4	–0,8	–1,3	–2,7	–3,1
Other household-to-household transfers[1]	0,0	0,0	0,0	0,0	–0,8
Other transfers	–0,8	–1,0	–1,3	–1,3	–2,1
less					
Humanitarian aid, contribution to different organizations, etc	–0,8	–1,0	–1,3	–1,3	–1,2
Capital Transfers	0,0	0,0	0,0	0,0	0,0
C. Remittances without qui pro qua via banks and in cash[1]					
Payed					7,5
by residents via banks	…	…	…	…	3,1
by non-residents staying in Russia via banks (estimate)	…	…	…	…	2,5
by non-residents staying in Russia in cash (estimate)	…	…	…	…	1,9
Received					2,7
by residents via banks	…	…	…	…	2,2
by residents in cash (estimate)	…	…	…	…	0,1
by non-residents staying in Russia via banks (estimate)	…	…	…	…	0,4
D. Deviation of different data					
Receivable remittances					
Total (BPM5)	1,1	1,4	2,0	3,5	4,5
Personal remittances (new methodology)	0,7	0,6	0,8	1,6	2,6
Remittances without qui pro qua via banks and in cash	…	…	…	…	2,7
Payable remittances					

Table 3 (cont)

Comparison of available data on remittances

Bn $

	2001	2002	2003	2004	2005
Total (BPM5)	–1,7	–2,3	–3,6	–5,8	–8,7
Personal remittances (new methodology)	–0,6	–1,0	–2,0	–4,1	–6,8
Remittances without qui pro qua via banks and in cash	…	…	…	…	–7,5

[1] Some data for 2001-2004 are not available due to lack of reporting.

Source: Bank of Russia.

The compilation of the new component was not difficult as far as Net compensation of employees was concerned, because statistical data on taxes paid by employees and travel exports and imports were collected on a regular basis. As for expenditures of the short-time workers in the host country, such as passengers' transportation related to short-term employment, this item seems to be important for the cross-border workers who regularly (daily or weekly) bear these expenses. In our case when a worker stays abroad (a foreigner stays in Russia) for three to six months on average, the separate accounting for the expenses involved in transportation across the border is not so important, the more so since apparently only one-way transportation payment (back home) is to be deducted from gross compensation of employees.

However, the evaluation of Other household-to-household transfers posed the problem of determining the non-resident's sector. The data collected via banking statistics do not single out resident household sector transactions with non-resident households. This transfer was calculated by the residual method as the difference between total household sector transfers and the estimate of transactions unrelated to transfers between households of different countries.

The disseminated statistical data on remittances are compared with the actual transfers through banks and the estimated value of informal cash transfers that bypass banks. Remittances without qui pro qua via Banks and in Cash included both data on the actual bank transactions and estimates. The estimates concerned the adjustment of the value of non-resident transfers for the purpose of singling out gratuitous transfers and determining the value of cash carried by private individuals. As a result, we have determined the value of gratuitous cross-border remittances (bank transfers and cash) received by private individuals (separately by residents and non-residents) staying in Russia and the value of transfers (bank payments and cash) made by the same persons from Russia to other countries.

The comparison of the different principles of presenting data on household-to-household remittances in 2005 shows that personal remittances (new methodology) are considerably smaller than remittances (BPM5). Personal remittances received are smaller by 43% and personal remittances paid are smaller by 21%. These discrepancies are due to the fact that Other transfers included in remittances (BMP5) are not disaggregated into the remittances of the household sector and other sectors. In addition, Personal Remittances (new methodology) include Compensation of Employees (COE) net of taxes and travel.

As for the Russian remittances data collection system, it takes into account all operations conducted by private individuals through banks. By analysing these flows, we can judge about the extent of the involvement of households in banking sector operations and the level of their financial literacy. This allows us to determine the interrelationship between the donor

countries and recipient countries. The total turnover of transactions conducted by private individuals is $23.9 billion, while the transfer turnover accounts for 34% of this amount.

The comparison of Personal Remittances (new methodology) and Remittances without qui pro qua via Banks and in Cash shows that the latter exceed the former, especially in respect to the remittances paid. This discrepancy is due to the miscoding of transactions for the purpose of evading taxes and customs duties and to capital flight. Private individuals formally declare their remittances as transfers, whereas in reality they are earnings from exports or payments for imports. Chinese residents engaged in cross-border "shuttle" trade, for instance, frequently use the banking sector to transfer to their relatives their earnings from the sale of goods and a single transaction of this kind may exceed $1 million. Consequently, it is necessary to disaggregate and exclude these transactions from total household sector transfers, because they do not fit in the definition of a transfer.

Russia's remittances data collection system

Data are collected through special bank reporting, which was introduced in 2004 and covers all Russian banks. The Russian data collection system is not based on the ITRS principle because the huge amount of transactions conducted by private individuals could create problems for banks in processing data. The advantage of the system is that there is no threshold and even the smallest transfers can be accounted for. Since banks report not only the value but also the number of transfers in the form, it is possible to calculate the average value of a transfer made through each reporting bank.

The remittances included in the form are split into incoming and outgoing and resident and non-resident. Resident remittances are disaggregated by purpose into six major types of private individual transactions:

– payment for goods;
– payment for services;
– grants, donations, amends, scholarships,
– pensions, alimony, legacy and gifts;
– compensation of employees;
– real estate purchase/sale;
– other transactions.

Non-resident transactions are not disaggregated by type, because banks cannot receive detailed information about the purpose of their remittances from their non-resident customers.

Since 2006 data have been disaggregated into sender country data and beneficiary country data for the purpose of registering remittances and determining the principal partner countries.

In addition, the Bank of Russia conducts surveys of the money transfer market participants (banks, money transfer operators (MTO), and post offices) with the objective of determining additional transfer characteristics, such as singling out short-term workers' transactions (non-resident workers staying in Russia for less than one year). Other relevant information is also collected (commission charged, remittance delivery times, the number of offices) that allows the Bank of Russia to monitor the development of the cross-border transfer market as a whole. Special attention is paid to the MTO. Statistical data are collected on each MTO and in aggregated format they are put on the Bank of Russia website as an additional statistical indicator.

In the analysis of Russia's money transfer market the problem of sender/receiver residence is of secondary importance. Transfers made by both residents and non-residents (temporarily staying in Russia) are taken into account, with the emphasis laid on the amount of money transferred. Gratuitous remittances are singled out. These data have many users.

Some aspects of personal cross-border transaction statistics in Russia

Remittances from Russia exceed by far remittances to Russia. The negative balance, which has expanded during the past five years, testifies to the increased role of employment in Russia for countries with a smaller economic potential.

The economic, geopolitical and demographic situation in Russia has turned this country into a magnet for migrant workers from the former Soviet republics. Only a part of all migrants coming to Russia every year arrive for permanent residence. In the past eight years the number of such migrants has steadily declined, because most of them are ethnic Russians returning to Russia after the breakup of the Soviet Union. The other migrants arriving in Russia are foreign workers. Unlike the migrants who arrive for permanent residence, the number of migrant foreign workers has been steadily growing in recent years. In the past three years alone the number of migrant workers coming to Russia has more than doubled.

The effect of migration trends on growth in the amount of remittances may be judged by the example of four countries that are the principal labour donors and, consequently, the main recipients of money transfers from Russia. These countries account for 51% of the total amount of remittances from Russia in 2005 and 40% of total migrant workers.

Table 4

	Growth of number of entries of foreign workers, 2005/2004, %	**Growth of remittances via money transfer systems, 2005/2004, %**
Ukraine	163	150
Uzbekistan	228	214
Tajikistan	245	222
Moldova	154	210
Total for selected countries	**185**	**188**

Source: Bank of Russia.

Statistics show that both ratios increase almost at the same rate in the group as a whole and in each country in particular. Moldova stands out among these countries, as growth in transfers to that country far surpasses growth in the number of migrant workers from it, a process that may be attributable to the intensification of market operators' activity in this direction. Migration and transfer trends coincidence indicates that the amount of remittances depends on growth in migrant workers.

Growth in the number of migrants and their earnings required the establishment of the channels for the transfer of their money to their home countries and considerably facilitated the development of the money transfer system. Russia's territory size is another contributing factor. A migrant who works in Russia's Extreme North may have only formal channels to transfer his money through.

There are formal and informal channels for cross-border transactions between private individuals. The formal channels are the post offices, banks and money transfer operators;

the alternative ways are taking money out of the country by private individuals themselves and using informal systems.

The overwhelming majority of cross-border remittances registered in Russia are made via banks. MTOs make all cross-border remittances through the banking system.

Historically, unofficial remittances from Russia have been the principal means used by working migrants to transfer money to their families abroad. Most of the unofficial remittances are made in the following ways:

– foreign currency cash is exported/imported either by migrants or by their trustees (eg, wages of several migrants are imported to the country by one migrant who is returning home);

– foreign currency is transferred through transport workers, such as bus drivers or conductors.

The reasons for using unofficial remittances by working migrants are the following:

– the presence of the documents essential for official remittances (most of the migrants are staying in the country illegally);

– discredit upon banking services due to ignorance of banking procedures;

– difficulty in dealing with bank operators due to the poor knowledge of Russian and low literacy level of migrants.

Besides, the commission taken by the most wide spread and well known systems is very high (in contrast to Russian systems that are at the initial stage of development) what also induces unofficial remittances.

Conclusion

The result of our attempt to compile the household sector balance of payments on the Russian balance of payments' data has been inconclusive. The main problem is sectoring current transactions, especially their main part, exports/imports of goods and services. Practically only the transactor principle should be used, because a vast amount of goods imported may be consumed by various sectors of domestic economy. But this principle doesn't fit in the definition of services where the final consumer principle is more applicable. It is possible to compile income balance and current account balance according to both the transactor and the ultimate beneficiary/payer principle.

The experimental compilation of personal remittances was successfully made on the basis of Russia's balance of payments time series. It turned out that personal remittances are considerably smaller than remittances (BPM5) and remittances without qui pro qua via banks and in cash, because of excluding transactions, which doesn't fit in the definition of a household-to-household transfer.

Households' response to wealth changes: do gains or losses make a difference?

Robert-Paul Berben,[1] Kerstin Bernoth[2] and Mauro Mastrogiacomo[3]

1. Introduction

Over the past decade, many major industrial countries have witnessed large swings in stock-market capitalisation. For example, in the US market capitalisation stood at about 50 percent of GDP in 1995 and rose to 150 percent in 2001, while in the Netherlands market capitalisation grew from 60 percent to 180 percent. After the burst of the ICT[4]-bubble in 2001, these upward trends were partially reversed. Between 2001 and 2003, market capitalisation in the US was reduced by 70 percentage points, while in the Netherlands it fell by more than 100 percentage points. A worldwide drop in asset prices of this size was unprecedented in recent history. This raises the question whether asset wealth losses may effect private consumption differently than asset wealth gains.

Poterba (2000), well before the collapse of asset prices in 2001, already put forward the "intriguing issue" of the potential asymmetry in how wealth changes affect consumer spending. More specifically, he raised the possibility that consumers might react more rapidly when wealth contracts than when it expands. Subsequent research for the US using macro data on consumption and asset wealth seems to contradict this view. For example, Apergis and Miller (2005) and Stevans (2004) show that during an "upswing" in equity prices, private consumption responds more strongly than during stock-market downturns.[5] In order to identify sufficient upswings and downturns, these authors use time-series data starting in the 50's. However, in view of the ongoing liberalisation of financial markets worldwide, it is at least questionable whether using data from the 50's-80's is appropriate when one is interested in an accurate estimate of the current impact of changes in wealth on spending.

In this paper, we use a micro-dataset for the Netherlands covering the period 1993-2005 to estimate the spending response to changes in asset wealth. The dataset does not provide information on non durable consumption. We assess therefore the response of active savings and of a limited set of durable goods, respectively, to capital gains on holdings of stocks, bonds and mutual funds. These appear to be the asset categories that generate the largest saving responses (Juster et al., 2006). Moreover, following Poterba's suggestion, we differentiate between capital gains and losses. Despite the relatively short time period that is covered by our dataset, we have sufficient observations to identify the different impacts of capital gains and losses, as many households experience financial gains in the first part of the time period, while facing financial losses in the second part. The high quality Dutch micro-dataset allows us to measure capital gains, or "pure" changes in wealth (therefore isolating portfolio choices). In this we follow Grant and Peltonen (2004), Juster et al. (2006) and some of the studies contained in Haliassos et al. (2002).

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[1] De Nederlandsche Bank.

[2] De Nederlandsche Bank, ZEI-University of Bonn.

[3] CPB, Netspar.

[4] Information and Communication Technology.

[5] Case et al. (2003) show that increases in housing market wealth have positive and significant effects upon consumption, but declines in housing market wealth have no effect at all upon consumption.

This study is in part motivated by the results of Mastrogiacomo (2006). Using the data of the Dutch Social Economic Panel he shows that the perception of financial wealth realisations is asymmetric. Individuals need comparatively larger improvements in financial wealth to feel a bit more wealthy than they need financial losses to experience a small wealth decrease. His study focuses on the psychological perception of financial wealth (individuals are asymmetric per se) and does not link changes of financial wealth to consumption behaviour.

The remainder of this study is organised as follows. Section 2 describes the data and the construction and composition of the financial wealth variables. Section 3 studies the relation between financial wealth and active savings as well as at the relation between financial wealth and consumption of durables. Section 4 summarises, while tables and figures are in the Appendix.

2. Data

For the investigation of wealth effects on active savings and consumption in the Netherlands, we make use of the DNB Household Survey (DHS). The DHS is administered by CentERdata, which is associated with Tilburg University, the Netherlands. The survey is sponsored by De Nederlandsche Bank (DNB), the Dutch central bank. The aim of the DHS is, among others, to furnish information on both economical and psychological determinants of savings. The survey is conducted annually, starting 1993. In this study, we use the waves up to and including 2005. Each year, the survey contains approximately 1,500 households (well over 2500 individuals).[6]

The DHS provides very detailed information on households' assets and liabilities, which enables us to calculate an approximation of active household savings. In addition, the survey contains data on households' stocks of cars, caravans, boats, and motorbikes. No further information concerning the consumption of (non-)durable goods is available.

We define households' active saving as the money put in checking and saving accounts (CS) and invested in three financial assets: equities (E), bonds (B), or mutual funds (MF). More precisely, we define active saving as follows:

$$s_{i,t} = \left(X_{i,t}^{CS} - X_{i,t-1}^{CS}\right) + x_{i,t}^{E} p_{i,t}^{E} + x_{i,t}^{B} p_{i,t}^{B} + x_{i,t}^{MF} p_{i,t}^{MF} \qquad (1)$$

where $X_{i,t}^{j}$ denotes the stock of money held at the end of year *t* by household *i* in asset *j*, $x_{i,t}^{j}$ describes the flow of asset *j*, thus, the number of assets sold or purchased during year *t*, and $p_{i,t}^{j}$ denotes the price of asset *j* at time *t* paid by household *i*. Out of all financial wealth categories, these four are the most popular ones in the Netherlands. Table 1 gives an overview of the ownership rates of these wealth classes calculated on the basis of the answers collected by the DHS.[7] We see that the ownership of checking and saving accounts is nearly 100%. Around 10% of Dutch households reported in 1993 that they were holding money in equities. In 2001, equity ownership peaked around 18%. After the burst of the ICT bubble in 2001, stock ownership decreased to around 15% in 2005. We observe a similar pattern for the ownership of mutual funds. During the 90's, the relative number of households investing in mutual funds rose from around 14% in 1993 to around 30% in 2001. Between

[6] More information can be found at www.uvt.nl/centerdata/dhs.

[7] In the case that households report to hold a certain type of an asset but do not report the amount held in this asset, we follow Alessie et al. (2002) and replace the missing information by imputed values provided in the DHS data set. Since the relatively rich households are over-sampled in the data set, ownership rates are weighted with the sample weights to make them representative for the Dutch population.

2001 and 2005, mutual fund ownership showed a decreasing trend and reached a participation of 22% in 2005. Compared to the investment in stocks or mutual funds, bonds seem to be relatively unpopular for Dutch households. Only about 5% of the households report between 1993 and 2005 that they have invested in this investment category. This pattern is consistent with results appeared in the literature for the Netherlands and the US (cfr. Alessie et al. (2002), Bertaut (1998)).

We focus in our study on financial asset capital gains, namely returns on equity, bond, and mutual fund holdings. In contrast to most earlier studies on the relationship between wealth effects and spending, we attempt to calculate "pure" wealth effects. We differentiate between two components. First, wealth changes due to sales and purchases, which we define to be one component of active saving. Second, return effects appear, which we refer to as capital gains (passive savings)[8] and that we define as:

$$w_{i,t} = X^{E}_{i,t-1} r^{E}_{i,t} + X^{B}_{i,t-1} r^{B}_{i,t} + X^{MF}_{i,t-1} r^{MF}_{i,t} \,, \tag{2}$$

where $X^{j}_{i,t-1}$ describes again the stock of money hold in asset *j* and r^{j}_{t} describes the annual return between

t-1 and *t* of asset *j*.

Unfortunately, the DHS neither provides any direct information about households' sales and purchases of financial assets nor about their price and annual return, which complicates the calculation of household savings and asset capital gains according to equation (1) and (2).[9] We solve this problem by approximating the missing variables. The DHS provides information about the amount of money held at the end of a year in various asset classes, thus $X^{j}_{i,t}$, of which we can calculate the annual change of money held in asset *j*, $X^{j}_{i,t} - X^{j}_{i,t-1}$.

By definition, the annual change of asset wealth consists of two different parts. The first is the change due to sales and purchases and the second is the capital gain between *t-1* and *t*:

$$X^{j}_{i,t} - X^{j}_{i,t-1} = x^{j}_{i,t} p^{j}_{i,t} + X^{j}_{i,t-1} r^{j}_{i,t}, \tag{3}$$

with *j=E, B, MF*. The first term on the right hand side is the "active savings" part, which is needed for the calculation of households' active savings according to equation (1), and the second term is the capital gain in the particular asset, which is used for the calculation of household financial assets capital gain according to equation (2). Thus, after approximating the capital gains, we can use equation (3) to finally calculate the amount of active savings of the households.

The first and ideal way to split the annual change of money held in equities into its active savings and capital gains part is to extract the information directly from survey responses. The DHS contains two relevant questions, namely, a question asking household members about the amount of equities they hold and a question, which asks for the value of these equities. If respondents answer these two questions in two consecutive years, we can distinguish between a wealth change due to price effects on the one hand, and between wealth developments due to changes in the stock of the assets. This can be applied to 45 households. In the cases where we do not have this information about equity wealth, we approximate the capital gain on equity holdings by multiplying the total amount of money hold in equities at time *t-1* by the total annual return of the "Amsterdam Exchange Index" (AEX) at

[8] Most studies simply calculate the periodical change of wealth hold in a financial asset category, in which way one cannot differentiate between these two possible reasons for wealth increases.

[9] The only exception is equity wealth, where this information is available.

time *t*.[10] To calculate the capital gain on mutual fund holdings, we proceed as follows. If we know what institutions households invested their mutual funds in, we multiply the amount of wealth hold in this asset category by the return on the largest and the most liquid fund offered by this institution. If this information is not available, we multiply the amount of wealth held in mutual funds by the annual AEX return. For the calculation of the capital gain in bond holdings, we multiply the reported bond wealth at time *t-1* with the return on the Dutch 10-year benchmark government bond.

Besides our focus on the financial asset wealth, we add two more wealth variables as controls, namely the annual change of housing wealth and pension wealth. We define housing wealth at time *t* as the self reported current house value. Table 1 shows that around 50% of the respondents of the DHS own a house or an apartment. In the observed time period, house prices showed a tremendous appreciation, with growth rates exceeding 20% in 2000. Alessie and Kapteyn (2002) find significant effects of housing wealth on the take up of a second mortgage in the Netherlands, which is indeed a way to consume out of housing wealth. Further, many previous studies focussed on the impact of housing wealth on consumption and found a significant effect. The reason for the inclusion of a variable measuring the annual change of pension wealth into our regressions is that during the sample period some major institutional reforms in the Netherlands have exogenously changed the level of pension wealth. This may have had a significant impact on households' active savings (see Hubbard, 1985). Pension wealth is calculated as the discounted sum of future benefits minus premiums. We have taken into account information regarding individual pension plans, such as planned retirement age and pension arrangements. Further details are available from the authors upon request.

The time profile of the capital gains is presented in Figure 1. Capital gains and active savings clearly move in opposite directions, again suggesting a negative correlation. Thus, Figure 1 provides evidence that households tend to increase their active savings when they experience wealth losses, and vice versa.

While the DHS does not report a direct measure for households' consumption expenditures, it does contain a number of questions asking household members about the number of cars (*CA*), caravans (*CV*), motorbikes (*M*) and boats (*B*) they own, and about their estimated second-hand market value. This enables us to approximate durable-good consumption. For example, in year 2004 individuals are asked:

How much was the estimated market value of the [1st to 5th] car you have mentioned, on 31 December 2003?

Similar questions are asked about caravans, boats, and motorbikes. We use this information to calculate a measure of households' purchases (or sales) of a durable goods item as follows:

$$V_{i,t}^{j} = (1-\delta)V_{i,t-1}^{j} + c_{i,t}^{j}, \qquad (4)$$

with *j=CA,CV,M,B*. $V_{i,t}^{j}$ denotes the (second hand-)market value of household *i* of item *j* in year *t*. δ is the rate of depreciation, and $c_{i,t}^{j}$ is the amount of money the household has spent on the item *j* in the course of year *t*. Note that this amount of money can be negative. In that case, the household has sold a durable item. In the remainder of the study, we focus on total

[10] Although the share of foreign assets in Dutch portfolios is on the rise, the home bias is still substantial (IMF, 2005).

consumption of durable goods,[11] which is calculated as the sum of $c_{i,t}^{j}$ over the four goods items,

$$c_{i,t} = c_{i,t}^{CA} + c_{i,t}^{CV} + c_{i,t}^{M} + c_{i,t}^{B}. \quad (5)$$

The DHS does not provide information on depreciation rates. We therefore assume that the depreciation rate may take the following values: 0%, 10%, 20%, 30%, cf. Padula (2004). Of course, assuming a uniform rate of depreciation over time, items, and households is arbitrary, and clearly matters for the calculation of $c_{i,t}^{j}$. However, we are not interested in obtaining estimates of durable goods consumption per se, and it is not immediately obvious whether and how idiosyncratic variation in depreciation rates would bias the empirical findings in the remainder of the study. A final issue is that the DHS does not allow us to differentiate between purchases of new items and of second-hand items. This obfuscates a direct comparison to durable goods (vehicles) consumption in the National Accounts, since the latter excludes purchases of second-hand items.[12]

Figure 2 shows the median household expenditure on the four durable goods item, considering only households that actually made a purchase and assuming $\delta = 0.10$.[13] The figure indicates that durable goods consumption slowed down from 2001 onwards.

3. Impact of wealth changes on savings and durable consumption

3.1 Savings

Our estimates of the relationship between household savings and wealth returns are based on the following equation:

$$s_{i,t} = \theta_1 w_{i,t-1}^{P} + \theta_2 w_{i,t-1}^{N} + \theta_3 x_{i,t} + \alpha_i + \lambda_t + u_{i,t}\ ,\ i = 1, \ldots, N\ ,\ t = 1, \ldots, T, \quad (6)$$

where *i* denotes the household and *t* the time. $s_{i,t}$ stands for active savings. $w_{i,t}^{P}$ and $w_{i,t}^{N}$ describe the vector of wealth gains and wealth losses, respectively.[14]

A number of authors, like eg Dynan and Maki (2001), have noted that households' consumption or savings reactions to wealth effects may occur with a substantial time lag (owing to uncertainty about the persistence of the change). As attrition is high in the DHS, we must assume that active savings react at most with one period lag to wealth changes.

We assume therefore that active savings react on asset returns with a one year lag. As current asset returns (those in period *t*) are used to define current active savings, we include

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[11] The totality of durable consumption in the DHS does only include vehicles. These account for about 20% of the entire stock of durables registered by National Accounts.

[12] Ownership rates for all four items are fairly stable over time. The vast majority of the households own at least one car. Ownership of caravans, motorbikes and boats is less widespread.

[13] Similar graphs are obtained for the remaining depreciation rates.

[14] It is well known that financial indicators like returns on savings, suffer of high measurement error, and that this may bias the estimated coefficients towards zero. This is even more the case in our study, where capital gains are defined on the base of assets returns and net financial wealth that are both measured with error. In order to account for this problem we have limited our definition of assets returns only to the most volatile components of financial wealth, that also show higher MPC's relative to the total of financial wealth. We have for instance excluded returns on checking, saving, deposit and business accounts as well as the returns on stocks that back up long term mortgages.

only the lag in our model in order to avoid any spurious negative relation due to the definition of active savings and assets returns. An alternative would be to instrument current asset returns, however the most obvious instrument would be the lag of these returns themselves.

The wealth vector consists of financial asset wealth as defined in equation (2), augmented by housing wealth and pension wealth changes. $x_{i,t}$ in equation (6) is a vector of household controls, such as income, age, family size and education, λ_t are time effects to account for the business cycle, α_i denotes the individual effect, and $u_{i,t}$ is a white noise error term. We follow Mundlak (1978) and assume that the individual effects are correlated with some explanatory variables. More specifically, the relationship between α_i and $x_{i,t}$ is specified as $\alpha_i = \beta' \overline{x}_i$. This is done by including the "individual means over time" of some relevant explanatory variables, $\overline{x}_i$ into the estimations. As the variance of the household-specific residual is not equal across households, OLS estimates of our model would be biased and return very low standard errors. We use therefore bootstraping to correct for this.

Table 2 shows the estimation results. Similar to Alessie and Kapteyn (2002) and Engelhardt (1996), we apply a median regression approach, which is robust to outliers. Column A contains the results for the model in which we include all three wealth variables linearly, thus, without differentiating between positive and negative wealth changes (therefore capital gains and losses are kept together). Column B describes the results for the model in which we explicitly distinguish between capital gains and losses, and positive and negative changes in housing and pension wealth.

From the estimation results in column A, we see that lagged financial asset wealth shows the expected negative sign (though it is not significantly different from zero). Thus, a capital gain is associated with a decrease in active savings and vice versa. The estimation results in regression B, where we distinguish further between lagged capital gains and losses, confirm our asymmetry hypothesis. Households react more strongly to capital losses than to gains. The coefficient on capital losses is about twice the size of the coefficient on capital gains. A capital gain of 1,000 euro causes a non statistically significant decrease in active savings of 59 euros. A capital loss of the same magnitude induces households to increase their active savings by 150 euros. The null hypothesis of both these coefficients being not significantly different from zero is rejected at conventional statistical levels ($\chi^2_{(2)}$=34.6). In comparison to the results found in the macro-econometric literature (like eg Poterba (2000) and Mehra (2001)), our estimated marginal propensity to consume out of equity, bond, and mutual fund returns are somewhat larger.[15] These are in line with the results of Juster et al. (2006). As we focus on the relation between these two effects and not on their level, we do not enquire this further.

It is however possible that households in general tend to put money aside. In that case, interpreting the coefficients ceteris paribus may be misleading. Thus, we are also interested in comparing the effect of capital gains and losses on savings by looking at the predictions of our models for three different subgroups in the populations: those with no assets, those with capital gains and those with losses. Using the estimates of model B in table 2, we compute the expected savings for these groups separately. In addition summary statistics show that gains and losses in these returns are of almost identical magnitude (approximately 1,000 euro on average). We take the expected active savings of those with no assets as a benchmark. If all consumers were symmetrically reacting to wealth changes, we would

[15] Notice that our estimates refer to active savings, these are the complement to income of the sum of durable and non-durable consumption. It is therefore not possible to compare the coefficients estimated here, with those of studies that either focus on durable or non-durable consumption. As the complement is the sum of these two variables it is perfectly plausible, and indeed expected, that the coefficients are larger than standard MPC's.

expect those with capital losses to have extra active savings (relative to the benchmark) of the same magnitude of the lower expected active savings of those with capital gains.

More formally, we subtract the expected value of active savings of those with no assets from the expected savings of those with capital gains or losses. Thus, let *y* denote the predicted active savings, then the ratio:

$$ER = -\frac{E(y \mid (return < 0)) - E(y \mid (return = 0))}{E(y \mid (return > 0)) - E(y \mid (return = 0))}, \tag{7}$$

measures the excess reaction. The calculated ratio is on average equal to 1.8. We compute this measure for different age-related subgroups and find that it is equal to 3.4 for the elderly. This means that households reaction to capital losses is between 2 to 3 times larger than their reaction to a capital gain of the same size. This result supports our asymmetry hypothesis that households respond much stronger to financial losses than to financial gains. These estimates are in line with the results of Mastrogiacomo (2006) that measures an asymmetric perception of financial wealth changes ranging from 1.5 to 4.8, also depending on age.

Housing wealth did not return significantly different results for positive and negative changes nor results that significantly differ from zero ($\chi^2_{(2)}$=3.6). Positive and negative changes are defined relative to the average change of the value of the house for each household. Thus, our results partly contradict the results of Engelhardt (1996), Blake (2004), Disney et al. (2003), and Grant and Peltonen (2004), who find significant effects of housing wealth on consumption. We propose three explanations for the non-significance of house values changes. The first one is given by Poterba (2000), who argues that the extent to which an unanticipated increase in house prices raises a household's real wealth depends on the time horizon over which the household plans to live in its current home. When the house prices rise, the implicit "user cost" of living in a house also rise. Thus, when households expect to live in their homes for many years, the positive wealth effect associated with a house price increase can be largely offset by the increase in the effective cost of buying housing services. The second explanation we find is related to the first one. If households expect to stay for many years or even until death in their houses, they have no plans to monetize their wealth increase following a rise in their house price, and therefore, the house value has no significant impact on savings. The third explanation is specific to the Netherlands. Alessie and Kapteyn (2002) show the already quoted relation between housing wealth and the take up of a second mortgage. In the Netherlands second mortgages are also tax deductible if invested in the renovation of the house itself. This regulation creates a subsidy to durable consumption re-invested in house improvements (and therefore endogenous to the value of the house) that is as high as the payroll tax. The strong incentive to get a second mortgage and to re-invest it on the house suggests that no significant relation should be found between non-durable consumption (and therefore also active savings), other durable consumption (vehicles for instance) and housing wealth changes.

Pension wealth developments have jointly significant impact on active savings ($\chi^2_{(2)}$= 15.1). They also show the expected asymmetric effect. However in Models A and B, the coefficient of changes in pension wealth turns out to be negative but not always significant. A possible explanation for this result, beside the obvious technical explanation, is that individuals are on average not well informed about their pension wealth (Lusardi, 2006) and therefore do not adapt their savings to changes in their retirement wealth. This explanation finds also support in a study of Rooij et al. (2004), who also use the DHS to show that the average respondent considers himself financially unsophisticated, and is not very eager to take control of retirement savings investment when offered the possibility to increase his expertise.

Some of the taste shifters included are significant. Family size has a negative effect on active savings. Savings seem to be unaffected by the age of the head, but the relation between income and age may well be responsible for this. Income itself does not turn out to be

significant, however the labor market status, which definitely signals household income, did. We also included time effects to control for business-cycle-related factors and the endogenous variables mentioned above, but for reasons of exposition, we do not report them explicitly in our table.

3.2 Consumption of durables

As we explained in some detail in Section 2, the DHS does not provide for questions about households' consumption expenditures. An exception are vehicles, which represent durable goods consumption in the DHS. We measure "durables consumption" as the net adding to the stock of cars, caravans, motors and boats. The estimation strategy is primarily geared towards gauging the impact of capital gains and losses on durable goods consumption. Our model for consumption is similar to that for active savings:[16]

$$c_{i,t} = \theta_1 w^P_{i,t} + \theta_2 w^N_{i,t} + \theta_3 x_{i,t} + \alpha_i + \lambda_t + u_{i,t}, \; i = 1, \ldots, N, \; t = 1, \ldots, T, \tag{8}$$

where i indexes households, and t indexes time. $c_{i,t}$ is the amount of money that is spent on durable goods estimated according to equation (4). The rest of the controls were already introduced in previous estimations, and we also replace asset gains and losses with lags; but there are two notable differences. First, we exclude pension wealth. Second, we add the stock of durable goods in the previous period.[17]

Like above, we allow for (random) individual effects, denoted α_i. For example, some households may simply like to buy a new car every year, for reasons that we cannot observe using the survey data. However, likelihood-ratio tests strongly rejected the presence of such individual effects. Instead, we follow Mundlak (1978) and assume that the individual effects are correlated with some observables.

Table 3 shows the results for the depreciation rate equal to 20 percent per year. The results for the remaining depreciation rates (0%, 10% and 30%) are qualitatively similar, and are available from the authors upon request. The table reports two models that combine different sets of regressors. The models have been estimated by median regression. The column headed A contains the results for the model in which we use the "pure" wealth effects introduced in Section 2 and the change in house value, without differentiating between gains and losses. The column headed B contains the results for the model which distinguishes between lagged gains and losses. We assume again that these wealth changes accrue to the households in the course of the year, and can in principle be spent immediately.

Regarding the household control variables, we see that many of them enter with the expected sign. The coefficients on these variables differ little across specifications. Durables consumption is increasing in income. A household that has a net income of €30,000 and that earns an additional €1,000 will increase its spending on durables - on average - by about 5 euro. In other words, the marginal propensity to consume (MPC) on durables out of current net income is approximately 0.5 percent. This is a fairly small number, and is related to the fact that many households only occasionally spend a substantial amount of money to buy a new car. Next, the coefficients on age and age squared indicate that consumption expenditures on durable goods are increasing. This can be understood as follows.

[16] More elaborate theoretical models of durable goods consumption can be found in Attanasio (1999) and Caballero (1994).

[17] This variable is motivated by theoretical (S,s) models, see Eberly (1994) and Attanasio (2000). According to these models, the amount spent on durable goods depends on the extent to which the past level of the stock of durable goods differs from an optimal level. In the present paper, we assume that this gap is associated with the level of the stock of durable goods.

Households generally begin their economic life with zero stock of durables and may find it difficult to quickly build up this stock, for example due to liquidity constraints. As a consequence, during the first part of their life cycle households tend to progressively accumulated durables. When they grow older they may, or may not, gradually reduce this stock, cf. Fernandez-Villaverde and Krueger (2002). Furthermore, for a given level of household net income, larger families spend less on durable goods. One explanation is that these households simply have to spend more on, for instance, food, clothing, housing and children. Finally, durables consumption is (strongly) decreasing in previous year's stock of durable goods. This is consistent with theories that stress the lumpiness of durable goods purchases, cf. Caballero (1994). When a household makes a big purchase, it generally does so by aiming to adjust its stock of durable goods towards an certain optimal level. This implies the household is likely to be near its optimal level next year as well, making further (large) purchases unwarranted.

Looking at the wealth variables, we find that durables consumption is not significantly related to asset wealth. The impact of a change in housing wealth in non-significant as well. The latter is broadly consistent with anecdotal evidence for the Netherlands. During the housing boom in the late 90's, many households (partly) re-invested their housing wealth in the form of new kitchens, bath-rooms. It was less common to use housing wealth to buy a new car.

When we differentiate between lagged wealth gains and losses, it turns out that the impact of asset wealth gains and losses and of housing wealth gains and losses on durables consumption are non-significant. Nevertheless, the estimated impact of lagged asset losses is much larger than the impact of lagged asset gains. So, consistent with our results on active savings, households tend to cut down spending on durables facing a drop in wealth more strongly then they step up spending when they experience a wealth gain. We estimate the MPC out of asset wealth and housing wealth for this specific class of durable goods to be about 0 and 0.003, respectively. Compared to existing estimates, these are fairly low numbers. For instance Altissimo et al. (2005) put the MPC of asset wealth for total consumption at 1.5 to 7.5 percent for European countries. We think that the size of our estimates reflects the limited set of durables that we dispose of, as households not very often buy a new car. Furthermore, expenditures on cars amount to only 20% of total durable consumption according to National Accounts. This means that our results may not easily carry over to total durable consumption.

4. Summary

The marginal propensity to consume out of financial wealth serves as input to different models that economists employ. However, calibration based on macro studies that exploit information about remote past may not provide a good tool. The recent rise in stock-market participation of households should be central in new estimations of this parameter. Behavioural economics also shows that individuals responses to gains and losses need to be taken into account when considering any reaction to wealth changes.

In this paper, we looked at asymmetric wealth effects at the micro level from different perspectives. First, we use the data of the DNB household panel to analyse the relationship between wealth gains and losses on actual and planned savings. The result is that a positive return in financial assets has a significant negative effect on active household savings. If households experience a capital loss, they compensate this loss with an increase in active savings. This compensation is asymmetric: the impact of a capital loss is about twice as large as the impact of a capital gain. We suggest that the magnitude of this asymmetry increases with age. Our estimates of this excess reaction are in line with those of the loss aversion literature (Knetsch, 1989) and studies on wealth perceptions for the Netherlands (Mastrogiacomo, 2006).

Second, we estimate the impact of wealth on durable goods consumption, which is the only directly reported consumption information present in the data. To our knowledge, we are the first estimating this relationship at the micro level. We find that though these effects are small, they can as well be asymmetric.

Our methodology still contains an important restrictive element. We only distinguish between capital gains and losses. In reality, households may be expecting a certain positive capital gain on average, and behave differently depending on whether the actual capital gain exceeds this level or falls short of it. This is an interesting topic for future research.

Appendix
Tables and figures

Table 1

Households' assets ownership rates by year

	Checking and saving accounts	Bonds	Stocks	Mutual funds	House ownership
	%	%	%	%	%
1993	91.3	6.1	10.4	14.2	47.7
1994	93.4	4.8	6.2	13.9	45.7
1995	91.3	4.4	10.2	15.5	48.5
1996	92.3	4.9	13	17.9	50.3
1997	90.9	3.5	13.6	18.6	50.4
1998	89.5	3.7	15.5	21.5	51.8
1999	88	3.5	18.3	25.4	48.8
2000	92.3	3.2	14.4	24.6	52.4
2001	93.8	3.4	17.4	29.5	50
2002	94.3	3.5	17.1	28.7	50.8
2003	96.1	4.2	16.7	18.4	50
2004	95.4	4.4	15.6	21.5	50.7
2005	95.7	4.9	14.5	21.7	48.3

Explanatory note: All statistics use sample weights. Weights are constructed on the base of income deciles and home ownership in a larger and representative dataset that is held every 5 years. The weights after 2000 are therefore constant and return a flat pattern of homeownership.

Source: DHS, own computations.

Table 2

Estimation results for active savings

	A		B	
	estimate	**st.error**	**estimate**	**st.error**
Lag capital gains and losses (*10^{-3})	–163.97	78.51		
Lag capital gains (*10^{-3})			–97.69	183.92
Lag capital losses (*10^{-3})			–161.62	62.74
Change in house value (*10^{-3})	–1.43	5.12		
House value increase (*10^{-3})			-6.33	5.00
House value decrease (*10^{-3})			–37.17	18.02
Change in pension wealth (*10^{-3})	–1.41	2.56		
Pension wealth increase (*10^{-3})			–2.87	3.44
Pension wealth decrease (*10^{-3})			–0.46	4.27
Total income (*10^{-3})	–4.66	24.91	–7.26	26.57
Total income squared (*10^{-6})	-0.05	0.22	0.03	0.22
Head works	447.51	378.05	472.01	372.46
Partner works	999.70	544.16	864.70	549.88
Education	–160.73	133.63	–172.06	141.58
Family Size	–156.17	75.87	–151.96	74.34
Age	60.11	74.15	71.98	75.09
Age squared	–0.55	0.78	–0.64	0.77
Constant	–2262.61	1828.37	–2824.14	1951.19
N	3081		4486	
Time effects	yes		yes	
Endogenous variable	yes		yes	

Explanatory note: Among the endogenous variables we include household income, total non financial assets, labor market participation of the partner, pension wealth. Time effects are included using yearly dummies. Bootstrapped standard errors.

Source: DHS, own computations.

Table 3

Estimation results for durables

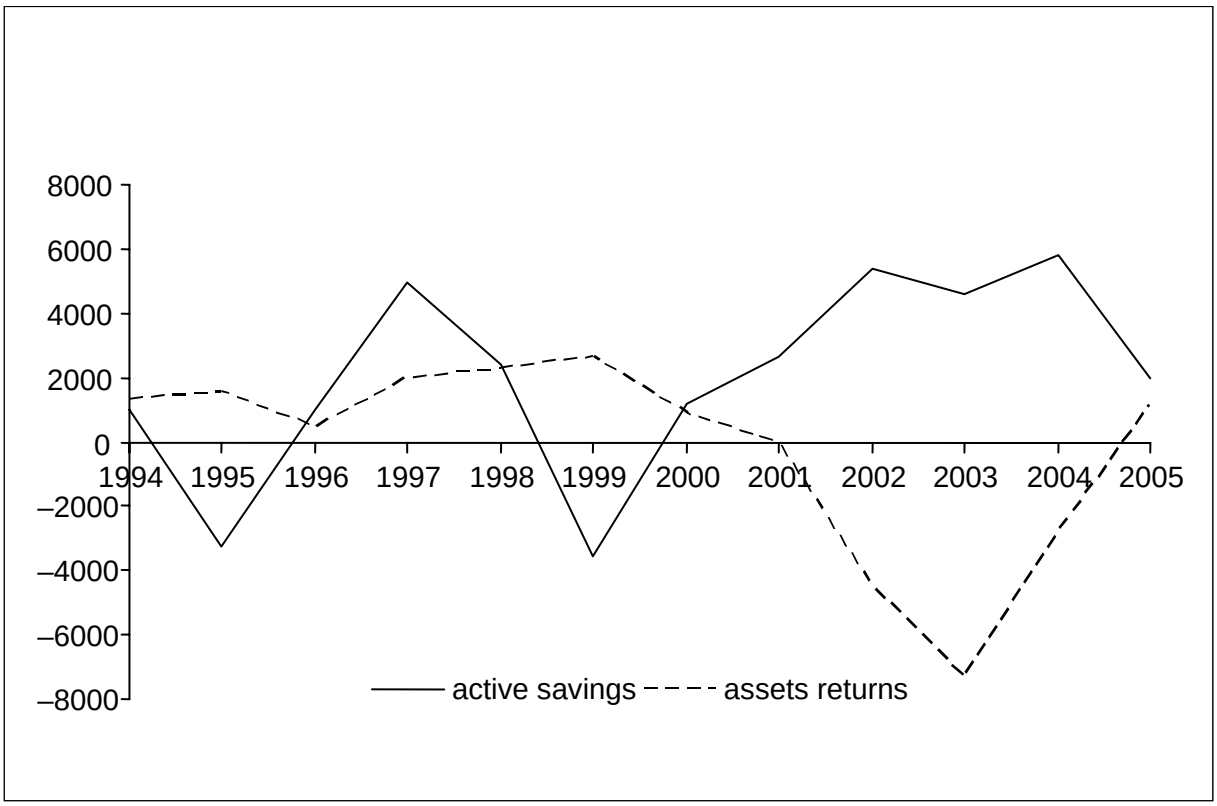
	A		B	
	coeff	**st. error**	**coeff**	**st. error**
Lag capital gains and losses (*10^{-3})	–0.002	0.027		
Lag capital gains (*10^{-3})			–0.016	0.030
Lag capital losses (*10^{-3})			0.053	0.051
Change in house value (*10^{-3})	0.003	0.004		
House value increase (*10^{-3})			0.001	0.004
House value decrease (*10^{-3})			–0.020	0.017
Stock durables previous year	–0.315	0.045	–0.317	0.044
Household income (*10^{-3})	0.005	0.009	0.005	0.008
Income square (*10^{-6})	–0.002	0.027	–0.002	0.026
Education	0.149	0.291	0.182	0.285
Family size	–0.290	0.302	–0.351	0.304
Age	0.025	0.057	0.027	0.056
Age square (*10^{-3})	0.020	0.305	0.004	0.303
Partner works	–0.178	0.351	–0.079	0.348
N	2560		2560	
Time effects	yes		yes	
Endogenous variables	yes		yes	
Pseudo R^2	0.07		0.07	
F-test asymmetric wealth effect			0.1	

Explanatory note: Depreciation rate equals 20% per year.

Source: DHS, own computations.

Figure 1

Active savings and capital gains

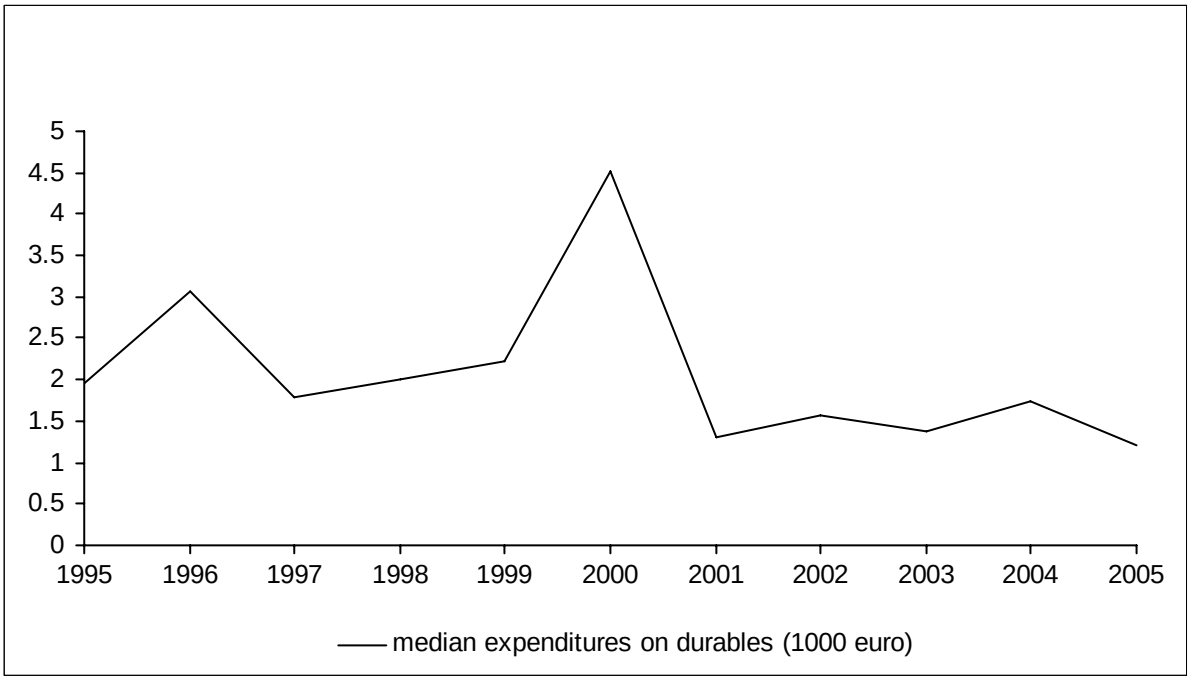


Explanatory note: we only consider returns on stocks, bonds, and mutual funds.

Source: DHS, own computation.

Figure 2

Consumption of durables



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Households' financial transactions with the rest of the world, with special reference to remittances

Veenus Padamadan and Balwant Singh[1]

Introduction

The household sector, consistent with System of National Accounts (SNA), forms a major component in terms of savings, capital formation, income and expenditure in the Indian economy. In terms of savings, household sector accounts for more than 75 percent of total domestic savings during 2004-05. Similarly, its contribution in terms of capital formation and other components of the economy is vast and substantial. Despite these, however, information relating to the households sector in the Indian economy is not accurate. In some of the key parameters of Indian economy, viz. savings and capital formation, etc, information is derived residually rather directly as is the case in many of other economies. As regards information of the household sector transactions with rest of the world, information is still scanty, and need to be approximated by other flows or stock data reflected in the balance of payments and international investment position. Thus, there is a need to strengthen information on households sector, both relating to the domestic sector as well as relating to the transactions with rest of the world. Relating to the household data covering domestic aspect already various studies has been prepared and issues have been debated scholarly involving various participating organizations and institutions viz. Central Statistical Organisation (CSO), Reserve Bank of India (RBI), etc.

The focus of this paper is confined to the transactions of households with rest of the world. In the changing paradigm of growth scenarios across the globe, two countries viz. China and India are considered to be the engine of growth on account of their demographic structure. In this background, information relating to remittances, which could considered to be reflections of households transactions with the rest of world will become essential. It is in this background that this paper discusses some of the issues relating to the remittances from abroad. To begin with we provide definition of the household sector as adopted for compiling economic data for the Indian economy. Thereafter, we discuss the definition of remittances as per Balance of Payments Manual, 5th Edition (BPM5) of the International Monetary Fund (IMF), and their statistical measurement. The paper also provides a brief discussion on the importance of remittances in the Balance of Payments (BoP) statistics. We also cover the methodology adopted for compiling data on remittances in India, followed by limitations of the existing methodology and scope for improvement of data on remittances. which perhaps characterize this study different than other studies on the subject.The final section concludes.

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1. Definition of the household sector in the Indian economy

As per the definition adopted for compiling national accounts statistics for the Indian economy, which is consistent with the definition of SNA, the household sector consists of all resident households. It also covers institutional units and un-incorporated enterprises (the term "un-incorporated enterprise" emphasizes the fact that the producer unit is not incorporated as a separate legal entity from the household itself) owned by households. Only those household un-incorporated market enterprises that constitute quasi-corporations are treated as separate institutional units.[2] Production in the household sector takes place within the un-incorporated enterprises that are directly owned and controlled by the members of households either individually or in partnership with others. Such household enterprises, which are created for the purpose of producing goods and services primarily for sale or exchange in the market, are classified as "household market enterprise". They can be engaged in any kind of productive activity, namely agriculture, mining, manufacturing, construction, trade or any of the services. They can range from single person enterprises engaged in the activities like shoe cleaning or retail trading with little or no capital to large scale manufacturing, construction or services enterprise with several employees and large capital. Household enterprises, which are engaged in the production of goods and services for own final consumption or for own account gross fixed capital formation, are classified as "household non-market enterprise". Examples are kitchen garden, poultry, weaving or textiles or construction of residential premises for own use. The value of the output of such enterprises has to be imputed using prices of similar goods and services in the market though even the measurement of the output of such activities is problematic. The production activities of other types of households (not owning any kind of enterprise) for their own consumption are not available through any survey. All goods produced within the household for own final consumption - are treated within production boundary of the system and if non-marketed, are to be evaluated at equivalent market prices (Kumar et al, Janauary,1999).

2. Household transactions with the rest of the world with special reference to remittances

For the purposes of the SNA, the coverage of household transactions with the rest of the world should include their cross-border financial transactions. Only recently in February 2004, a liberalized remittances scheme of USD 25,000 for the resident individuals has been permitted. Under this scheme, resident individuals have been allowed to acquire and hold immovable property or shares or any other assets outside India without prior approval. As per this scheme, individuals have been allowed to open, maintain and hold foreign currency accounts at a bank outside India for making remittances under the scheme. This scheme is in addition to schemes already available for private travel, gift remittances, donations, studies, medical treatment, etc. Although the scheme for individual remittances is in existence for more than two years, information of some economic relevance is scanty and almost negligible. In view of this, the scope of the study is further narrowed down to the inward transactions with household transactions from abroad. With respect to these transactions, remittances and foreign deposits could align with the household transactions with the rest of the world, to which the rest of the paper is devoted.

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[2] Quasi-corporations are those entities including household unincorporated enterprises with full set of business accounts, including balance sheets. These Quasi-corporations are included in the Corporate sector in the National accounts.

The term “remittances” is used in different ways. Typically, remittances are frequent small payments made through wire transfers or a variety of informal channels- sometimes even carried by hand. Remittances are financial resource flows arising from cross-border movement of residents of a country. The major characteristics of the remittances is that these are “unrequited transfers” - referring primarily to money sent by migrants to family and friends on which there are no claims by the sender, (unlike other financial flows such as debt or equity flows) (Kapur,2004). Another feature of remittances is that these are regular flows generally small in their denominations. Analysis of remittances generally also includes compensation of employees and migrants’ transfers. Compensation of employees is funds send back by temporary workers, who work abroad for less than a year. Migrants’ transfers arise from migration, change of residence for at least a year from one economy to another and are equal to the net worth of the migrant. Cross border remittances from migrants are a growing and relatively stable, market-based external source of development finance. Presently there is enormous attention being given to measurement of accurate remittance data, for several reasons. Firstly, remittances have emerged as an increasingly significant source of external financing, especially for the developing countries. Secondly, remittances bring foreign exchange, which complement national savings and provide a source of finance for capital formation (mainly small-scale projects). Through these mechanisms, remittances can support economic growth in recipient countries. Thirdly, remittances are also considered to be more stable than capital flows like portfolio investment and international bank credit. Fourthly, in terms of development of the economy, remittances are considered to be superior to official aid.[3] Remittances fit in with a communitarian “third way” approach and exemplify the principle of self-help. People from poor countries can just migrate and send back money that not only helps their families but their countries as well. The general feeling appears to be that this “private” foreign aid is much more likely to go to people who really need it. On the sending side it does not require costly administration and. often reaches the recipient more efficiently. It appears to be good for equity and for poverty (Kapur, 2004).

Remittances are a form of household transfers and its motivation include altruism, as an implicit intra-family contractual arrangement or an implicit family loan. Remittances finance consumption, acquiring land and housing and are an important source of social insurance especially in lower income groups. Remittances also provide liquidity for small household enterprise as well as capital investments.

3. Treatment of remittances in the balance of payments

Though “remittances” is so widely used a term, however, it is not precisely defined either in BPM5 or in any other document. Analytical studies define remittances as the sum of selected balance of payments flows. In some studies (Definition of Remittances and Relevant BPM Flows, Discussion Paper 1, UN, 2005), the sum of workers' remittances and compensation of employees and in others the sum of the above balance of payments component plus migrants’ transfer (“these transfers are not transactions between two parties but contra entries to flow of goods and changes in financial items that arise from the migration of individuals from one economy to another” para 352 BPM5) are used as proxy for remittances. There is a view that the concept of remittances in BoP framework should be designed to measure the net receivable of households from employment related flows on primary distribution of income account and relevant current transfers on the secondary distribution of income account.

[3] Remittances are considered superior to official aid, since they reach the needy directly and faster than official aid, thereby improving his or her economic conditions.

In fact as per these views, the concept of residence is fundamental for identifying the BoP flows that are relevant for study of remittance. The concept of residence in BoP is broadly consistent with the concept of residence (long- term migrant) in migration statistics (except for a few exceptions, such as students and patients, who are considered resident of the home countries even if they change their usual residence for more than one year). Incidentally there are still no debates on the coverage of workers' remittances. As per BPM5, workers' remittances are defined as:

> "current transfers by migrants who are employed in new economies and considered residents there (a migrant is considered a person who comes to an economy and stays or is expected to stay, for a year or more)" (BPM5 para 302).

Similarly BPM5 defines current transfers as:

> "those for distribution to relieve hardships caused by famine, other natural disasters, war, etc and regular contribution to charitable, religious, scientific and cultural organizations. Also covered are gifts, dowries, inheritances; alimony and other remittances; tickets sold by; and prizes won from lotteries; payments from unfounded pensions plans and non-governmental organizations" (BPM5 para 303)
>
> "and social security contributions … and social benefits" (BPM5, para 304).

Accordingly, in the Eighteenth Meeting of the IMF Committee on Balance of Payments Statistics, Washington June 27-July 1, 2005, it was opined that the definition of workers' remittances in BPM5 is too narrow and not precise enough. It expressed the need to expand it and clarify its coverage. It was recommended to change the definition of workers' remittances to include all current transfers from resident to non-residents households independently of the source of income of the sender (be it wages and salaries, social benefits or any other type of transfers, including transfer from a person receiving no income and running down his/her assets). The Group also proposed a new definition of current transfers between households which is in line with 1993 SNA definition of current transfers between households (1993 SNA para 8.95) as:

> "Personal transfers consists of all current transfers in cash or in kind made, or received by residents households to or from other non-resident households".

The United Nations Technical Subgroup on the Movement of Natural Persons (TSG) at its meeting in New York (22-24 February 2006) agreed on the conceptual definition on remittances based on the issue paper "Definition of Remittances". The TSG agreed to introduce a new item "personal transfers" as a standard item to bring it in line with the 1993 SNA definition of current transfers between households. "Personal transfers" replaces the Balance of Payments Fifth Edition (BPM5) component "workers' remittances", which has been retained, following the recommendations of BOPCOM, as a supplementary item. Accordingly personal transfers will be defined as follows:

> "Personal transfers consist of all current transfers in cash or in kind made, or received, by resident households to or from other non-resident households."

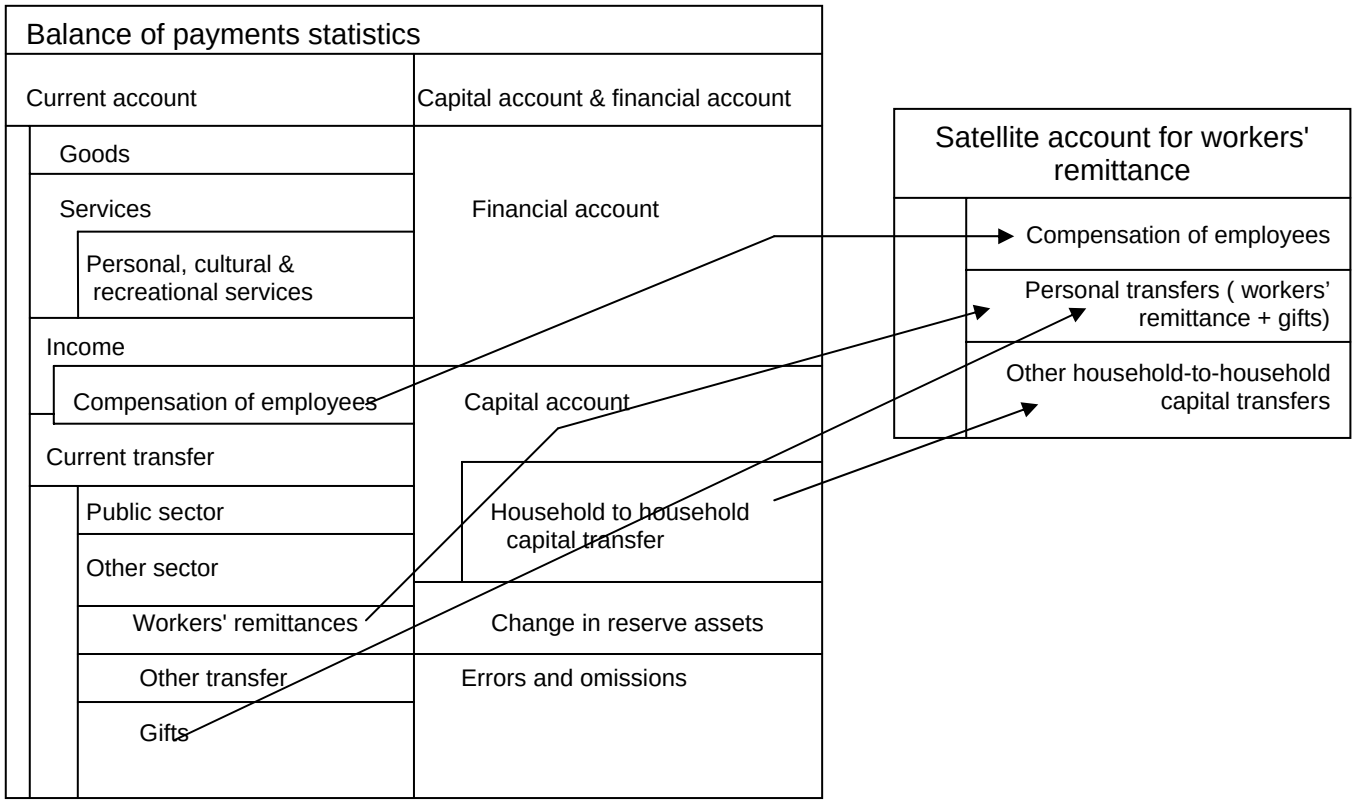
Further the TSG agreed to define personal remittances, taking the perspective of the receiving country, as follows:

> "Personal remittances = personal transfers + net compensation of employees + capital transfers between households"

Personal remittances are essentially household-to-household transfer, with net compensation of employees approximating an imputed unrequited flow from the household members as employees to the households themselves. A pictorial representation of the above definition as given in Satake & Hassine (2006) is reproduced in Chart 1 below.

Chart 1:

Conceptual diagram of "personal transfer" and "personal remittance"



Source: Satake & Hassine (2006).

Having discussed about the definitional aspect of workers' remittance, it will be of interest to study the various methodology adopted by major remittance receiving and paying countries. The data collection procedures and compilation methodologies for workers' remittance adopted in Mexico, Philippians, Indonesia, Italy, Japan and UK are detailed in Annex 3.

4. Sources and compilation methodology of workers' remittance in India

In the BoP statistics of India, workers' remittances are presented as a part of Private Transfer under the head "Transfers" and "Compensation of Employees" is presented under the head income. The data for Private Transfers covers (a) inward remittances from Indian workers abroad for family maintenance, (b) local withdrawals/redemptions from non-resident deposits, (c) gold and silver brought through passengers baggage and (d) personal gifts/donations to charitable/ religious institutions in India. This presentation of the data is mostly in consistent with the definition of workers' remittance as given in BPM5. The items under (a) and (d) are compiled from the Foreign Exchange Transactions- Electronic Reporting System (FET-ERS) reported by the authorized dealers branches, information on (b) is compiled based on STAT-Returns (Technical Notes on FET-ERS and STAT returns is given at Annex 1) and (c) is compiled based on custom data. The information on compensation to employees is compiled based on FET-ERS, as well as from the information

obtained from National Association of Software Computer Manufactures and Maintenance (NASCOMM).

As a part of the administrative requirements under the Foreign Exchange Management Act (FEMA), the Authorized Dealer (AD) Branches who are authorized to deal in foreign exchange transactions are need to report all the foreign exchange transactions dealt with them on a fortnightly basis to Reserve Bank of India (RBI). AD branches are categorized into 3 categories namely “A”, “B” and “C”, where category “A” branches are the branches who opens and maintain foreign currency accounts with foreign banks or with foreign counter parts (Nostro account). Category B branches are those branches which can freely operate on these accounts. They are operating these account through a subsidiary ledger opened at their end. These “A” and “B” category branches have to report the details of the foreign exchange transactions on a fortnightly basis to RBI through a statuary return called R-Return. Category “C” branches can also deal in foreign exchange, but the reporting of all the transactions routed through them have to be reported through a link office which may be either “A” or “B” category branch. In addition to this some bank branches also maintain Rupee account and Asian Currency Union Dollar (ACU$) account of foreign banks/Private Exchange houses (Vostro account) with them. The transactions routed through these Vostro accounts also have to be reported by the account maintaining branches through fortnightly R-Return. At present around 3,000 such bank branches submit the details of foreign exchange transactions on a fortnightly basis to RBI. As regards to inward remittance to India, for reporting purpose, there exist a threshold limit of Rs. 5 lakh (around US$ 10,000), below which only aggregate figures are to be reported. For the transactions above or equal to the threshold limit, AD branches reports the details like purpose, country, currency, amount, etc, at individual transaction level. Accordingly, data on workers’ remittances reported through the AD branches above or equal to the threshold limit can be obtained through FET-ERS. In order to estimate the distribution pattern of transaction under the threshold limit a survey called Unclassified Receipt Survey (URS) is conducted among the “A” and “B” category branches. For this purpose, all the branches that have reported more than Rs. 50 million as inward remittance to India in a calendar year under the threshold limit is selected. Two randomly selected dates in a fortnight will be advised to these selected branches, advising them to report the details of the transactions during the selected dates on a fortnightly basis to RBI. Based on this sample data and the population aggregates (total of the figures reported under the threshold limit by all the reporting AD branches) advised by the banks, the purpose wise classification of the inward remittance transactions to India under the threshold limit are estimated. Thus if “P”, “S” and “Sw” are the population total, sample total and sample total for workers’ remittance, the estimates for workers’ remittance, “Pw” under the threshold limit is calculated as Pw = Sw * P/S. In addition to the remittances received from migrant workers for their family maintenance in India, remittances are also received from the migrants, which are not meant for immediate consumptions locally, but received for depositing in the various deposit schemes with banks in India. Initially these transactions are classified as financial transactions (capital account as per India’s BoP presentation). At the time of withdrawing these funds locally for consumption, they will be considered as private transfer receipts under current account with a contra entry in the capital account to balance the double entry system of BoP statistics. Bank branches which are authorized to maintain these Non-Resident accounts reports their flow of transaction like all the fresh inflows, local credits, local debits and repatriation outside India in monthly Returns called STAT returns. This information is compiled at the branch level and will be consolidated by the head offices of the Banks. The consolidated information is received at RBI on a monthly basis from around 200 Banks. As regards to the third component in India’s presentation of private transfer in BoP statistics, passengers coming to India after a period of not less than six months of stay abroad can bring gold and silver as part of the baggage by paying necessary duties. This data is included as workers’ remittance as a contra entry to import in the BoP statistics. The data is compiled based on information received from the customs office. Since in India data on migrants’ transfer is not available, all transfers are part of current account.

5. Trends in workers' remittances in India

Workers' remittances, more specifically private transfer in Indian context forms a significant share in the total invisible current account receipts. During 2003-04 these remittances accounted for around 42.5 percent to total current account invisible receipts. It also accounted for 4.1 percent of India's GDP at current prices. Table 1 below provides information from 1989-90 to 2003-04.

Over the period of 15 years, private transfer, as defined above have increased more than 10 times, from 2.3 billion USD in 1989-90 to 23 billion USD by 2003-04. In 1989-90 these remittances formed about 14 percent of merchandise exports, 11 percent of merchandise imports and about 1 percent of overall gross domestic product, measured at factor cost at current prices. After about 15 years, these percentages were much higher at 36.3 percent, 30 percent and 4.2 percent respectively. Perhaps the increase in the number of migrants from India and the migration of high skilled worker's over the time has contributed to robust increase in remittance especially in the recent post liberalization period. Empirical evidence as gathered by some of the scholars (Gupta, 2005) has concluded that remittances have not been affected by the risk-return considerations to the same extent, such as portfolio investment or even non-resident deposits.

Table 1

Private transfer receipts to India

Year	Private transfer (US$ million)	Private transfer/ exports	Private transfer/ imports	Private transfer/ GDP
1989-90	2297	13.8	10.8	0.9
1990-91	2084	11.5	8.7	0.7
1991-92	3797	21.3	19.6	1.6
1992-93	3864	20.8	17.7	1.7
1993-94	5287	23.8	22.7	2.1
1994-95	8112	30.8	28.3	2.8
1995-96	8540	26.9	23.3	2.7
1996-97	12435	37.2	31.8	3.6
1997-98	11875	33.9	28.6	3.2
1998-99	10341	31.1	24.4	2.7
1999-00	12290	33.4	24.7	3.0
2000-01	13065	29.3	25.9	3.1
2001-02	15760	36.0	30.7	3.6
2002-03	17189	32.6	28.0	3.7
2003-04	23183	36.3	29.7	4.2

Source: Compiled from various RBI Bulletins.

In view of these stability characteristics as displayed by remittance, they have emerged as one of the stable source of strength for balance of payments in India. Among the variables that are considered to be significantly associated with the movements in remittances include indicators of economic activities in the source countries. Remittances are higher when economic conditions abroad are benign, and remittances are also found to be somewhat counter cyclical, that is, higher during the period of negative agricultural growth (Gupta, 2005).

6. Coverage of remittances in national statistics

Considering the volume and relative importance of remittances, internationally, the quality of data on remittances is poor. It reflects that a considerable volume of remittances are transferred through unofficial channels since transfer through official channels incur high transactions cost. In order to facilitate the remittances through formal channels, the World Bank in its "Committee on Payment and Settlement Systems- General Principles for International Remittances Services" has recommended to reduce the cost of remittances by way of inducing transparency in the process of remittances adopted by the formal channels. This should also include to provide access to financial literacy programs where appropriate and by working with the private sector to extend the range and reach of these services. This also recommends to promote better coherence and coordination of international organizations that are working to enhance remittances services and heighten the developmental impact of remittances receipts in developing countries; encourage cooperation between remittances service providers and local financial institutions in ways that strengthen local financial markets and improve access by recipients to financial services and government should evolve regulatory mechanism and work towards modernizing financial infrastructure.

In India the channels through which remittances received are commercial banks and Money Transfer Companies. Moreover, commercial banks, Post offices, exchange bureau and other non-banking institutions, etc act as paying agents of Money Transfer Companies. As discussed earlier majority of the remittances to India are routed through the Nostro/Vostro accounts of the Non Resident banks/Private Exchanges houses maintained with Authorised Dealers in India. Presently international organizations like Western Union Money Transfer Services, Money Gram, etc, are also engaged in sending foreign remittances through their agents in India. According to the RBI guidelines on Money Transfer Scheme issued in June 2003, only personal remittances, such as remittances towards family maintenance and remittances favouring foreign tourists visiting India are permitted under this scheme.

As discussed above, all foreign exchange transactions routed through Nostro/Vostro accounts are reported by the AD branches to RBI through the fortnightly R-Return under FET-ERS, which captures the transaction-wise data above a threshold limit of Rs 5 lakh (half a million of the Indian Rs. currency). For transactions below the threshold, a survey (Unclassified Receipts Survey, a Technical Note given at end) is conducted among the banks to estimate the purpose wise distribution of these low value transactions. As regards to remittances received through Money Transfer Companies, the settlements of the transactions are taking place through the banking channel. Thus, though the data is not collected at the time of remittances paid by the beneficiaries in India, the same is getting reported through the FET-ERS at the time of settlement of these transactions through authorized dealers.

7. Issues related to compilation and coverage of workers' remittance in India

As mentioned above, India's BoP Statistics presents the workers' remittances as private transfers consisting of 4 components. The major component, remittances on account of family maintenance is compiled based on bank reporting system as discussed in the earlier section. The major issue in bank reporting is that of the misclassification of transactions. As in any statistical system, when the data is collected from large number of reporters (around 3,000 in Indian case) data cleaning is a bit difficult task. For Banks also, when they handle large number of transactions, it becomes difficult to classify the transactions, unless and until, the information is readily available. In most of the cases, remittances will be received through SWIFT messages, electronic wire transfer or through telegraphic transfer, where the

purpose for which the funds are received will be seldom available. In this scenario, the quality of reporting depends on the quality of the person who reports the transaction. It is also observed recently that, for statistical data reporting, banks used to outsource the resources instead of using their own experiences staff as a measure of cost reduction. This may again fuel the bad/ wrong reporting of the data. When the transaction is wrongly reported, it is quite often observed that these transactions are classified as unknown purpose. Accordingly, the chances of underreporting of workers' remittances cannot be ruled out. In the case of small value transactions, the estimates for the workers' remittance depend on the quality of the sample. In sample reporting also, the amount of misclassification into unknown purpose, is on the rising trend, leaving the estimates far away from the actuals. Another statistical issue in bank reporting is regards to the incorrect reporting of country of remittance information. A natural trend, we have observed is that, to record the country as USA, since mostly the transactions will be received in US Dollar.

As mentioned above, since workers' remittances data routed through the Money Transfer Companies are not directly captured, the statistical issues arises in this type of transactions are as follows:

- Misclassification of the transactions under FET-ERS by the banks reimbursing the funds to the agents.
- Information on number of transactions, which is vital for policy decisions, may be missing as banks may be reporting only consolidated transactions.
- Quite often country from which remittances are received get wrongly reported under the FET-ERS.

Another statistical issue is of the misclassification of "compensation of employees" as "workers' remittances" and vice-versa. We understand that internationally, also this problem persists due to the difficulty in practice to make distinction between migrant resident and non-migrant resident.

The RBI has carried out steps towards maintaining a systematic data on foreign exchange transactions in particular workers' remittance. Periodical trainings are conducted for the bank branches reporting foreign exchange transactions data with an emphasis of the importance of the data in compilation of BoP statistics. Banks are also given training on the classification issues so as to minimize the classification problems. Towards setting up a proper statistical system, more initiatives are required to be taken. It may be in the lines of supplementing the present reporting system, like periodical surveys among selected branches collecting detailed information, introduction of households surveys specifically for the purpose of collecting data on workers' remittance, etc. In addition to the above, maintaining a database relying on the information collected from Money Transfer companies is a need of the situation. Another very important statistical system to develop is regarding the migration statistics, which is vital for countries like India where enormous rise in the remittances are observed.

8. Workers' remittances and Mode 4

Discussions on setting up a statistical framework for the measurement of services rendered through the movement of natural person - Mode 4 is on its high in international forums. The objective of the framework is to obtain a more in-depth picture of the economic impacts of temporary movements of persons in the home and host countries as well as more reliable estimates of economic indicators, such as Gross Domestic Product (GDP), remittances and by extension, Gross National Income (GNI) and Gross National Disposable Income (GNDI) An underlying assumption under the General Agreement on Trade in Services (GATS) framework to measure delivery of services through Mode 4 is that the migrant workers'

remittances mirror the export of services. It may be noted that all the funds remitted by migrants are not treated as workers' remittance for the compilation of BoP. As per the BPM5, the money remitted by a migrant for the purpose of making a deposit in his or her account with a bank located abroad represents a financial transaction rather than a remittance. Such remittances may also be out of the income the migrant received, for rendering a service and as such related to trade in services through Mode 4. At present India does not have a proper statistical system so as to classify the workers' remittance into various service categories based on the economic activities performed by the migrant workers. Therefore, a proper identification, classification and measurements of remittance repatriated by the migrant workers are became a need of the situation under the GATS to asses the magnitude of services delivered under Mode 4.

9. Challenges ahead to strengthen the statistical system and concluding remarks

As noted earlier, migrant transfers have a positive effect on the welfare of recipient families, poverty reduction in significant segments of the population etc. The government can also make leverage of remittances for the development purpose, foreign exchange management etc. In recognition of the importance of remittance for economic development, The government may need to take various policy initiatives in the area of migration policy, monetary and fiscal policy and financial sector policies. The policy initiatives are needed to evolve appropriate payment channels for the remittances, to create international money transfer systems especially to ensure that remittances are not used as a part of money laundering and as a channel to finance illegal activities, etc. At present data on remittances are collected largely to identify the BoP flows and attempt made to relate such flows to income generation in the economy are rare. With increases in the volume of remittances and the availability of different products to remit the funds, it may become more difficult for the compilers to cover the remittance transactions only through the bank reporting system. Further, the information on the country of remittance, the number of remittance transactions, the mode of remittance, etc, may also be of importance to identifying and elaborating legislative and regulatory policy frameworks which enhance remittance flows and maximize developmental impacts. The additional data availability may also require for improving financial infrastructure and the productive use of remittances. Policymakers may like to understand the propensity of migrants to send remittances, their volume, and their final use, etc, so as to fully grasp the complex relationships between various players involved in the whole process of remittance. The negative effect of migration in terms flight of skilled human capital may leads to a threat to economic growth of the country by depriving industry and key services sectors with skilled personals. To understand the extent of such negative impacts and to take necessary policy initiatives under migration policies,the government may require high quality data giving information on various parameters. A few other areas which may call for higher quality data, may be:

- Interlinkages between migration and remittance policies;
- Anti money laundering and Anti terrorism regulations and their effect on remittances;
- Policy initiatives to reduce transaction cost of remittances.

In short, there are challenges in the area of taking further steps towards building an orderly, and efficient statistical system to collect and disseminate the information on various parameters of the remittance transactions. Building up a proper statistical system should be given utmost importance in the wake of increasing volume of remittances, their impact on the economy, growing security concerns relating to money laundering and terrorist financing. In order to develop an estimate for trade in services through Mode 4, classified according to various economic activity, it is essential to develop a migration statistics giving information on

various parameters like economic activity in which the migrants are involved, the country of migration, the number of migrants, etc. A proper statistical system so developed may work as key inputs to take appropriate regulations and policy initiatives as and when needed.

Annex 1:
Explanation on the various returns/schedules

Stat 5 return: A statutory return, which gives the monthly currency wise flow as well as stock of the Foreign Currency Non-Resident (FCNR) deposit. This return has to be submitted to Foreign Exchange Department, of the Reserve Bank of India on a monthly basis by the head office of the banks, which maintain FCNR deposits

Stat 8 return: A statutory return, which gives the monthly flow as well as stock of the Non-Resident External (NRE) rupee account deposit. This return has to be submitted to Foreign Exchange Department, of the Reserve Bank of India on a monthly basis by the head office of the banks, which maintain NRE deposits.

Stat 9 return: A statutory return, which gives the monthly flow as well as stock of the Non-Resident Non-Repatriable (NRNR) rupee account deposit. This return has to be submitted to Foreign Exchange Department, of the Reserve Bank of India on a monthly basis by the head office of the banks who maintain NRNR deposits. Since the NRNR scheme has been discontinued with effect from April 1 2002, there may not be any Stat 9 return to be submitted from April 1, 2005 onwards.

Foreign Exchange Transactions - Electronically Reporting System (FET-ERS): A system of reporting foreign exchange transactions routed through the Nostro/Vostro Account maintained by the Authorized Dealer (AD) branches. AD branches have to report on a fortnightly basis, the information on purpose, currency/country of remittance, date of remittance, and amount in foreign currency, etc, for all the foreign exchange transactions except for inward remittance below the equivalent of Rs. 5 lakhs on account of other than merchandise trade transactions.

Unclassified Receipt Survey (URS): In order to estimate the purpose and country wise distribution pattern of the aggregate figures reported for below the equivalent of Rs. 5 lakhs on account of other than merchandise trade transactions, a survey naming, Unclassified Receipt Survey (URS) is conducted among selected AD branches. All the AD branches reported more than Rs.5 crores as total unclassified transactions during a calendar year are considered for the survey. Two dates in a fortnight are randomly selected and advised to the selected bank branches in advance. The selected branches have to report on a fortnightly basis, coded information on purpose, country of remittance and amount in foreign currency, etc of all the transaction with value below the equivalent of Rs. 5 lakhs routed through the branch.

Annex 2:
Disaggregated data on private transfer remittance (million US$)

Table 2

Disaggregated data on private transfer receipts to India

Year	Family maintenance	Gifts & donations	Migrants' transfers	Repat. of saving by Indian	Repat. of PF and oth. benefit from abroad	Reimb. of M.O. drawings	Imports of gold and silver	ID bonds transf. to residents	Other	Local redemptions from NRD	Total
1989-90	720	405	0	1,161	10	0	0	0	1	0	2,297
1990-91	626	417	2	1,027	11	0	0	0	1	0	2,083
1991-92	702	344	1	2,738	11	0	0	0	1	0	3,798
1992-93	730	445	0	1,604	5	3	1,076	0	1	0	3,864
1993-94	514	838	4	2,241	15	4	1,670	0	1	0	5,287
1994-95	1,727	587	7	3,665	17	8	2,100	0	1	0	8,112
1995-96	1,003	1,359	3	4,198	13	19	1,943	0	2	0	8,539
1996-97	2,518	726	11	1,935	11	10	2,718	1,017	62	3,427	12,435
1997-98	5,232	526					2,699			3,418	11,875
1998-99	7,661	650					171			1,859	10,341
1999-00	7,423	734					13			4,120	12,290
2000-01	7,747	581					10			4,727	13,065
2001-02	6,569	632					13			8,546	15,760
2002-03	9,914	613					18			6,644	17,189
2003-04	10,798	681					19			11,685	23,183

Source: Compiled from various RBI Bulletins.

Annex 3:
Country practices
for compilation of workers' remittance

Mexico: The Banco de México (Central Bank of Mexico) has legal power to regulate fund transfer services carried out by financial institutions and any other agent professionally involved in such activity. During 2002, a set of rules were issued instructing all firms dedicated to the service of funds transfers to provide monthly information on the amounts and volume of remittances sent to Mexico, classified by Mexican recipient state. The rules were issued with an intention to create a register of firms dedicated to money transfers, to standardize the information received, and to produce information at a national level and state level. Further, there is an agreement between the Federal Reserve of the United States and Banco de México to connect their respective system of payments ("Automatic Clearance"). By this agreement, banks can transmit and receive payments in a way similar to the one they use in their countries. Information particular on the remittances is to be collected as a byproduct of this system. For non-house hold transfers like grants and pensions, for which the data are obtained from international organizations, private foundations, and the embassy of the United States.

Philippines: Workers' remittances and Compensations of employees' data are complied based on bank reports to Bangko Sentral ng Pilipinas (BSP) on cash passing through banks and remittances through Money Transfer Operators (MTOs). In addition to this, Survey on Overseas Filipinos (SOF) for estimates of cash passing through other channels and for remittances-in-kind is also used. Migrant workers are classified as Sea based workers and Land based workers. Remittance from all the Sea based workers is considered for compilation of compensation of employees, while remittance from Land based workers except that of entertainers are considered as workers' remittance. Compensation of employees is estimated using the formulae

Remittance = Stock of workers$_{t=0}$ * Ave. salary per worker$_{t=0}$ +

No of workers deployed $_{t=1}$ * Ave. salary per worker $_{t=1}$ –

No of workers with finished contract * Ave. salary per worker

BSP had also initiated to establish a benchmark estimate of stock of Overseas Filipino workers. They are also Gathering data on average salary per worker by skill category and by country to fine-tune their estimates.

Indonesia: The data on worker' remittance receipts are derived from the relevant ministry's reports on the number of Indonesian workers abroad and their average wages and salaries. In case of payment side also data are derived from relevant ministry's reports on the number of foreign workers and their average wages and salaries. Data for non-household transfers are derived from information provided by the Ministry of Finance and National Development Planning Agency. The entries include grants in cash and in kind received for development, including technical assistance.

Italy: In Italy a system similar to India exists. Banks and Non-banks are reporting their cross border data through the International Transaction Reporting System (ITRS). In accordance with the rules for the European Monetary Union countries, the minimum threshold for these flows to be recorded is 12,500 euro. In particular data on workers' remittance are collected from the cross border transaction reports. A portion of flows recorded as remittances is allocated to compensation of employees since an estimated proportion of remittances from abroad is attributed to wages and salaries earned by Italian employees. Data on compensation of employees are also based on receipts and payments related to wages and salaries and on expenditures by foreign embassies in Italy or Italian embassies abroad and are obtained mainly from the cross border transaction reports. These data are supplemented

with estimates based on information from the OECD on the tax and social security system in member countries.

Japan: Japan also uses ITRS for the compilation of workers' remittance in principle. Due to the high exemption threshold (currently 30 million JY), 35 major commercial banks are required to submit the partial reporting on transactions from 2 million up to 30 million JY on monthly aggregated basis. Those partial reporting is used to supplement ITRS. For compilation of regional workers' remittance data “Annual Report of Statistics on Japanese Nationals Overseas” is been used.

United Kingdom: The UK does not have any exchanges controls system since 1979. Transactions-based reporting, direct reporting system or data sources within the banking or wider financial sector is not available. No information on expenditure form population statistics is also available. Accordingly, workers’ remittances are projected forward mainly on the basis of IMF BoP Yearbook counterparty data. For most countries in most years a percentage of the country total that goes to UK is estimated.

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Session 3A

Statistical issues in the measurement of household wealth

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Papers:

Should financial accounts include future pension liabilities?
Gabriele Semeraro, Bank of Italy

The difficulties attached to the collection of information on households' holdings of securities: third-party reporting
Carlos Sánchez Muñoz and Jean-Marc Israël, European Central Bank

Portfolio shifts in securities held by households in Austria: analysis based on security-by-security information
Michael Andreasch and Aurel Schubert, Austrian National Bank

The final financial investment of French households
Denis Marionnet, Bank of France

Measuring household wealth in Switzerland
Jürg Bärlocher, Swiss National Bank

Should financial accounts include future pension liabilities?

Gabriele Semeraro

1. Introduction

In current national and financial accounts, based on the *System of National Accounts 93* (SNA93), the most important categories of future pension liabilities are not considered. In particular, commitments by social security funds, as well as unfunded employer schemes, are not included.

The rationale underlying this treatment relates to how the pension scheme works. Pension relations of a private kind are recognised by SNA93, since the insured subject pays contributions, while his counterparty sets apart corresponding reserves, devoted to financing future pension payments. The commitment is therefore similar to underwriting a private life insurance policy, foreseeing a lump sum at death or retirement time, or to purchasing mutual funds shares: such forms of investment are both recognised in the system of accounts. In each period before payments, the insured individual position can be determined, in a non ambiguous way.

Similar properties do not hold in the case of unfunded schemes, in which current pensions payments are financed by current contributions and transfers, rather than returns on previously accumulated and invested assets. Thus, the debtor commitments are not incorporated in corresponding reserves or segregated assets, and therefore are not analogous to traditional financial instruments. In the accounts it just appears the possible cash imbalance resulting from the gap between contributions received in the current period and pensions paid in the same period, regardless of any commitments relating to future periods.

Under current rules, if an unfunded system faces structural disequilibrium (ie is accumulating pension commitments not covered by corresponding contributions), but contributions received in the current year equate paid pensions, there is no visible effect on the net borrowing. Even though, in economic terms, it was apparent today, the imbalance would enter national accounts in the future only. In more general terms, the imbalance visible today on a cash basis might underestimate the real imbalance, which would result from appropriate, accrual based, measurement.

A proposal for enlarging pension liabilities recording into the system of national accounts has been launched by a discussion group, in the context of the SNA93 revision process (see United Nations, 2002, Pitzer, 2002), and discussed within international working groups (IMF, OECD, Eurostat, ECB and CMFB). The new treatment would imply consistent changes into the financial accounts and general government deficit.

The purpose of this paper is to investigate the possible implementation of the ideas so far discussed, with specific reference to the accounting of *flows*, studying the implications from the viewpoint of statistical consistency as well as perspective economic incentive problems. *In what follows, the central point is relating not to stocks, but to **flows**, as well as to the opportunity to change the current notion of **deficit***.

In the next section we discuss the main economic, statistical and accounting reasons to change current recording criteria, and the status of the decision process. It follows a more detailed exposition on how pensions are recorded into the current system of national and

financial accounts, and on what methods might be used in order to make the proposals effective. (Section 3).

In the next section the new method's robustness is examined, from the point of view of statistical consistency, dependence on uncertain parameters, sensitivity to non-significant operations, and opportunities of manipulations. Even though several arguments have a more general nature, specific attention is paid to points of greater interest for the European countries, in the context of the Excessive Deficit Procedure foreseen by the Stability and Growth Pact. In Section 5 is discussed the ability of the new rules – assuming proper implementation – to capture pension imbalances and provide appropriate incentives for fostering structural reforms. Section 6 summarises this paper's main findings.

2. Why introduce future pensions into the system of accounts?

2.1 Teaching from the crisis of the employer defined benefit schemes

Proposals to measure future pension liabilities are *not* a new phenomenon of recent years (for an example in each of the previous decades, see Franco, 1995; Castellino, 1985 and Feldstein, 1974), at least in the context of expenditure projections and *stock* of debt (but not in the context of national accounts *flows*).[1] The debate was mainly referring either to incorporating future pension in one unique current stock (to be added, possibly, to the debt), or to foreseeing future flows of expenditure without discounting them at a single date (avoiding problems of choice for the interest rate). Therefore, current flows recorded by national accounts (in particular, the net borrowing) were not involved. What is new in recent year proposals is the attempt to record future pensions in the system of national and financial accounts, developing an appropriate accounting for flows, in which the implicit cost for future pensions is added to current deficit (Lequiller, 2004; Oksanen, 2004; OECD, 2004).

To better understand recent developments, a prior examination is needed, of what happened in recent years to employer pension schemes of major corporations in the Anglo-Saxon countries. In the USA, almost 40 per cent of employer pension schemes are defined benefit, ie such that risks relating to future pensions are borne by the employer. This percentage is even greater in the UK (Spadafora, 2004), in spite of recent efforts of "winding-up" towards defined contributions schemes, in which the financial risk is entirely borne by the employees. Since 2001, the negative trend in stock market, compared to given pension commitments, has significantly worsened the corporations' solvability and risks incurred by the creditor banks. In addition, refinancing pension deficits has decreased resources available for productive investments, with consequences of macroeconomic scale. In the previous years, the opposite had happened: the favorable trend in the stock market, causing a significant pension scheme surplus, had induced corporations to decrease pension allowances ("contribution holidays"). Looking at the elements which could have encouraged this under-estimation, many agree on the role played by the previous accounting rules inability to properly evaluate future pension commitments.

Since 2001, the introduction of accounting standards FRS 17 and IAS, foreseeing harmonized and pessimistic methods for employers' commitments, has clarified the real financial fragility of several enterprises in the USA and the UK. Should they have already been in force, IAS on pension liabilities would provide investors, as well as employer corporations, with more realistic evaluation, less dependent on temporary improvements in the cash movements. In the same period, not only in the context of pensions, a new

[1] See Kotlikoff (1984) e Van den Noord e Herd (1993).

approach by statisticians and national accountants started to develop, in order to harmonize as far as possible the national accounting rules with the new standards in good business practices.

Against this background, it is reasonable to ask whether the accounting methods for future pension liabilities might be extended to cases where the debtor is the government, rather than a firm (H.M Treasury, 2002; Blake, 2003). In the extent to which pre-IAS business accounting tended to underestimate the real increase in firms' liabilities, national accounts might likely underestimate the deficit of the government, either regarded as employer, or as guarantor of social security. Actually, the analogy provided by IAS and estimation errors for employer commitments, relating to biased signals based on simple cash-based balances, can be regarded as one of the most appealing elements of pressure in favor of changing the current treatment of pensions in national accounts.

2.2 Sustainability, budgetary surveillance and accrual basis, extraordinary operations

Leaving apart consistency with firms' employer schemes, and focusing only on public accounts, a significant role is being played by the increasing concern about themes of ageing economics. In several European countries, such concerns are linked to the constant decrease in the ratio between labor force and number of pensioners, in systems already experiencing an imbalance on a cash basis (with some exceptions, notably the UK).[2] In the USA, where the pension system is balanced on a cash basis (actually, it is in surplus), the concern relates to how to react to deficits foreseen for the next decades, starting from the time of retirement for the "baby boomers" of the end of the fifties (Diamond e Orszag, 2004). In this context the increasing demand for harmonized statistics able to capture future liabilities reflects, on the one hand, uncertainty on *the overall impact of ageing* (Disney, 2001), and on the other hand the need *to evaluate the effects of pension reforms*.[3]

In European countries, concern for long-term sustainability is accompanied by constant attention to effectiveness of budgetary surveillance, even in the short run. Concerning statistics used for this latter purpose, flow data are based on national accounts, both capital and financial. In this context, efforts to measure future pensions may be regarded in the more general attempt to extend the field of application of the accrual principle. The importance of this principle is linked to the need to avoid advantages for governments just *rescheduling* payments for already made commitments. Actually, many of the most recent (and most discussed) Eurostat's decisions may be considered, after all, as decisions on implementing accrual principles (see European Commission - DG ECFIN, 2005; Council of the European Union – Ecofin, 2005). Recording future pensions may be regarded as an extreme case of accrual accounting, not allowed by current rules, but desirable in the process of revision of the rules.

A strictly related argument concerns the treatment of extraordinary transfers. The most known cases are France-Telecom in France, Daiko Henjo in Japan and Belgacom in Belgium (Lequiller, 2004, Eurostat, 1997 and 2004). Apart of different technicalities, the three transfers have in common the transaction between assets recognized in the system of accounts, and assets which are not. For example, in order to facilitate a privatization

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[2] For a detailed discussion about the European situation, see Castellino and Fornero (2003); Economic Policy Committee (2003).

[3] Worries about future pension expenditure is strengthened in authors arguing a *trade-off* between pensions and other welfare expenditure that, under budget constraints, may induce severe limitation for weaker groups of people (Boeri e Perotti, 2002).

campaign, the government assumes pension commitments of the firm versus the employees, receiving as a counterpart a lump-sum payment. In each of the three above cases, a purely financial transaction occurred, in which acquired pension liabilities are the counterpart of an actuarially equivalent lump-sum payment. However, current rules recognized just one side of the transaction (cash payments). That would imply a fictitious improvement in the net borrowing (deficit) for the sector that assumes the "hidden liabilities" (as a counterpart of a "visible" cash payment; see Lequiller, 2005). The only way to avoid such artificial improvements in government accounts would be recognizing *all* pension liabilities in the system of accounts.

Several other reasons of interest exist, for measuring future pensions. For example, introducing pension wealth into the regressors may improve the estimation of households' consumption function. Intentional exclusion of such arguments allows us to clarify one of this paper's main aspects. Advantages arising from some measurement for pension wealth are unquestionable (Attanasio and Brugiavini, 2003, Blake, 2002 e Blake e Orszag, 1999). This paper purpose is to establish if, and how, it is necessary to use such measurements *even in national accounts and government deficit*.

2.3 Evolution of the rules

In the SNA93 review process, on request by the United Nations Intersecretariat Working Group on National Accounts (ISWGNA), the IFM has coordinated an Advisory Expert Group (AEG), that supported the proposal for new rules on pension treatment, prepared by a dedicated Electronic Discussion Group (EDG).

According to the proposal, obligations of employer retirement pension schemes should be recognized as liabilities, whether or not the scheme is funded, even when the employer is the government (De Rougemont, 2003). Such pension liabilities should be measured using actuarial amounts. The recognition of pension liabilities would be based on the concept of "constructive obligation", foreseen by IAS19. This latter refers to the acceptance, by past practices or explicit statement, of responsibilities versus other parties, able to create valid expectations. The proposal so far illustrated would not change anything in the treatment of funds operated by government in the context of social security. Therefore, the proposal was regarded as a first step, taking for granted that it was "too early" for extension to social security.[4]

In the European context, the *Committee on monetary, financial and balance of payments statistics* (CMFB) mandated Eurostat to investigate implications for government finance statistics (GFS) and multilateral fiscal surveillance, considering that GFS are fully integrated in the system of national accounts (subject to revision) and are the basis for the Excessive Deficit Procedure foreseen by the Stability and Growth Pact. From the beginning, the task force coordinated by Eurostat agreed on the importance to keep ESA95, on which European GFS are based, aligned with SNA: as a practical consequence, this means that including pension liabilities into the SNA would eventually change, accordingly, the ESA95 deficit used for the EDP. No consequence has ever been proposed or envisaged for the stock of Maastricht Debt (a practical concept not directly derived from the system of national accounts).

As a further step, the OECD elaborated a proposal in order to treat equally unfunded employer schemes and social security schemes, preparing a detailed scheme for the

[4] For a more official reason: "*As a first step, the EDG proposal is restricted to employer schemes, because the benefit provided is clearly of a nature of a deferred compensation (in contrast to other pension schemes, such as those by social security)* (…)" Eurostat (2004).

inclusion of all pension liabilities in the system of accounts, next to standard core accounts. It should be stressed that items referring to unfunded pensions would be recorded not into a separate, satellite account, but directly into the sequence of accounts leading to net borrowing. As a result, two notions of net borrowing would be presented: the current one, and a new one, taking into account unfunded pensions commitments (and corresponding imputed transactions). Thus, such a proposal may be regarded as the second step for recording all pension obligations in the net borrowing.

The Financial Accounts Working Group coordinated by Eurostat agreed (on May 2005), not unanimously, on a "European position" (for a clear and comprehensive treatment, see Mink and Walton, 2005), based on recognition of all pension liabilities (including social security obligations) into a mandatory scheme, separated from the core accounts and the sequence leading to net borrowing. This approach was supported by the European Central Bank. Further steps are foreseen, with specific regard to some detailed items (like the borderline between unfunded government employer schemes and social security), before reaching a final decision within year 2007.

3. The new method: statistics and accounting aspects

3.1 Future pension liabilities in the system of accounts

Before entering into the new proposal details, it is appropriate to briefly recall and discuss the current treatment of pensions in national accounts. In order to keep exposition simple, we will use only the financial account, without describing the complete sequence of accounts. In fact, the impact on capital accounts (net borrowing) equates the financial account balancing item. The financial account records transactions in financial instruments, on both asset and liability side. The allowed financial instruments are seven: Monetary gold and SDRs (F.1), Currency and deposits (F.2), Securities other than shares (F.3), Loans (F.4), Shares and other equity (F.5), Insurance technical reserves (F.6) and Other accounts receivable/payable (F.7). Each transaction involving one or several financial instruments, held or incurred by a sector, implies therefore recording in its financial account. Purely financial transactions (like an exchange of bonds for a cash payment) move financial instruments only, in equal opposite amounts, and therefore do not impact on the balancing item of the financial account. Conversely, non financial transactions (like an like an exchange of products for a cash payment) do impact on the balancing item.

Current accounting rules foresee that pension commitments be included within financial instruments (as Insurance technical reserves (F.6)) *for funded schemes only. Pension commitments of social security are excluded*.[5] Table 1 depicts, as an example, contributions paid to a firm, sponsoring a defined contribution scheme for its employees. Together with the (contribution) cash payment (F.2), the system of accounts recognizes the incurrence of a financial liability (F.6) of the firm, in an equal amount. Therefore, a purely financial transaction occurs, without any impact on the net lending/borrowing.

[5] When the government acts as an employer, the last version of the IFM *Manual on Government Finance Statistics* (see FMI, 2001) recommends that transactions in unfunded government employer retirement schemes be recognized. However, social security schemes remain excluded.

Table 1

A defined contribution employer scheme

Financial instrument	Description	Financial account	
		Asset flows	Liability flows
F.2 (currency and deposits)	Contributions paid by employees	+100	
F.6 (insurance technical reserves)	Creation of pension commitments		+100
B.9	F.A. Balancing item (= net lending)		0

Source: Compiled by author.

Similarly, at the time of pension payment, a new financial transaction shall occur, with exactly opposite entries (ie cash payment (–), reducing pension liabilities in the same amount). Thus, the impact on net borrowing shall be again zero.

In the case of social security, by contrast, only cash payments (F.2) are recognized. Therefore, contribution payments improve the net borrowing, whereas pension payments worsen it. The balancing item (or net borrowing) shall be zero only if contributions happen to equal paid pensions, in the same year. If a law promises future greater benefits without a corresponding coverage through greater contributions, the imbalance is not immediately visible in the (cash-based) net borrowing.

3.2 Recording future pension liabilities in the financial accounts

On the basis of the results of the electronic discussion group (EDG) on employer schemes operated by government, Lequiller (2004) proposed a generalized method, that would apply, as well, to the government as sponsor of social security.[6] The main aspects are the following: 1) To abandon the different treatment based on the funded/unfunded nature of the scheme; 2) To use actuarial valuation to measure future, defined benefit, commitments; 3) To allocate the net assets of defined benefit pension schemes to the sponsor (either the employer or the social security fund).

Even though the method is rather complex, an extremely simple and intuitive version can be provided, using the financial account only. Without consequences for the main conclusions, some components considered in the proposals will be assumed to be zero.[7] Consider first the case of a private firm in a *pay-as-you-go* pension system. Let the government pay 11 in pensions, and receive 12.5 in contributions. One part (1.5) of contributions is paid by

[6] "*My proposal is [...] to accept from the start an extension of the borderline to include the liabilities of social security.*" (Ibid., pag.5).

[7] In particular, the item corresponding to "*property income*". Beside simplification purposes, this choice reflects our scepticism about the need to add this further component. In our view, such a treatment would require the implicit existence of "second line reserves" (for an actuarial comment, see the Appendix VI, prepared by John Walton, in De Rougemont, 2003).

employees, while the remaining part (ie 11) is paid by the firm. Assume that, in spite of the cash surplus just described, the system be unbalanced, and the contributions be less than the legally recognized increase in pension rights. The *notional* contributions, able to keep the system in equilibrium, are assumed to be 15.5 (3 more than contributions actually paid).

Cash entries (F.2) for received contributions (A+B) and paid pensions (C) are depicted in the first part of Table 2. All matters for the financial account, according to the current rules, is this set of cash entries. What results is a net lending of +1.5.

The next part depicts the further entries that correspond to the new treatment. As in the previous chapter, recognizing pension liabilities (or "quasi-liabilities") within financial instruments implies that contribution (A+B) and pension (C) payments correspond to purely financial transactions: counterpart entries of the cash movements are now incurrence and cancellation of insurance technical reserves(F.6X).[8]

Table 2

Pension liabilities impact on government net borrowing

Financial instrument	Description	Financial account	
		Asset flows	**Liability flows**
F.2	A) Contributions paid by employees	+1,5	
(currency and deposits)	B) Contributions paid by the employer	+11	
	C) Pensions paid	–11	
(B.9)	*Memo: balancing item (net lending/ borrowing) under the current rules*		*(+1,5)*
F.6	Incurrence of liabilities vs. employees (= A+B)		+12,5
(insurance technical reserves)	Redemption of liabilities vs. pensioners (= C)		–11
	Actuarial additions		+3
(B.9S)	*Memo: net pension quasi-liabilitites*		*(–4,5)*
B.9X	Balancing item or net lending (new defintion)		
	= B.9+B.9S		–3

Source: Compiled by author.

Finally, a further increase in liabilities, called "Actuarial additions", depicts the incurrence of other pension liabilities, not covered by corresponding cash contributions. Such an entry is defined as the difference between current contributions and actuarial (ie able to keep the system balanced) contributions.

An alternative version for this part of the account may depict, directly, the equilibrium total actuarial contribution (assumed to equal 15.5), without this artificial split into three

[8] Capital X denotes that it is a memo expansion of item F.6 (this should also clarify the term "quasi-liabilities"). Similar comments hold for B.9X, memo expansion of net borrowing B.9.

components (several kinds of contributions and, by difference, the actuarial additions). The version in Table 2 has been preferred in order to separate the component of purely financial transaction (ie contributions or pensions identically compensating corresponding entries in the first part of the account) from the component regarded as non financial transaction.

Adding new quasi-liabilities (F.6X) to pre-existing financial instruments (F.2), a new version of net borrowing is obtained. In the previous example, thanks to the change in definition, the balancing item moves from a net lending of 1.5 to a deficit (or net borrowing) of 3, which seems to better illustrate the underlying imbalance.

3.3 Implementing the reference scheme

The documents prepared by the discussion group coordinated by the IMF do not provide explicit formulas and general computing methods, even though it is very accurate on all conceptual points. Such computations are already taken for granted into the numerical examples. In addition, the examples refer to micro-data, notably a single firm. Similar comments apply to what followed, including the proposal by F. Lequiller (OECD) for extending the results to the social security. However, to facilitate next paragraphs discussion, it is appropriate to develop the method into a more general context, having regard to possible implementation on aggregate data as well.

Consider an unfunded scheme, without detailing whether it belongs to a firm or to social security. Beneficiaries are divided into employees and pensioners.[9] For a generic employee (*j*), the stock of future pension rights E_{t_0}, corresponding to his counterparty's commitments, may be written as:

$$E_{t_0}^{j} = \sum_{h=1}^{\infty} \frac{w_{t_0+h}^{j}}{(1+r)^{h}} \cdot \gamma_{t_0+h}^{j} \alpha_{t_0+h}^{j} \qquad (3.1)$$

t_0 = current year, w^j_t = pension income for individual j at tme t;

γ_t^j *= probability for individual j of receiving a pension at time t;*

α_t^j *= prob. for individual j of being alive at time t; r = rate of discount*

In the case of already pensioned individuals, the relationship is simpler. Stock P_t^j of future pension benefits for pensioner *j* is:

$$P_{t_0}^{j} = \sum_{h=1}^{\infty} \frac{w_{t_0+h}^{j}}{(1+r)^{h}} \cdot \alpha_{t_0+h}^{j} \qquad (3.2)$$

[9] For the sake of simplicity, inflation is ignored.

Let N_E denote total number of employees, and let N_P denote total number of pensioners participating in the scheme. Denote by α e γ the two arrays of actuarial coefficients from which sequences of values α_t^j e γ_t^j per each individual are obtained. For the given population of employees and pensioners, the total stock S_{t_0} of future pensions at time t_0 shall be therefore:

$$S_{t_0}(r, w, \alpha, \gamma) = \sum_{j=1}^{N_E}\left(\sum_{h=1}^{\infty}\frac{w_{t_0+h}^j}{(1+r)^h}\cdot\gamma_{t_0+h}^j\alpha_{t_0+h}^j\right)+\sum_{j=1}^{N_P}\left(\sum_{h=1}^{\infty}\frac{w_{t_0+h}^j}{(1+r)^h}\cdot\alpha_{t_0+h}^j\right) \tag{3.3}$$

where $w_t = (w_t^1, w_t^2, ...w_t^{N_E}; w_t^1, w_t^2, ...w_t^{N_P})$, and $w = (w_1, w_2, ...w_t, ...)$

It should be stressed that, in the above formulas, future pension income (as expected today) may or may not take into account probable future promotions and future increases in real wages. The first approach is referred to as "Projected benefit obligation" method (or PBO); whereas the second method (in which no projection is made for future promotions etc) is referred to as "Accrued benefit obligation" (or ABO). Both methods are used by the actuaries, and present some pros and cons. However, the ABO seems to be closer to the national accounts approach.

The value obtained in (3.3) is the stock of pension wealth for households. To obtain the corresponding flow – to be recorded into the financial accounts – it is necessary to identify and isolate the components to be excluded from simple changes in stocks (the *Other economic flows*, or OEF).[10] For example, the effect of a change in the disocunt rate can, according to (3.3), be approximated through the expression $\frac{\partial S_{t_0}(r, w, \alpha, \gamma)}{\partial r}\cdot\Delta r$, whereas similar expressions hold for the impact of other parameters. However, elaborating on conclusions reached by the EDG (pp. 38-42), the flow can be directly obtained by comparing two successive values in (3.3), by imposing constancy in the actuarial parameters. For example, in the case of discount rate changes, the following formulas are easily obtained for change of stock, flow and revaluation:

$$\Delta S_{t_0} = S_{t_0+1}(r_{t_0+1}, \cdot) - S_{t_0+1}(r_{t_0}, \cdot) \tag{3.4}$$

$$FL_{t_0+1} = S_{t_0+1}(r_{t_0}, \cdot) - S_{t_0}(r_{t_0}, \cdot) \tag{3.5}$$

$$OEF_{t_0+1} = \Delta S_{t_0+1} - FL_{t_0+1} \tag{3.6}$$

[10] In national accounts, "*Other economic flows*" (OEF) are changes in stock not explained by fows (transactions). The OEF include *revaluations* and *Other changes in volume.*

The flow defined as in (3.5) measures exactly the increase in future benefits earned by employees and pensioners during the accounting period.[11] The procedure to obtain the flow is similar in case of simultaneous change of several parameters: as a first step, the flow is computed assuming no change in all actuarial parameters; the *OEF* is therefore obtained by difference.

Summing up, before the statistical job there are starting data (3.1, 3.2) similar to those used in models for forecasting of government expenditure, whose results are used and published in several countries. As far as the actuarial parameters remain unchanged, all is needed for statisticians is a single stock, and the corresponding flows is simply determined by its change over time. If – by the law or by the actuaries – a decision to change some parameters is made, what is needed by statisticians is, in addition, a second stock; this latter is derived from the model by computing the new year data just using old parameters. Comparing the two stocks allows for isolating OEF of the year.

4. Statistics and measurement problems

4.1 How to overcome difficulties relating to the discount rate

Several doubts about efficacy of the new method have been mainly related to uncertainty on the main occupational and income data involved in formula (3.5). Nevertheless, the argument that seems to have been most widely accepted refers to dependence of the results on the rate of discount. On this regard, two kinds of problems can be identified: on the one hand, arbitrariness in the choice of the initial rate; on the other hand, volatility induced by rate movements over time, even in absence of creation or redemption of commitments. In the case of private firms, both effects were magnified by pre-IAS accounting practices, allowing for discounting of liabilities by means of an average rate based on the expected returns on the firm's assets (with degrees of freedom in evaluating returns, weights and expectations). Once determined such a rate, the second problem was relating to ample movements in the scheme's commitments, induced by changes in asset prices.

By contrast, the new accounting standards foresee discounting based on the return rate of a "double A", long term, debt security, with further specific restrictions. This dramatically decreases both discretional power and sensitivity to market trends. Even though not all researchers, actuaries included, have regarded such a method like superior, this can today be considered largely agreed, and however "exogenous" with respect to statistics: the results of discounting would not depend on arbitrary choice by the statistician.[12]

This latter discussion does not eliminate all doubts about the impact of the discount rate on stock data but, in our view, the criticisms seem significantly weakened for *flow* data, thanks to the specific, proposed method. When adopting the accounting scheme developed in the previous section, it can be easily checked that the flow derived by (3.5) cannot be influenced by volatility in the discount rate. Robustness to rate movements should be regarded as a main characteristic of the new method. The impact of rate movements is deleted from flow

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[11] Even though no formulas are used, what in Lequiller's paper is called "*Actuarial addition*" does not correspond to the flow defined in formula (3.5). It should necessarily correspond to the difference $FL_{t_0+1} - \sum_{j=1}^{N_E} C_j^E(t_0+1) - \sum_{j=1}^{N_F} C_j^F(t_0+1)$, between the present value of new commitments (3.5) and contributions paid in the current year (N_E and N_F, denote the number of employees and employers; C^E and C^F denote contributions paid by employees and employers).

[12] It is not clear why a different rate should be used for social security. See however Mink e Walton (2005), p. 6.

data and included into the "*Other Economic Flows*". As a result, all main flows (income, saving and net lending) would be unaffected by problems of rates volatility (De Rougemont e Lequiller, 2004, pp. 3-4)[13]).

Actually, arguments based on rates continue providing excellent reasons to exclude future pension liabilities from (the stock of) Maastricht debt.[14] However, any attempt to adapt the same arguments to measurement of national accounts flows is, in our view, in contrast with the new method's characteristics.

4.2 Possible inconsistency in the "accrued-to-date" method

A similar answer holds for other reactions,[15] that have been related to hypotheses on population trends (considered, however, the less difficult data to be foreseen, see Mink and Walton, 2005), as well as to difficulties in forecasting its employed components and the corresponding income.

Actually, the new method does not rely on hypotheses and forecasts on population trends. In some senses, valuation of pension commitments at any date starts from the past, by considering only rights that have been accruing up to that time, for a *given* number of individuals registered in the social security system. The flow is thus obtained as "*present value of additional rights accrued (actuarially estimated) due to the work service delivered during the period*" (De Rougemont e Lequiller, 2004, p. 3). It corresponds, exactly, to the definition of "accrued-to-date liabilities" (Franco *et al*., 2004, p. 17).

Other two aspects exist, not well developed in the international discussions, but deserving further analysis. They both refer to the treatment of contributions. It is clear from our re-exposition of the OECD proposal (par. 3.3) that the method takes into account the commitment to pay for future pensions, but ignores the right to receive future contributions. If the rationale for the new method is to recognize in the system of accounts the notion of "constructive obligation" (par. 2.3), it is not clear the reason for this asymmetric treatment. The two obligations (for pensions and contributions) are often foreseen by the same law, and share the same nature. Moreover, being forced to make a choice between the two, the commitment about contributions appears to be more binding, due to the asymmetric positions of the two parties. Unlike their counterparty, the contribution payers have no means to unilaterally change the law.

A counterargument may be found in the view expressed by economists, in other contexts. For example, Disney (2001) indirectly expressed a view consistent with the new method, by arguing that future contributions should not be subtracted from pensions *of the same period*. Such contributions are the basis for further liabilities, referring to *later* future periods. In this view, unfunded systems are implicitly assimilated to funded systems, in which any increase in future pensions is the exact counterpart of what happens to current contributions. The price to be paid for implementing this analogy is a major deviation from cash basis.

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[13] Of course, we are referring to the accounting effect of rate changes for actuarial evaluation, not to direct effects of rate changes on returns (for those schemes that hold assets too).

[14] For a list of arguments against inclusion of pension liabilities in debt, see Fenge and Werding (2003), Franco (1995), Bohn (1992).

[15] "While population forecasts may to some extent be reliable, it is extremely difficult to make appropriate employment and income forecasts by institutional sector over a (very) long time horizon. The compilation of future entitlements based on such assumptions may have to be revised continuously and substantially. As a consequence, fiscal variables such as government ***deficit*** and ***debt*** would be surrounded by a high degree of uncertainty and be prone to manipulation." (Mink e Walton, 2005, p. 6). We disagree on the "deficit" part of the last sentence, and totally agree with the "debt" part.

Even though no problems arise from the point of view of *internal consistency*, some consequences of this approach may appear questionable or not desirable when attempting to capture and describe imbalances. Taking from granted that none of the two methods is always superior, we describe an example of conflict, in order to better illustrate some characteristics. In the example in Table 3, a defined benefit scheme is described, where the fund statute foresees an obligation to keep cash balance in equilibrium and the legal power to change the contribution level accordingly (this situation is common for the so-called "privatized schemes"). Assume that (a) paid pensions and accrued rights grow in the same amount and (b) contributions are constantly updated, in order to cover current pension payments.

Table 3

Annual increase in pensions perfectly financed by a corresponding increase in contributions (a privatised scheme):

Financial instrument	Description	Financial account	
		Asset flows	**Liability flows**
Year t			
F.2	Contributions received	+10	
	Pensions paid	–10	
(B.9)	*Memo: net lending/borrowing (old definition)*		*(0)*
F.6X	Incurrence of liabilities		+10
	Redemption of liabilities		–10
	Actuarial additions		+1
(B.9S)	*Memo: net pension quasi-liabilitites*		*(–1)*
B.9X	Net lending (new defintion)		
	= B.9+B.9S		–1
Year t+1			
F.2	Contributions received	+11	
	Pensions paid	–11	
(B.9)	*Memo: net lending/borrowing (old definition)*		*(0)*
F.6X	Incurrence of liabilities		+11
	Redemption of liabilities		–11
	Actuarial additions		+1
(B.9S)	*Memo: net pension quasi-liabilitites*		*(–1)*
B.9X	Net lending (new defintion)		
	= B.9+B.9S		–1

Source: Compiled by author.

The old method (balancing item B.9) shows in each period a zero net borrowing, that seems to appropriately reflect the economic situation. The new method, by contrast, shows *a deficit in each year*, not easily interpretable (not only in terms of sustainability). Such a deficit seems to relate to not taking into account the double equilibrium between benefits and contributions (both current and future; in both cash and legal terms).

The informative content of such a deficit seems questionable. The same deficit may be easily obtained for a fund imbalanced in cash terms, requiring continuous external financing, and such that there are neither obligations, nor attempts, to achieve balancing. The very fact that the new method may treat in the same way such different situations could rise doubts on the advantages of the new definition of deficit.

4.3 Other expenditure components

Other points deserving specific attention are arbitrariness of the separating line between contributions and taxation, and possible inconsistencies with the treatment of other expenditure components.

In *pay-as-you-go* systems, classification of paid amounts as contributions, rather then taxes, is largely discretional. When a direct link between payments received and made by the government does not exist, and in addition both contributions not used for pension payments, and pensions not entirely financed through contributions are observed, separating contributions from taxes may be a *fictio iuris*, able to change at any time without any real or economic reason. For example in Italy, in 1995, a reclassification of about 4.5 points between taxes and contributions occurred (leading the latter to 23.81 per cent of the salary). This left both total labor cost for the employers and, of course, sustainability, unchanged. *If* similar changes impacted on the net borrowing, then governments could easily improve their accounts without any real counterpart.

The net borrowing corresponding to the old definition does not depend, of course, on such "cosmetic" changes. It seemed that the new treatment could be affected (this point was raised in international working groups). However, it is shown in the appendix that the new method is robust with regard to such operations, and that the new definition of net borrowing, like the old one, does not allow for an impact from reclassification within taxes and contributions.

Discussion on consistency within several components of expenditure is based on a simple fact: no significant difference exists between pension obligations of a *pay-as-you-go* system and obligations relating to public health expenditure (the point was mentioned, but not entirely developed, in the OECD workshop: "*Accounting for implicit pension liabilities*"; see Lequiller, 2004). In both cases:

- The government assumes the obligation to provide benefits in the future years.
- The "insured" individuals pay some amounts, without a direct link with benefits.
- In principle, a "notional contribution" exists, corresponding to the amount that a private insurance would receive for the same benefits.

If, based on the principle of "constructive obligations", unfunded pensions were recognized in the system, a serious inconsistency would arise with other significant components of public expenditure. However, if health liabilities (like pensions, lacking any link with corresponding, explicit assets) were recognized, it would no longer be clear where the stopping point might be. Some criticisms consistent with this view were expressed in the discussion of the *Panel of external fiscal experts* of the Internation Monetary Fund (Aaron *et al*., 2003).

5. Incentive problems

5.1 Rights accrued before the change of method

So far we have been discussing measurement aspects only, in order to test the new method statistical consistency *regardless of incentive problems*. In this section, regardless of statistical and measurement problems, we shall consider both method as applicable, and compare them with regard to different incentives that are provided. As sketched in sections 1-2, *the comparison refers to the following use of pension liabilities: to compute flow data in order to change the current notion of net borrowing, adopted in the context of a threshold-based fiscal rule* (like the three per cent rule foreseen by the Stability and Growth Pact). In fact, a change in the definition of net borrowing may impact on the flow data only (net borrowing or deficit), whereas no change is envisaged for the Maastricht debt (a concept that does not depend on the revision of national accounts).

Denote by *K(t)* the new pension rights accrued during year *t*, by *P(t)* and *C(t)*, respectively, cash pensions and contributions paid in the same year; by B.9*(t)* e B.9X*(t)* the corresponding balancing items, according to the old and to the new definition. The following formulas can be easily derived (see Appendix):

- The impact of the pension system on *B.9(t)* is *C(t) – P(t)*;
- The impact on the new *B.9X* is *C(t) – K(t)*
- Therefore, the difference between *B.9X(t)* and *B.9(t)* equates *P(t) – K(t)*

As an example, consider two identical countries (A and B), in which two generations exist, with different pension systems: 1) a young generation, of people at the beginning of working life; 2) an old generation, of people, whose age is just before the retirement age. For the old generation, once the retirement age is reached, pensions are determined by the last wage (without a direct link with the individual's complete contribution history). In the years before retirement, the new method already recognizes pensions liabilities in favor of this generation, on the basis of current wages. For the young generation, a formula links the individual pension to *all* previously paid contributions. This implies a pension liabilities increase in each year as a consequence of contribution payments.

In the past, previous to introducing the new statistical method, both countries implemented a pension reform, by increasing the retirement age for both generations. In comparison to B, country A limited more the pensions for the old generation. A positive component of *K* shall exist, depending on successive contribution payments by young workers. Therefore, the total flow *K* shall be positive. Since contributions are assumed to be the same in both countries, this flow *K* shall be the same too.

It follows that *P(t) – K(t)* is greater in country B, which faces the same *K(t)* but pays more pensions. From the third relation recalled above, this means that in country B the new definition ensures a lower deficit. A first, direct conclusion follows: *the change in method created an accounting advantage for the less virtuous country. Therefore, the analogy with the introduction of IAS in business accounting does not apply. In that case, introducing the new method implied non ambigous worsening in the accounts of the firms that have been less prudent in previous years.*

It should be noticed that what just described implies that deficit alone is not able to capture a part of the relevant information included in the stock data. However, if the proposal to change SNA93 was adopted, within the two indicators subject to a threshold fiscal rule, the deficit would be the only one to change (without any impact on the Maastricht stock of debt).

5.2 Scheduling

Consider now the case of a *single country* under *constant, new method rules*. The country has to compare the deficit impact of two alternative pension reforms. We shall show that a permanent incentive may exist, to postpone the reform efficacy.

Assume one young generation with components at the beginning of working life, and one older generation, with components closer to retirement age, but not just before. Thus, the old generation may continue acquiring pension entitlements. The new generation rights are acquired together with contribution payments.

The two reforms foresee an overall similar cut in pension rights, with different distribution over time. The first reform foresees a similar cut in rights for the two generations, whereas the second reform puts most of the cost on the younger generation, postponing the reform efficacy. Assume that, in the year in which the reform is implemented, the cut in older people's rights is able to keep deficit under the threshold of the fiscal rule, for both reforms.

Table 4 shows an example relating to any of the years that follow the introduction, provided that some old generation pensioners are still alive. The right-hand columns show the financial account, computed in each of the three hypotheses (no reform, the first reform, and the second reform). In comparison to *status quo*, Reform 1 foresees less pensions,[16] as well as less growth in future rights (*K* moves from 13 to 12), while paid contributions remain the same. Reform 2 leaves pensions paid to the old generation almost unchanged (from 16 to 15), by reducing more the growth in future pension rights for younger people (this results in a lower *K*), for given paid contributions. In comparison to the other, Reform 2 foresees greater pensions today in counterpart of poorer pensions tomorrow. In spite of delaying effects to the future, Reform 2 does not worsen net borrowing B.9X: actually, this latter results ***improved***. Of course, similar inequalities would never apply under the old (cash-based) definition of B.9.

The main reason why Reform 2, while foreseeing greater cash disbursement, does not worsen deficit B.9X is shown in the central rows of Table 4 (the account for pension quasi-liabilities). In such a section, a greater current pension payment implies an accounting benefit, since it is interpreted as greater cancellation of liabilities. Other things being equal, paying more in current pensions improves the pension account (B.9S).[17]

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[16] Effects on *P* e *K* may be equivalently interpreted in terms either of lower income, or greater retirement age.

[17] This does not imply any problem of internal consistency for the new method, but may create incentive problems. Doubts on this regard were expressed by Franco *et al*., (2004), in case of extension to flow accounts of the *accrued-to-date* method "*Pensions would be considered as loan repayment (...) An increase in contribution rates would, ceteris paribus, have no effect either on current or future deficits*. (*Ibid*., p. 27)".

Table 4

Postponing the reform effects

Strum.	Description	No reform		Reform 1		Reform 2	
		A	L	A	L	A	L
F.2	C) Contributions received	+10		+10		+10	
	P) Pensions paid	–16		–12		–15	
(B.9)	*Memo: net lending/borrowing (old definition)*		–6		–2		–5
F.6X	Incurrence of liabilities vs employees = C		+10		+10		+10
	Redemption of liabilitites vs pensioners = P		–16		–12		–15
	(Memo: actuarial contribution (K))		(13)		(12)		(11)
	Actuarial additions = K–C		+3		+2		+1
(B.9S)	*(Memo: net pension quasi-liabilities)*		+3		0		+4
B.9X	Net lending/borrowing (new Definition = B.9+B.9S)		–3		–2		–1

Source: Compiled by author.

In the same section, a second aspect is shown, resulting from the attempt to make extreme the application of the accrual principle. It is the possibility *to exchange current cash with future promises*, leaving the pension account (B.9S) unchanged.[18] For countries in which a pension imbalance already exists and a fiscal rule on deficit holds, it seems that such properties of the new method may allow greater freedom of action rather than prompt the immediate adoption of rigorous measures.

More accurate measurements may be obtained trough a specific, account for pensions, including forecasts for pension expenditure in future years (a concept outside the range of national accounts). In absence of such a specific account, however, if we were forced to use a single, imperfect indicator, a *stock* data would be by far a better choice. In both the examples above, a stock measurement would provide more reliable information: it would remain higher in the less virtuous country (in the first example) and would contrast the misleading information on deficit in the choice between reforms (in the second example).

The conclusion is that, in the specific context of the European fiscal rules, the attempt to include pension liabilities in *one* of the two indicators seems to pose more problems than solutions. The above examples show how the inclusion of pension liabilities only in one indicator are far from being a compromise solution, able to move things in the “right” direction. Actually, such a partial inclusion may do strictly worse than both the extreme cases (ie pension liabilities in both the indicators or in none). Chances of manipulation easily excluded in any of the two extreme cases may become available in the mixed regime.

[18] In addition, with a counterintuitive *trade-off*: if current pension payments increase, it is necessary increasing (instead of reducing) the future rights, in order to the keep pension account balancing item (B.9S unchanged.

5.3 Consequences

In previous paragraphs, examples have been shown in order to discuss the general ability of the new method to properly illustrate pension imbalances through the national accounts net borrowing, and to provide incentives for adopting structural reforms (see Fenge e Werding, 2003).[19]

Taking into account the supporting examples in Section 3, as well as the above counterexamples, the new deficit seems more efficacious in capturing pension imbalances while they are being created, without waiting for impact visible in cash terms. By contrast, it may not be so efficacious in countries where the imbalance already occurred in cash terms. One intuitive explanation may be found by observing that the new method, beside its complexity, boils down to a change in the time of recording for the *same* flows. On this point, the authors and supporters of the new method seem to agree too:

"In the long-term, and taking into account a whole cycle of pension debt creation and extinction, the cumulated deficit of the previous account and of this one are equal. The timing is however different, the last one giving a better picture in terms of structural deficit." (De Rougemont e Lequiller, 2004, p. 6).

A key to understand the view expressed in the last sentence is provided by pension situation in the USA, where the social security system is currently facing cash *surplus*, and this surplus shall be continuing for the next two decades. Nevertheless, many economists are worried about cancellation of the social security system when, in successive decades, cash deficits will occur (Diamond e Orszag, 2004). The new method seems conceived and designed in order to deal with this problem. If applied, it would immediately change the current surplus in deficit, providing therefore a picture more consistent with economists' worries.

The point is that, considering what just observed about time of recording, it may be the case that no method exists, able to simultaneously penalize the USA and European countries – ie who is in the step of creation of the imbalance, and who is in the step of recovery – and able to provide better incentives to both, in comparison to simple cash accounting.

On this regard, it should be stressed that our counterexamples do not show that the old method is better than the new one. They just show that cases exist where imbalances are better depicted and penalized by the old method, and cases where the opposite is true. Indeed, what could be deducted is the general impossibility to capture in *one* current data (either B.9 or B.9X) all the information that would result from the time *series of forecasts* for pension expenditure. This series would allow for better understanding of pension reforms, without deleting information on the dates of actual implementation of real effects.

Incentive bias, as well as measurement problems, seem to arise from the attempt to summarize too many pieces of information into one data (general deficit). If the aim is to better measure pension imbalances, without creating artificial bias or errors, it is not necessary to remain into the range and limits of national accounts. What really matters is harmonising methodologies used in the various countries to report pension outlays and forecast future public spending, as well as defining common standards as to the frequency of expenditure forecasts and the length of the forecast horizons. Keeping this in mind,

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[19] In a different context, referring to stock measurements, Franco *et al* (2004) noticed that the size of unfunded pension liabilities might not imply univocal consequences about sustainability or future imbalances (Ibid., p. 21 e sgg.). A case is discussed, in which a difference arises in pension liabilities to GDP, but sustainability is the same. A second example refers to a demographic shock, causing a significant change in sustainability, without any corresponding change in pension liabilities to GDP.

development of specific, harmonized pension accounts may provide better results, in comparison to reshuffling the definition of deficit.

6. Conclusions

After reviewing, in the first part, the rationale underlying current statistical rules, and discussed the main reasons to change, a first conclusion is that valid reasons do exist, to evaluate the revision of current national and financial accounts.

After drawing a formal treatment and exam of the new method proposed by OECD and IFM, many objections so far put forward do not seem entirely justified. The proposed method seems to efficaciously deal with problems of arbitrariness as well as volatility of parameters and rates, and its practical implementation would not require entirely new pieces of information (in comparison to what is already used in model for pension expenditure forecast). In addition, the new deficit does not directly depend on long term forecasts on population or employment, thanks to using the accrued-to-date formulas.

Beside such advantages, however, the method suffers from problems of sensitivity to non significant operations. It is of course less sensitive to extraordinary operations (eg like Belgacom), but it is also able to create, starting from similar situations, entirely different effects on net borrowing. Other doubts refer to asymmetry in treatment with regard to health expenditure and legally binding future contributions. In addition, the accrued-to-date formula may be well defined for employees close to retirement age, but noticeable uncertainty may be faced for all others.

Together with such problems of measurement and statistical consistency, the new proposal raises economic questions, related to potential incentive effects. On the one hand, if already in force at the right time, the new method would allow to discover imbalances while their causes are created: for countries facing deficit-based fiscal rules, this would generate a useful counterincentive to place the cost on younger generations. On the other hand, results may dramatically change if the method, far from being in force at the right time, had to be introduced in economies already facing pension system crisis. Moving to the new method may worsen the position for countries that are increasing the coverage of pensions through contributions. Second, the change in method may create an accounting advantage for countries less virtuous in the past (ie previous to the adoption of new accounting rules, unlike what happened in the IAS case). Finally, under constant (new) rules, a country that is postponing effects of pension reforms may face a comparative advantage for deficit.

We recalled, in paragraph 2.3, the common opinion according to which it is “too early” for extending the new method to social security. From the above analysis, the new method would seem to provide appropriate incentives during the first part of pension imbalance: eg, in cases that are similar to the USA system, where the cash deficit will occur after the next twenty years. By contrast, the method seems to provide opposite results in systems were cash pension imbalance already occurred. It may be said that, for most European countries, it is indeed “too late” rather “too early”.

One estimation, even rough, of pension liabilities, would undoubtedly be useful in many contexts (for a list of applications, see Franco 1995, p. 11). Doubts concern the opportunity to link such estimates to the calculation of net borrowing, used in European fiscal rules. In such a context, on the basis of the examples discussed above, the ability of the new method to provide appropriate incentives is not clear too. Creating a separate account for pensions, and improving other indicators like forecasts for pension expenditure to GDP or equilibrium contribution quotas (concepts external to the context of national accounts) would ensure better elements for judgment. By contrast, an aggregated indicator like overall net borrowing, subject to a fixed threshold fiscal rule, seems to be a shortcut attempt not able to provide efficacious and well founded results.

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The difficulties attached to the collection of information on households' holdings of securities: third-party reporting

Carlos Sánchez Muñoz and Jean-Marc Israël[1, 2]

Introduction

Households account for a significantly more modest share of securities holdings than institutional investors do. However, according to official statistics securities holdings may represent a significant proportion of households' financial assets, thus reflecting a considerable part of the overall households' wealth. The general difficulties attached to the direct collection of data from households are substantially more acute in the case of data on securities holdings, especially if securities are deposited in custody outside the compiler country. This presumable data gap may translate into a likely underestimation of households' wealth of uncertain magnitude.

The appetite for holding securities is also unequally distributed across different wealth strata of the household population, as it is usually largely concentrated with high-worth individuals. Precisely in the upper tail of the population of households, investors are more likely to resort to the financial services provided by non-resident custodians/depositories sometimes for tax opacity reasons. This adds to the complexity of getting access to reliable data.

Following from this finding, the paper is in three sections. The first section describes the reasons why securities holdings by households are deemed to be underestimated, provides some (limited) empirical evidence on the presumable gap and briefly elaborates on why the gap may somewhat distort some economic analyses. The second section explores how the exchange of data across countries could help fill the gap; describes the main potential problems; argues about the reasons why such an initiative (which is by no means a new idea) could be more successful in the future than it has been so far; and finally provides details about how the exchange could be set up. The third section concludes.

1. The issue

1.1 Difficulties to collect data on securities holdings by households

The collection of statistical information corresponding to the household sector is not an easy task. Due to the dispersion of the household population, the inclusion of households in the population of direct reporters is neither cost-effective nor practical. Consequently, information on households' holdings is usually obtained from domestic custodians and institutional investors, who report on securities holdings and transactions on behalf of their customers.

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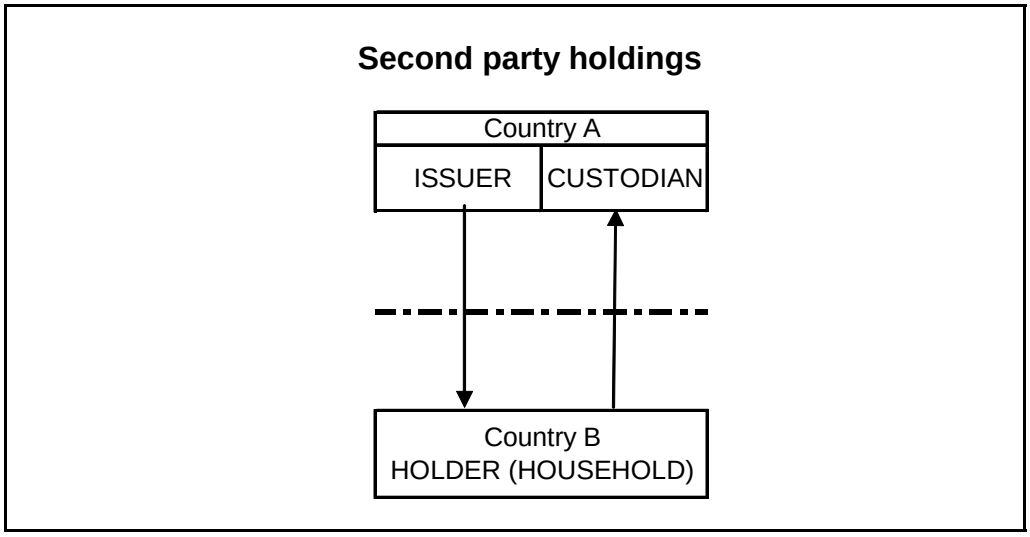
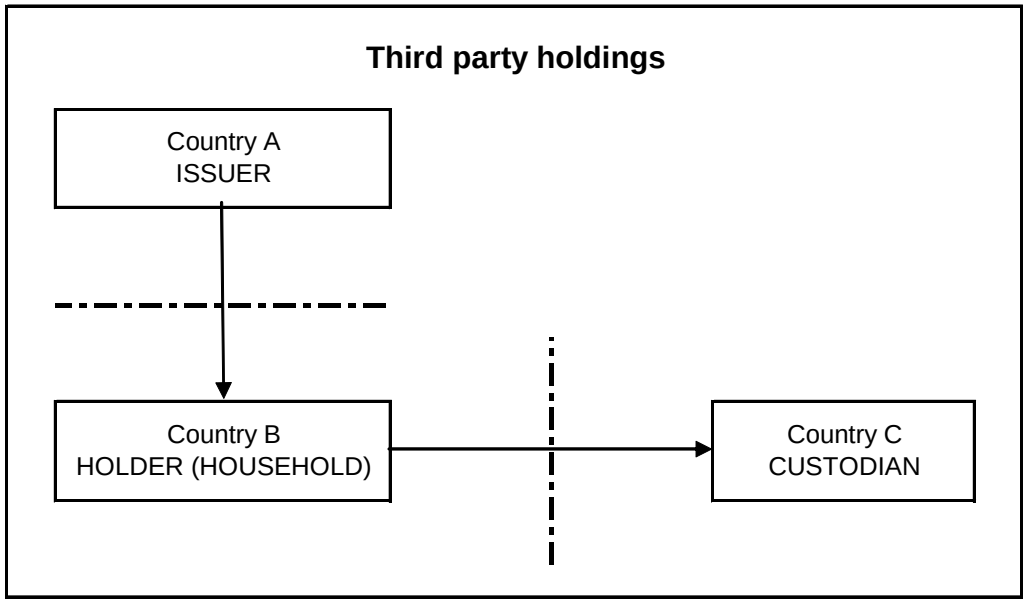
While these information sources provide fairly accurate data on securities acquired through domestic institutional investors, and/or deposited with domestic custodians, data on acquisitions in foreign markets through non-resident financial intermediaries and securities deposited with foreign custodians are more difficult to collect by the compilers of statistics.

When households entrust securities to a non-resident custodian, two different situations may appear (see chart 1): (i) the so-called "second-party holdings" occur when the securities are deposited with a custodian located in the same country as the securities' issuer; (ii) conversely, on "third-party holdings" investors select a custodian located in a country other than that from which securities originate.[3]

Chart 1

Modalities of securities holdings deposited abroad





[3] As will be seen in the next section, the legal entitlement of the statistical compiler of the country in which the custodian is located to collect these data may be substantially different in the case of second- and third-party holdings, respectively.

The compiler of statistics in country B (the country of residence of the household) is not legally entitled to collect information from non-resident entities (eg from the foreign custodians). As a result, the total securities holdings of the household sector may be considerably underestimated.[4]

1.2 How sizeable is the gap?

In 2001, the IMF Committee on Balance of Payments Statistics set up the Working Group on Third Party Holdings (WG TPH) to explore avenues for measuring holdings by residents of securities entrusted to non-resident custodians.[5] While assessing the size of the gap is a difficult task, its potential significance was confirmed by the evidence collected by some euro area countries (France, Germany, Italy, and Netherlands) in the context of the WG TPH. The information only covered second-party holdings.[6]

The US Federal Reserve collected further evidence from the private banking units of a sample of three major US banks (also focusing only on second party holdings). The information suggested that non-resident household holdings of US securities were in the order of 1-2 per cent of the total US securities held by non-residents.

Last but not least, according to Swiss National Bank publications the total value of securities held in custody accounts by Swiss banks on behalf of non-resident non-institutional investors amounted to about USD 530 billion as at end-December 2005.[7]

1.3 Does it matter?

In globalised economies with considerable cross-border capital flows, assessing the actual holdings of wealthy households may not appear as a top priority. However, when dealing with global imbalances, also taking into account key variables such as increasingly rapid changes in asset prices and saving ratios, assessing the actual income and wealth of households may significantly affect the picture and the analysis at the time of assessing the sustainability of specific economic developments.

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[4] In fact, all securities held in custody abroad (ie by any resident investors) could be underestimated if only domestic custodians' reports were used. However, information on holdings by institutional investors (banks, collective investment institutions, large non-financial corporations, etc) is typically easier to collect directly from such investors. Consequently, the problem is mostly relevant for the household sector.

[5] In the context of work related to the annual Coordinated Portfolio Investment Survey, ie data reported to the IMF by countries on the holdings by domestic investors of securities issued by other countries broken down by issuer country. An annual exchange of this aggregated information amongst participating countries has proved to be a powerful tool to get mirror data on countries' portfolio liabilities, which are especially difficult to capture by other means. One of the main weaknesses of such portfolio assets precisely concers the securities deposited by resident households with foreign custodians.
The WG TPH met once in Frankfurt in 2004 and initiated a feasibility study in 2005, which has not yet been concluded.

[6] Holdings of domestically issued securities by non-resident households (see Chart 1).

[7] Swiss National Bank (2006).

2. Is there any way to fill the gap?

2.1 Third-party reporting as a possible solution

As mentioned in the introduction, collecting information directly from households is not cost-effective, while the necessary information is not available to any other domestic reporters (financial intermediaries) that could more easily provide it on behalf of households. Consequently, alternative methods need to be considered. In this regard, the only feasible alternative seems to be that the necessary information is collected by third parties, namely the statistical compilers of the jurisdictions where custodians are located and be regularly exchanged on a reciprocal basis (in the same fashion as the annual CPIS quoted under footnote 5).

While it could be argued that the reporting burden for custodians in some countries could be substantially increased, in many circumstances reports may be automated. For instance, in those countries where custodians report on a security-by-security basis they could simply be required to transmit the raw (disaggregated) data on all securities held in custody (identifying securities held by individuals), thus transferring the bulk of the processing burden to compilers. As compilers typically possess the tools to manage the data in a more or less automated way, their additional burden may not be so high.

2.2 Potential problems to be overcome

Legal entitlement to collect the data and exchange them with counterpart countries: in some countries national legislation does not allow compilers of statistics to collect data unless it is strictly and directly (ie not through any kind of reciprocal exchange with other countries) usable for their own statistics. Consequently, while second-party holdings may often be collected without legal restrictions (being part of the liabilities of the country where the custodian is located), third-party holdings may pose more difficulties. Therefore, either the introduction of changes in the national legislation or a supra-national piece of legislation would be required. As to whether compilers could also find legal restrictions to exchange statistical information with other countries, it seems that, as long as appropriate measures are taken to prevent the exchange of confidential data,[8] no legal impediments should exist.

Identification of end investors: when the securities accounts are opened by legal entities representing third parties (for instance, households), custodians may have difficulties to trace the ultimate investors. This is the case of portfolios managed by trusts or accounts opened and operated by asset managers on behalf of final investors. There is hardly any quantification of the importance of the problem.

Re-distribution of the reporting and compilation burden across countries: a considerable difficulty may be the imbalance between costs and benefits across countries. Indeed, a large share of worldwide securities are held in custody in countries which are not significantly affected by the problem, ie in the event of a reciprocal exchange they would obtain a modest gain from the information to be delivered by counterpart countries compared with the significant effort implied due to their importance in the custody business.

Business concentration: it appears that retail banking for individuals is often much less concentrated than the services provided to large institutional investors,[9] thus adding to the difficulties to collect the necessary data.

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[8] Only aggregated information on the household sector of each national jurisdiction is needed.

[9] Small, R.A. (1999).

Other statistical difficulties: eg ***double counting due to repo-type deals:*** it is commonly assumed that securities deposited by high worth individuals with foreign custodians are unlikely to be frequently subject to securities lending or repurchase agreements. Consequently, the risk of overestimation of households' wealth (as a result of double-counting securities lent/repoed and cash received in exchange) appears to be fairly modest.

2.3 Why could a revival of this initiative be now more successful than in the past?

As explained in the introduction, the idea of a reciprocal exchange of information amongst countries is not a new one. In addition to the IMF WG TPH, in 2002 the ECB Task Force on Portfolio Investment Collection Systems (TF-PICS) recommended to its parent committee (the ECB Statistics Committee) considering the feasibility of an annual third-party reporting scheme for securities held by households.[10]

While such initiatives have helped raise awareness about the importance of the gap, they have not yet yielded results to date. However, latest developments in the European Union and in major counterpart countries may add further impetus to such an initiative.

Currently, security-by-security data collection methods (which, as explained above, significantly ease the reporting by custodians) have been, or are being, introduced by all euro area countries. In addition, NCBs in the European Union have managed to set up the so-called Centralised Securities Database (CSDB), ie a powerful database with comprehensive information on worldwide individual securities, which is already being used to compile statistics.[11] In the future, the CSDB may also store some information on securities holdings, which would pave the way for a regular exchange of information across European Union countries.

Outside the EU, in 2005 the Federal Reserve System of the United States, which also collects security-by-security information via annual surveys, took the initiative to extend its portfolio investment liabilities survey so as to identify "foreign individuals" covering for a possible future reciprocal exchange of such data with counterpart countries. Additionally, the Legal Department noted that the current legislation in the United States is sufficient to collect third party holdings, provided there is a quid pro quo from other countries to supply the United States with comparable information.

2.4 How to set up the exchange

Given the frequency of custody surveys, a cross-country data exchange could take place on an annual basis. Most confidentiality issues could be overcome if the data were collected in a form that did not allow the identification of the securities holders, ie the data could be conveniently aggregated (eg by counterpart countries, security classes, etc) before being exchanged.

Along these lines, it would seem advisable that a central party takes care of the necessary aggregation of mirror data corresponding to each counterpart country. Given the role of the

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[10] ECB (2002). The TF PICS considered the feasibility of a comprehensive third-party reporting scheme (ie not limited to households' holdings) across European Union countries. The study led to the conclusion that, while an all-encompassing scheme would be too difficult to set up (due to, inter alia, the risk of double-counting in the case of long custody chains), an annual third-party reporting scheme for securities held by households deserved further consideration. The TF-PICS noted the need to widen the scope of any such scheme to securities deposited in custody outside EU countries, ie the scheme should also consider exchanges with counterparties outside the EU to the extent possible.

[11] ECB (2006).

IMF in the current annual exchange of data through the CPIS, it could stand to reason that the IMF also sets up and manages a central database with the information provided by participating countries. The ECB (possibly linked to the maintenance of the CSDB) could take care of information referring to euro area countries. The data could comprise securities held by non-resident individuals broken down by the country of residence of the issuer and the holder, without any information on the country where the securities are held in custody, ie avoiding the disclosure of sensitive information to the extent possible.

3. Conclusions

The general message of this paper is that households' wealth may be substantially undervalued as a result of the difficulties to get access to reliable measures of securities entrusted by households to foreign custodians.

Given the traditional difficulties attached to the direct collection of statistical data from households, some kind of indirect collection appears necessary. Given the constrains to collect this information from non-resident reporters, the most promising solution seems to be that countries where custodians are located collected information on (both second- and third-party) holdings by non-resident households and exchange it with counterpart countries on a reciprocal basis.

While the difficulties attached to the proposal (and described in the paper) should by no means be underestimated, trying to cover this gap may be worth the effort, especially because no serious alternative exists at this stage.

In the case of the European Union countries, the CSDB may offer an invaluable platform for the exchange of information on securities holdings by high wealth individuals in the future. Yet, widening the scope of such an exchange to jurisdictions elsewhere (and especially to those countries with the largest share of the custody business) would undoubtedly increase the analytical value of the results.

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Portfolio shifts in securities held by households in Austria: analysis based on security-by-security information

Michael Andreasch and Aurel Schubert[1]

Introduction

The growth rates of financial assets of households (including NPISH) for the period from 1996 through 2005, shown in the financial accounts of Austria, indicates that deposit growth was strongly correlated with savings developments. The respective contributions of individual financial instruments reflect the increasing trend towards capital market investments and private pension plans on the one hand, and a substitution effect in portfolios on the other. The development of bank deposits and tradable securities turned out to be negatively correlated, which was also in line with current financial market trends.

This paper examines the developments in the holdings of securities of households, and is structured as follows. Section 2 provides a general assessment of the use of security by security information derived from a central master file and reports of custodian banks and end-investors. Section 3 describes in detail the structure and the portfolio shifts in the holdings of tradable securities of households in the last ten years reflecting also the change in the preference for different types of securities, mainly towards investments in mutual fund shares. Section 4 illustrates the asset allocation of different types of mutual funds held by households and compares the differences to the investment by households made directly in different types of debt securities and quoted shares.

Use of security-by-security information for the compilation of portfolio investment of households

With reference to portfolio investment in bonds and notes, quoted and unquoted shares, mutual fund shares and tradable financial derivatives, we use a comprehensive and reliable compilation system that was initially designed for BOP statistics but has, over time, been extended to cover domestic and cross-border portfolio investment flows and stocks as well. This compilation system was developed and continually modified during 1988-98 in order to improve the reliability of portfolio investment data. The main reasons for implementing such a system were:

- Experience showed that instructions to reporting agents to classify individual securities under certain aggregates were becoming increasingly complicated in fast developing international financial markets.
- Additionally the users of these statistics have expanded continuously their requests which cannot be captured by a compilation system based on reported aggregates.

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[1] Oesterreichische Nationalbank. We would like to thank Erich Hille, Günther Sedlacek and Robert Zorzi for their contributions. The views expressed in this paper are solely those of the authors and do not necessarily reflect the views of the Oesterreichische Nationalbank. For additional information please contact the authors by e-mail: michael.andreasch@oenb.at, aurel.schubert@oenb.at.

Therefore, the reporting of securities is now[2] based on the International Securities Identification Number (ISIN code) for each individual security: *(i)* monthly stocks and flows of each individual security reported by banks acting as primary custodians held for their own account or on behalf of their resident and non-resident customers*. (ii)* Stocks and flows of securities held with banks abroad or in self custody have to be reported by domestic non-banks on a quarterly / yearly basis.

The Balance of Payments division within the Statistics section generates an internal master file from data provided by commercial data providers and from additional information reported by Austrian banks providing information on the main feature of each security (eg nominal amount outstanding, currency of denomination, maturity, sectoral allocation and interest rate). At present the master file contains structural information for more than 12,000 different "living" individual domestic securities (provided by the domestic national numbering agency) and for more than 290,000 different "living" individual non-resident securities (provided by German numbering agency). One third of these single securities are reported by custodian banks and/or end-investors. Supplementary data on quotation are stored in the master file. The database is updated at least on a weekly basis. Comprehensive quality checks and amendments are made by the Balance of Payments Division in order to improve the information received from external sources.

This system allows the following data to be compiled for each holding sector[3] on a "who to whom" approach for all issuance sectors:

- Amount outstanding at the end of reporting period (valued both at nominal value and at market price)
- Transactions during the reporting period, (both at nominal value and valued at market price)
- Other changes in volume, split into exchange rate changes, price changes and other adjustments (like reclassification).

Additionally, accrued interest based on the debtor approach is compiled for securities other than shares.

The security-by-security collection system is one of the key pillars of Austria's financial accounts compilation system. It is worth noting that the securities reported under this system accounted for as much as 40% of the total value of financial assets and liabilities of the Austrian economy. This gives an illustration of the high importance in economic as well as in compilation terms.

Turning to the international level, the ECB has established a statistical database for a security-by-security collection system on a European-wide level, called Centralised Securities Data Base (CSDB).

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[2] With the beginning of 2006 the central bank has implemented a modified version of the compilation of securities. This version is based on an amended version of the reporting regulations. The major amendments are a further split of resident customers into 16 different classes (eg households, own-account workers, private foundations, non-profit organisations serving households), the inclusion of flow data and a separate report on cross-border repurchase and security lending activities.

[3] Central bank, other monetary financial institutions, other financial institutions including insurance corporations and pensions funds, general government, households, NPISH and the rest of the world sector.

Portfolio shifts of households' holdings between 1995 and 2005

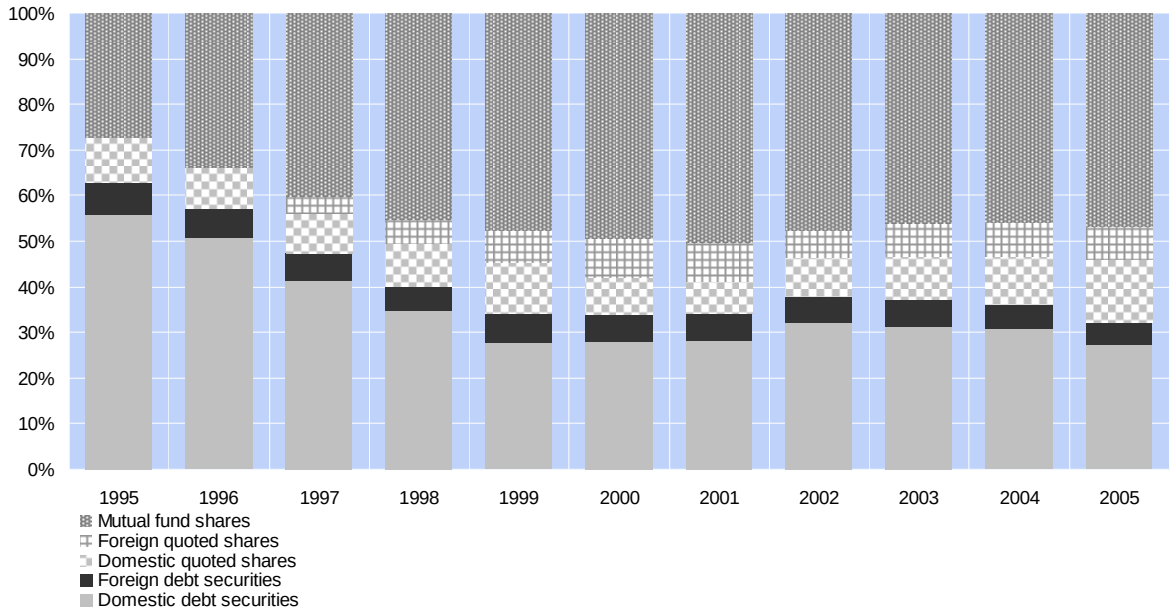
The market value of Austrian households' securities portfolios stood at EUR 87.8 billion as at December 31, 2005, Every fourth euro of private investors' financial assets (EUR 356.2 billion) was invested in bonds, listed stocks and mutual fund shares, whereas EUR 4 out of EUR 10 were held in saving deposits. Of their total securities holdings, Austrian households had invested EUR 74.6 billion (85%) in domestic instruments, thus holding some 12% of the total amount outstanding of domestic tradable securities, which came to EUR 611 billion[4].

One-third of Austrian households' securities investments are debt securities, one-fifth listed stocks, and mutual fund shares account for slightly below 50%.

Graph 1

Structure of tradeable securities in the portfolio investment position of households in Austria

Percentage of total portfolio assets



Source: OeNB.

Between 1995 and 2005, Austrian households' total financial assets increased by some 68%. Over the same period, the market value of tradable securities held by households doubled. Hence, this growth rate was more than twice as high as the growth rate recorded for total deposits. The share of securities holdings in total financial assets edged up to almost 24% over the past ten years. The current composition of securities holdings reflects, on the one hand, the still dominant role of debt securities issued by the domestic financial sector and, on the other hand, a structural shift that has taken place in the course of the past ten years. At the end of 1995, debt securities accounted for 63% of households' securities portfolios, whereas stocks and mutual fund shares made up only 10% and 27%, respectively. The

[4] Debt securities, quoted shares and mutual fund shares valued at market price. Holdings of domestic mutual funds in domestic mutual funds shares (funds in funds) are excluded.

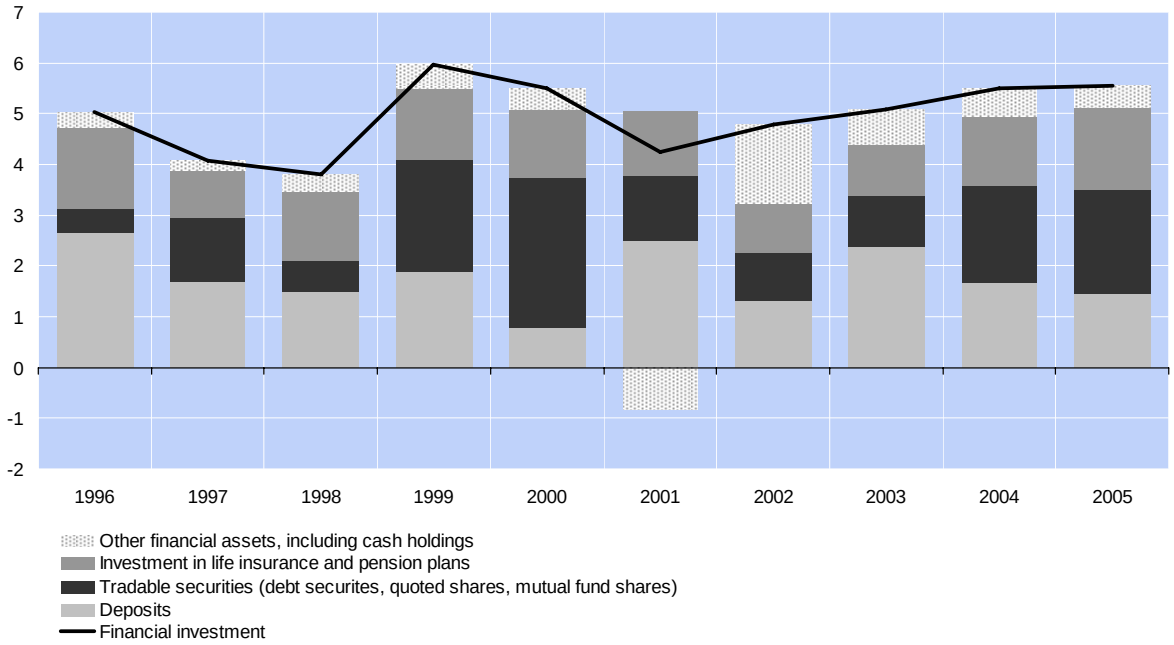
portfolio shifts seen afterwards were mainly triggered by a sharp decline in domestic bank bonds held by households, which showed a growing interest in domestic mutual fund shares between 1995 and 1999.

Unfavorable capital market developments, set off by the bursting of the dotcom bubble in the first half of 2000, with a time lag also impacted on households' net purchases, which slumped in 2002 and 2003, accounting for a mere fifth of total financial investment in both years. Between 1996 and 2001 and then again from 2004 onward, the average share of securities investments was higher than 30%. As conditions on the international stock markets started to stabilize in the second quarter of 2004 and interest rates continued at a very low level, investment in stocks and mutual fund shares once again became more attractive to households.

Graph 2

Financial investment of households

Annual growth rate in %, contributions in percentage points



Source: OeNB.

Furthermore, the rising supply of stocks provided an additional stimulus: privatizations of enterprises that had been majority-owned by the government and the trend toward disentangling, to a considerable extent, the strategic part of equity stakes in industrial corporations held by financial institutions like banks and insurance corporations contributed to an increase in the amount of stocks for sale just as new issues of bank stocks. Also, thanks to the high share of stocks in free float in this segment, newly issued real estate stocks have been playing a crucial role in households' financial investment. As a result, the equity capital placed on Wiener Börse AG came to EUR 2.2 billion in 2004 and to some EUR 5.2 billion in 2005. From the most recent stock market high (1999) to end-2005, Austrian households acquired on average one-sixth of the total net volume of stocks issued on the stock exchange. Also at end-2005, households held 29% of the capital invested in domestic mutual funds. This increased household demand for mutual fund shares to some extent contributed to the huge growth in domestic mutual funds, whose invested capital quadrupled between 1995 and 2005.

The ups and downs of stock prices observed since 1999 also impacted on the market value of households' securities portfolios. While in 2001 and 2002, declining stock prices

diminished the market value of securities investments by 4.5% and 6.4%, respectively, the rise in stock prices seen in 2004 and 2005 increased the respective portfolio values by 5.1% and 9.3%, respectively. Stocks and domestic mutual fund shares posted the sharpest changes.

At end-1995, direct investments in the form of debt securities and stocks accounted for 75% (EUR 33 billion) of Austrian households' portfolios, while mutual fund shares made up 25% (EUR 12.3 billion). The ratio of mutual fund shares to savings deposits was almost 1:10.

By end-2005, households' securities holdings composed of debt securities and stocks had risen by 40% to EUR 46.8 billion, while the mutual fund shares portfolios nearly quadrupled to EUR 40.9 billion. In the course of these ten years, the ratio of mutual fund shares to savings deposits held by households shifted to almost 1:3, which implies that households had invested every ninth euro of their financial assets in mutual fund shares.

As at December 31, 2005, domestic issues (more than 5,000 individual securities) accounted for 77% of the total investment portfolio consisting of debt securities and listed stocks. However, investments were - to a large extent - limited to just a few issuers and product groups:

- Half of overall debt securities holdings, ie EUR 24 billion in total, were attributable to securities issued by Austria's ten largest bond issuers, including nine banks. The most important category within this investment component were housing bonds, the interest on which is exempt from investment income tax up to 4%. The outstanding volume of these bonds owned by private investors came to EUR 7.9 billion as at December 31, 2005.
- As regards domestic stocks, investors focused on equity listed in the ATX prime market segment. At end-2005, the market value of these stocks held by households amounted to EUR 9.1 billion and accounted for three-fourths of total domestic holdings of stocks. Hence, private investors owned slightly less than one-tenth of the total stock market capitalization in this segment, which came to EUR 99 billion. The most important category of stocks within this sector held by households were domestic real estate stocks with a market value of EUR 3 billion; though the index of these stocks posted an increase below that of the entire ATX, it was still higher than the rise in real estate prices in Austria.

Of the more than 5,700 foreign debt securities with a market value of EUR 4.2 billion, 80% of household holdings were euro-denominated bonds. In terms of target regions, Austrian housholds most often opted for Europe, and in particular for securities issued in Germany and the Netherlands. A breakdown by sector shows that apart from government bonds, securities issued by banks or international corporations enjoyed the greatest popularity.

Foreign stocks held by private investors totaled EUR 6.6 billion. In this segment, investment in individual securities was similarly high as in the domestic equity segment. Half of the portfolio, which comprised more than 9,000 foreign stocks, was made up of 20 internationally traded stocks, every second of which was issued by a German enterprise. Households preferred in particular stocks issued by banks as well as by enterprises of the utilities and technology sectors.

Structure of mutual fund shares held by households: the asset allocation of these funds

As at December 30, 2005, Austrian households held shares in domestic mutual funds to the amount of EUR 38.5 billion and shares in foreign mutual funds worth EUR 2.4 billion. The asset allocations of the domestic or foreign funds held by households was dominated

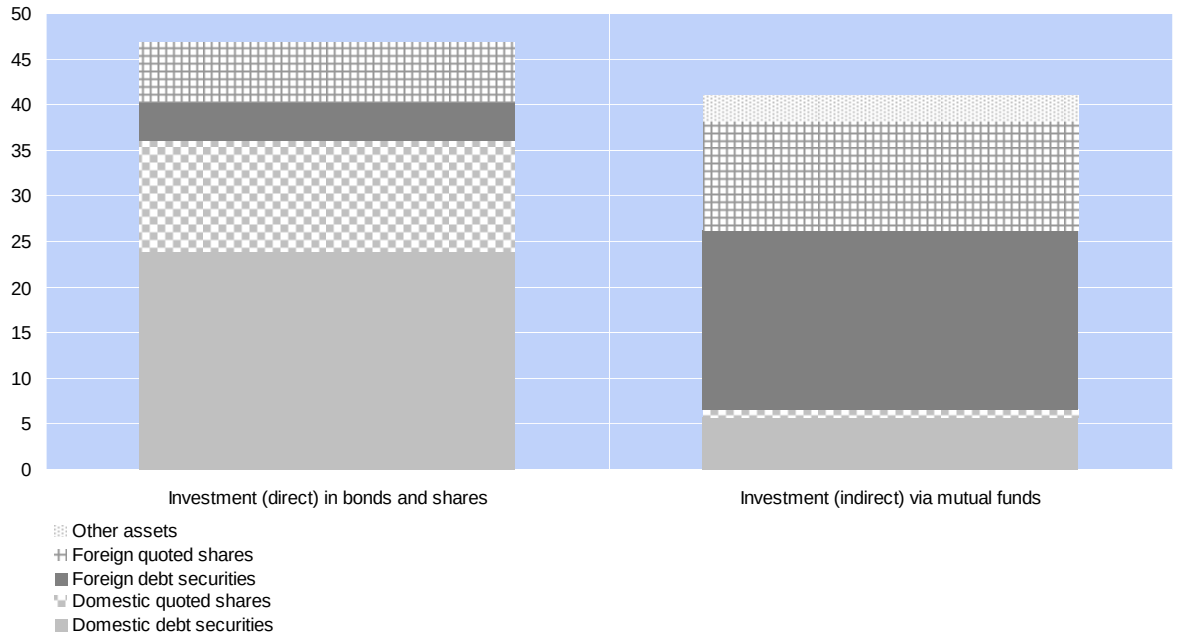
primarily by debt securities. At end-2005, 45% of the shares' total market value was invested in fixed-income funds, 21% in equity funds and 32% in balanced funds. All three types of funds have contributed around 30% percentage points to the growth of investment in mutual funds since 1999. In absolute terms, money market funds and real estate funds played a significantly smaller role (accounting for a share of 3%), even though these types of funds posted the highest growth rates in recent years.

Both domestic and foreign mutual funds diversified the capital invested by households in fixed-income funds, focusing on investment in the euro area. About one-third of the total capital (EUR 6 billion) was invested in securities of domestic issuers, whereas two-thirds were used to purchase securities by issuers from other euro area countries, especially German and French government bonds. Investment in foreign stocks, totaling EUR 11.8 billion, focused on companies outside the euro area (two-thirds), with U.S. stocks accounting for more than one-fourth of assets. The most important individual investment positions were stocks of banks, insurance companies, utilities and chemical corporations as well as enterprises in the technology sectors.The portfolio position combining the holdings of debt securities and shares held directly and through mutual funds showed at end-2005, that almost 50% of the financial assets (totaling EUR 87.8 billion) were domestic securities. An analysis by financing instrument shows a preference for debt securities, which accounts for 61% of households' assets, while domestic and foreign stocks contributed 36%. A mere 3% were attributable to other assets, including real estate.

Graph 3

Different composition of the portfolios by households

Billions EUR



Source: OeNB.

Conclusion

The analysis both of portfolio shifts and direct versus indirect investment in securities benefits from the use of security by security data enabling the investigation of detail aggregates on securities without any change in the reporting requirements. Tradable

securities in various types and changing composition held in the portfolio of households raised their importance due to the facts that the contribution to the growth rate of financial assets have increased and that the price changes of the securities will affect both the financial and consumption behaviour of the private households. These developments underpin the use of security by security information. The in-depth structural information provided for monetary policy and financial market stability analysis benefits from the existence of this approach.

Statistical annex

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Financial assets of households											
EUR million											
Domestic debt securities	25,203	23,716	20,339	17,794	15,491	17,346	17,069	19,003	20,082	22,706	23,975
Foreign debt securities	3,225	2,933	2,935	2,807	3,717	3,700	3,685	3,453	3,778	3,968	4,217
Debt securities	28,428	26,650	23,274	20,601	19,208	21,046	20,754	22,456	23,860	26,674	28,192
Domestic quoted shares	4,511	4,154	4,337	4,767	6,410	5,145	4,460	5,067	6,224	7,904	12,046
Foreign quoted shares	0	0	1,808	2,658	3,918	5,237	5,102	3,462	4,458	5,288	6,585
Quoted shares	4,511	4,154	6,145	7,425	10,328	10,382	9,562	8,530	10,681	13,192	18,631
Domestic mutual fund shares	11,854	15,136	18,698	22,040	25,154	27,712	28,772	26,904	28,539	32,556	38,518
Foreign mutual fund shares	454	702	1,150	1,183	1,687	3,087	1,844	1,224	1,216	1,446	2,423
Mutual fund shares	12,308	15,838	19,848	23,223	26,841	30,799	30,616	28,128	29,755	34,002	40,941
Tradable securities	45,247	46,641	49,266	51,249	56,376	62,227	60,932	59,114	64,296	73,868	87,764
Deposits	121,218	126,817	130,615	134,104	138,723	140,763	147,698	151,401	158,339	163,501	168,262
Other financial assets	45,644	50,390	55,569	60,592	67,155	73,780	74,406	81,045	86,325	92,526	100,246
Financial assets	212,109	223,849	235,450	245,944	262,255	276,771	283,036	291,560	308,960	329,895	356,272
Memo items:											
Tradable securities(in % GDP)	25%	25%	27%	28%	31%	34%	33%	32%	35%	40%	48%
Financial assets(in % GDP)	116%	122%	129%	134%	143%	151%	154%	159%	169%	180%	194%
Financial investment of households											
EUR million											
Domestic debt securities		-1,655	-2,973	-2,167	31	1,846	-304	1,828	1,140	2,427	1,421
Foreign debt securities		0	319	-308	420	-17	-23	-221	309	63	128
Debt securities		-1,655	-2,654	-2,475	451	1,829	-327	1,607	1,449	2,490	1,549
Domestic quoted shares		0	0	1,063	1,612	360	-862	304	165	-174	1,389
Foreign quoted shares		0	0	336	94	1,582	1,837	287	175	730	251
Quoted shares		-394	2,003	1,399	1,706	1,943	976	592	340	555	1,640
Domestic mutual fund shares		2,847	3,101	2,535	2,819	2,558	2,367	765	1,378	2,787	3,160
Foreign mutual fund shares		248	354	-7	504	1,442	527	-282	-259	96	472
Mutual fund shares		3,096	3,455	2,528	3,323	4,000	2,894	483	1,119	2,883	3,632
Tradable securities		1,047	2,805	1,452	5,480	7,772	3,543	2,682	2,908	5,928	6,821
Deposits		5,600	3,798	3,488	4,620	2,040	6,940	3,705	6,937	5,172	4,774
Other financial assets		4,052	2,491	4,007	4,564	4,595	1,247	7,129	4,971	5,914	6,706
Financial investment		10,699	9,094	8,947	14,663	14,407	11,731	13,516	14,816	17,013	18,301
Domestic securities issues											
EUR million											
Debt securities	160,470	170,532	184,281	198,191	229,345	259,365	281,015	300,008	313,259	337,407	371,838
Quoted shares	23,795	26,746	34,276	30,470	32,947	31,884	28,307	32,235	44,811	64,577	106,413
Mutual fund shares	24,179	31,359	41,214	54,462	75,341	83,022	86,599	90,135	97,190	109,078	132,326
Total issues	208,444	228,637	259,771	283,123	337,633	374,270	395,921	422,378	455,260	511,062	610,578
Memo items:											
Total issues (in % GDP)	114%	123%	141%	148%	169%	178%	183%	191%	201%	217%	249%
Holdings of domestic securities by households											
Contribution to the total volume of issues											
Debt securities	16%	14%	11%	9%	7%	7%	6%	6%	6%	7%	6%
Quoted shares	19%	16%	13%	16%	19%	16%	16%	16%	14%	12%	11%
Mutual fund shares	49%	48%	45%	40%	33%	33%	33%	30%	29%	30%	29%
Total issues	20%	19%	17%	16%	14%	13%	13%	12%	12%	12%	12%

cut-off date: 2006-05-31

Source: Annual financial accounts data compiled by the Austrian National Bank.

The final financial investment of French households

Denis Marionnet[1]

1. Introduction

This study wants to spot and analyse the "final financial instruments" in which French households' financial savings are invested by making transparent their intermediated investments with mutual funds and life insurance corporations. It attempts to identify where French households' savings is finally allocated (France or abroad), who bears the liquidity risk and the market risk. Doing so, the role of financial intermediaries such as insurance corporations and mutual funds may be specified more accurately.

Households' allocation of savings is first determined by their choice between financial and non-financial investment. Non-financial investment is mainly devoted to housing and it presently takes the lion's share in the wealth structure of households in France due to the rise in real estate prices over the last years. Indeed, the share of housing in total households' wealth has risen from 53% in 1994 to 61.6% in 2005 and has always exceeded the share of their financial assets (see annex 3). Nevertheless, the reason for holding a house/flat is usually primarily influenced by socio-demographic motivations (demography, social behaviour, labour market…). We will thus focus on financial investment hereafter.

As regards the share they allocate to their financial investment, households have to choose whether to invest directly on financial markets or to use the services of financial intermediaries such as banks for deposits or non-bank institutions for mutual fund shares or life insurance contracts.

Among financial intermediaries, the weight of non-bank financial intermediaries, namely investment funds and insurance corporations, has increased at the expense of traditional banking intermediation. Indeed, although the share of intermediated households' investments is stable around 79% over the period 1994-2005 the proportion invested in deposits with monetary financial institutions has decreased from about 41% in the mid nineties to 34% in 2005, while the share of non-bank financial intermediation has increased symmetrically.[2]

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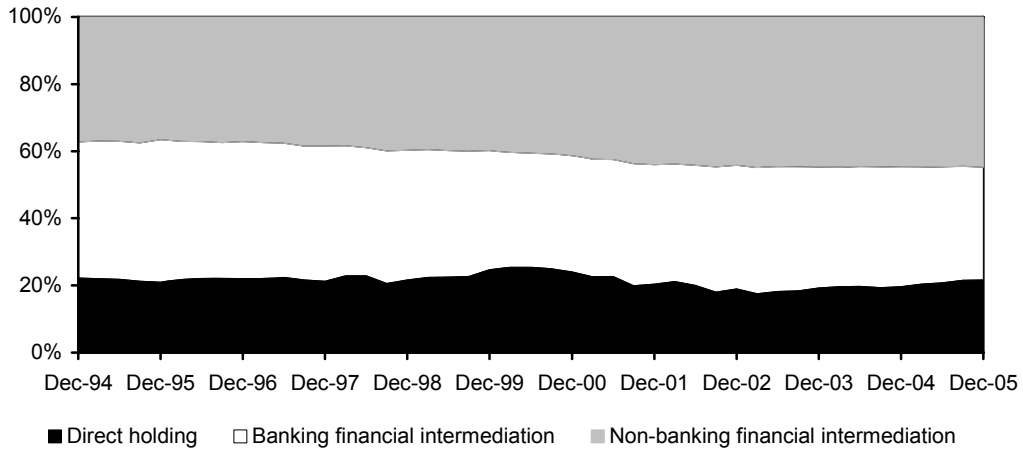
[1] Banque de France, Financial Accounts Division. For further information on this paper, please contact: Denis Marionnet: denis.marionnet@banque-france.fr. The author would like to thank Dominique Durant, Olivier Cousseran and Michel Boutillier for their many helpful comments on this work. The views expressed in this paper are those of the author and do not necessarily reflect those of the Banque de France.

[2] It must be noted that, in France, banks have significantly contributed to this development by creating investment fund subsidiaries and insurance corporation subsidiaries, respectively registered in national financial accounts under the sectors Other financial intermediaries (S.123) and Insurance corporations and pension funds (S.125).

Chart 1

Intermediated and non-intermediated financial investment of households[1]



[1] In this chart and all the following ones the total financial assets of households include all the instruments reported in financial accounts except prepayments of insurance premiums and reserves for outstanding claims (AF62) and other accounts receivable/payable (AF7) which hold a specific role.

Source: Banque de France (Financial Accounts).

In fact, through these intermediated instruments, households finally hold bonds, shares and deposits, invested nationally or in other economies, in euros or in foreign currencies. Sometimes, two intermediaries are involved in the intermediation process as is the case when insurance corporations invest in mutual fund shares for example.

Households' financial investment, as described in financial accounts, is first analysed in section 2. The results of the transparency making process are presented in section 3. In section 4, the results are pushed a step forward identify the main risks borne by households. The methodology used to make non-bank intermediaries transparent is presented in annex 1. The detailed breakdowns used for the construction of the key indicators analysed before and after transparency are listed in annex 2.

The term "before transparency" hereafter refers to the analysis of households' financial assets based on the use of financial accounts, whereas the term "after transparency" refers to the analysis of households' financial investment in terms of "final" instruments.

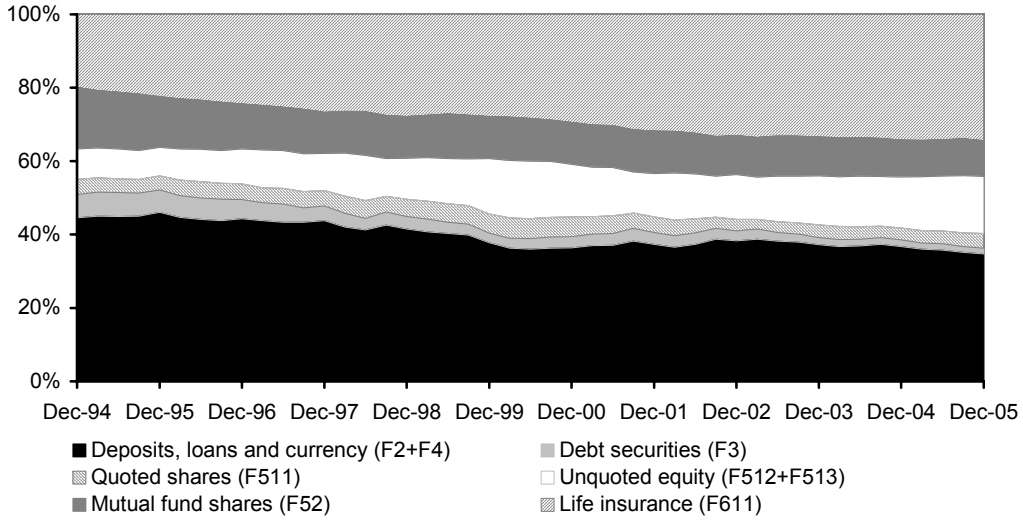
2. Households' financial wealth before transparency

While remaining predominant, the proportion of households' financial wealth held in the form of deposits, loans and currency declined almost continuously between December 1994 and December 2005, shrinking from 45% to 35%.[3] This fall is due to the attractiveness of competing instruments, particularly life insurance products.

[3] Loans in households financial assets are mainly shareholders loans and they represent a very small part of households' assets (1.1% in December 2005). Similarly, the share of currency held by households is only 1.3% in December 2005.

Chart 2

Initial structure of households' financial investments



Source: Banque de France (Financial Accounts).

As regards households' direct investment on capital markets, two opposite developments can be observed. Whereas the share of debt securities has sharply fallen from 6.4% to 1.5%, the proportion of shares and other equity in households' financial wealth has risen from 12,3% to 19.6% between 1994 and 2005. This rise is mainly due to the increase in the value of unquoted equity (*unquoted shares and other participation*) as, in spite of some fluctuations, quoted shares remained around a proportion of 4% of households' financial wealth.

The proportion of money market fund shares in households' financial wealth has declined from 5.7% in the fourth quarter of 1994 down to 1.0% in the fourth quarter of 2005. The share of other investment funds has also decreased but to a lesser extent (from 11.1% down to 8.7% over the same period).

Finally, as in many other European countries, life insurance experienced the most rapid and constant growth since the mid-90's in France. Indeed, the share of life insurance in households' wealth has risen from 19.9% in December 1994 up to 34.4% in December 2005.

3. Households' financial wealth after transparency

After transparency, households' financial wealth is shared out among the following "final" instruments:

– deposits, loans and currency (AF2+AF4),

– debt securities (AF3),

– quoted shares (AF511),

– unquoted equity (AF512+AF513),

– "additional real-estate assets" held *via* financial intermediaries (life insurance corporations and real-estate investment funds).

Thanks to the data sources used for the transparency process,[4] all these final instruments are available with the following breakdowns:

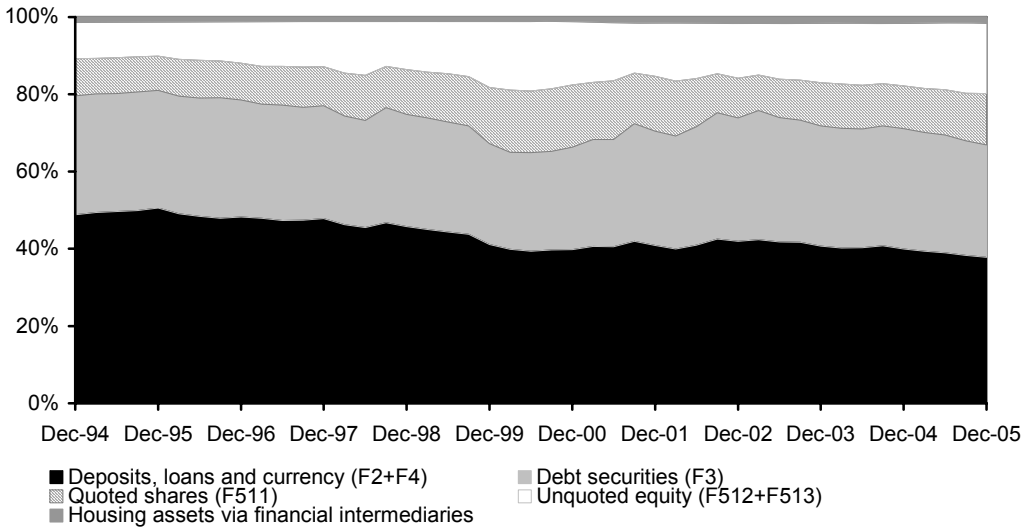
– less or equal 1 year / over 1 year maturity,

– national currency / foreign currencies,

– resident counterpart / non-resident counterpart.

Chart 3

Households' financial investments in final instruments



Source: Banque de France (Financial Accounts and Investment Funds Database).

Deposits, loans and currency are still predominant in households' final financial wealth although their share is also declining over the period (*from 49% down to 38%*). This share is not significantly changed by the transparency making process as non-bank financial intermediaries do not significantly re-invest the funds they raise from households in deposits.

Debt securities are competing with shares and other equity for the second place, their ranking depending on the fluctuations in equity valuations.

Compared to direct holding, the final instrument debt securities is the one which increases the most, as it hovers around 30% over the period against a maximum proportion of direct holding of 6.4% before transparency. Insurance companies are mainly responsible for this (see chart 4) as, at December 2005, 78% of households' final investment in debt securities are made via life insurance, 17% via mutual fund shares while the remaining 5% are held directly.

Shares and other equity are also increasing their weight in households' financial wealth after transparency, albeit in a lesser extent for unquoted equity than for quoted shares. As a matter of fact, unquoted equities are in average held directly at more than 85%, a smaller proportion (20%) being held via insurance corporations (see chart 6). Quoted shares are held in a fairly even manner: 42% *via* life insurance, 30% directly and 28% *via* mutual funds.

Over the period, shares and other equity present an upward trend, rising from an average 18% in 1994-1995 up to an average 30% in 2005.

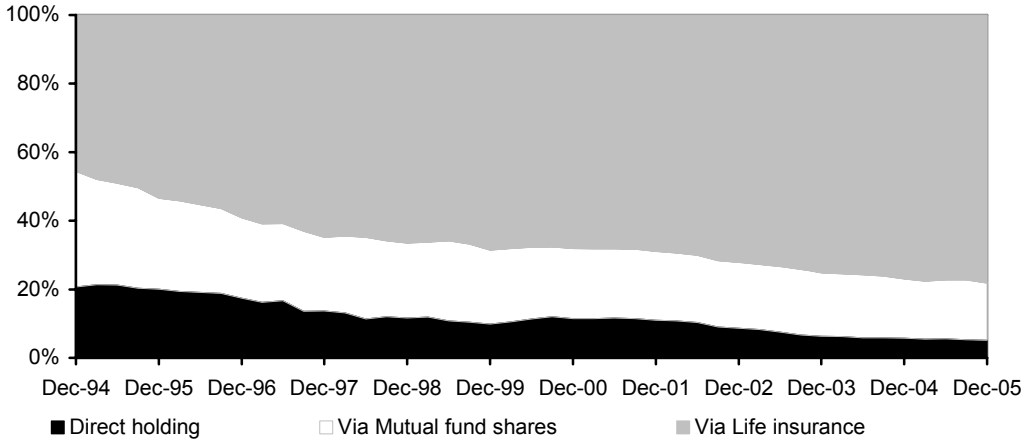
[4] Cf. methodology presentation in annex 1.

Finally, the additional real-estate related assets held by households via financial intermediaries are very low compared to both the other final instruments and the housing assets held directly (EUR 5,547 billions at December 2005),[5] as they only represent between 1.1% and 1.6% of households' final investment.

Chart 4

Direct and intermediated households' holdings of debt securities

In % of all final holdings of the instrument

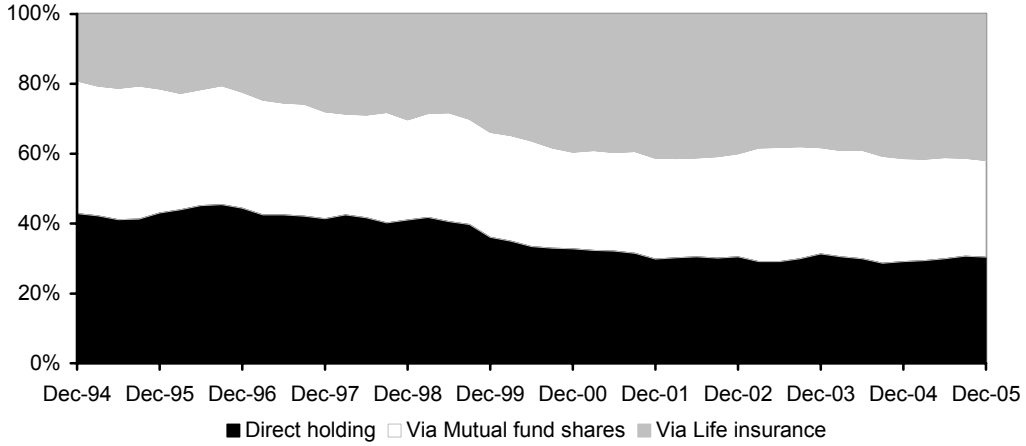


Source: Banque de France (Financial Accounts and Investment Funds Database).

Chart 5

Direct and intermediated households' holdings of quoted shares

In % of all final holdings of the instrument



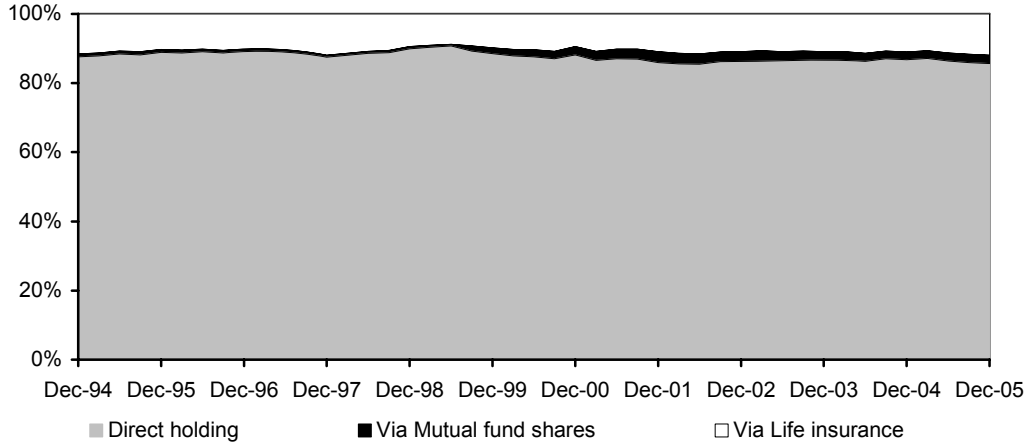
Source: Banque de France (Financial Accounts and Investment Funds Database).

[5] See annex 3.

Chart 6

Direct and intermediated households' holdings of unquoted equity

In % of all final holdings of the instrument



Source: Banque de France (Financial Accounts and Investment Funds Database).

4. Other analyses derived from the transparency making-of results

The existing nomenclature for the description of households' financial wealth does not always provide sufficient details for a complete analysis of the risks borne by households (see O'Hagan, 2004).

The transparency making-of process helps to build a set of key indicators related to risks borne by households such as the weight of assets bearing a risk of loss of capital, the share of long-term instruments and of liquid assets.

Transparency helps also to assess currency risk and geographical diversification. This allows a more thorough analysis of households' financial assets.

4.1 Share of risky assets in households' wealth

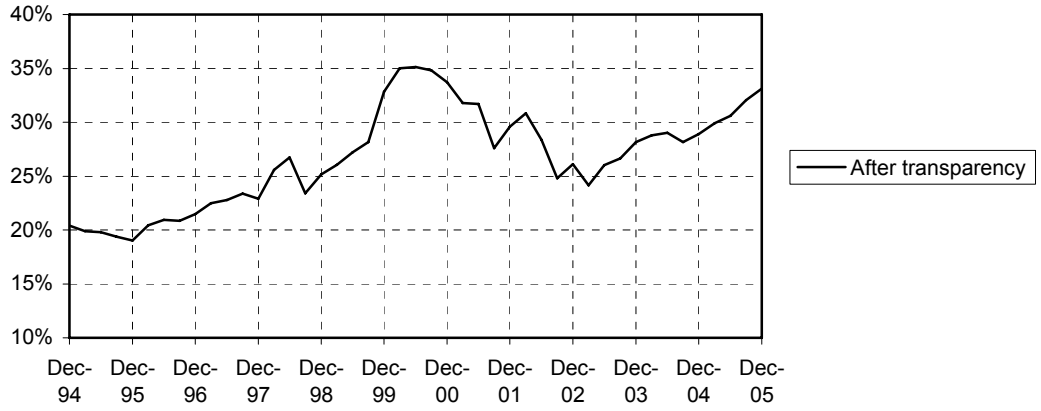
We define risky assets as assets highly sensitive to price fluctuations, and thus bearing a risk of capital loss. They include shares and other equity as regards financial assets and housing assets as regards non-financial assets.

ESA95 nomenclature for financial accounts does not allow a complete analysis of households' risky assets as instruments such as mutual fund shares and life insurance contracts conceal different kinds of risk (non unit-linked and unit-linked contracts themselves referring to different types of securities, bond funds as well as equity and mixed funds). The transparency making method provides the necessary breakdowns.

The proportion of risky assets in households' financial wealth illustrates and confirms the fact that, in France, households tend to hold more and more risky assets over time: the trend is clearly upward in spite of a decrease since the high of mid-2000 corresponding to the highs of the stock markets and the "Internet bubble" (see chart 7). At December 2005, 33% of households' financial wealth is invested, directly or via non-banking financial intermediaries, in risky assets.

Chart 7

Share of risky assets in households' financial wealth

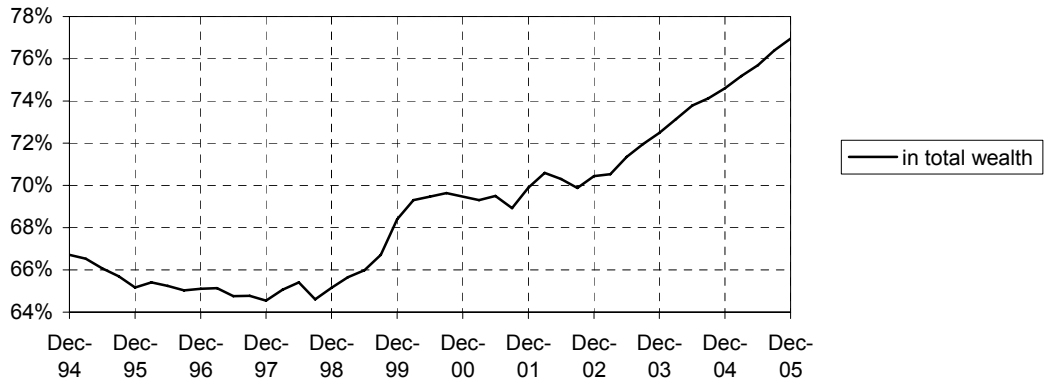


Source: Banque de France (Financial Accounts and Investment Funds Database).

Risky assets are of course predominant (77%) when housing assets are included and the trend towards more risk exposure is then clearer owing to the rapid rise in housing prices since 2000 (see chart 8).

Chart 8

Share of risky assets in households' financial and non-financial wealth



Source: Banque de France (Financial Accounts and Investment Funds Database).

4.2 Share of long-term assets

The maturity exposure of households financial investments provides insights into the evolution of the horizon of investment of households over time. The retained borderline is the one of the financial accounts: less or equal to one year and over one year, ie short term versus medium and long term.

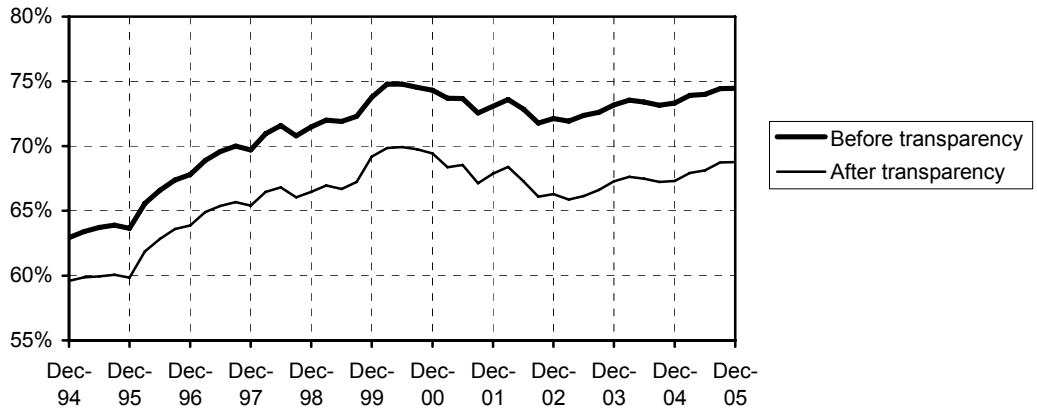
The share of long-term assets is higher before than after transparency because households' assets in other mutual fund shares and life insurance corporations are all considered as long-

term assets - indeed they are, from the households point of view - whereas these intermediaries hold a significant proportion of assets with a maturity of less than 1 year.

Both calculations confirm that households increasingly hold long-term assets (see chart 9). Their investment horizon gets longer over time, putting aside the consequences of the rise and fall of stocks prices. This upward trend can be related to the growing concerns of French households about their future pensions and their financing, probably with the objective to complement pay-as-you-go pension rights.

Chart 9

Share of long-term assets in households' financial wealth



Source: Banque de France (Financial Accounts and Investment Funds Database).

4.3 Share of liquid assets

Liquidity is considered as the ability to sell relatively rapidly the underlying instruments in order to convert it into cash.

The share of liquid assets in households' financial wealth after transparency is above the proportion before transparency and strikingly high. The difference is increasing from +25% in 1994 up to +35% in 2005. The main reason for this difference lies in the fact that, due to their high holding of quoted securities, life insurance corporations are liquid on their asset side whereas households' assets in life insurance may not be considered as liquid products insofar as tax-exemption[6] on realised capital-gains occurs after 8 years.

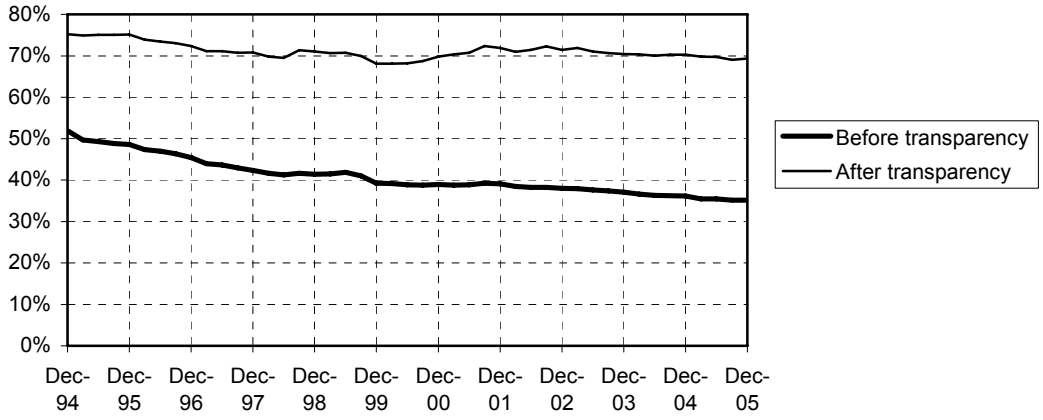
Besides, the decrease in the proportion of liquid assets before transparency (from 50% down to 35%) is due to the rise in life insurance contracts in households assets.

Nevertheless, a different picture would appear if banking intermediaries were made transparent. as banks hold an important share of non-liquid assets (loans mainly) on their asset side.

[6] Up to a maximum amount of annual withdrawal.

Chart 10

Share of liquid assets in households' financial wealth



Source: Banque de France (Financial Accounts and Investment Funds Database).

4.4. Foreign currency risk exposure and proportion of assets implying non-residents

In this sub-section, we analyse both the currency risk exposure of households to by distinguishing assets denominated in national currency versus assets denominated in other currencies and the exposure of households' investment vis-à-vis non-resident counterparts.

Currency risk exposure

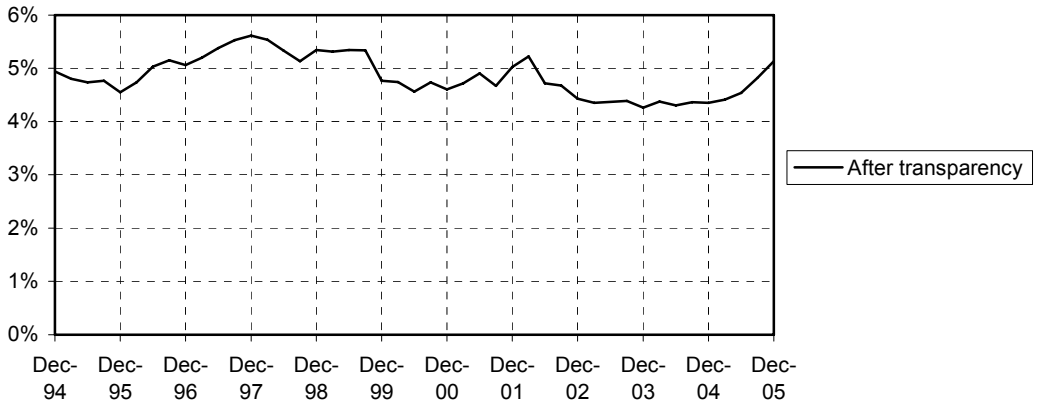
As it is not possible with French financial accounts to distinguish euro-denominated assets from foreign currency denominated assets for the instruments "other mutual fund shares" and "life insurance contracts", households' currency risk exposure can only be calculated after transparency.

The proportion of assets denominated in foreign currencies after transparency lies a little bit above 5% before the euro changeover and around 4.5% after. The euro changeover permitted geographical diversification and lowered the need for bearing currency risk for that purpose.

In any case, French households bear a low and relatively stable foreign currency risk.

Chart 11

Share of households' financial assets invested in foreign currencies



Source: Banque de France (Financial Accounts and Investment Funds Database).

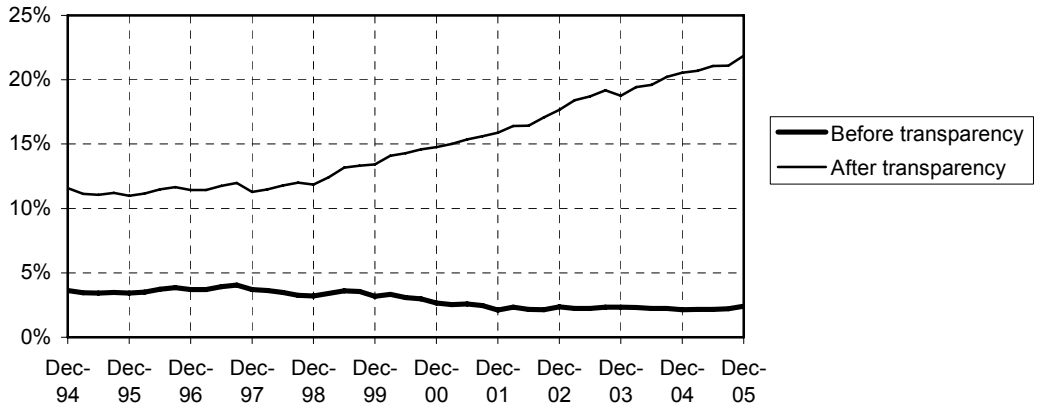
Exposure vis-à-vis non-resident counterparts

Before transparency, the proportion of households' assets invested in assets concerning non-resident counterparts is quite low, decreasing from 4% to 2% over the period, reflecting the fact that households primarily transact with resident intermediaries and do not easily invest directly with rest of the world counterparts.

However, geographical diversification also comes from financial intermediaries and is increasing. After transparency, the proportion of assets concerning non-resident issuers or counterparts begin to rise in 1998, from 11.5% up to 21.9% in December 2005. This increase has been made possible by the euro, which permits geographical diversification without currency risk. As a matter of fact, insurance corporations are prudentially limited in their capacity to incur such a risk.

Chart 12

Share of households' financial assets invested with non-resident counterparts



Source: Banque de France (Financial Accounts and Investment Funds Database).

5. Conclusion

As the weight of intermediated instruments in households' financial wealth increases in many countries, the interest for a thorough analysis of these diversified and complex financial operations gets more and more relevant. The use of a transparency making-of method is one way of doing so, allowing to complement the use of financial accounts for the analysis of households' financial wealth.

Thus, as regards French households' financial investment, the transparency making process confirms the predominance of deposits but also their relative decline. It also illustrates the fact that households' holding of debt securities heavily increases through insurance corporations and competes for the second rank with shares and other equities. Among the latter, quoted shares benefit from indirect holding via financial intermediaries, while unquoted shares are mainly held directly.

Even more interesting is the light shed on the different types of risk borne by households:

– assets with market risk increase, and represent a fairly high proportion when housing assets are also considered,

– the maturity of the households' financial assets is longer than that of the assets of insurance corporations and mutual funds to which they entrust their savings. Besides, due to the importance of life insurance investments, it is also less liquid,

– households' financial investment is increasingly geographically diversified owing to the rise in their life insurance investments. However, thanks to the euro, this diversification has not induced an increase in their foreign risk exposure.

Households' investment with monetary financial institutions (*deposits*) have not been made transparent. This is no doubt one way for further investigations although extending the transparency making method to this part of the households' financial wealth doesn't seem straightforward and would deserve further in-depth deliberations.

Annex 1:
Presentation of the transparency-making method retained

We present here the method retained for making transparent households' investments with non-bank financial intermediaries.

As mentioned in Introduction, the analysis of household financial wealth does not precisely reveal the instruments on which households really invest their money, especially for life insurance and mutual fund shares. Nevertheless, it is possible to make this intermediation process transparent by using the asset structure of these financial intermediaries and apply it to households' investment in mutual fund shares and life insurance.

Thus, the final investment of households can be described with the following "final" instruments:

– deposits, loans and currency (AF2+AF4),

– debt securities (AF3),

– shares and other equity (AF51), with the distinction quoted / unquoted,

– and "additional housing assets" held via financial intermediaries (as life insurance corporations and mutual fund shares invest in housing).

Yet, as financial intermediaries also invest part of their assets with other financial intermediaries, this transparency-making method has to be applied several times so as to completely eliminate intermediated investments from the structure applied to households intermediated assets.

Indeed, life insurance corporations invest in mutual fund shares and mutual funds are allowed to invest into other mutual fund shares. Therefore, after one round of "re-allocation", mutual fund shares remain in households' assets. Thus, the remaining amount of investment in mutual fund shares should be replaced by the structure of their investment, giving again a residual amount invested in mutual fund shares,... This process corresponds to an arithmetic sum that can be mathematically solved with the corresponding formula :

Presentation of the arithmetic formula to calculate the sum of the amounts made transparent when re-invested in the same intermediated instrument

The example is presented with money market fund shares but applies similarly for other mutual fund shares.

If M represents the amount invested in money market fund shares by households, p the proportion that money market funds re-invest in money market fund shares and a the proportion that money market fund shares invest in a "final" asset, then the assets re-invested after the first application of the asset structure is given by T1, etc…:

$$T_1 = aM$$

$$T_2 = apM$$

$$T_3 = ap^2M$$

...

$$T_n = ap^{n-1}M$$

Therefore, the total amount invested in a final asset through money market fund shares is given by S:

$$S = T_1 + T_2 + T_3 + ... + T_n = aM + apM + ap^2M + ... + ap^{n-1}M$$

$$S = a\frac{1-p^n}{1-p}M$$

$$S \xrightarrow[n\to\infty]{} a\frac{1}{1-p}M$$

The data sources used are described in the table below :

Code	Instrument	Data source used for the asset structure
F521	Money market fund shares	The asset structure of money market investment funds has been calculated from the quarterly Investment funds database of the Banque de France and applied to households' assets in money market fund shares. For securities, the structure has been derived from the quarterly security-by-security portfolio of money market funds available since March 1999. Some assumptions have been made by the author for certain breakdowns not always available since the beginning of the period.
F522 + F523	Other mutual fund shares	The asset structure of other investment funds has been calculated from the quarterly Investment funds database of the Banque de France and applied to households' assets in other mutual fund shares, except those invested in foreign funds (see below) and those invested in housing funds which are invested in real estate. For securities, the structure has been derived from the quarterly security-by-security portfolio of investment funds available since March 1999. March 1999 structure is used from December 1994 to December 1998 in the absence of any other information. Assets directly invested by households in foreign mutual fund shares have not been made transparent as it is not possible to elaborate an asset structure for them.

Code	Instrument	**Data source used for the asset structure** (cont)
F611	Life insurance contracts	The asset structure of insurance corporations has been calculated from quarterly financial accounts. Then, quarterly reports from the Insurance Corporations Supervisory Commission have been used in order to elaborate a structure for life insurance corporations only.[1] This structure has been applied to households' assets in life insurance reserves. Besides, although not available in financial accounts, the assets invested in housing assets by life insurance corporations in representation of insurance technical reserves have been re-introduced in order to obtain the proportion of assets invested in real estate by life insurance corporations.

[1] Insurance corporations are divided into three broad categories by the Insurance Corporations Supervisory Commission: life insurance corporations, non-life insurance corporations (damage) and re-insurance corporations.

The asset structures of mutual fund shares and life insurance corporations provide the following breakdowns:

– assets with an initial maturity of less or equal 1 year / over 1 year,

– assets invested in euros / foreign currencies,

– assets invested with residents / non residents.

Annex 2:
Detailed groupings used for risk analyses

Risky and non-risky assets after transparency	
Non-risky assets	
AF2+AF4	Deposits, currency and loans
AF3	Debt securities
Risky assets	
AF51	Shares and other equity
AN_transp	Other housing assets via non-bank financial intermediaries

Analysis in terms of maturity before transparency	
Short-term assets (≤ 1 year)	
AF2+AF4	Deposits, currency and loans with a maturity under 1 year
AF331	Short-term debt securities
AF52_part	Money market fund shares
Long-term assets (> 1 year)	
AF2+AF4	Deposits, currency and loans with a maturity over 1 year
AF332	Long-term debt securities
AF51	Shares and other equity
AF52_part	Other mutual fund shares
AF611	Life insurance

Analysis in terms of maturity after transparency	
Short-term assets (≤ 1 year)	
AF2+AF4_short	Deposits, currency and loans less or equal 1 year
AF331	Short-term debt securities
Long-term assets (> 1 year)	
AF2+AF4_long	Deposits, currency and loans over than 1 year
AF332	Long-term debt securities
AF51	Shares and other equity
AN_transp	Other housing assets via non-bank financial intermediaries

Analysis in terms of liquidity before transparency	
Liquid Assets	
AF2+AF4	Deposits, currency and loans with a maturity under 1 year
AF3	Debt securities
AF511	Quoted shares
AF521	Money market fund shares
AF52_part	Mutual fund shares (general public funds + foreign funds)
Non-liquid assets	
AF2+AF4	Deposits, currency and loans with a maturity over 1 year
AF512+AF513	Unquoted equity
AF52_part	Real estate fund shares and other non-liquid mutual fund shares
AF611	Life insurance

Analysis in terms of liquidity after transparency	
Liquid assets	
AF2+AF4_short	Deposits, currency and loans less or equal 1 year
AF33	Debt securities
AF511	Quoted shares
Non-liquid assets	
AF2+AF4_long	Deposits, currency and loans over than 1 year
AF512+AF513	Unquoted equity
AN_transp	Other housing assets via non-bank financial intermediaries

Analysis in terms of currency risk after transparency	
Liquid assets	
AF2+AF4_short	Deposits, currency and loans in euros
AF33	Debt securities in euros
AF51	Shares and other equity in euros
AN_transp	Other housing assets via non-bank financial intermediaries
Non-liquid assets	
AF2+AF4_short	Deposits, currency and loans in foreign currencies
AF33	Debt securities in foreign currencies
AF51	Shares and other equity in foreign currencies

Proportion of assets invested with non-resident counterparts before transparency	
Financial investments with resident counterparts	
AF2+AF4_res	Deposits, currency and loans with residents
AF33_res	Debt securities issued by resident companies
AF51_res	Shares and other equity issued by French companies
AF521	MMFS issued by resident MFI
AF52_res	Other mutual fund shares invested with resident investment funds
AF611	Life insurance contracts
Financial investments with non-resident counterparts	
AF2+AF4_non-res	Deposits, currency and loans with non-residents
AF33_non-res	Debt securities issued by non-resident companies
AF51_res	Shares and other equity issued by non-resident companies
AF52_non-res	Mutual fund shares directly invested by households with foreign investment funds

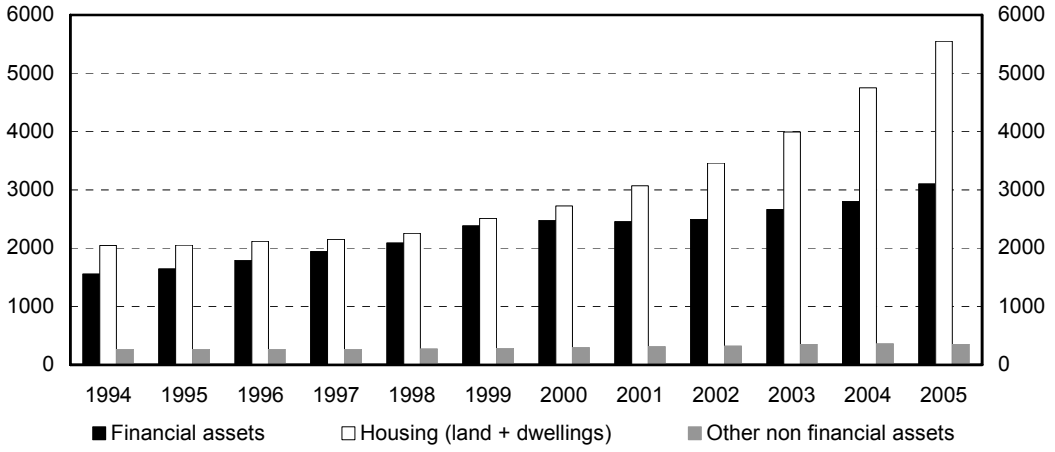
Proportion of assets invested with non-resident counterparts after transparency	
Financial investments with resident counterparts	
AF2+AF4_res	Deposits, currency and loans held with residents
AF33_res	Debt securities issued by residents
AF51_res	Shares and other equity issued by residents
AN_transp	Other housing assets via non-bank financial intermediaries
Financial investments with non-resident counterparts	
AF2+AF4_res	Deposits, currency and loans invested with non-residents
AF33_res	Debt securities issued by non-residents
AF51_res	Shares and other equity issued by non-residents

Annex 3:
French households' total wealth

Chart 13

French households' total wealth

In EUR billions



Sources: Banque de France (Financial Accounts) and INSEE.

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Measuring household wealth in Switzerland

Jürg Bärlocher[1]

1. Introduction

Financial balance sheets for the different sectors of the Swiss economy were published for the first time in November 2005. They are the product of a working group comprising representatives of the Swiss National Bank and the Swiss Federal Statistical Office. Publication of financial transactions is scheduled for 2007. The IFC conference on "Measuring the Financial Position of the Household Sector" was a welcome opportunity to present some of the new data for Switzerland, to assess the data collection system and to intensify and focus the exchange of views with experts from other countries.

In section 2 this paper presents data on the financial wealth of households in Switzerland, the EU and the US. Data sources for Switzerland are described in section 3 and some comparisons with data sources used abroad are made in section 4. The topic of section 5 is the coverage of the wealth of rich individuals in the Swiss financial accounts. Some concluding remarks are made in section 6.

2. Financial wealth of households in Switzerland, the EU countries and the US

Table 1 shows stocks of financial assets and liabilities for households in Switzerland - in billions of euros and in euros per capita - as well as the corresponding per capita figures for the EU15 countries and the US. The EU15 figures are estimates based on data published by Eurostat for thirteen of the EU15 countries. For Luxembourg and Ireland no data are available. The appendix contains the data for the individual EU countries. Data represent the situation at the end of 2003, which were the most recent figures available at the time the Swiss financial accounts were published in November 2005. Swiss and US data in national currency are converted into euros at market exchange rates at the end of the period.

Total financial assets of households per capita are significantly higher in Switzerland than in the EU15 countries. But so are liabilities. Nevertheless, the net financial assets of Swiss households are well above the corresponding value for the EU15. While per capita values for all financial instruments are considerably higher in Switzerland than in the EU15, the biggest (absolute) difference is clearly to be found in insurance technical reserves. These are mainly claims arising from pension fund and life insurance contracts and account for 50% of the difference in total financial assets and 80% of the difference in net financial assets.

Swiss per capita figures are significantly higher than in any of the thirteen EU countries individually, for all major financial instruments. However, in this respect it is important to keep in mind that Luxembourg, the EU country with the highest per capita income, is not part of the comparison. The EU countries with per capita values for financial assets and liabilities of households closest to those for Switzerland are the Netherlands and the UK. Financial assets per capita are well above average in these two countries, mainly due to high

[1] Swiss National Bank. The views expressed in this paper are those of the author and do not represent those of the Swiss National Bank.

insurance technical reserves. Despite the fact that liabilities are above average, net financial assets are also comparatively high. The EU15 country with the highest net financial assets per capita for households is Belgium. Belgium has high per capita values for deposits, debt securities and shares. At the same time, insurance technical reserves and loans are below the EU average.

The data for US households generally lie between the values for the EU15 and those for Switzerland. The exceptions are deposits, where the US figure is below the EU15 figure, and "shares and other equity", where the US figure exceeds the Swiss figure considerably.

A major determinant of financial assets and liabilities of households is residents' income - not only in the recent past but over a long period of time. The funding principle for retirement provisions is a further decisive factor. Part of the reason is that this may affect household savings. However, the most important factor is the fact that, in the current SNA and in ESA95, only claims against funded pension schemes are recognised as assets. Ownership of real estate, which for many households is a substitute for financial assets, is also important, as are the features of mortgages and the fiscal treatment of debt. In view of these factors, the observed differences between the data on financial wealth for Swiss households and the figures for the EU15 appear reasonable. Switzerland has traditionally been a high income country. Almost universal coverage of workers in funded pension schemes was introduced in 1984 and funded pension schemes were already widespread beforehand. The comparably high level of loans can be attributed to the fact that there is no need to repay mortgages, which account for 90% of total loans, and that interest payments are deductible from taxable income. The market value of real estate owned by households cannot be compared since no sound data is available for Switzerland at present. However, about 15% of the assets of pension funds and insurance companies are invested in real estate, mostly residential buildings. This indirect ownership of residential buildings appears as part of household financial assets.

Table 1

Year-end stocks of financial assets and liabilities of households and NPISHs

Data for 2003	Switzerland		EU15[1]	US
	EUR billions	EUR per capita	EUR per capita	EUR per capita
1. Financial assets				
Currency and deposits	240	32 889	15 449	11 636
Debt securities	87	11 964	4 012	6 062
Shares and other equity	219	29 997	12 213	43 273
Insurance technical reserves	424	58 055	16 473	29 097
Other financial assets	..	..	1 278	1 703
Total	972	132 905	49 425	91 770
2. Liabilities				
Loans	341	46 624	14 856	25 188
Other liabilities	..	..	1 253	962
Total	341	46 624	16 109	26 150
3. Net financial assets	631	86 281	33 316	65 620

[1] Excluding Ireland and Luxembourg (no data available at the time of writing).

Sources: Eurostat, OECD, Swiss National Bank.

3. Data sources used for the household sector in the Swiss financial accounts

The major data sources for the household sector in the Swiss financial accounts are the banks' balance sheets, securities survey statistics and statistics on pension funds and insurance. Details are shown in the list below. This is a condensed version of the description provided in the *Swiss Financial Accounts* (available on www.snb.ch, Publications).

Financial instrument	Data sources
Deposits	Deposits with commercial banks in Switzerland and fiduciary investments abroad, as per sectoral classification of bank balance sheets; deposits with PostFinance, as per SNB estimates.
Debt securities	Debt securities issued by domestic and foreign borrowers and held in custody accounts at bank offices in Switzerland, as per securities survey statistics.
Shares and other equity	Shares, participation certificates and mutual fund shares issued by domestic and foreign borrowers and held in custody accounts at bank offices in Switzerland, as per securities survey statistics.
Insurance technical reserves	Net equity in all single and unit-linked life insurance contracts concluded in Switzerland, as per insurance statistics; 90% of net equity in Swiss pension funds (including collective insurance contracts with life insurance corporations), as per pension fund statistics, insurance statistics and government accounts. Prepayments of insurance premiums and reserves for outstanding claims as per insurance statistics.
Loans	Loans by commercial banks in Switzerland, as per bank balance sheets (including liabilities from automobile leasing); mortgages issued by insurance corporations and pension funds, as per pension fund statistics and insurance statistics; leasing liabilities towards non-banks arising out of private automobile leasing arrangements, as per statistics issued by the Swiss Leasing Association.

Comments on the distinction between resident and non-resident households in bank balance sheet data and in securities survey statistics:

Generally, the permanent domicile of customers is the relevant criterion when banks are required to distinguish between positions vis-à-vis residents and those vis-à-vis non-residents. Mortgages are an exception to this rule. In the case of mortgages, the location of the real estate which serves as collateral is relevant. Thus some loans to non-residents are included in the data for domestic households. However, while real estate owned by non-residents is a significant factor for some of the most attractive parts of Switzerland, it is not very important in an economy-wide context. The magnitude of the misclassification is at most 3%. This estimate is based on an estimate of real estate owned by non-resident individuals made for the figures on the Swiss international investment position, assuming that mortgages account for, at most, 50% of the real estate value.

Comments on how the domestic share of insurance technical reserves is estimated:

Net equity in Swiss pension funds (including collective insurance contracts with life insurance corporations) is divided up between domestic households and the rest of the world on the basis of the premiums and benefits attributable to these two sectors. The ratio is 90% to 10% (households to rest of the world).

Comments on participating interests:

Currently only shares held in custody accounts are included in household assets. This approach neglects a significant part of household assets. In particular, participating interests in unquoted small and medium-sized enterprises are not likely to be held in custody accounts.

No data are available for unquoted shares and other equity for non-financial corporations. The Swiss Federal Statistical Office collects balance sheet data from a sample of non-financial corporations, but a sufficiently accurate projection of the sample data for non-financial corporations to the level of the economy as a whole is currently not feasible. A comprehensive revision of company statistics as a whole is under way but this will take several years.

4. Comparisons with data sources used abroad

As in Switzerland, bank balance sheet data, securities survey statistics as well as statistics on pension funds and insurance are major data sources for financial accounts in other countries. However, the share of total assets and liabilities covered by these domestic sources is likely to differ from one country to another. This is significant because it is hard to obtain information from institutions abroad. Filling the gaps with information obtained directly from households is difficult. Several countries conduct household surveys to obtain information on the distribution of assets and liabilities, but as far as I am aware these data are not used as a primary source for financial accounts.

An indication of the magnitude of the statistical problem is that, according to the *Financial Times* (6 July 2006), the German finance ministry assumes that resident households in Germany hold assets of EUR 300 billion (directly) abroad. This amounts to EUR 3,600 per capita or 8% of total financial assets. For Swiss households in general, it is likely that domestic sources account for a comparatively high share of total financial wealth. Due to banking secrecy, there is little incentive to avoid taxes by holding deposits and securities in custody abroad, and the domestic financial sector is also very competitive in other respects. There is, however, a certain problem with rich immigrants, as discussed in the next section.

As noted in the previous section, participating interests in unquoted small and medium-sized enterprises are not yet included in the Swiss figures for household assets. It is hard to

assess the magnitude of this gap, both in absolute terms and in relation to other countries. Accounting for unquoted shares is known to be a challenge - not only in Switzerland but in many other countries too. Unfortunately, the extent to which shares and other equity are covered, and what is missing, is often difficult to establish on the basis of published metadata. A reasonable indicator for the magnitude of the gap in the Swiss data may be the data available for Belgium. The Belgian financial accounts are based on a full set of balance sheets for all corporations. Moreover, data for quoted and unquoted shares are published separately. In Belgium, unquoted shares owned by households account for 9% of the total financial assets of households.

5. Which part of the wealth of rich individuals is captured in the Swiss financial accounts?

The business magazine *Bilanz* publishes an annual list of the richest individuals in Switzerland. This list is a useful way of cross-checking the accuracy of the financial accounts. Two groups of people can be distinguished. The first group are established residents or people who have been in Switzerland for a reasonably long period of time, at least, and who have participating interests in large enterprises (quoted or unquoted) with significant economic activity in Switzerland and head offices situated in the country. The second group consists of people who, in many cases, have only recently taken up residence and whose participating interests in Switzerland are either limited to enterprises which manage their wealth or are non-existent. Regarding data collection for financial accounts, there are two particular problems with the second group. First, the rich individuals who have only recently become residents are more likely to hold a significant part of their wealth with institutions abroad than the rest of the population. The best example is Ingvar Kamprad, the owner of IKEA, with a net worth of EUR 14 billion and currently the richest Swiss resident. According to *The Economist* (13 May 2006), most of his wealth is managed by Dutch institutions. Second, some domestic enterprises owned by the latter group of residents are hard to identify. No licence is required for financial holding companies, and company registers often do not reveal the owners of the enterprises.

From the section on the data sources, it is clear that assets which individuals hold directly with institutions abroad, as well as liabilities against individuals on the part of institutions abroad, are not covered by the household sector of the Swiss financial accounts at present. At the same time, the international positions of the (identified) domestic enterprises are registered fully in the non-financial corporation and financial corporation sectors. This complete coverage is achieved by including data from the direct investment survey and data from a survey on deposits and loans with foreign counterparties and securities of foreign issuers that are not held in domestic custody accounts. For the non-financial corporation and financial corporation sectors, these two data sources are used to complement bank balance sheet data and the data from securities survey statistics. What is currently missing in the financial accounts is the link between the individuals and their enterprises, since the relevant participating interests are not normally held in custody accounts. Conceptually, this is the same problem as the missing participating interests in unquoted small and medium sized enterprises mentioned in section three.

In further developments to the Swiss financial accounts, it is intended to account fully for the financial links between the household sector and the domestic corporation sector. However, the Swiss National Bank statistics department has no plans at present to capture that part of wealth which individuals hold directly with institutions abroad. In theory, the gap could be eliminated if individuals were obliged to fill in the direct investment survey and the survey on deposits and loans with foreign counterparties and securities of foreign issuers not held in domestic custody accounts. However, we do not consider this feasible in practice.

I have already mentioned the fact that a part of the financial wealth of rich immigrants is missing in Swiss data for households. Another question is whether immigration might be a major cause of the international differences in household assets described in section two. A useful indicator in this respect is the sum of debt securities in foreign currencies plus the shares issued by foreign entities and held in domestic custody accounts. In view of the statistical sources that are currently being used, any significant effect from immigration is most likely to be through these kinds of assets. In fact, these assets account for 8% of total financial assets of households. Thus, the effect of immigration on the currently published figures for Swiss household wealth is moderate at most.

6. Conclusions

An international comparison of data on financial wealth of households reveals that, for total financial assets, for liabilities and for net financial assets, Swiss per capita figures are significantly higher than those for the EU15. This also applies for all major financial asset categories individually. Figures for US households generally lie between the values for the EU15 and those for Switzerland.

Statistical sources both for Switzerland and for other countries are incomplete. On the one hand, Swiss sources are relatively complete for deposits and for debt securities. The reason is the comparatively high share of total deposits and debt securities held by Swiss households with domestic institutions. On the other hand, the gaps for shares and other equity are more substantial in Switzerland than in other countries. Unquoted shares of domestic corporations are currently not included in Swiss data and direct holdings of rich immigrants with institutions abroad are more important for shares and other equity than for deposits and debt securities. These facts have to be taken into account when making international comparisons at the level of individual financial instruments. At the level of total financial assets, total liabilities and net financial assets, however, it is not likely that the general picture sketched above would change fundamentally if the data problems were fixed.

Swiss data on shares owned by households need to be improved. This can be done by completing the link between the household sector and the non-financial and financial corporations sectors, as well as by making an estimate for the shares of small and medium-sized non-financial enterprises. In addition, an effort should be made to complement the data on financial assets and liabilities with data on non-financial assets, in order to arrive at a complete assessment of household wealth.

Appendix:
Year-end stocks of financial assets and liabilities of households and NPISHs in EU countries

Data for 2003, EUR per capita

	Belgium	Nether-lands	U.K.	Italy	France	Germany	Sweden	Denmark	Austria	Finland	Spain	Greece	Portugal
1. Financial assets													
Currency and deposits	20 657	16 969	18 923	13 674	15 344	16 952	8 257	14 751	21 045	9 689	11 972	10 385	10 878
Debt securities	11 958	2 806	1 151	11 103	911	5 141	1 251	4 435	2 945	346	910	2 932	2 516
Loans	0	184	163	0	411	0	148	4	7	124	0	0	1
Shares and other equity	19 791	13 149	10 696	17 497	11 729	10 650	16 360	14 481	6 089	12 318	11 326	5 956	8 108
Insurance technical reserves	12 556	43 112	36 864	8 155	15 131	14 132	15 106	31 094	7 773	6 392	4 580	584	4 419
Other accounts receivable	620	0	2 152	287	1 953	683	5 258	1 157	274	899	1 049	706	574
Total	65 583	76 219	69 949	50 716	45 480	47 557	46 381	65 921	38 133	29 768	29 836	20 563	26 496
2. Liabilities													
Securities other than shares			75		7			465					
Loans	10 482	30 395	22 884	5 895	10 500	18 817	17 917	36 112	13 495	10 454	10 805	3 747	9 771
Shares and other equity					75								
Insurance technical reserves				485									
Other accounts payable	762	–1 091	2 043	1 364	1 990	115	342	3 617	30	697	1 199	1 518	1 969
Total	11 244	29 303	25 002	7 745	12 572	18 932	18 259	40 195	13 525	11 151	12 004	5 265	11 740
3. Net financial assets	54 338	46 916	44 947	42 971	32 907	28 625	28 121	25 727	24 608	18 617	17 832	15 298	14 756

Source: Eurostat.

Session 3B

Statistical issues in the measurement of household wealth

Chair: Luigi Federico Signorini
Bank of Italy

Papers: The statistical recording of implicit pension liabilities and its impact on household wealth and general government obligations
Reimund Mink and Philippe Rother, European Central Bank

Measuring and predicting household housing wealth
Tor O. Berge, Katrine Godding Boye, Dag Henning Jacobsen, Kjersti-Gro Lindquist and Marita Skjæveland, Central Bank of Norway

Defining households' wealth in business
Riccardo Bonci, Luigi Cannari, Grazia Marchese, Andrea Neri and Alexandros Karagrigoriou, Bank of Italy

Determinants of household saving and borrowing in Botswana
Mediyamere Radipotsane, Bank of Botswana

Comparing wealth distribution across rich countries: the Luxembourg wealth study project
Eva Sierminska, Luxembourg Income Study, Andrea Brandolini, Bank of Italy, and Timothy M Smeeding, Syracuse University and Luxembourg Income Study

The statistical recording of implicit pension liabilities and its impact on household wealth and general government obligations

Reimund Mink and Philippe Rother[1]

1. Introduction

Pension schemes provide retirement benefits based on contractual employer-employee relationships. They may be funded, unfunded, over-funded or under-funded, they may be mandated by private entities or by government, and they may be autonomous or non-autonomous. In the System of National Accounts (1993 SNA), promises to pay future pension benefits are recognised as liabilities for funded employer pension schemes, but not for unfunded employer pension schemes and for social security schemes. This is done so because such pension obligations are not seen as liabilities in a strict sense, because they can be altered unilaterally at any time. Pension obligations not yet acknowledged as (explicit) liabilities of the scheme - and as financial assets of households - in the current SNA are defined as implicit pension liabilities. They have to be distinguished from implicit liabilities as specified in the context of intergenerational accounting models.

The statistical recording of implicit pension liabilities as well as of the corresponding implicit pension assets of households is one of the key issues of the current review of the 1993 SNA. Recent methodological work has concentrated on the question whether such implicit pension liabilities should be recorded in the core accounts of the new SNA or in a supplementary table on pensions.[2]

The paper discusses current developments in the area of statistical recording of implicit (unfunded) pension liabilities and their impact on household saving and financial wealth. First, it describes the current recording of employer pension schemes and social security pension schemes in the 1993 SNA in section 2. In the third section, the main reasons are described for changing the 1993 SNA in this respect. The proposal to record implicit pension liabilities in the core account of the SNA is described in the fourth section. Section 5 outlines the arguments for introducing a supplementary table for the accounting of pensions, while the sixth section presents such a table. In section 7, some methods are described which are used to estimate implicit pension liabilities, together with some empirical results presented in literature. The final section concludes.

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[2] Donaghue, B. (2006), The treatment of employer pension schemes and other defined benefit pension schemes, paper presented at the fourth meeting of the Advisory Expert Group on National Accounts, Frankfurt (on the basis of the conclusions of the September 21-23, 2005 meeting of the IMF Task Force on Employer Retirement Schemes); and Committee on Monetary, Financial and Balance of Payments Statistics, CMFB, (2005), Unfunded employer and social security schemes, Luxembourg.

2. Recording of employer pension schemes and social security pension schemes in the 1993 SNA

Employer pension schemes are schemes organised by employers for their own employees, which maybe either funded or unfunded. A funded employer retirement pension scheme belongs to the sector holding the funds, either the sector of the employer if it concerns a non-autonomous pension fund or the sector insurance corporations and pension funds if it concerns an autonomous pension fund. Unfunded schemes may be organised for civil servants, for instance, and belong to the employer's sector - often general government.

The 1993 SNA does not recognise implicit (unfunded) pension liabilities either as liabilities of the scheme, operated by general government or corporations, or as financial assets of households. This treatment reflects the fact that implicit pension liabilities are not seen as liabilities in a strict sense, because they can be altered unilaterally at any time. This also refers to social security pension schemes. Furthermore, their estimation is highly dependent on series of assumptions subject to major revisions. As liabilities for unfunded pension schemes are not recorded in the 1993 SNA, the impact on the sector's net lending/net borrowing is determined by the size of the payment of pensions to retired employees minus current employee contributions, while no financial asset or liability is recorded in the financial account. However, to increase comparability between such funded and unfunded schemes, the 1993 SNA proposes to show, as memorandum items, the net present value of such obligations in the form of assets of households and liabilities of the employer's sector. The IMF's Government Finance Statistics Manual (GFSM 2001) even recommends to explicitly record the liabilities of unfunded government employer pension schemes in the government accounts.

3. Reasons for changing the 1993 SNA

There are three main reasons for changing the treatment of unfunded employer pension schemes and of social security pension schemes in the 1993 SNA. First, the different accounting for funded and unfunded schemes leads to different "effects" on key variables like household income, saving and wealth and government deficit and debt. Accordingly, sub-optimal decision making in terms of economic efficiency might be a result as policy makers and economic agents plan, monitor and judge their activities based on data from national accounts.

As shown in Table 1 this different accounting for funded and unfunded schemes is also reflected in the data currently reported in the financial balance sheets of households for their net equity in life insurance reserves and in pension fund reserves. Countries with large private funded pension schemes like the Netherlands, the United Kingdom, the US and Japan show a rather high net equity ratio as a percentage of GDP. The opposite is the case for countries with pay-as-you-go systems for major parts of the population like in Germany, France or Italy.

Second, unfunded employer pension schemes and social security pension schemes are particularly significant for general government and for the public sector. In the light of demographic developments and the foreseeable fiscal burden from ageing populations in almost all developed economies, there is a well-founded interest in having available more comprehensive statistical information on future commitments of governments.[3] This also

[3] In line with the conclusions of the October 2003 Economic Policy Committee (EPC) report on the impact of ageing populations on public finances, the EPC discussion in September 2004 and the recent conclusions by the ECOFIN Council, further work on how to take into account implicit/contingent liabilities in the budgetary

refers to the impact of pension reforms being undertaken and/or being at the political agenda in many countries.

Table 1

Net equity of households in life insurance reserves and pension fund reserves

Country/area	% of GDP, end 2005
Euro area	53
Of which: Germany	*53*
France	*59*
Italy	*38*
Netherlands	*167*
United Kingdom	140
US	96
Japan	86

Sources: ESCB, ONS, Federal Reserve Board, Bank of Japan, and OECD.

Third, the convergence of international statistical standards and international accounting standards (IAS) is aimed at. The treatment of unfunded employer pension schemes in the 1993 SNA deviates from the IAS and from the International Public Sector Accounting Standards (IPSAS). These accounting standards recognise unfunded employer pension obligations as liabilities - at least in the private sector.[4]

Accordingly, the current treatment of unfunded employer pension schemes and also of social security pension schemes in the 1993 SNA is criticised. It is argued that, for reasons of comparability, obligations of unfunded employer pension schemes that appear to be liabilities should be reflected in the 1993 SNA. Furthermore, their reporting as memorandum items, as recommended by the 1993 SNA, has not yet been applied in practice. Therefore, the new SNA should inform on the financial assets and liabilities of such schemes.

There are essentially two views on how to integrate such statistical information into the new SNA. First, it is proposed to treat unfunded employer pension schemes and social security pension schemes similar to funded schemes, despite their quite different legal status and economic meaning. This would mean that employer unfunded pension obligations and social security pension obligations are recognised as if they were irrevocable liabilities, which would imply the recording of corresponding financial assets and liabilities in the core accounts. Second, taking into account the various reasons why funded and unfunded schemes are quite different in an economic sense, it is recommended to record unfunded pension obligations in a supplementary table on pensions. Based on the work of the IMF's Task Force on pensions, the CMFB, the AEG and the ISWGNA it can be considered that viewpoints on how to record implicit pension liabilities in the new SNA have been maturing and converging, and that the basis for a common orientation exists encompassing the two options as described below

surveillance exercise will be required by the end of 2006. See Report of the ECOFIN Council to the European Council, Improving the implementation of the Stability and Growth Pact, 21 March 2005.

[4] The IAS 37 and the IPSAS 19 deal with provisions, contingent assets and contingent liabilities.

4. Recording of implicit pension liabilities in the core account of the SNA

The recording of implicit pension liabilities in the core account of the SNA would mean that the accounting of unfunded pension schemes operated by governments for their employees would be the same as if they were funded schemes. Starting with a stock of financial assets as insurance technical reserves at the beginning of a period t, social contributions are paid by the households of the employees concerned. Another part of the social payments is made by the employer and is recorded via rerouting. Additions to the reserves also emerge from the accrual of reinvested property income received from their investment. Social benefits are paid to households with retired members. In addition, fees have to be paid by households for the financial services provided by the scheme. A balancing item, the adjustment for the change in net equity of households in pension funds reserves, is equal to the amount increasing the net equity of households in pension funds based on transactions. Finally, holding gains or losses, for instance due to a change in the pension formula or in the long-term interest rates, might contribute to an increase or decrease of the reserves.

Accordingly, the balancing item deviates from the net lending/net borrowing of an unfunded scheme (contributions minus benefits) essentially due to the effect of including the property income attributed to households and subtracting the financial services provided by the scheme and paid by households.[5] As the property income reinvested into the scheme might be higher than the financial services provided by the scheme, the net lending of the household (and accordingly the net borrowing of the sector to which the scheme belongs) might be larger than the corresponding figures derived under the assumption of a pay-as-you-go scheme.

5. Recording of implicit pension liabilities in a supplementary table on pensions

The recommended solution in the new SNA for the recording of stocks and flows related to unfunded pension schemes operated by governments for their employees and to social security pension schemes is to show them in a supplementary table for pensions. In this context, the same rules are applied as for funded schemes, but the underlying model assumptions should be made explicit. Preferably, a sensitivity analysis should be conducted. As a result, the current treatment of unfunded schemes in the core accounts does not change, while all additional model estimates are recorded in a supplementary table showing the flow accounts and the balance sheets.

There are various reasons for recommending the coverage of unfunded employer and social security schemes in a supplementary table. First, measurement issues arise if no stock and flow data are available that are calculated according to the actuarial criteria used by insurance corporations and autonomous pension funds. For instance, the appropriate "pension formula" has to be chosen for the calculation of the pension obligations, which is far from self-evident and may lead to widely varying outcomes depending on the assumptions chosen. The amount of pension obligations might be derived from data occasionally received if employees change from one scheme to another implying that the pension rights are calculated and the corresponding funds transferred. More generally, the pension formula

[5] The households pay a specific amount as purchase of a financial service from the pension scheme. This is recorded in the production account as payable by the households as intermediate consumption and receivable in the production account of the pension scheme as output.

might also be specifically applied to a group of households belonging to the same class in terms of income, age, size and gender. On that basis, the fictious property income and the pension provisions might be compiled for schemes where no funding exists and, therefore, no property income is earned and reinvested. Other actuarial assumptions needed relate to the average life expectancy of the scheme members and their final salaries. Particularly the latter can hardly be estimated with some degree of reliability. The compilation of pension entitlements based on such assumptions may have to be revised continuously and substantially. As a consequence, fiscal variables such as government deficit and debt would be surrounded by a high degree of uncertainty and be prone to manipulation.[6]

Second, unfunded social security and employer schemes should be treated equally, because the choice to cover only implicit pension liabilities of unfunded employer pension schemes is quite arbitrary. This is especially valid for economies in which a large proportion of the pensions is organised and financed on a pay-as-you-go basis. These pensions are thus organised in general like social security schemes, which are imposed, controlled and financed by general government. They usually cover the entire population, or large sections of it. Their receipts mainly consist of social contributions paid by individuals and by employers on behalf of their employees, but they may also be partly financed out of taxes or other government revenue. Participation in social security schemes is usually compulsory. The social benefits paid to individuals are not necessarily determined by the amounts they previously paid as contributions. At most a small amount of financial assets might be held as a liquidity reserve. Normally, it is not possible to clearly distinguish between unfunded employer pension schemes and social security pension schemes. Besides, individuals who are not eligible for the old-age pensions may be entitled to other forms of social assistance, for which the government anyway pays.

Third, from an analytical perspective it appears inappropriate to impute funds for a pension scheme that is unfunded. Following the quadruple-entry principle in national accounts, financial assets for an unfunded system would then be recorded in the household accounts and liabilities in the accounts of the employer's sector implying the same economic behaviour as if a funded pension scheme existed. However, it is questionable whether households paying unfunded pension contributions and governments that maintain a pay-as-you-go system behave similarly to households and governments in an environment of a funded pension scheme. In fact, if this were the case, there would be no rationale for advocating reforms of the pension systems in countries with substantial unfunded schemes.

Finally, funded schemes carry out financial investments depending on their financial conditions and the legal framework. It would be nearly impossible to reflect such a scenario also for unfunded schemes and it would in any case not describe economic reality. Moreover, the current recording of unfunded schemes organised on a pay-as-you-go basis describes rather accurately the economic behaviour of both sides as well as the associated risks and rewards related to such a system.

To conclude, there is a well-founded interest in showing comprehensive model simulations of future commitments of governments derived from unfunded pension schemes. Because of the similarity of unfunded employer pension schemes and social security pension schemes, a set of supplementary estimates is recommended, in which stocks and flows are modelled for unfunded employer schemes and for social security schemes, but not for social assistance.

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[6] Please notice that additionally the entitlements may be unilaterally changed by the employer (e.g. the government), for instance because they appear to be non-sustainable in an ageing society. In this context, the ongoing work of the EPC and of its Working Group on Ageing Populations (AWG) reveals the significant differences in outcomes that result from using different model assumptions. Related to the comparability and transparency of the future assessments between Member States it is said that a reliance on data produced by national institutions hampered comparability due to different definitions and measurement techniques. See European Commission (DG ECFIN), 13 April 2005 and also the report on "The impact of ageing on public expenditure" prepared by the EPC and the European Commission (DG ECFIN). February 2006.

6. The design of a supplementary table on pensions

Recently, broad agreement has emerged on how to conceptually treat the employer pension schemes in the updated SNA. According to this, the new SNA will include a supplementary table on pensions which will become a standard requirement in the updated SNA. In this table, all flows and stocks of all pension schemes (autonomous pension funds, segregated non autonomous employer schemes, pension part of social security, etc.) will be shown. This table will thus include details of pension flows and stocks that are recorded in the core accounts plus those that are not included in the core accounts also giving a complete view of implicit and explicit household pension "assets". Furthermore, it is suggested that this supplementary table would become compulsory for European Union member states through the updated regulation on the European system of national and regional accounts in the Community (1995 ESA).

The recommendation of the new SNA regarding the recording of unfunded pension schemes sponsored by government for all employees (whether private sector employees or government's own employees) will be flexible. Given the different institutional arrangements in countries, the updated SNA will also permit recording these pension entitlements in the core accounts. However, in any case the criteria between those schemes carried forward to the core accounts, e.g. because the pension promise is of a sufficient strength, and those only recorded in the supplementary table should be more explicit.

Table 2

Stylised sequence of accounts for pension schemes

	Line number	Households		Schemes	
		Uses/ Assets	Resources/ Liabilities	Uses/ Assets	Resources/ Liabilities
Opening balance sheet	**1**				
Financial services	2				
Contributions (households)	3				
Contributions (employer, rerouting)	4				
Benefits	5				
Property income earned on the scheme's assets	6				
Property income distributed to households and reinvested	7				
Adjustment for the change in net equity of households in pension fund reserves	8				
Net lending/net borrowing	**9**				
Cash	10				
Pension entitlements	11				
Other flows	12				
Change in net worth	**13**				
Closing balance sheet	**14**				

Source: Compiled by authors.

According to these principles, a double entry table will be designed to show, for instance, in the rows the various transactions, other flows and stocks in a sequence of accounts, and in the columns the various types of pension schemes. Concerning the accounting entries, actual social contributions to the scheme (lines 3 and 4 of Table 2) and paid pensions

(benefits as line 5) will have to be recorded as non-financial transactions in the accounts of the employers and the employees' households, in parallel to the financial transactions (lines 10 and 11). Corresponding adjustments will have to be made for the change in net equity of households in pension fund reserves (line 8). Increases or decreases in the accrued pension rights may also emerge from changing the entitlements from the scheme, which can be done at any time as no legally binding obligations are involved, or when individual employees, or groups of employees, join or leave the scheme.

The changes in the assets and liabilities for pensions are also due to revisions of the actuarial assumptions. They would then be recorded as other volume changes because they are not the result of the employer's actions. Changes in the scheme benefits as a result of government decisions should also be recorded in the same way. Recording them as other volume changes would mean that such changes, which could be very large, would not affect the transaction figures or balancing items like net lending/net borrowing.

Further entries are shown for the opening and the closing balance sheet. Given an initial stock estimate, it is thus possible to work from this to develop a time series of stock levels from estimates of the changes in each year. Finally, balancing items might be included like net lending/net borrowing and the change in net worth.

Table 3

Typology and sector classification of pension schemes

Collective or individual?	For whom?	Funding and control?	Sector classification	Example	Collective or individual?
Collective: Social insurance scheme for certain groups who are obliged to participate	Organised by employers for own employees	Funded	Funds held by employers	Employer's sector	Non-autonomous pension fund
			Funds held by other units[1]	Pension fund	Autonomous pension fund
		Unfunded		Employer's sector	Scheme organised for civil servants
	Other groups	Funded	Controlled by government[2]	General government	Defined benefit funded pension scheme
			Controlled by other units	Pension fund	Defined contribution funded pension scheme
		Unfunded	Controlled by government	General government	Social security scheme
			Controlled by other units	Sector of controlling unit	Unlikely
Individual insurance	Individuals	Funded		Pension fund	Life insurance contract

[1] Contributions are paid to insurance corporations and autonomous pension funds that are separate units (see 1995 ESA, annex III, and paragraph 5). [2] General government is responsible for the institution in respect of the settlement or approval of the contributions and benefits, irrespectively of its possible general role as a supervisor of pension funds (see 1995 ESA, paragraph 2.74 and annex 3, paragraph 4).

Source: Compiled by authors.

For the typology of pension schemes, it might be useful to start with the current classification of such schemes in the 1993 SNA and in the 1995 ESA. Table 3 distinguishes pension schemes by their coverage - either for certain groups who are obliged to participate (social insurance) or for individuals.[7]

Combining these groupings of pension schemes with the accounting entries, a supplementary table on pensions can be derived like Table 4. Entries marked by an asterisk (*) are those where there is agreement that entries should appear in the core accounts and where there is agreement on the way to estimate the entries. This covers all private schemes, those government schemes which are funded to some extent and some entries affecting compensation of employees for both unfunded pension schemes and social security.[8] The discussions so far have provided agreement on how to take account of private employer schemes - including the unfunded schemes sponsored by corporations. As they will be shown in the core accounts (C), some amendments will have to be made for unfunded schemes as indicated in the table.

Table 4

A supplementary table for pension schemes

Sector		Non-financial corporations		Financial corporations (except insurance corporations and pension funds)		Insurance corporations and pension funds			General government			
Accounting entry	Line number	Funded employer pension schemes (non-autonomous)*)	Unfunded employer pension schemes	Funded employer pension schemes (non-autonomous)	Unfunded employer pension schemes	Autonomous pension funds	Defined contribution funded pension schemes	Life insurance contracts	Funded employer pension schemes (non-autonomous)	Defined benefit funded pension schemes	Unfunded employer pension schemes	Social security pension schemes
Opening balance sheet	1	*	C	*	C	*	*	*	*	*	S	S
Financial services	2	*	C	*	C	*	*	*	*	*	S	S
Contributions (households)	3	*	*	*	*	*	*	*	*	*	*	*
Contributions (employer, rerouting)	4	*	*	*	*	*	*	*	*	*	*	*
Benefits	5	*	*	*	*	*	*	*	*	*	*	*
Property income earned on the scheme's assets	6	*	C	*	C	*	*	*	*	*	S	S
Property income distributed to households and reinvested	7	*	C	*	C	*	*	*	*	*	S	S
Adjustment for the change in net equity of households in pension fund reserves	8	*	C	*	C	*	*	*	*	*	S	S
Net lending/net borrowing	9	*	C	*	C	*	*	*	*	*	S	S
Cash	10	*	*	*	*	*	*	*	*	*	*	*
Pension entitlements	11	*	C	*	C	*	*	*	*	*	S	S
Other flows	12	*	C	*	C	*	*	*	*	*	S	S
Change in net worth	13	*	C	*	C	*	*	*	*	*	S	S
Closing balance sheet	14	*	C	*	C	*	*	*	*	*	S	S

*) Autonomous schemes involve institutional units separate from employers, while non-autonomous schemes are managed by employers, with or without segregated reserves. Autonomous schemes are units of the pension fund sub-sector of the financial corporation sector; non-autonomous schemes are included in the sector of the sponsor unless quasi-corporations can be established for pension funds in which case they are sectored in the same way as autonomous pension funds.

Source: Compiled by authors.

[7] See 1995 ESA, paragraphs 4.87 and 4.86(a).

[8] The financial services (if actually paid for) must also appear in the core accounts.

Entries marked by (S) should appear in the supplementary table but not in the core accounts, even though any estimates for them may be quite speculative. Whether it is possible to separate unfunded government employer pension schemes and social security pension schemes will depend on a number of factors such as the strength and immutability of the pension commitment and whether there are institutional arrangements which permit their separation.

It is intended that the supplementary table on pensions be a standard requirement as well as information on which items are carried forward to the core accounts. The complete supplementary table would show how much is covered by existing data. Even though there are more cells with asterisks than with an (S), the values for the cells with asterisks may be small compared with those with an (S). This would open the way to various sorts of analysis. Users could delete entries for some countries if entries were not available for all. Alternatively they could make their own estimates for the missing entries. The table is shown with all possible details to facilitate discussion. At the implementation stage some aggregation may be inevitable. For example, it is unlikely that other flows will be detailed as shown in the table.

7. Compiling data for implicit pension liabilities

As discussed above, the statistical recording of implicit pension liabilities requires model estimates of the outstanding stock of these liabilities and their evolution. In the pensions literature, three alternative definitions of implicit pension liabilities have been proposed, differentiated by the scope of liabilities included in the estimation.[9] The first definition, *accrued to date liabilities*, includes only the present value of liabilities arising from already accrued pension rights in the estimate. For example, this includes pension entitlements due to already paid pension contributions by current workers and remaining pension entitlements of existing pensioners. The second definition, *projected current worker and pensioner's liabilities*, expands the first definition by covering in addition the present value of pension entitlement that will accrue to current contributors due to their future contributions. I.e., the underlying assumption for this calculation is that the pension system is closed to any new entrants, while all current contributors can remain in the system and continue to accrue pension entitlements. Finally, the third definition, *open system liabilities* incorporate the present value of future contributors' pension entitlements in addition to the second definition. In other words, the estimation is based on the assumption that the pension system will continue under unchanged rules. For practical purposes, the estimation can introduce a time horizon for the calculation of the present value, e.g., fifty years. Alternatively the present value can be computed over an infinite horizon, which requires strong assumptions regarding the behaviour of the demographic and economic variables entering the estimation.

The usefulness of the alternative definitions depends on the specific purpose of the estimation. For example, an assessment of the long-term sustainability of the current pension arrangements should take as a baseline the widest possible estimate of the liabilities. This would point to using open system liabilities for this purpose. By contrast, policy questions concerning the possible termination of an operating pay-as-you-go pension system should be addressed on the basis of the first or the second definition, depending on the remaining time horizon of the system.

From a statistical perspective, only the first method is appropriate for national accounts purposes. The method is based on observable past events and transactions, such as

[9] See R. Holzmann (2004), World Bank Social Protection Discussion Paper No. 403 for details.

membership in the pension system and paid contributions. Nevertheless, also this method requires some heroic assumptions regarding future developments, notably regarding the discount rate for future pension disbursements. For the derivation of actuarial estimates under the accrued-to-date approach, there are two main valuation approaches that have been applied to corporate pension schemes, the projected benefit obligation (PBO) and the accrued benefit obligation (ABO) method. The ABO is calculated for years of service to date based on the current wage and salary rates, i.e. future salary increases are disregarded. By contrast, the PBO is calculated including assumptions on what the employee will earn during his entire career. The PBO exceeds the ABO, with a substantial difference in early years and decreasing towards retirement date.

In the accounts, the accumulated value of benefits should be based on only service to date (ABO) figures. Accordingly, projected future wages and salaries should not be taken into account (as would a PBO calculation do). If appropriate, PBO estimates could be provided as a memorandum item. The reasoning is analogous to the one underlying the choice of the accrued-to-date definition as the preferred method for statistical purposes. In particular, the ABO approach relies on past observable events and minimises the need for assumptions regarding future developments.

Estimates in the literature point to the importance of implicit liabilities from pay-as-you-go pension systems. Studies conducted in the mid-1990s using the accrued-to-date methodology find implicit liabilities between 70% (United Kingdom) and 350% of GDP (Italy).[10] While different methodologies (e.g. regarding ABO v. PBO) and different assumptions, notably with regard to discount rates, have an a very sizeable impact on the results, the estimates show that implicit liabilities in general exceed the stock of outstanding explicit general government debt obligations. More recent studies have tended to take a wider focus, computing open system liabilities covering pension and health care and also offsetting factors, such as lower education and unemployment expenditures. For example, the study by the Economic Policy Committee's Working Group on Ageing and the European Commission (2006) points to ageing-induced fiscal burdens equal to an infinite horizon budgetary cost of more than 4% of GDP for more than half of the euro area countries, reaching up to around 8% for some countries. Converting this into a net present value at a discount rate of 3% yields burdens between 130% and 270% of GDP, with the largest part of the burden attributable to pension system obligations. It should be noted that given the somewhat optimistic assumptions regarding labour market developments in these calculations, the actual burdens could even be higher.

Summing up, irrespective of the applied estimation methodology or definition, implicit liabilities from pension systems are very large for many euro area countries. Results diverge across countries, mainly reflecting different demographic prospects and different public pension system arrangements. The order of magnitude of upcoming fiscal burdens is important, even if estimates are sensitive to the underlying assumptions, e.g. regarding the discount rate. From a methodological point of view, projections of future pension system obligations generally require detailed country-specific data on contribution and benefit arrangements and further work will be necessary to generate homogenous projections for a large set of countries.

[10] See Holzmann (2004) op. cit. for an overview.

8. Conclusions

From a users' point of view there is a need to provide data on implicit pension liabilities. They should be compiled based on SNA standards. It means that the current standards for the treatment of pension schemes do not change in the core accounts. However, it is foreseen to compile a supplementary table on pensions as described above. This table covers the details of pension flows and stocks that are recorded in the core accounts but also includes those that are not covered by the core accounts. Thus, it will also give a complete view of household pension "assets."

In order to compile this table, harmonised actuarial compilation methods and data sets will have to be provided. It is intended that such statistical work will be undertaken for EU countries by a Eurostat/ECB Task Force which was recently launched. Two related issues will have to be investigated: (i) A further analysis of the measurement of implicit pension liabilities of general government as an input for the new SNA; and (ii) an assessment of the sources and methods to measure these liabilities on a harmonised basis for all EU countries.

The supplementary table on pensions will provide the users with a rather consistent and comparable set of pension data as well as with additional information regarding household wealth and the size of total general government sector obligations. In this context, it takes into consideration the different institutional arrangements in countries concerning funded and unfunded pension schemes, and explains the distinction between those schemes carried forward to the core accounts, and those recorded only in the supplementary table.

Measuring and predicting household housing wealth

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Kjersti-Gro Lindquist and Marita Skjæveland[1]

1. Introduction

In its work on financial stability, the Central Bank of Norway evaluates developments in the housing market and household wealth and debt. Households' housing wealth is a significant part of their total wealth and an important macroeconomic variable. Economic theory and empirical analyses show that household wealth affects the level of activity through a wealth effect on household consumption. Furthermore, banks' losses on mortgage-secured loans will, in general, depend on housing values.

Housing wealth is not easily observable, however, and needs to be calculated using information on prices and stocks. Different methods and data can be used, and the size of housing wealth varies significantly across information sets and methods. Depending on the method and the information set, Norwegian household housing wealth relative to Mainland GDP[2] varies from 189 to 230 percent in the 4th quarter of 2005. Our preferred measure is based on the number of dwellings, average dwelling size, average house price (NOK 1000/sq.m.) and households' share of the housing stock.

In addition to constructing a sound and reliable measure of housing wealth, we also want to understand developments in this variable, and the relationships between these developments and the business cycle and economic policy. By definition, growth in housing wealth reflects growth in house prices and housing stock. Hence, we need to understand the developments in these two variables. Furthermore, growth in housing stock is determined by depreciation and housing investment, and we therefore want to understand which macroeconomic factors are important for housing investment.

Analysing house prices and investment in housing is challenging, due to the complexity of the housing market and the structural changes that have affected it. First, the housing market in Norway has gone through important changes as a result of the abolishment of price regulation in the 1980s. Second, since households to a large degree debt-finance their investment in the housing market, the deregulation of credit markets and increased competition from foreign financial institutions may well have affected the housing market. And third, since buying a house or a flat is an investment decision, developments in risk and expected return on alternative investment opportunities may also have affected the housing market. In this paper we do not explicitly focus on structural changes, but rather on regular macroeconomic driving forces behind the observed developments in supply and demand in the housing market, which have a major impact on household wealth and debt.

At the Central Bank of Norway, a small, simultaneous model has been developed, which includes estimated equations for the two variables that ultimately determine developments in household housing wealth, namely house prices and housing investment. In addition, the

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[2] GDP excluding oil, gas and international shipping.

model includes definitional equations for housing stock and household housing wealth. We use the model to analyse the driving forces behind observed developments in house prices and housing stock. Even though our model is a representation of a limited part of the economy, by simulating the model, we can gain insight into the relationship between house prices, investments and housing wealth when shocks hit the economy.

Interest rates affect the housing market through several channels, and by simulating the model assuming a shock to interest rates, we can learn more about the direct and indirect effects. Simulations of our small, simultaneous model show that an increase in interest rates affects housing wealth through a negative direct effect on both house prices and investments. The fall in house prices reduces housing investment further. This curbs growth in housing stock and dampens the negative effect of the interest rate shock on house prices. The direct effect on house prices of the increase in interest rates clearly dominates, however. Our model also includes an estimated equation for household debt. A higher interest rate, coupled with a fall in house prices, reduces household debt growth for a long time.

The rest of this paper is organised as follows: Section 2 outlines alternative measures of household housing wealth; in Section 3 we present our small simultaneous model and the simulations, while Section 4 provides a conclusion.

2. Measuring household housing wealth

In this section, we calculate household housing wealth. Alternative data and methods are available, and the results of different calculations are compared and evaluated.

Data sources

Since household housing wealth is not directly observable, it must be calculated using available information on house prices and housing stock. There is, however, more than one empirical variable available for both prices and stock, and one has to choose which variables to apply in the calculations. In general, the choice of information set may affect the results. We therefore calculate household housing wealth using different measures and evaluate the consequences.

Our first method is based on information on the total housing stock measured in square metres. Statistics Norway publishes data on the number of dwellings in Norway about every tenth year. They also produce figures for completed dwellings each year. In order to establish a consistent time series of the number of dwellings, we make use of information on the number of dwellings in 1970, 1980, 1990 and 2001. Combining this information with completed dwellings each year, we obtain a time series of annual data. A survey of living conditions is published annually, which provides information on developments in average floor area per dwelling.[3] Total floor area is calculated by multiplying the number of dwellings and average floor area. In order to calculate the value of total housing stock measured in square metres, we use an average price per square metre. The associations of Norwegian real estate agents (hereafter denoted NEF/EFF) publish price indices for detached houses, multi-dwelling houses and flats based on sold units. This is the only price index available that shows the average price per square metre. An average price per square metre, which is representative for the entire housing stock, is obtained by weighting the sub-indices together. As weights we use each house type's share of total housing stock.[4] Housing wealth is

[3] For analyses of Statistics Norway's surveys of living conditions, see for example Nordvik (2006).

[4] For more information on housing types' share of the housing stock, see Gulbrandsen (2003).

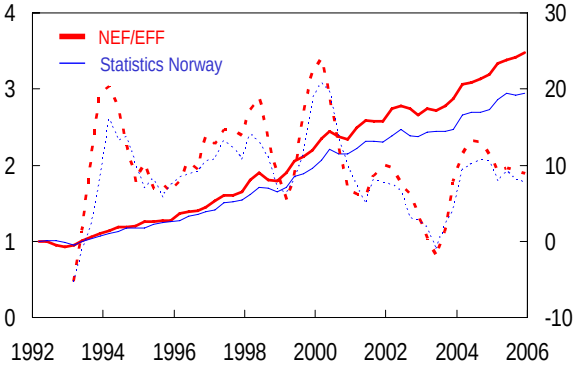
calculated by multiplying the housing stock in square meters by the average price per square metre.

The second method is based on the value of housing capital in fixed prices, as calculated in the national accounts on the basis of cumulated gross investment in housing. Housing wealth is calculated at current prices by multiplying housing capital at fixed prices by a house price index. However, the result of this method depends on the housing investment deflator that we use at the starting point of the time series.

When calculating household housing wealth on the basis of the value of housing capital at fixed prices, we can choose between two different house price indices. Statistics Norway publishes a quarterly house price index starting from the first quarter of 1992.[5] This index measures price developments in the total stock of dwellings. NEF/EFF publish monthly figures on house prices.[6] This index measures the average price per square metre representative for monthly turnover. On a monthly basis the index extends back to 1997, on a quarterly basis back to 1990, and on a yearly basis back to 1985.

Both price indices are constructed using a hedonic method. The price indices are adjusted for house size, type of dwelling and location. The developments in the indices are similar, but not identical (see Figure 1).

Figure 1 House prices. Level (solid lines, left hand scale) and change (dotted lines, right hand scale) over the last four quarters as percentages. Indices, 1992Q1 = 1



Sources: Statistics Norway, ECON, FINN.no, Association of Norwegian Real Estate Agents (NEF), Association of Real Estate Agency (EFF)

The differences in the two indices can largely be explained by the following: first, the weights used when aggregating across different segments of the housing stock are not the same. Second, although both indices are calculated using a hedonic method which adjusts for size, type of dwelling and location, the two calculations differ. Third, the basic data for the two indices are slightly different. The first factor is probably most crucial for explaining the differences, since Statistics Norway calculates a price index for the total stock of dwellings and NEF/EFF calculate a price index for housing turnover.

To calculate developments in house prices further back in time, we use a price index calculated as part of a project at the Central Bank of Norway on historical monetary statistics

[5] See Christensen (2003).

[6] See www.nef.no.

for Norway.[7] This price index has been measured annually since 1819, using a repeated sales method. The transaction prices are collected from the real estate register in four major cities in Norway. Since 1986, the index has been spliced with the house price index calculated by NEF/EFF.

Our two measures of the housing stock call for different methods when calculating household housing wealth. In the second case, we can use two different price indices, and in total we therefore have three different alternatives for calculating housing wealth (see Table 1).

Table 1

Different information sets available for calculating household housing wealth

Method/alternative	Information on volume	Price index
1	Housing stock in square metres (Statistics Norway)	Sub-indices from NEF/EFF weighted together using each housing type's share of total housing stock
2a	Value of the housing capital in fixed prices (national accounts)	NEF/EFF
2b	Value of the housing capital in fixed prices (national accounts)	Statistics Norway

Sources: Statistics Norway; ECON; FINN.no; Association of Norwegian Real Estate Agents (NEF); Association of Real Estate Agency (EFF).

Since we want to calculate *household* housing wealth, we also need to estimate the share of the housing stock that is owned by households. On the basis of information on the share of households that own their own homes and an estimate of the share of households that own more than one dwelling, we estimate that households own 83% of the total housing stock.

Methods of calculation - formulas

Method 1: Housing stock in square metres[8]

The first method we present is based on figures for the total housing stock measured in square metres and the average price per square metre. As mentioned above, Statistics Norway publishes figures on the number of dwellings. Since the last available observation for the number of dwellings is January 2005, we add the number of dwellings completed last year when calculating an annual figure for 2005. We do not have the figures on dwellings that have been demolished or on commercial premises converted to dwellings. However, these two variables have opposite effects on the housing stock, and the net impact is probably small compared with the construction of new dwellings.

[7] See Eitrheim and Erlandsen (2004).

[8] The National Bank of Denmark uses a similar method when calculating the housing wealth in Denmark, see Olesen, Overgaard and Pedersen (2006).

On the basis of the number of dwellings, average floor space, price per square metre and percentage of household ownership, we can calculate household housing wealth using the following equation:

$$\begin{aligned}\text{Housing wealth}_t &= (\text{average price per square metre})_t \\ &\cdot (\text{housing stock}_{t-1} + \text{the number of completed dwellings}_t) \\ &\cdot (\text{average floor space \{in square metres\}})_t \cdot 0.83\end{aligned} \tag{1}$$

The ratio 0.83 is an estimate of the share of the housing stock owned by households.

Method 2: Housing stock in fixed prices

The second method is based on housing capital in fixed prices from the national accounts. Statistics Norway publishes quarterly national accounts data back to 1978, which is the starting point for our calculations, using the following equation:

$$\begin{aligned}\text{Housing wealth}_{1978} &= (\text{housing capital in fixed prices})_{1978} \cdot \\ &(\text{price deflator for gross fixed investment in housing capital})_{1978} \cdot 0.83\end{aligned} \tag{2}$$

The ratio 0.83 is an estimate of the share of the housing stock owned by households. Equation (2) gives an estimate of how much it would cost to rebuild the entire existing housing stock in 1978 at fixed factor prices the same year.

With the equation above as basis, housing wealth in later periods is calculated using the following equation:

$$\text{Housing wealth}_t = \text{housing wealth}_{t-1}\left(\frac{\text{house price}_t}{\text{house price}_{t-1}}\right)\cdot\left(\frac{\text{housing capital in fixed prices}_t}{\text{housing capital in fixed prices}_{t-1}}\right) \tag{3}$$

Results from the calculation of household housing wealth

Using method 1, we estimate household housing wealth at NOK 3 245bn, or 230 per cent of GDP Mainland Norway (GDP excluding oil, gas and international shipping) in 2005, see Table 2. The results from the second method, where housing wealth is calculated on the basis of housing capital in fixed prices, are NOK 2 672bn or NOK 3 229bn, depending on which house price index we use.

Table 2

Calculated household housing wealth in billions of NOK and as a percentage of mainland GDP. 2005[1]

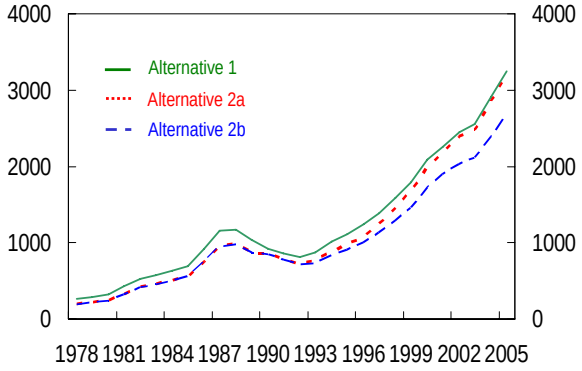
Method/alternative	Billions of NOK	Per cent of mainland GDP
1	3 245	230
2a	3 229	229
2b	2 672	189

[1] Housing stock in fixed prices 2005Q4 is based on estimates in Inflation Report 1/06.

Source: Central Bank of Norway.

Figure 2 shows developments in household housing wealth according to the three alternative calculations. The major difference between the two methods is how to measure the housing stock. The first method uses directly measured volume figures for housing stock, i.e. the housing stock in square metres. The second method uses a variable that is derived from housing investment and a depreciation rate for housing capital. Although the depreciation rate is based on information from Statistics Norway, this parameter is unobservable and may suffer from measurement error. Our assessment is that there is less uncertainty connected with the first method. Our preferred method for measuring household housing wealth is therefore method 1, where housing wealth is based on the housing stock in square metres.

Figure 2 Household housing wealth in billions of NOK. Three alternatives, see Table 1. Annual figures. 1978-2005



Sources: Statistics Norway, NEF, EFF, FINN.no, ECON, Gulbrandsen (2003), Nordvik (2006) and Norges Bank

3. Understanding developments in household housing wealth

In Section 3.1 we present a small, simultaneous model developed at the Central Bank of Norway. The model includes estimated equations for the two variables that ultimately determine developments in household housing wealth, namely house prices and housing investment. In addition, the model includes estimated equations for household debt and the bankruptcy rate of domestic firms, as well as definitional equations for housing stock, household housing wealth and interest rates. The model is part of a forecasting and policy analysis system that is used in monetary policy, and is regularly used to evaluate financial stability in different macroeconomic scenarios for the Norwegian economy.

In Section 3.2 we use this model to analyse the driving forces behind developments in house prices and housing investment. By simulating the model, we evaluate possible consequences of an interest rate shock for housing wealth.

3.1 The model

Our small model includes, among other equations, estimated equations for house prices and housing investments. All estimated equations are in the equilibrium correction form, and we use quarterly data. Lower case letters denote natural logs of the variables, and Δ defines the first difference operator, i.e. $\Delta(x_t) = \ln(X_t) - \ln(X_{t-1})$, and $\Delta_4(x_t) = \ln(X_t) - \ln(X_{t-4})$, etc.

House prices

The estimated house price equation is given below in (4). It contains effects of disposable income, housing stock, the unemployment rate, banks' after-tax lending rate and a consumer

confidence indicator. The estimation period is 1990Q2 – 2005Q4, R^2 = 0.82 (standard deviation of the equation = 0.015). Absolute *t*-values are given in brackets below the coefficients.

$$\Delta ph_t = \underset{(7.0)}{-3.16}\,\Delta(I_{m,t}\cdot(1-\tau_t)) \underset{(3.3)}{-1.47}\,\Delta(I_{m,t-1}\cdot(1-\tau_{t-1})) + \underset{(1.9)}{0.12}\,\Delta income_t + \underset{(3.1)}{0.04}\,E_t$$

$$\underset{(5.7)}{-0.12}\left[ph_{t-1} + \underset{(2.5)}{4.47}\,(I_{m,t-1}\cdot(1-\tau_{t-1})) + \underset{(3.5)}{0.45}\,u_t \underset{(8.6)}{-1.66}\,(income_t - hstock_{t-1})\right] \quad (4)$$

where *PH* = house prices; I_m = interest rate (average interest rate on banks' mortgage-secured loans); τ = deduction in taxable income for interest expenses (equals 0.28 from 1992); *INCOME* = household disposable income (adjusted for reinvested dividends from 2000); *E* = a function of a consumer confidence indicator, which represents households' expectations about their own financial situation and the domestic economy; *U* = registered unemployment rate; *HSTOCK* = housing stock. The model also contains seasonal dummies and a constant. See Jacobsen and Naug (2005) for a detailed discussion of (a previous version of) this equation.

Housing investment

The estimated equation for gross investment in housing is given below in (5). It contains effects of house prices, construction costs, a proxy for land prices, housing stock (due to investment for maintenance) and the interest rate. The variables are measured in real terms. The estimation period is 1990Q1 – 2005Q4, R^2 = 0.72 (standard deviation of the equation = 0.038). Absolute *t*-values are given in brackets below the estimates.

$$\Delta jh_t = \underset{(6.7)}{0.57}\,(\Delta_3 pht - \Delta_3 pc_t) \underset{(2.6)}{-0.17}\,\Delta_2 jh_{t-2} \underset{(6.5)}{-2.6}\,(\Delta_4 I_t - 1/3\cdot\Sigma_{j=-1,..,1}\,\Delta_4 pcjae_{t-j})$$

$$\underset{(8.0)}{-0.75}\,[(jh_{t-1} - hstock_{t-10}) - (ph_{t-4} - pc_{t-4}) + (lp_{t-1} - pc_{t-1}) + (pj_{t-4} - pc_{t-4}) \quad (5)$$

$$-5.19\,(I_{t-4} - 1/3\cdot\Sigma_{j=-1,..,1}\Delta_4 pcjae_{t-j-4})]$$

where *JH* = gross investment in housing; *I* = banks' average lending rate; *PCJAE* = consumer prices adjusted for taxes and energy prices; *HSTOCK* = housing stock; *PH* = house prices; *PC* = consumer prices; *LP* = (a proxy for) land prices. The model also contains seasonal dummies and a constant. See Jacobsen et al. (2007) for a detailed discussion of this equation.

Housing stock

Housing stock is calculated as the level of housing stock in the previous period plus net investment, i.e. plus gross investment minus depreciation.

$$HSTOCK_t = (1-\delta)\cdot HSTOCK_{t-1} + JH_{t-1} \quad (6)$$

where *HSTOCK* = housing stock (housing capital in fixed prices); *JH* = gross investment in housing; δ = 0.0063, a quarterly depreciation rate. The parameter is consistent with annual figures published by Statistics Norway.

Household housing wealth

$$HHW_t = \alpha \cdot PH_t \cdot HSTOCK_t \tag{7}$$

where *HHW* = household housing wealth; *PH* = house prices; α = 0.83, households' share of total housing wealth.

Household debt

The equation for household debt is given in (8). It contains effects of house prices, housing stock, the interest rate, turnover in the housing market, the share of students in the population, households' income and unemployment. The estimation period is 1994Q1 – 2004Q1, R^2 = 0.97 (standard deviation of the equation = 0.0019). Absolute *t*-values are given in brackets below the estimates.

$$\begin{aligned}\Delta debt_t = {} & \Delta hstock_t \underset{(2.6)}{-0.29}\,\Delta(debt_{t-1} - hstock_{t-1}) \underset{(5.2)}{-0.29}\,\Delta I_t \underset{(3.0)}{+0.02}\,\Delta turnover_{t-2} \\ & \underset{(1.5)}{+0.01}(\Delta_4 wincome_t + \Delta pht_t) \underset{(3.9)}{-0.03}\,\Delta u_t \\ & \underset{(7.4)}{-0.07}\left[debt_{t-1} - ph_{t-1} - hstock_{t-1} \underset{(3.2)}{+1.70}\, I_{t-1} \underset{(1.4)}{-0.17}\, turnover_{t-1} \underset{(5.0)}{-0.64}\, studentshare_{t-1}\right]\end{aligned} \tag{8}$$

where *DEBT* = household gross debt; *HSTOCK* = housing stock; *I* = banks' average lending rate; *TURNOVER* = number of house sales; *WINCOME* = total wage income in the economy; *PH* = house prices; *U* = registered unemployment rate; *STUDSHARE* = no. of students aged 20–24 years as a share of the population, five quarter average. The model also contains seasonal dummies and a constant. See Jacobsen and Naug (2004) for a detailed discussion of this equation.

3.2 Model simulations

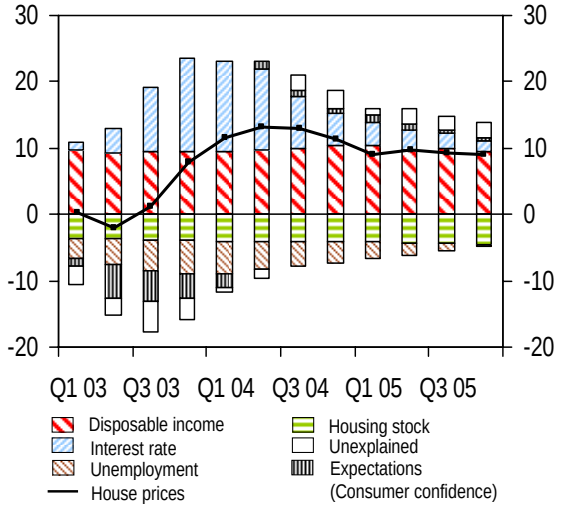
The model outlined in Section 3.1 can be used to evaluate developments in house prices and housing investment, i.e. the two variables that ultimately determine developments in household housing wealth. We are particularly interested in understanding the contribution of the different explanatory variables to developments in prices and investment. That will help us reach a conclusion with respect to the driving forces behind developments in housing wealth in the past. The model can also be used to evaluate the consequences for household housing wealth of different macroeconomic scenarios. We illustrate this below by raising the interest rate above the interest rate path in our baseline scenario.

The estimated contributions to developments in house prices and housing investment of the explanatory variables

In Figures 3 and 4 we use the estimated equations to identify the contribution of each explanatory variable to developments in house prices and housing investment respectively. The solid line shows the 4-quarter growth in per cent for housing prices and investment, while the bars shows the estimated isolated contribution to 4-quarter growth of each

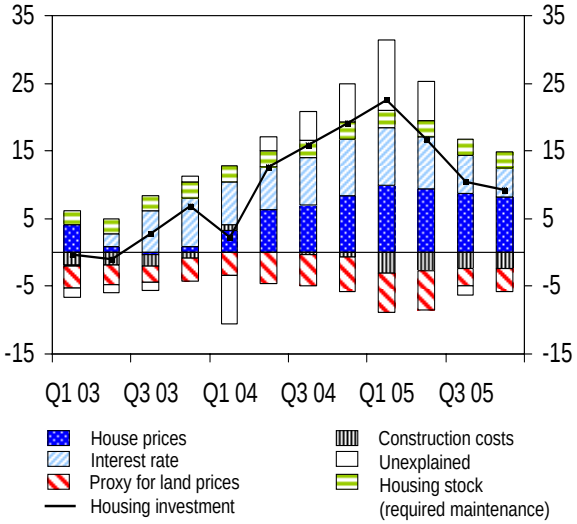
explanatory variable measured in percentage points. The bars include both immediate and lagged effects as predicted by the model.

Figure 3 House prices and calculated contributions of explanatory variables. 4-quarter growth in per cent and contribution in percentage points



Sources: Norwegian Association of Real Estate Agents, Association of Real Estate Agency Firms, FINN.no, ECON and Norges Bank

Figure 4 Housing investment and calculated contributions of explanatory variables. 4-quarter growth in per cent and contribution in percentage points. All variables measured in real terms



Sources: Statistics Norway and Norges Bank

Figure 3 shows that after a transitory decline in house prices in 2003, the 4-quarter growth in house prices has been around 10-15 per cent in later years. Disposable income has permanently contributed around 10 percentage points of the 4-quarter growth in house prices, while the growth in housing stock has contributed negatively by around 3-4 percentage points. The variation in house price inflation in recent years is largely due to developments in the interest rate, unemployment and household expectations. For example, in the first quarter of 2004, the interest rate contributed to a 4-quarter growth in house prices of 14 percentage points. A relatively high unemployment rate and low consumer confidence contributed to weak developments in house prices in 2003, while the accelerated house price inflation in 2004 is very much due to a decline in the interest rate.

With respect to developments in housing investment, Figure 4 shows that house prices and the interest rate explain much of the variation in 4-quarter growth. Hence, housing investment follows a relatively similar pattern to house prices. In general, investment is difficult to model econometrically due to high volatility in these data. This is reflected in Figure 4 by the bar for “unexplained”. The unexplained part, i.e. the residual, is relatively large in the first quarter of both 2004 and 2005.

From Figure 3 and 4 we can conclude that the strong growth in household housing wealth of recent years is largely driven by developments in interest rates and disposable income. Interest rates affect house prices and housing investment directly, but also indirectly, since the explanatory variables are also influenced by interest rates.

Simulating the model assuming higher interest rates

By simulating the model, we can learn more about the direct and indirect effects of changes in explanatory variables. Interest rates work through several channels in our small model, and we simulate the model assuming a shock to interest rates. As our baseline scenario, we use the baseline scenario for 2006-2009 in the Inflation Report 2/2006 of the Central Bank of Norway. Our model is largely linear, and conclusions are therefore largely robust with respect to the

choice of baseline scenario. Over the last 2-3 years, the interest rate level in Norway has been low. Since 2005, however, interest rates have been increasing. According to the baseline scenario, the key interest rate will gradually increase towards a more normal level. This will affect other interest rates positively. We extend the baseline scenario to 2015 assuming that banks' lending rate moves toward 6 per cent.

We shock the model by assuming that the interest rates will increase at a faster pace than in the baseline scenario during the first few years. Banks' lending rate reaches 9 per cent around 2009. From then onwards, this interest rate is assumed to stay unchanged until 2015 (see Figure 5).[9]

Figure 5 Three-month nominal money market interest rate. Solid line: baseline scenario. Dotted line: high interest rate path

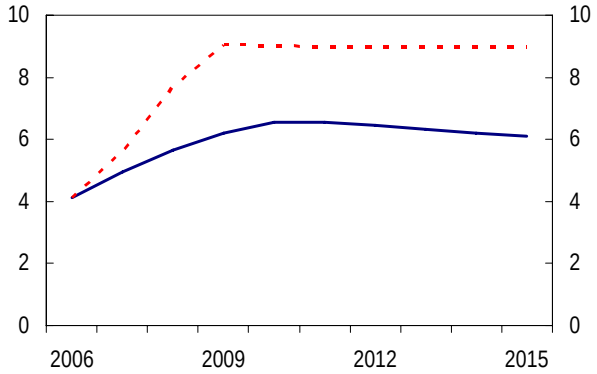


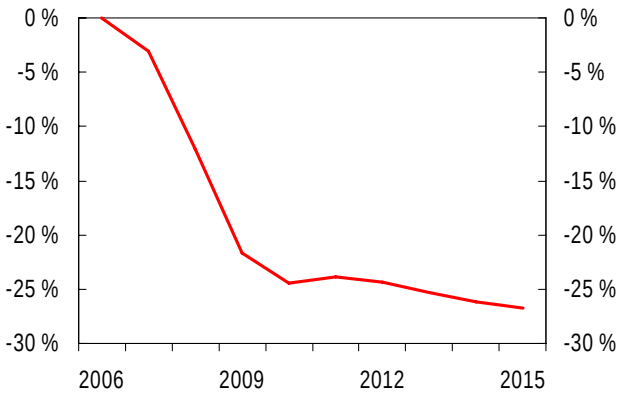
Figure 6 The effect on household housing wealth of the high interest rate path. Deviation from baseline scenario

Source: Central Bank of Norway.

Our model shows that the higher interest rate scenario will reduce household housing wealth by approximately 5 per cent in 2015 relative to the projection path (see Figure 6). This is largely due to a negative direct effect on both house prices (see Figure 7) and investment (see Figure 8).

Figure 7 The effect on house prices of the high interest rate path. Deviation from baseline scenario

Figure 8 The effect on housing investment of the high interest rate path. Deviation from baseline scenario



Source: Central Bank of Norway.

The fall in house prices decreases housing investment, and hence curbs growth in the housing stock even further (see Figure 9). To some degree, the reduction in housing stock dampens the negative effect of the interest rate shock on house prices. The direct effect on

[9] This interest rate paths are developed for illustrative purposes only and should not be interpreted as realistic alternative interest rate paths for Norway.

house prices of the change in the interest rate clearly dominates. Our model also includes an estimated equation for household debt. A higher interest rate, as well as the fall in house prices, reduces household debt growth for a long time (see Figure 10).

Figure 9 The effect on housing stock of the high interest rate path. Deviation from baseline scenario

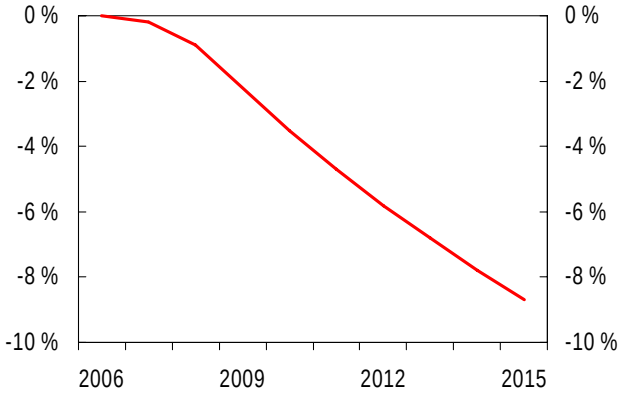
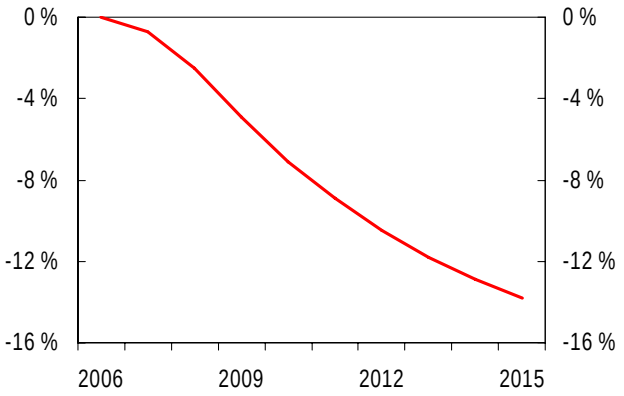


Figure 10 The effect on households debt of the high interest rate path. Deviation from baseline scenario



Source: Central Bank of Norway.

4. Conclusion

In this paper we develop alternative measures of household housing wealth using information on house prices and housing stock. Different methods and data can be used, and the size of housing wealth varies significantly across information sets and methods. Norwegian household housing wealth relative to GDP Mainland Norway varies from 189 to 230 percent in 4th quarter 2005, depending on the method and information set. There is no clear and objective selection criterion available for choosing among the different measures of household housing wealth. Our preferred measure is based on the number of dwellings, average dwelling size, average house price (NOK 1000/sq.m.) and households' share of the housing stock. We evaluate potential measurement error problems to be smaller in this alternative.

By simulating a small model that includes estimated equations for house prices and housing investment, we show how household housing wealth is related to the business cycle and monetary policy. Over the past years, the development in house prices and investment, and hence the development in housing wealth, is very much driven by changes in interest rates and growth in disposable income. The latter variable affects house prices directly and housing investment indirectly through a house price effect on investment.

Monetary policy affects household housing wealth both directly and indirectly through several channels. Simulations on our model show that an increase in interest rates affects household housing wealth through a negative direct effect on both house prices and investment. The fall in house prices decreases housing investment, and hence curbs growth in the housing stock. The reduction in housing stock dampens the negative effect of the interest rate shock on house prices. The direct effect on house prices of the change in the interest rate clearly dominates, however. Our model also includes an estimated equation for household debt, and a higher interest rate, as well as the fall in house prices, reduces household debt growth for a long time.

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Defining households' wealth in business

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Introduction

The aim of this paper is to provide guidelines and suggestions for collecting micro (survey) data on households' wealth invested in business activities, in order to ensure comparability both across countries and with macro data coming from the National Accounts.

The reasons for embarking on the task are manifold. First, an aggregate corresponding to what we define as "households' wealth in business" is not identified in the System of National Accounts: hence it is not directly available and can hardly be derived from existing macro sources.

On the other hand, having a measure of households' entrepreneurial investments is important for understanding saving decisions and portfolio allocation. This is especially the case for wealthier households which, at same time, own a substantial share of total wealth and income and have a higher probability of holding entrepreneurial interests.

We propose a "core" definition of wealth in business as **the market value of businesses actively managed** by the households for the (actual or potential) production of goods and services to be sold or bartered on the market. We also explore other components that could be included in this concept, mimicking, albeit not fully overlapping, similar - and perhaps more familiar - aggregates in National Accounts on one side and related concepts in the most popular sample surveys on the other.

The main idea is that National Accounts are the natural benchmark for producing harmonised statistics based on surveys. If all the systems of National Accounts comprise a clear and comparable definition of wealth in business, the harmonisation would be straightforward. It would only require to make each survey consistent with the corresponding macro definitions. Unfortunately this is not the case.

Anyhow, the analysis of micro and macro definitions is worth exploring, at least for two reasons. First, National Accounts are precious to evaluate the accuracy of sample survey estimates, and this comparison requires consistency of definitions. Second, they can be used to get useful insights for defining wealth in business.

Following this approach, the paper is organised as follows. First of all, the conceptual framework provided in the National/financial accounts is set out for the countries under study (the US, Canada, Cyprus and Italy). In order to come out with an operational framework to collect and analyse information on households' wealth in business, we need a definition of what households and businesses are according to the different systems (basically SNA93, FFA and ESA95). We also need to clearly identify the kind of assets and liabilities to be considered and the method to be applied for their evaluation when deriving a measure of "net worth" for the firms we are interested in (that is, according to our core definition, those owned and actively managed by households).

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[1] Bank of Italy.

[2] University of Cyprus.

In performing this analysis, we focus on the most tricky classification issues that are pivotal to our concept of wealth in business. Using the ESA95 terminology, the entrepreneurial activities that are actively managed by households include, in addition to corporate firms, other forms like "sole proprietorships", "partnerships without independent legal status" and unincorporated enterprises in general that are market producers. In the National Accounts schemes that we consider, unincorporated enterprises without a complete set of accounts and entirely owned by households are generally included in the household sector: thus, a key issue is to separate "households as consumers" from "households as producers", so that it becomes meaningful to measure the wealth of the former in the latter.

For candidate assets (land, buildings, equipment, machinery, vehicles, inventory) to be included in the measure of wealth in business, conceptual and practical collection and evaluation issues are then discussed. In particular, the analysis focuses on the ways each survey records those assets and on the solutions adopted to measure their value. The consistency of the methods followed by each survey with the reference system of National Accounts is also analysed. A full harmonisation would also require evaluating the accuracy of sampling estimates by comparing them with the corresponding figures from National Accounts. However, this issue is beyond the aim of the paper.

After having sketched the general definitional issues, we specify in detail the concept we propose as "wealth in business" and two "enlarged" definitions as well, having the objective of ensuring as much comparability as possible across country specific surveys and with National Account systems.

Finally, the main findings and some open issues for discussion are recalled and put forward as possible items for a future research agenda.

1. The theoretical framework

In formulating a definition of "households' wealth in business" to be used in national surveys, we pursue reconciliation with the concepts and definitions used in National Accounts. The reason for that lays both in the interest for comparisons with national accounts aggregates themselves and in a willingness to ensure high cross country comparability of survey results, given the fact that national surveys, in turn, usually assume the respective national accounts concepts as the reference framework.

In the present paragraph we consider the following systems of national accounts: SNA93 (USA), ESA95 (Italy/Europe), and CSNA97 (Canada); in the case of USA, nevertheless, our macro counterpart to the SCF is actually the Flow of Funds Accounts, which, as we will explain later on in the paper, differ from SNA under some aspects.[3] The aim is to analyse the definitions of institutional sectors and types of assets which are typical of each system, in order to identify a core common theoretical framework from which operational definitions and measurement options for Households' wealth in business can be easily derived. Those will be set up in details later on, once the characteristics of national surveys have also been analysed and matched with the most relevant features of the theoretical framework. Some preliminary remarks are useful here.

First, it is important to bear in mind that a definition for households' "wealth in business" is not provided in the National Accounts, but has to be derived from concepts that are "implicit" in the scheme.

[3] See Board of Governors of the Federal Reserve System (2000), Eurostat (1996), United Nations (1993).

Two aspects, above all, characterise the set of operational definitions of wealth in business and related aggregates that we are going to propose for adoption in sample surveys. Those are:

- the distinction between actively managed (by households) and non-actively managed businesses: by contrast, this feature is not explicitly recognised in the national account systems;
- the treatment of households' entrepreneurial activities that cannot be considered as separate economic agents from their owners: differently from national account frameworks (but quite in line with the US Flow of Funds), we suggest to highlight such activities in order to include them in the aggregate "wealth in business".

On the side of National Account framework, two issues are of particular importance to our purposes and we will focus on them somewhat at length while describing the features of the system. They are:

- how to fix the boundaries between the owner-households and the owned-businesses (that is: definition of the "households sector" on one side and of the "corporations and quasi-corporations sector" on the other);
- what assets might represent households' wealth in the form of business activities.

1.1. The definitions adopted in the Systems of National Accounts. Agents, sectors, and classification of assets

Economic agents - Underlying both the ESA95 and the SNA classification systems (the CSNA has largely incorporated the 1993 SNA guidelines[4]) is the concept of institutional unit, defined as an elementary economic decision-making centre that (i) is characterised by uniformity of behaviour and autonomy of decision in the exercise of its principal function and (ii) keeps a complete set of accounts or would be able, from an economic and legal viewpoint, to compile a complete set of accounts if required. A unit enjoys autonomy of decision when it is entitled to own goods or assets in its own right and thus to exchange the ownership thereof in transactions with other institutional units; is able to take economic decisions and engage in an economic activity for which it is directly responsible; and is able to take on obligations on its own behalf and to enter into contracts (see Eurostat, 1996). As for the second requisite, a unit is said to keep a complete set of accounts if it draws up an income statement and a balance sheet.

Economic sectors - Homogeneous units are grouped into mutually exclusive institutional sectors (to be possibly divided into sub-sectors for more precise description of the economic behaviour of the units).

The following sectors are identified in all of the three systems of national accounts we consider: (1) non-financial corporations (and quasi-corporations), (2) financial corporations (and quasi-corporations), (3) general government, (4) households, (5) non-profit institutions serving households (NPISHs)[5], and (though not a properly a sector) (6) the rest of the world.

Unincorporated enterprises, owned by households or by Government units, that do not enjoy autonomy of decision and for which a complete set of accounts cannot be compiled, are not considered as separate institutional units but are treated as an integral part of the owner household. When the conditions of autonomy of decision and availability of the accounts are

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[4] Kishori Lal (1998) provides a short review of the main differences remaining between the two systems.

[5] Both in the CSNA and in the Italian financial accounts, households and NPISHs are aggregated into the households sector, despite they are separate in the ESA95 Manual and in the SNA, respectively.

satisfied, unincorporated enterprises are instead considered as quasi-corporation and classified in the sector “non-financial corporations” or “financial corporations”.

Quasi-corporations, which may well include unincorporated partnerships, are operated as if they were privately owned corporations. From a practical point of view, the existence of a complete set of accounts (including balance sheets) is a necessary condition for the unincorporated enterprise to be considered as a quasi-corporation, in that it makes it possible to separate the firm from its owner. Being a separate entity, a quasi-corporation’s balance sheets has to record own fixed assets (land, building, machinery and equipment, inventories) used in the production and financial assets and liabilities, as far as they are incurred in the name of the enterprise. It is assumed that the owner’s net equity in a quasi-corporation is equal to the difference between the value of assets and that of other liabilities of the firm, so that the net worth of the quasi-corporation is always identically zero in practice. Actually, the fixed and other assets used in unincorporated enterprises do not belong to the enterprises, but to their owners, which are personally liable, without limit, for any debts or obligation incurred in the course of production. The owner of a household unincorporated enterprise usually plays a double role: as the entrepreneur and as the worker; consequently, income arising from production represents a mixture of two different kinds of income. Households are unlimitedly liable for the debt of their businesses (partnerships whose partners enjoy limited liability are effective separate legal entities and thus must be treated as corporations). Buildings or capital equipment may be used partly for production (when households act as producer) and partly for consumption (when it acts as final consumer): as a consequence, it is extremely difficult to separate unincorporated businesses from their owners who are entitled to use such assets in any way.

The US Flow of Funds Accounts (FFA) present a somewhat different categorisation of sectors. In particular NPIs are combined with households (analogously to the Italian financial accounts); this is motivated by the fact that data for such organizations are not available separately, except over the years 1987-1996. Besides, ***the FFA place the unincorporated non-financial businesses in a separate sector***, that can be combined with either households or other non-financial businesses (in the Italian financial account, by contrast, sole proprietorships with up to five employees are included in the households sector). Unincorporated non-financial businesses are shown separately in the tables for the non-farm non-corporate and farm business sector. Nevertheless, a table for the so-called “personal” sector present the consolidation of the households sector with unincorporated business.

In the FFA, the *non-financial business* sector includes:

1. *non-farm non-financial corporate business*: mainly private domestic corporations (except corporate farms and financial institutions) and holding companies;

2. *non-farm non-corporate business*: partnerships and limited liabilities companies, sole proprietorships, and individuals receiving rental income. Some of the partnerships included are large companies. Firms in the sector generally rely for funding on loans from commercial banks or other credit providers. As they are ***unincorporated***, these firms are ***owned by the households and NPIs sector***: the firm income, therefore, is attributed to households as a component of personal income. For this sector the “proprietors’ net investment” is calculated as the difference sources and uses of funds; in other words, it reflects changes in the in the value of ownership of the sector by the households and NPIs sector;

3. *farm business*: is made up of corporate and non-corporate farms. Like the firms in the non-farm non-corporate business sector, ***non-corporate farms are owned by households***. The major assets of farms, real estate, does not appear on tables of either flows or amounts outstanding. In the FFA expenditures on farm residential structures are part of the fixed investment of households, and proprietors’ net investment in non-corporate farms is part of the net acquisition of financial assets by the sector.

In conclusion, households own all unincorporated firms, whether farm or non-farm (this corresponds to point 2 and the part of point 3).

Households. According to the SNA and the ESA95, the household sector consists of all resident households, including institutional households, such as members of religious orders, long-term patients in hospitals, prisoners and persons in retirement homes for long periods of time. Households are primarily consumer units, but can potentially engage in any kind of economic activity; they can supply labour (to enterprises) but may also operate their own producer units in the form of unincorporated enterprises.

Unincorporated enterprises owned by households, whether market producers or producing for own final use, are integral parts of the household itself, ***with the exception of*** those firms which are qualified as ***quasi-corporations***: in this latter case they must be qualified as a separate institutional unit and must be included in a different sector (the financial or non-financial corporations sector, according to their major activity).

In the SNA, households unincorporated enterprises can range from single persons (with virtually no own capital) to large manufacturing, construction or services enterprises with many employees.[6]

The CSNA is alike, for most of the significant areas, to the SNA; the sectors, though, follow a different aggregation: the financial and the non-financial corporations sectors are combined together to form the corporate sector (although in the capital and financial account and in the balance sheet account they are split). Besides, the persons and unincorporated businesses sector is an aggregation of the NPISHs and households sectors as defined in the SNA. In the CSNA there is no recognition of quasi-corporations owned by households, and ***all unincorporated enterprises owned by households are included in the persons and unincorporated businesses sector***.

The Households sector includes NPISHs also in the Italian Financial Accounts (BIFA). Besides, in the BIFA implementation of ESA95, as well as in the whole system of Italian National Accounts, there is a threshold on the number of employees to separate producer households from quasi-corporations. As a result, the BIFA Households sector includes employees, pensioners, recipients of property income and recipients of transfer incomes, but also informal partnerships, *de facto* partnerships, and sole proprietorships principally engaged in the production of market goods and non-financial services, with up to five employees (producer households). The threshold of five employees to separate producer households from quasi-corporations (which have to be included in the non-financial corporation sector) is not imposed by ESA95, being just an operative criterion used by ISTAT, in compliance with ESA95 general principles.

Non-profit institutions serving households. According to the SNA and the ESA95, the non-profit institutions serving households sector (NPISHs) consists of all residents NPIs which produce non-market goods and services, except those controlled and mainly financed by government units (which are to be classified in the general government sector), providing those goods and services to households free or at not economically significant prices (in the ESA95 Manual this means that less than 50 per cent of production costs are covered by sales). The definition of NPISHs in the CSNA is very similar to the one in the 1993 SNA, however the NPISHs sector is not separated from the household sector in the CSNA's capital account, financial account, and balance sheet account. In the Italian Financial Accounts as well, no separate information is provided for households and NPISHs.

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[6] In the SNA it is explicitly recognised that "countries have difficulty distinguishing quasi-corporations held by households". Nevertheless, it is also said that any other additional criteria, such as ***size***, is not useful in practice; for example, it does not help if the enterprise is not in fact operated like a corporation and does not have a complete sets of accounts of its own, however large it may be.

Classification of assets - In the SNA, as well as in the ESA95 and in the US flow of funds accounts, the stock of the assets and liabilities recorded in the balance sheet is to be valued at the market prices prevailing on the date to which the balance sheet relates. The economic assets are classified in the same way in the SNA and in the ESA95 Manual. They are divided in two groups: non-financial assets and financial assets. Non-financial assets are further split into produced assets, ie, assets that have come into existence as outputs from production processes, and non-produced assets, ie, assets that come into existence other than through production processes.

Produced assets consist of fixed assets, inventories, valuables. Non-produced assets consist of tangible non-produced assets, such as land and subsoil assets, and intangible non-produced assets, such as patented entities and purchased goodwill. Financial assets are classified in: monetary gold and special drawing rights; currency and deposits; securities other than shares; loans; shares and other equities; insurance technical reserves; other accounts.

The financial instrument "shares and other equities" is necessarily of key importance to the measure of households' wealth in business. According to both SNA and ESA95, it includes proprietors' net equity in quasi-corporations, as well shares and equities in corporations[7]. No distinction is drawn between assets merely held as a form of financial investment (an analogy can be set with "portfolio investment" in balance of payments statistics) and assets representing the value of those firms for which the owner is actively involved in management (similar to "direct investment" in balance of payments). As it will be explained later, such a distinction is instead relevant to our definition of "wealth in business".

In the SNA, incorporated enterprises may have their own net worth in addition to the owners' equity in the corporations; for quasi-corporations, all net worth is assumed to be held by the owners. Proprietors make net additions to the equity of quasi-corporate enterprises for purpose of capital investment and this category is not separately identified under "shares and other equity".

Shares and other equity are liabilities of corporations, and even though it is wholly owned by its shareholders collectively, a corporation is seen to have a net worth, in addition to the value of the shareholders' equity. Valuing assets and liabilities in the corporation's balance sheet at current market price it is possible to calculate net worth in the same way as for all the other institutional units, that is subtracting liabilities (included equities) from the value of its total assets. In the case of quasi-corporations, net worth is zero, because the value of the owners' equity is assumed to be equal to its assets less its liabilities; or, to put it in another way, equity in quasi-corporations must be valued as equal to the value of the quasi-corporations' assets less the value and of their liabilities.

As it was previously recalled, businesses other than corporations or quasi-corporations are not considered as institutional units separated from their owners (in our case, the household) and therefore there can be no corresponding "net equity" to register as a financial asset in the balance sheet of their owners. In order to include the value of such kind of firms among the components of households' wealth, one has to evaluate each entry in the hypothetical balance sheet of the firm. Thus, the non-financial assets of the firms must be added to the owners' non-financial assets, while their financial assets and liabilities must be added to the owners' financial assets and liabilities. Both assets and liabilities are valued at the price at which they would be traded at the time the accounts are compiled. In the US flow of funds accounts, given the definition of a non-corporate sector different from the household sector, in the household and NPIs sector balance sheet table there is a line for explicitly recording

[7] As to the practical application of ESA95 accounting rules in the Italian financial accounts, it has to be noticed that the latter do not contain an estimate of the value of non-financial quasi-corporations' equity.

"equity in non-corporate business", which is equal to the net worth of non-corporate business and owners' equity in farm business and unincorporated security brokers and dealers. The corresponding flow is defined as the sum of (i) proprietors' net investment in non-farm non-corporate and (ii) in farm business, where:

(i) = capital expenditures (fixed residential and non-residential investment and change in inventories) + net acquisition of financial assets – capital consumption – credit market instruments – trade payables – taxes payable – miscellaneous liabilities;

(ii) = capital expenditures (defined as before) + net acquisition of financial assets – gross saving – credit market instruments – trade payables.

Correspondingly, a specific issue is reported among financial liabilities of non-corporate firms (both farm and non-farm), that is, proprietors' net investment, defined as above.

To summarise, FFA is not completely consistent with SNA: in the FFA, in fact, the households as producers form a separate institutional sector. Their equity may be hold by household and NPIs. In a sense, they are treated as if they were corporations or quasi-corporations. As a consequence only the net equity is to be included in households' balance sheet, and there is no need to separate financial from non-financial assets.

1.2. Interaction between sector boundaries and the notion of "wealth in business"

The classification criteria used for the institutional sectors interact with the accounting scheme for assets and liabilities, and, as a consequence, affect the concept and the empirical measurement of wealth in business in the various frameworks.

For example, having as a reference the sector classification rules adopted in the Italian National Accounts, let us consider a productive system made up of only one small non-financial firm with up to five employees, entirely owned by one household, with the following balance sheet: Total assets = 100; Non-financial assets = 90; Financial assets = 10; Total liabilities = 100; Equity = 60; Other financial liabilities = 40.

To keep things simple we assume that: (1) assets and liabilities are valued at the market prices; (2) total assets equal total liabilities[8]; financial assets and other financial liabilities are towards the financial institutions sector. If the legal form of the firm is sole proprietorship - so that the firm, having up to five employees, belongs to the household sector - the balance sheets of households and non-financial corporations will be the following:

Instruments	**Households**		**Non-financial corporations**	
	Assets	**Liabilities**	**Assets**	**Liabilities**
Non-financial assets (AN)	90		0	
Financial assets (AF)	10	40	0	0

[8] In the national accounts, total assets can differ from total liabilities; the difference is equal to the net worth of the sector. While corporations are seen to have a net worth in addition to the value of the shares and other equity issued, in the case of quasi-corporations net worth is zero, because the value of the owners' equity is assumed to be equal to its assets less its liabilities.

On the contrary, if the legal form of the firm is a type of limited liability company - so that the firm is included in the non-financial corporation sector - the balance sheets of households and non-financial corporations will be:

Instruments	**Households**		**Non-financial corporations**	
	Assets	**Liabilities**	**Assets**	**Liabilities**
Non-financial assets (AN)	0		90	
Financial assets (AF)	60	0	10	100
of which: shares and other equity	*60*	*0*		*60*

In both these situations the net worth of households is equal to 60. The composition, however, is very different: in the first example households hold non-financial assets and have assets and liabilities towards sectors other than non-financial corporations; in the second example households do not hold non-financial assets, while their financial assets are equal to the value of the firm's equity.

This example shows that the composition of household wealth depends on the operative criteria used for the statistical breakdown between producer households and quasi-corporations: in the case of Italy, an increase in the threshold (currently 5 employees) beyond which sole proprietorships, informal partnerships and de facto partnerships are classified as quasi-corporations would increase the share of households' non-financial assets; on the contrary a reduction in the threshold would increase the share of financial assets. Especially in international comparisons, it is useful to take these implications into account, looking at the differences in terms of the distribution of firms by legal form and size.

In summary, the analysis has shown that, National Accounts do not only comprise a definition of housing wealth, but they also differ on other important issues. First, while in SNA93 and ESA95 producer households are included in the household sector, FFA uses a different solution comprising a separate sector (unincorporated businesses) whose net equity is owned by the households (and NPISHs). A decision is therefore to be made about which approach to adopt (FFA or SNA93 and ESA95) when defining wealth in business. This decision mainly reflects on the nature of this household's type of wealth. In the first approach, the company is always considered as a separate entity respect to the household, and is supposed to have a market value. As a consequence, its value is included among the household's financial wealth. In the opposite case there is no separation and all the assets and liabilities are considered to belong to the household' s total wealth. As a consequence, non-financial (financial) assets used to run the business are added to other non-financial (financial) assets owned by the household.

Another difference among different systems of National Accounts is the boundary between producer household and quasi-corporations. In SNA93, FFA and CSNA the legal status is one of the more important keys to separate producer households from quasi-corporations. In the ESA95 working definition (both in Italy and in Cyprus) the number of employees is also a part of this decision. As will be discussed in section 4, these differences matter only for comparisons of sampling estimates with the corresponding National Accounts data (the same holds for the problem of NPISHs).

2. Survey measures of wealth in business

The aim of the following section is to evaluate how the approaches used in practice in the surveys match National Accounts definitions. In fact, as already mentioned, those definitions provide the natural benchmark for producing harmonised statistics on wealth in business. The analysis is based on the Italian Survey on Household Income and Wealth (SHIW), the US Survey on Consumer Finances (SCF), the Canadian Survey of Financial Security (SFS), and the Cyprus Survey of Consumer Finances (CySCF).

SHIW - In Italy the main source of information on household wealth at the micro level is the Survey of Household Income and Wealth, conducted by the Bank of Italy.

In the SHIW, household's wealth in business consists of the value of actively managed businesses. In a different section, the value of investments as a form of saving is also recorded. Household's savings in privately held businesses are surveyed in section C of the questionnaire, together with other forms of saving. For any of these assets, the household has to report the market value at the end of the previous year.

The evaluation of actively managed businesses is particularly delicate, since in Italy the fraction of self-employed labour force is among the highest in OECD countries. The SHIW adopts two methods. Members of the professions, sole proprietors, free-lance workers, and members of family businesses are asked how much their firm could be worth should they sell it. This value must include any equipment used, stocks and goodwill and must exclude the value of buildings and land. Active shareholders and partners in incorporated firms are asked to indicate the market value, at the end of the previous year, of their own share in the firm. These values are those underlying the published figures. All collected values refer to the previous year.

The rationale for excluding buildings and land will be discussed later on. Now we focus on the other components of wealth in business. In the SHIW this value is made up of three components:

1. **the value of firms owned by members of the professions, sole proprietors and free-lances**, collected using the following question: "How much do you think your firm is worth if you want to sell it, including any equipment used, stocks and goodwill and excluding the value of buildings and land?";
2. **the value of family businesses**, collected using the same question;
3. **the value of shares and equity of partnerships and limited liabilities companies**, when the household member is an active shareholder/partner. In this case the value is collected using the following question: "What was the market value of the firm (your share only) at the end of the year?"

In cases (1) and (2), the value of the firm is based only on non-financial assets, tangible (machinery and equipment, inventories) and intangible (goodwill), excluding buildings and land. In the case of item (3), the value of the firm is indirectly computed, resorting to the value of a financial asset (market value of shares or equity issued by the firm).

In principle, this distinction is coherent with the representation of economic activity in the national account framework: the system of accounts is based on the concept of institutional unit and on the grouping of institutional units in sectors of activity. As already mentioned, according to this principle, a firm that is not identifiable as an institutional unit separated from her owner - in the specific case, a household - cannot be included in the balance sheet of its owner as a financial asset (shares or equity). Instead, firm's non-financial assets would be added to the owner's non-financial assets, as in cases (1) and (2) according to SHIW classification. Following the same criterion, firm's financial assets and liabilities would be added to the owner's financial assets and liabilities.

On the contrary, a firm identifiable as an institutional unit separated from its owner will be classified within the sector of corporations. Transactions between institutional units belonging to different sectors will be registered in sector accounts; shares and equity issued by the firm will be registered as financial liabilities of corporations and financial assets of households (as in case 3 in the SHIW definition of wealth in business).

Notwithstanding the same underlying theoretical scheme, SHIW and ESA95 definitions are not completely overlapping. As explained in the previous paragraphs, according to ESA95 in its Italian operative implementation, the institutional sector of corporations and quasi-corporations includes not only general partnerships and limited partnerships but also informal partnerships, *de facto* partnerships, and sole proprietorships, provided they have more than five employees. Units with more than five employees are assumed to be a single autonomous n elementary economic decision-making.

Another peculiarity of SHIW definition of wealth in business is related to the inclusion of the value of shares and equity of active shareholder/partner. The value of the remaining shares and equity (whose owner is not an active shareholder/partner) is excluded from wealth in business and included in the value of financial assets; in this respect the SHIW classification resembles the difference between foreign direct investment and foreign portfolio investment in the balance of payments. As it was already recalled, this classification is not used in the national and financial accounts scheme .

Information on buildings and land is collected in a different section of the questionnaire. Households can possess premises (eg shops, offices, etc.) and land for different purposes; for example, an office can be used for free-lance, professional, sole proprietorship or family business activity or it can be rented. If the information on the value of buildings and land used for business activity was collected in the same section of the questionnaire where the value of the firm is surveyed (ie, collected from the side of the user), the amount of rented buildings and land should be subtracted from the wealth in business of the tenant household and added to the wealth of the owner. Alternatively, the value of buildings and land can be collected in a proper section of the questionnaire, looking at the owner rather than to the user; this is the solution adopted in the SHIW. In the SHIW buildings and land are subjectively evaluated by respondents. For instance, all interviewees are asked the following question: “How much could the property be sold for? In other words, what do you think it is worth “unoccupied”?”.

Debt and credit related to the activity of members of the professions, sole proprietors, free-lances and family businesses are collected in the same section of the questionnaire where the value of the firm is surveyed. Debts for the purchase of property, durable goods or consumer goods for household use are excluded. Interviewees are asked the following question: “What was the amount of: medium and long-term debt for buildings or land for use in your activity; medium and long-term debt for business-related investment; short term debt with banks and financial companies; trade credit (suppliers); trade credit (customers)?”. Data on severance pay set aside for employees are not collected.

All in all, in order to allow for full reconciliation between survey definitions and national accounts definitions, SHIW data on wealth in business should be re-classified taking into account the legal form and the size of the owned firm. In addition, the coverage of the firm’s balance sheet items should be completed: the most relevant missing item being accumulated reserves for severance pay.

SCF - The *Survey of Consumer Finances* is a triennial interview survey of U.S. families sponsored by the Board of Governors of the Federal Reserve System with the cooperation of the U.S. Department of the Treasury.

SCF collects information about actively and non-actively managed businesses separately. Respondents are asked to provide the value of the asset or the amount of the debt at a time as close as possible to the date of the interview.

As to households' accumulated investments in business activities, SCF distinguishes among the following categories: limited partnerships, other partnerships, subchapter S corporations, other types of corporations, sole proprietorships, all other non-actively managed businesses. Any of these forms of saving are collected through the following question: "*What could you sell your family's share for?*".

In the US, like in Italy, privately held businesses are an important asset for the household sector. In 2001, 10.7 per cent of households had an active management role in a privately held business. In terms of assets, the actively managed interests account for 89 per cent of total privately owned business interests and for about 26 per cent of total assets.

Unlike the SHIW, SCF uses only one approach to collect the value of actively managed businesses. This consists in asking directly for the market value of the net equity: "...*What percentage of the business do you own?… What is the net worth of your share of this business? What could you sell it for*?". Time reference is the date of the interview.

The total value of net equity in privately held businesses is made up of the following components: 1) the value of farming/ranching business; 2) the value of other businesses in which the family has an active management role.

For households living in a ranch or in a farm, SCF asks (in the section on principal residence) whether a member of the family operates a farming or ranching business on their property. In the same section SCF also contains a question about the value of real estate: "*Could you tell me the current value of the entire part of the land and building you own? I mean, what would it bring if it were sold today? Do not include any farm animals, implements or crops.*" Also a question about loan is included: "*What is the amount still owed on the land contract?*". The remaining value of farm/ranch business is then asked in a following section about actively managed businesses and refers to assets and liabilities not already recorded: implements, livestock, crops, operating loans other then mortgages, etc.

This section also includes questions about the other actively managed businesses, ordered beginning with the business with highest market value (up to four different businesses are considered, with the last one grouping all the less important businesses). By the way, although some families have more than one business that they actively manage, the median number is 1, and the total value of all primary actively managed businesses accounts for 81 per cent of the value of all actively managed businesses.

The net equity for these businesses is computed as: 1) market value of family's share if business were sold today; 2) plus value of family members' personal assets used as collateral for business; 3) plus loans from household to business; 4) minus loans from business to household.

For each business SCF collects, among the other information, the book value, the legal status (partnership, sole proprietorship, subchapter S, limited partnership, limited liability company, foreign business type, other), and the number of employees. Such information enable to select the households defined as producers by the national account definitions. This fact notwithstanding, only for farming and ranching businesses it is possible to separate financial from non-financial assets. For other businesses SCF does not use the "balance sheet approach" used by SHIW, only information about net equities being available.

The value of non-residential properties is clearly separated from the value of residential ones. Information is provided for each of the top three properties as well as for the remaining assets combined. It should be noted that, unlike in SHIW, the value of assets used by the household to run a business are not collected in this section, but are included in the net equity of the business.

SFS - The *Survey of Financial Security* provides a comprehensive picture of the net worth of Canadians.

In SFS the total household's wealth in business consists of the value in actively and non-actively managed businesses. Respondents are asked to provide the value of the asset or the amount of the debt at the date of the interview.

Investments in businesses as a form of saving are distinguished in investments in publicly traded stocks and other shares in privately-held companies. Both assets are valued through a question asking the amount household could get if it sold the item today (date of the interview).

As to actively managed companies, the share of households holding net equity in businesses was 19 per cent in 1999, accounting for about 12 per cent of total assets (Statistics Canada, 2001).

The approach used to collect the value of net equity in businesses is very similar to the one applied in SCF. A unique question is used: "*What is your equity in the business, that is, the net amount you (your family) would receive if this business were sold today? Deduct any outstanding debts that must be paid.*" The question applies for all different businesses held by households. Only for farms it is available the value of farmhouse (and yard). Like in SCF, questions are ordered beginning with the business with the highest market value.

After collecting the information about net equity, SFS also gathers information about the book value of the assets of the entire business (cost price less depreciation). Those include financial assets, accounts receivable, inventories, land, buildings, machinery, equipment, customer lists, intangible assets, etc. In SFS, only legal status is available for any business (unincorporated or corporate business, sole proprietorship or partnership).

Finally, SFS collects information about properties other than principal residence and assets used for running a business. The respondent is asked to report the family members' share of property and the current market value (both in Canada and outside). He (or she) may report the total value of the property or the value of each asset separately (a maximum of three assets are considered). As a consequence it is not clear whether it is possible to separate residential from non-residential properties.

CySCF - The University of Cyprus and the Central Bank of Cyprus started in March 1997 a special research project titled *"Portfolios of Cyprus Households"* which is designed to fulfil the scope of a standard Survey of Consumer Finances, namely to collect detailed and comprehensive information on assets, liabilities, income, and other financial characteristics from a representative sample of a population. The project has evolved to a triennial survey known as the Cyprus Survey of Consumer Finances. The CySCF provides detailed information about both actively and non-actively managed businesses. For the actively managed businesses, the respondent provides for each company owed by the household, information about the type of activities of the company, the number of employees, the year of foundation/acquisition, the way it was acquired, and the percentage of the company owed by the household. Furthermore, details about the amount of any collateralized or guaranteed loan and the amount of any loan owed to the company by the respondent are provided. Finally: 1) the net worth of the business; 2) the original investment; 3) the gross receipts or sales; 4) and the total net income are furnished. It should be noted that the information is provided for each of the top three businesses as well as for all the remaining businesses combined.

The inactively managed companies in CySCF are categorised in 11 legal categories, namely Private and Public Company Limited by Share, Private and Public Company Limited by Guarantee and Share, Company Limited (no share), Non-Profit Company, Foreign Company, Partnership (General) and Partnership (Limited), Commercial Company and Off-Shore Company. All other types of companies are grouped together under the umbrella "Other Types". According to the questionnaire, the respondent is required to provide the number of companies owed by the household for each legal category. For all companies combined the following three values are reported by legal status: 1) the market value of the household's share if the company is sold now; 2) the original investment; 3) and the total net income.

Furthermore, the value of the non-residential properties owed by the household is provided for: (1) each of the 3 largest properties; (2) all summer houses combined; (3) all properties in the occupied part of Cyprus by type of property (land, residential land, house, other types); (4) and all other properties.

Note that summer houses have been included in the above list since they are occasionally leased for business purposes and therefore they are not exclusively used for residential purposes.[9]

Note also that for the properties in the occupied areas only an estimation of the value of the property is offered by the respondent. Furthermore, it should be pointed out that these properties are not exploitable (neither for residential nor for non-residential purposes).

3. Households' wealth in business: reconciling macro and micro definitions

In order to produce harmonised statistics, the measurement of wealth in business in sample surveys should be based on National Accounts definitions. However, this approach requires to deal with two main problems. First, as already mentioned, National Accounts do not provide a general definition of household's wealth in business. Second, working definitions may differ across countries.

An ideal solution would require statistics to meet the following conditions at the same time: (1) to allow consistent comparisons across countries (2) to be consistent within each country with National Accounts working definitions.

In this section we describe a tentative solution for the harmonisation process.

We suggest to define the "**total households' accumulated investment in shares and equity**" as the current market value of the assets which are used (or might be used) as an input for a production activity destined to the market. These assets may be directly used by the households or may be provided to others (the entrepreneurs). The proposed category may be thought as an extension of the SNA concept of *shares and other equity*; it is composed of three main types of assets (table 1):

1. *The current market value of non-actively managed businesses.* These are financial assets (except mutual fund shares) which represent property rights on corporations or quasi-corporations. These financial assets generally entitle the holders to a share in the profits of the corporations or quasi-corporations and to a share in their net assets in the event of liquidation.
2. *Wealth in business*, that is the current market value of actively managed businesses. This category is the total value of the net equity in businesses held by the household as producers.
3. *The current value of other household business interests* in non-residential properties such as buildings and land.

With respect to the SNA aggregate "shares and other equity", two additional components are included: item 3 and part of item 2. The last one considers among the actively managed businesses also those production activities that cannot be classified as separated institutional units from the owner-households. On the contrary, the SNA and the ESA95 place

[9] This is a peculiarity of the CySCF. Note that in the definition of wealth in business we use in this paper, summer houses are not included among non residential properties.

those activities among the producer households; the consequence is that the corresponding value of the firm cannot be identified as such in the national accounts scheme, but it is sectioned into the various real and financial assets (and liabilities) to be attributed to the households' balance sheet as components of their net wealth. We will turn to that issue later.

In addition to the items listed above, there are three further aggregates, collected by SCF and CySCF, that could be considered for inclusion among households' business interests:

4. The value of family members' personal assets used as collateral for business. The rationale is that, although the business loan is reported on business balance sheet, the household has "at risk" some of its personal assets if the business defaults on its loan.

5. The value of loans from household to business. For example, many business owners will take out a home equity or personal loan to finance the start-up of their business. From the point of view of the business, it makes no difference if a loan is granted by a bank or by the household owing the firm: in both cases, the loan must be recorded in the firm's balance sheet among it financial liabilities, not affecting its net worth (and thus also households' wealth in it). From the household viewpoint, instead, granting a loan to the business increases the household's interest in the business (think of the household's losses in case of bankruptcy).

6. The value of loans from business to household. This would be what households have "taken out" of the business. So, they reduce their "business interests" by this amount.

We suggest not to include the components (4), (5) and (6) among household investments in shares and equity. Those components foreshadow an enlarged definition of households' interest in business that tries to get across how much "net" money has the household invested in the business and could extract from the business. Such an approach is not followed in the National Accounts (either ESA95 or SNA93 or FFA) that stick more to balance sheet concepts. Wealth in business should be a measure of the net equity of the business, that is basically what a prospective buyer would pay for the business.

The reconciliation between micro and macro definitions could be obtained at different levels of detail, summarised in table 1. Each country may decide the preferred level for collecting information depending on its constraints and peculiarities. Whatever the level of detail, the collected information should however be consistent for all countries.

The first level of detail requires surveys to collect answers to ***a unique question about the current market value of total household's share and equity***. The question should clearly indicate the assets and liabilities to be reported and the valuation criteria to be applied. In particular, the value declared by the respondent should include the accumulated investments in shares and other equities as a form of financial saving, the investments in companies in which the household plays a managerial role and the non-residential properties.

Table 1

Measuring wealth in business: different approaches for data collection

Level 1 Lowest level of detail	**Level 2** Intermediate level of detail	**Level 3** Suggested level of detail
(1) Total households' accumulated investment in shares and other equity	**(1.1)** The current market value of non-actively managed businesses.	**(1.1)** The current market value of non-actively managed businesses.
	(1.2) The current market value of actively managed businesses **(wealth in business)**	**(1.2.1)** The current market value of net equity of ***corporate*** businesses
		(1.2.2) The current market value of net equity of ***unincorporated*** businesses ***outside*** the household sector.
		(1.2.3) The current market value of ***unincorporated*** businesses ***included*** in the household sector. For this category, **non-financial assets (A1)** should be separated from **financial assets (A2)** and **liabilities (L1)**.
	(1.3) The current market value of other household real estate, net of debts incurred for their purchase	**(1.3.1)** The current market value of non-residential properties (properties, land,...) leased out to others, net of debts incurred for their acquisition.
		(1.3.2) The current market value of other non-residential properties (properties, land,...) owned by the household and not included in the previous items 1.2.1, 1.2.2 1.2.3 and 1.3.1, net of debts incurred for their acquisition.
Items for broader concepts		
(2) The value of other household business interests	**(2.1)** The value of assets used as collateral **(2.2)** The value of loans from households to business **(2.3)** The value of loans from business to households	

As to valuation criteria, for quoted shares the value should be based on quotation prices. For unquoted shares and other equities the total value should correspond to the current market value of the financial assets and the non-financial assets of the owned business activity, net of its financial liabilities (the ownership percentage must then be applied). The main components are listed in Table 2.

This valuation approach is consistent with ESA95 criteria. As a matter of fact, in National Accounts the net equity for quasi-corporations is defined as the sum of non-financial and financial assets net of liabilities. Our proposal differs from national accounts criteria only because such a valuation method is extended to firms that the SNA or the ESA95 would classify in the households sector (producer households). In line with the prescriptions of national accounts, instead, for corporations the value of net equity is computed using the current market value of share quotations, which may differ from the current value of its components.

Coming to the market value of non-residential properties owned by the household, this should include both the value of properties leased to other households for non-residential purposes and the value of all the other properties not used for residential purposes.

It is worth noting that non-residential fixed assets are considered as a component of the "core" aggregate representing household wealth in business (item 1.2 in table 1) only if they are both owned by the household and directly used by the same household in combination with other input factors to run an activity. On the contrary, if such assets, albeit used for production purposes, are not owned by the household, or they are owned by the household but rented to others for business purposes, they are non-included within the "wealth in business" boundary but are considered as real estate investments (item 1.3 in table 1).

Table 2

The balance sheet

Non-financial assets (A1)	**Financial liabilities (L1)**
Produced assets	Loans from financial institutions
Fixed assets	Trade debts
Inventories	Severance pay
Non-produced assets	Other liabilities
Land	
Financial assets (A2)	**Net equity (L2= A1 + A2 – L1)**
Currency and deposits	
Securities other than shares	
Shares and other equity	
Insurance technical reserves	
Trade credits	
Other accounts receivable	

From a theoretical point of view, households' wealth in business should also include part of the value of the principal residence when it is also used for commercial or business purposes. Such a problem may arise, for instance, for households living in farms or ranches and operating a farm/ranch business on their property. A similar situation may apply to sole proprietorship or members of art and profession who use part of their home to run their business. In order to solve such problems surveys should collect from entrepreneurs information on whether they use principal residence for their business. If so, the respondent should be asked to report what part of the property is used for non-residential purposes (for instance, it could be assessed in terms of the surface).

The second level of detail in data collection requires to separate "portfolio like" investments in shares and other equities (1.1) from investments in actively managed companies (1.2). In order to produce harmonised statistics, a common definition of actively managed businesses is needed. A solution could be to base such a definition on the following conditions:

- household's ownership of a significant equity of the company. The most appropriate threshold in each county could possibly be selected after an ad hoc investigation to be developed before the survey.
- Household's members playing a key influence on the planning of long term objectives, strategies, investments and financial and economic expansion of the business.

Of course, sole proprietorships and partnerships without independent legal status cannot be included among non-actively managed companies. For those types of firms, the household is not a separated entity from the business and therefore it necessarily plays an active role.

Once the border between actively managed and non-actively managed business is clearly specified, the second level of detail requires that surveys only collect the current market value of net equity for the two groups separately.

From an economic perspective, this second level of detail enables us to isolate and to study the value of businesses in which households have an entrepreneurial activity, that is the concept of *wealth in business*.

It is worth noting that neither the first level of detail nor the second one allow a within countries comparability with National Accounts definitions. They only allow consistent comparisons among different countries.

The ideal level of detail would then be for surveys to collect separate information on the following components:

1. **The value of actively managed corporations**, that is the net equity in companies which are separate legal entities from the household (1.2.1);
2. **The value of net equity in actively managed unincorporated businesses that are not classified in households sector** (1.2.2). As it was recalled in the previous paragraphs, even if the firm does not have a legal status, under certain conditions it can be considered as a separate economic unit from the household and therefore is not included among the producer households. The border between household as producers and quasi corporations and corporations may differ from country to country. Each survey should collect the information consistent to the working definitions used in its country. It is worth noting that for these businesses, in order to ensure consistency with national accounts it is not necessary to collect separate information about financial and non-financial assets.
3. **The value of unincorporated businesses to be included in the household sector** according to each country working rules (1.2.3). For these businesses, if the intent is to allow for comparison with the different components of households' wealth in national accounts, surveys should separate non-financial assets (A1) from financial assets (A2) and financial liabilities (L1).

4. **The value of properties other than the principal residence** not used for residential purposes, net of loans incurred for the acquisition of those properties **(1.3)**. In order to ensure consistency with national accounts, surveys should collect separate information on the value of those properties and on the debts incurred by households for buying them. In fact, despite the issue we consider in our definition of wealth in business (the value net of debts), in the national accounts distinct information on those loans is not available, and the comparison with survey data must be limited to the values of non-residential properties gross of the loans incurred for their purchase.

The separation between unincorporated businesses to be included in the household sector **(households as producers)** from the others **(corporations and quasi corporations)** is obviously the key issue for this level of detail. This classification may differ among National Account definitions depending on the way they are put into practice. In Italy for instance, the key classification variable (in addition to legal status) is the number of employees. On the contrary, applying the SNA rules, only the distinction between corporate and unincorporated businesses would matter[10]: all corporate companies are considered as separate economic units from the household, while unincorporated businesses are not. In FFA a further different approach is used. Unincorporated businesses are classified as producer households but are included in a separate institutional sector (non-corporate business equity). The net equity of this sector is held by households and non-profit institutions.

Compared to the others, this latter approach seem to be preferable for its linearity and its application easiness.

The proposed level of dissection enables us to get, for each country, an information comparable with the corresponding National Accounts series.

To obtain a consistent estimate of ESA95 item *shares and other equity*, it is sufficient to sum up the components 1.1, 1.2.1 and 1.2.2 from SHIW (item 1.2.3, in fact, is simply not defined in this case). On the contrary, the components included in 1.2.3 must be added to the corresponding household's personal financial and non-financial assets.

For SCF, in order to get a comparable estimate with the FFA item *equity in unincorporated businesses* it is sufficient to add components 1.2.2 and 1.3.1: as already mentioned, in FFA only the legal status matters, and all the unincorporated businesses are included in a separate institutional sector from households.

Finally, since in National Accounts assets are valued at the end of the year, surveys should also collect information referring to the same point in time.

At present, SHIW is the survey that is closest to the third level of detail. "Portfolio like" investments are separated from investments in actively managed businesses. Moreover, for the latter a balance sheet approach is used to collect the current value of household's business interests. For any property other than the principal residence, information about the destination and the current market value is collected. However, there is no complete consistency with ESA95 definitions. As already mentioned, an important component of the firm's balance sheet is missing (severance pay), while for family businesses it is not possible

[10] According to SNA definition: "producer units within the household sector are all unincorporated enterprises, even though this terminology is admittedly cumbersome when applied to some of the smaller, or highly specialised, producer units. Nevertheless, the term unincorporated enterprise emphasise the fact that the producer unit is not incorporated as a separate legal entity from the household itself (4.140). The fixed and other assets used in unincorporated enterprises do not belong to the enterprises but to their owners. The enterprises as such cannot engage in transactions with other economic units. They cannot enter into contractual relationships with other units nor incur liabilities on their own behalf. Their owners are personally liable, without limit, for any debts or obligations incurred in the course of production (4.141)".

to separate firms to be included in the household sector from corporations and quasi corporations.

As to SCF, the main discrepancy with level 3 definitions lays in the fact that, only the value of one to four rental properties is collected (component 1.3.1). The value of component 1.3.2 is included in the total value of other properties. For actively managed businesses to be included in household sector (component 1.2.3), the survey does not separate non-financial from financial assets and liabilities. However, at country level this is not a problem, since it does not prevent the comparability with FFA.

Like SCF, the Canadian SFS only collects information on the net equity of the business. This is the main difficulty to overcome to get comparable estimates with CSNA. For household as producers, (component 1.2.3) the survey should collect separate information on financial assets and liabilities and non-financial assets.

The same comments apply to CySCF. The survey uses a collection approach similar to SCF, while it should mimic ESA95 definitions, since that is the reference manual for the compilation of national accounts by European countries . As a consequence, in order to get to level 3 the survey should separate non-financial assets from financial assets and liabilities (component 1.2.3) for the actively managed businesses included in the household sector.

4. Main findings and issues for discussion

The SNA and the ESA95 do not provide us with a definition of wealth in business, but households' assets and liabilities are defined and estimated by national accounts.

Improving the link between survey data and national/financial accounts has a twofold aim: (1) it improves comparability between micro and macro data, and comparisons between the two sources can be very useful to assess and improve the quality of both; (2) linking survey definitions to national accounts definitions is a natural way of creating a link between sample surveys of different countries and hence of obtaining harmonised survey results.

The set of definitions we propose appears to be suited for those purposes. Moreover, it seems to be easy to implement, since it requires only moderate adaptations to the current framework of the considered surveys.

Nevertheless, some key features of the scheme might be somewhat controversial; others require further refinements in order to become operational. In what follows, we recall some of those features, to open the floor for discussion and invite further research.

On the side of sector boundaries, a crucial issue concerns the split between households and quasi-corporations. As it was shown, the various systems of national/financial accounts are characterised by remarkable differences in sector classification. Our suggestion is for each survey to remain closer to the respective reference national account framework. This solution, of course, while allowing for comparison between survey and national accounts data at country level, does not ensure cross country comparability. Consequently, high transparency of the adopted definitions is required, in order to make users aware of the peculiarities of national survey data and able to avoid misleading conclusions from their research. Although the implicit trade-off between costs and benefits of cross country harmonisation appear reasonable to us, it may well be unsatisfactory to others.

A second issue concerns the delimitation of actively managed businesses. Consensus on the desirability of the proposed concept and on the practical way to implement it is not enough to ensure straightforward international comparability of results. As a matter of fact, our tentative definition rests on two pillars that still have a generic formulation at this stage and need to find commonly accepted specifications and thresholds: the household's capability to exert a key influence on strategic decisions of the firm; household's share in the equity of the firm.

A further set of open issues regards the asset boundary and valuation criteria, two aspects that, in some cases, are logically linked.

The more general issue under that heading relates to the concept of wealth in business: we propose to keep all non-residential buildings separated from the “core” aggregate that is intended to represent only the market value of actively managed businesses. This is an innovative solution even with respect to the FFA, where part of the non-residential properties, namely those leased to other household, are included in unincorporated (and hence actively managed) businesses.

Another point concerns the way of expressing an important component of wealth in business, that is the value of firms that are not identifiable as institutional units separated from their owners and therefore - contrary to what happens for corporations and quasi-corporations - cannot be registered in the balance sheets of the owners as financial assets. In our view, the value of those firms can be represented in two alternative ways, depending on the analytical purposes. If the main interest is, for example, to evaluate the total amount of wealth in business in order to make cross country comparisons, the value of firms classified as producer households can simply be represented by a single value, mimicking the net equity of quasi-corporations. On the other hand, if one is interested, for instance, in comparing the composition of wealth according to survey data with that resulting from national accounts, where “wealth in business” as such is not defined, the various items in the firm’s (producer household’s) balance sheet should be evaluated separately. Instead, the value of unincorporated firms that are identifiable as institutional units separated from their owners should in any case be included in the balance sheets of the owners as financial assets (shares and equity) and should be set equal to firm’s assets less liabilities. It is important to remark that the eclecticism of our proposed approach is extraneous to both national accounts and the frameworks of existing surveys.

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Determinants of household saving and borrowing in Botswana

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Introduction

The paper examines trends in household savings in Botswana, including possible factors that influence savings. It further investigates the changing patterns of non-financial savings by households; for example, the switch from livestock to other assets, either physical or financial. Borrowing activities of the household, both in the formal financial sector and the non-formal sector, are also examined. This will, among others, address issues of traditional social arrangements where groups of people informally team up and engage in some savings/lending activities, which are mainly funded by household savings. In general, households in Botswana are net borrowers with respect to the banking system, but are net savers when contractual savings are included. Although not easily quantifiable, there appears to be significant use of informal savings and borrowing schemes by households. The paper finally outlines some statistical challenges associated with monitoring household savings in Botswana.

What are household savings?

The amount of household savings in any period is the current income put aside by a household for future spending. Households can also borrow to cover a foreseeable financial shortfall or in order to supplement their current income. Such borrowing can be to finance payments on a large investment such as residential property, buying a car or paying for school fees. Saving is important for any economy in that it builds up resources that will be available for investment, which adds to the capital stock of the economy. It is also a way of allocating the scarce resources from surplus to deficit units. It also contributes towards smoothing future consumption. Keynes (1936) came up with as many as eight reasons why households would prefer to put aside some income for future spending. These are reproduced below.

(i) To build up reserves against unforeseen contingencies

(ii) To provide for an anticipated future relationship between the income and the needs of individuals

(iii) To enjoy interest and appreciation

(iv) To enjoy a gradually increasing expenditure

(v) To enjoy a sense of independence and the power to do things, though without a clear idea or definite intention of specific action

(vi) To secure a “masse de manœuvre“ to carry out speculative or business projects

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[1] Senior Economist, Research Department, Bank of Botswana. The Author would like to thank all colleagues in the department who have provided invaluable comments for this paper. However, the Author takes full responsibility for any errors and omissions that may appear in this paper.

(vii) To bequeath a fortune

(viii) To satisfy pure miserliness, i.e., unreasonable but insistent inhibitions against acts of expenditure

To the above eight reasons, Browning and Lusardi (1996) added a ninth, which is

(ix) To accumulate deposits to buy houses, cars and other durables

General factors determining household savings

There are several studies that address this topic and generally outline four basic reasons why households save: creating resources that can be used during retirement and/or as inheritance; creating resources that can be used to finance expected future large expenses (e.g., acquiring a house and educational expenses); providing for loss of income (precautionary saving); and maintaining a stable consumption pattern. Moreover, Callen and Thimann (1997), found that public saving, economic growth and demographic factors do influence household saving, while other economic variables, such as inflation, unemployment, the real rate of interest and financial deregulation, also have an effect. In addition, household saving is affected by income tax and social security systems, whereby high direct income taxes and government transfers to households have a negative effect on personal savings.

It is also observed that double taxation of savings similarly affects saving negatively, in jurisdictions that tax gross income, as well as interest on savings (Mitchell 1998). This system encourages immediate consumption, rather than saving, as households that decide not to save, but consume immediately, are not affected by the second-round of income taxes. Mitchell (1998), therefore, suggested that eliminating this kind of taxation, as well as that on capital gains and the estate taxes, can encourage saving.

Household saving in Botswana

The review below analyses households saving in Botswana using data for commercial banks and pension funds.

Theoretically, savings are positively related to the real interest rate and real income. Using the data from commercial banks in Botswana, it has previously been found that the main factor causing households to vary their savings is the interest rate paid on deposits (Bank of Botswana Annual Report 1997). However, the response of savings to changes in the deposit rate was very small, with an estimated elasticity of 0.14, which indicates that for every 10 percent increase in the rate of interest, savings would increase by only 1.4 percent. It has also been found in Botswana's case, that there is a long-term relationship between nominal rates on deposits and the level of household deposits with commercial banks (calculated as a ratio of non-mineral non-government GDP), while the relationship with respect to the real interest rate was found not to be as strong as would have been expected a priori. This may be attributed to problems with measuring the real interest rate, which is the difference (at least to a very good approximation thereof) between the nominal interest rate and expected inflation. The difference, in research, has typically been proxied by actual inflation. Alternatively, the nominal interest rate can be a good estimate for the real rate, but only in cases where inflation is stable and low. It would not be a good proxy where inflation is high and unstable as it can vary considerably from the real interest rate.

While, a priori, it is expected that savings should be positively related to real income, for Botswana the short-run relationship was found to be negative; when real income or the rate of economic growth rises, household deposits fell (Bank of Botswana Annual Report 1997). This could be attributed to households expecting the increase in real income being

permanent or long-term. For example, those in employment tend to increase their rate of consumption more than the increase in their real income. The other explanation may be that, as real income increases, to the extent that this leads to employment growth, this raises borrowing capacity (the newly employed may be more interested in borrowing). However, the extent to which this has been an important factor in the case of Botswana is doubtful given that, despite sustained rapid growth of the economy, employment creation has been more limited.

Various savings systems in Botswana

Formal financial systems

From July 1975 when the Bank of Botswana was established and August 1976, when the Pula was introduced (replacing the South African rand), Botswana's formal financial sector has grown substantially, but with added momentum from the early 1990s following significant sectoral liberalisation. Up to 1982 (when the Bank of Credit and Commerce Botswana (BCCB) came into the market), only two commercial banks - Standard Bank (subsequently Standard Chartered) and Barclays Bank - operated in the country, both as branches of the British parent banks' South African subsidiaries. Other formal financial institutions operating in the country included the Botswana Savings Bank, the Botswana Building Society, the National Development Bank and the Botswana Development Corporation, all owned by the Government and established to fill gaps in the financial sector with respect to small savings, housing finance and long-term agricultural and industrial funding. With significant financial liberalisation in the early 1990s, the number of commercial banks has increased over time; currently there are six commercial banks operating in the country together with one merchant bank, while there has been notable growth in financial instruments and improvements in the payments system. Total assets and liabilities of the commercial banks grew at an annual average rate of 19 percent from P125.7 million (approximately US$152 million) in 1977 to P828.9 million (approximately US$428 million) in 1988 and then at an annual average rate of 20.3 percent from P1,081.9 million (approximately US$578 million) in 1989 to P17,758.4 million (approximately US$3,220 million) as at the end of December 2005.

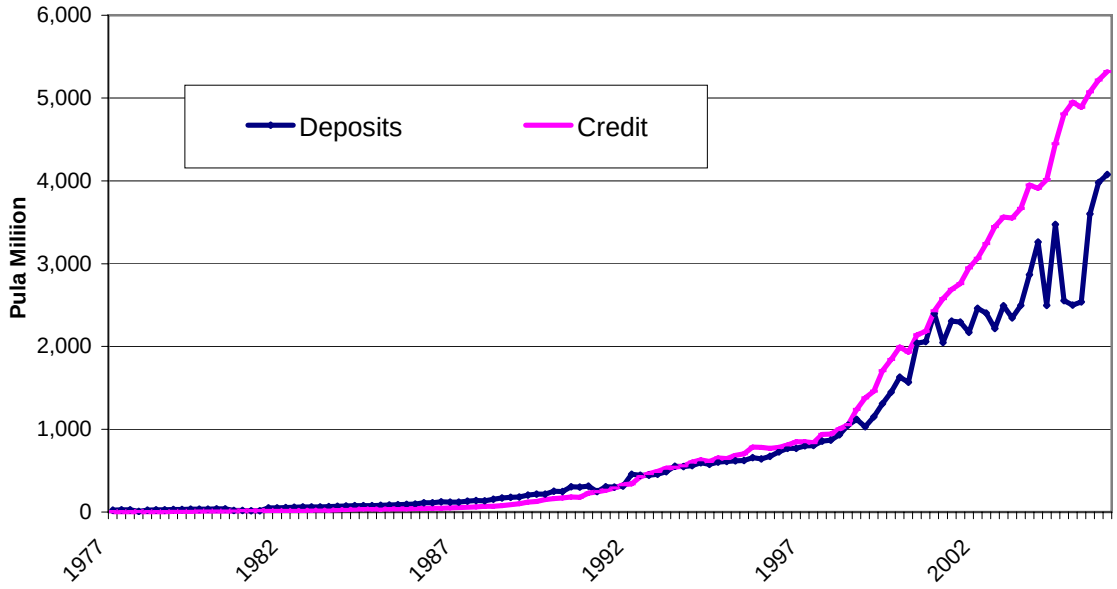
Invariably, the growth in the number of commercial banks was accompanied by the growth in household deposits, which rose from P22.4 million (US$26 million) in 1977 to P4,076.6 million (US$740 million) at the end of December 2005. However, this was not a smooth growth process as there were very high fluctuations in the rate of growth in the early years to the first half of 1982 due to a small base. Therefore, growth stabilised at an annual average of 21 percent to 2005.

Chart 1 indicates that the household sector in Botswana is a net borrower from the commercial banks. Initially, from 1977 to 1992, the household sector was marginally a net saver. From 1993, the household sector turned into a net borrower from the banking system and the gap has since been gradually widening. Though there may not be enough data to formally support this, it could be attributed to the changing lifestyle of Batswana that entails the need to own residential property, automobiles, durables and high quality education available in private schools, that is financed by borrowing rather than initial saving. While these needs should also encourage prior saving, this is a process which takes time, while the needs are perceived to be immediate.

With regard to deposits, the year-on-year growth rate averaged 26.4 percent between 1978 and 1988. After the liberalisation of the financial sector in 1988, the growth rate averaged 29.2 percent per annum over the next 17 years to 2005. The peak growth during this latter period from 1989 was 63 percent registered in 2005, while the lowest rate of growth was a negative 23 percent registered in 2004.

Chart 1

Commercial banks' total credit and deposits by households 1977-2005



Source: Bank of Botswana.

After the relaxation of controls on interest rates ceilings in 1988, there was a substantial increase in credit extended by the formal financial system (Moloi, 1996). This was evidence of some form of past "financial repression", where holding interest rates down affected borrowing negatively because banks were not willing to lend at the prevailing rates. The interest rate restrictions also resulted in real interest rates being negative, which may have discouraged savings too. The year-on-year growth in credit rose from 31 percent in 1987 to 48 percent at the end of 1988 and peaked at 60 percent in 1989, before falling to about 46 percent between 1990 and 1992. This occurred at the same time when water restrictions were lifted, which had affected the construction sector negatively. Hence, it could be concluded that the acceleration in credit growth was partly a result of the removal of the interest rates controls combined with the boom in the construction sector, which included the private housing development. Thereafter, credit growth slowed considerably to 7 percent in 1994.

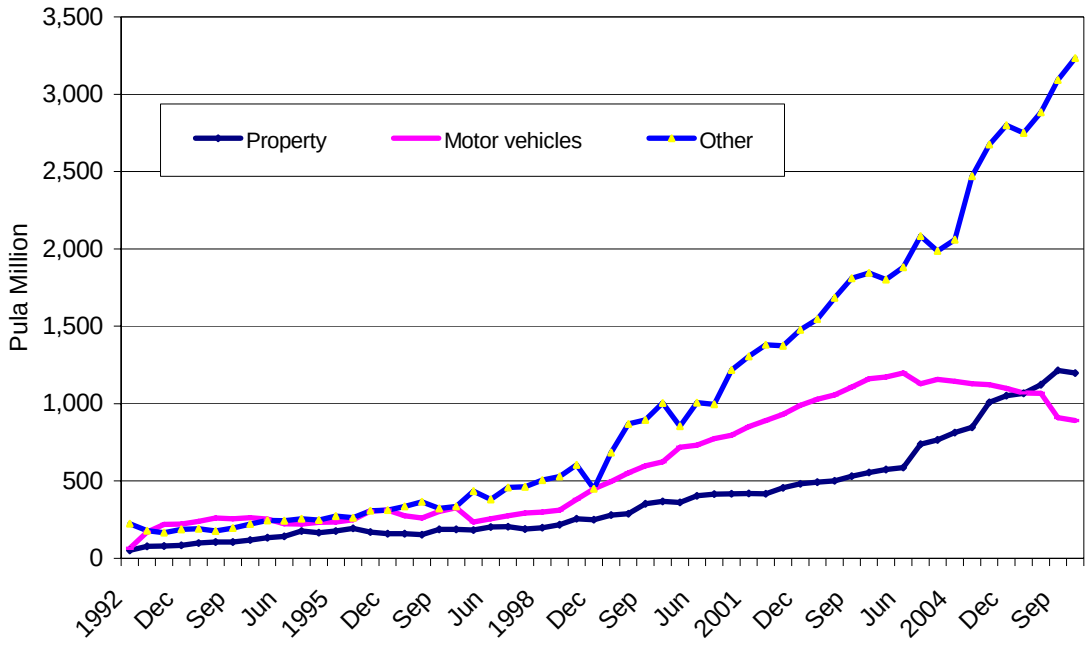
A breakdown of household credit since 1992 (Chart 2) indicates that most of the credit goes to the "other" category compared to residential property and motor vehicles. The category would include financing of durables, small informal businesses, un-mortgaged homes and improvements, education and other social and consumption expenditure. Around 1992, the largest portion of credit went towards the purchase of motor vehicles, followed by the "other" category, while credit for residential property category was the third largest. However, from 1994, credit to the "other" category exceeded that for motor vehicles and the gap has been widening ever since. Nevertheless, motor vehicle credit continues to be significant partly due to the introduction of the motor vehicle financial assistance scheme for the public service, under which loans from commercial banks are 80 percent guaranteed[2] by the Government,

[2] In contrast, some employers lend to their staff directly for property, vehicle purchase and, especially, short-term loans, which will serve to reduce the level of borrowing from the commercial banks.

making it easy for civil servants to access commercial bank loans. Average annual growth in these loans was 25 percent between 1992 and 2005; loans for residential property also steadily grew by 27 percent, annually, over the same period, with the share in total credit to households increasing from 35.1 percent in 1992 to 58.5 percent by the end of 2005. The gap between credit towards purchase of motor vehicles and residential property widened between 1999 and 2004, after which credit towards residential property exceeded that for motor vehicles as the borrowing towards the purchase of motor vehicles declined. The recent decline in commercial bank motor vehicle lending could be attributed to the rise in imports of second hand vehicles from Asia, which cost less. Until very recently, formal financial institutions were not directly financing the purchase of such vehicles, and customers were then taking credit categorised under personal use and using it to buy such vehicles. This could be part of the reason for the substantial increase in the "other" category.

Chart 2

Commercial banks' credit to households 1992-2005



Source: Bank of Botswana.

Overall, the increase in the "other" category is possibly also due to the fact that as limits for personal loans increased, it became feasible to use this to finance construction of small residential properties, as well as to undertake home improvements, without the constraints and formalities of a mortgage, and to finance the purchase of durables and motor vehicles.

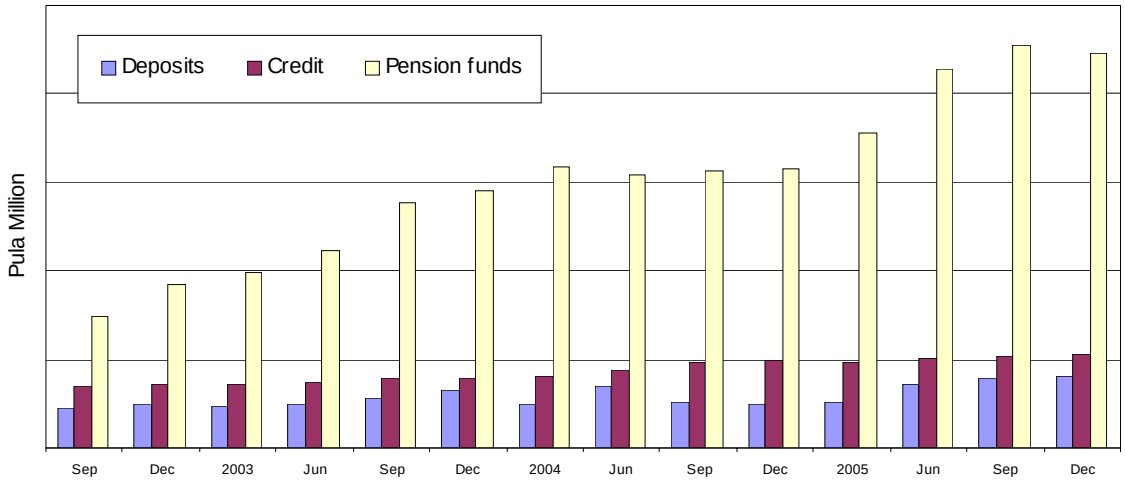
Pension funds

While households are net borrowers from the banking system, an analysis that includes pension funds[3] shows households to be net savers, see Chart 3. Most of these pension funds are institutional and operated through employers, where the contributions for employees are mostly involuntary. For example, permanent and pensionable Government employees (which constitute the largest sectoral group of employees) save for retirement through a contributory pension scheme, the Botswana Public Officers Pension Fund established in April 2001, which substituted for the previous pay-as-you-go defined benefit pension scheme. This explains much of the recent growth, averaging 49 percent per annum between 2003 and 2005.

A significant number of employees in the parastatal and private sectors are also members of contributory schemes in which both employers and employees contribute to the pension fund, with the former contributing a higher amount. A minimum amount is set for employee contributions, but they can go beyond this amount depending on how much they can afford. Despite households being substantial net savers when the pension funds are taken into consideration, these assets are not currently available to service debts, hence the net position of borrower's with respect to the commercial banking system remains a concern.

Chart 3

Household deposits & credit with banks and pension funds



Source: Bank of Botswana.

[3] Up to 70 percent of the pension funds assets can be invested outside the country, if returns and the range of investment opportunities are better. However, given the high prevailing rates of interest in Botswana, much less than 70 percent is invested abroad.

Informal financial systems

Some surveys have noted that the difficulty that households have in accessing the formal financial services (particularly in the rural areas) constitutes an obstacle to promoting savings by households. In the circumstances, households find alternative informal savings options and credit facilities. Apart from proximity, other hindrances to accessing the formal financial services include cost, the perceived low return of financial savings, and limits to accessing deposited funds.

Table 1

Comparison of main problems experienced with formal financial institutions across BLNS countries

Statement	Percent			
	Botswana	Lesotho	Namibia	Swaziland
Requirements				
They force me to keep a high minimum	52.3	76.6	37.5	63.6
I don't qualify for their services	57.2	57.7	40.4	51.8
I have to have credit references	25.8	47.2	24.3	32.5
I have to have a pay-slip	21.0	56.9	11.6	32.4
I have to fill in forms	14.9	39.5	10.3	27.0
I need a permanent address	6.2	12.7	13.6	8.1
I have to have an identity document	4.0	18.2	8.1	10.1
Access to the service				
I cannot get the money immediately if I need it	57.6	88.8	52.7	63.9
They are too far away for me and expensive to get to	45.6	77.6	48.4	57.2
I have to stand in queues for service	52.7	74.4	37.4	55.9
Their technology can be difficult to work with	46.6	68.6	23.8	38.4
Perceived value/benefit				
My money does not grow quickly	55.8	87.4	47.9	63.1
My money is taxed	42.7	81.4	40.0	63.3
They only offer a good return over a period of years	53.2	77.1	20.6	59.1
Their ATM machines are not always safe	39.2	84.6	40.1	38.5
The big institutions are not always safe	44.5	84.6	37.3	30.0
I have to pay to deal with them	34.2	66.7	23.3	41.6

[1] G:enesis Analytics is an economics consulting firm working in Africa and in other developing countries. The study was carried out at the initiative of FinMark Trust, and is the most comprehensive national household survey focussed on the financial services needs and usage across the entire South and Southern African population.

Source: G:enesis Analytics Survey 2004

Table 1 is re-produced from the G:enesis Analytics survey released in September 2004 and conducted in four countries - Botswana, Lesotho, Namibia and Swaziland (BLNS). The survey clearly shows that there are problems in accessing financial institutions in the BLNS countries. However, though Botswana may not have come out above the rest of other BLNS countries, it does reasonably well in that there are few constraints compared to Lesotho and Swaziland. In Botswana, 57.6 percent of the respondents noted that they are frustrated by the fact that once they have deposited their money with the formal financial system, it would be difficult for them to access it at the time they need it. This is followed by the 57.2 percent of the respondents who noted that they do not qualify for the services provided by the financial systems. Another disturbing factor is that many savers/investors feel that the returns on savings in the formal financial sector are relatively low (55.8 percent). This ties well with 53.2 percent who say that it takes time to get good returns in the formal financial systems. Such responses indicate that households would search for alternatives, which they feel would make their money grow faster. In the informal sector in Botswana, it is possible to get as much as 20 percent per month from lending although the risk of not being paid back is very high. However, this does not discourage the informal lenders when they compare that to saving and getting about 10 percent per annum on deposits in the formal sector, although there is virtually no risk.

A popular alternative to formal savings is in the form of households grouping themselves into informal financial arrangements based on families, friends/associates and workmates. In Botswana, such a grouping is called a motshelo.[4] In the literature, these are commonly known as rotating savings and credit associations (ROSCA) (Sephuma and Montagnoli, 2004) that are used as saving institutions and also extend credit to their members.

The members of the group decide how to lend amongst themselves depending on the existing group savings and the interest charged on the loaned amount is also agreed between the group members. This lending generates interest income for the group, while the obligation to repay is based on trust, as well as the commitment of an individual to the group. In other situations, because members want their savings to grow, there is compulsory borrowing by members within a given period. Failure to repay within an agreed period attracts a penalty over and above the normal interest charged. Group meetings are also compulsory to the extent that whoever fails to attend a meeting is penalised. These various charges are used to discipline the members as well as generate income for the group. The groups' "dividends" are usually declared annually.

Another source of credit to households are money lenders, some of whom may be the groups/metshelo described above. Some of these money lenders are well established businesses that have shareholders internationally (for example, in Botswana, Letshego[5] is listed on the Botswana Stock Exchange and has recently commenced operations in other countries - it is clear that this is hardly the traditional profile of a "money lender"). Money lenders, as long as they do not accept deposits from the public, are not regulated by the Bank of Botswana. Most of these money lenders charge very high interest rates compared to the formal financial institutions to cover for the higher risk of default, as well as running costs. Despite the high interest rates, households still find it easy to use such institutions because they require less information compared to the mainstream financial institutions. The majority of money lenders typically have clients that have a formal job as they require a salary advice

[4] A motshelo is an informal grouping by people, the purpose of which is to generate money to assist each other within the group. Group members agree to contribute a certain amount per month towards one member or towards the groups' saving fund. In its original sense, the funds were only accessible to group members; but nowadays members can agree to advance credit to non-group members as long as they agree and trust that the person will pay it back with some interest. As such, the distinction between the traditional motshelo and more formal money lending is sometimes blurred.

[5] A trading name for Micro Provident Botswana (Pty) Ltd.

slip and a bank account as proof that the client is capable of repaying the loan. Some of the users of informal money lenders are those that have been rejected by the formal financial institutions. To try to reduce the risk of not being paid, the lenders attach the loan repayment to the borrower's salary (Sephuma and Montagnoli, 2004) and the borrower's ATM card is kept by the lender so that on pay day the money lender is the first to withdraw the period's instalment. Though it is difficult to collect data from such financing, it is believed that it is small, probably less than P1 billion, compared to P5.3 billion (as at December 2005) for the banking system, a large proportion of which is provided by Letshego.

Households saving in Botswana is also in the form of livestock rearing. From the 2001 census data, the proportions of households owning livestock were: goats 41 percent; poultry 41 percent; and cattle 39 percent (37 percent of households owned no livestock). These data indicate that a significant number of Batswana, including those in formal employment are farmers. While cattle ownership has perhaps become less widespread as compared to small-stock, cattle can also be a source of income to those who do not own them, but can be employed as herders. Non-cattle owners can negotiate a scheme whereby they are given a certain number of cattle by an owner to look after, a system known as mafisa.[6] They are allowed to use all the products from the animals, such as milk to feed their family, as well as using the animals as draught power to plough their fields. At the end of an agreed period, the caretaker is typically given a beast, normally female, as a form of payment. It is from this payment that the caretaker can start his/her livestock rearing and building his/her own assets.

Usage of financial products/services by households in Botswana

Table 2 is also reproduced from the 2004 G:enesis Survey Report and, like Table 1, covers the BNLS countries. The table shows how households in surveyed countries responded to the various questions on the usage of financial products/services in their respective countries. The survey categorised the products into four major groups - savings, transactions, credit and insurance services. Households in Botswana have come out clearly at the top as major users of the three classifications, except for insurance services, where they came second after Lesotho. But still the number of respondents was 47.6 percent. This suggests that Botswana, relative to other countries surveyed, is more integrated into the mainstream financial sector.

The majority of those interviewed in Botswana (79.6 percent) use the savings products that are available in the market (including 25.7 percent who admitted being members of a stokvel,[7] which is another name for motshelo). Forty-seven percent admitted operating some savings/transaction account from commercial banks and another 36 percent admitted operating a post office savings account. A further eleven percent admitted belonging to a form of saving group. Fifty percent of respondents also admitted having some form of credit, the majority of which was with the non-financial institutions, including store accounts, many of which are with South African chain stores (many consumers shop at stores in South Africa where they have credit facilities). This should be an indication that households are buying goods, such as furniture and clothing, through credit from stores that provide such facilities.

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[6] Mafisa is an arrangement between large cattle owners and very small cattle owners or those with no cattle, whereby the latter party could be given a certain number of cattle to look after. The two parties can agree on how the person who keeps/looks after the animals can be paid, normally a beast after an agreed period of time.

[7] Originally a South African word, but now widely used in Southern Africa.

Table 2

Usage of financial products/services by BLNS countries

Respondents with one or more of the product/service	Percent			
	Botswana	**Lesotho**	**Namibia**	**Swaziland**
Savings	**79.6**	**33.3**	**48.5**	**46.2**
Post office savings account	35.5	0.6	19.9	0.2
Savings/transaction account from bank	47.0	17.0	28.4	35.3
Current/cheque account	17.7	0.9	8.3	4.1
Transaction/transmission account	7.9	0.0	4.6	2.3
Fixed deposit account	11.5	2.6	9.3	3.6
Call account with bank	3.2	0.0	2.2	0.3
Membership of stokvel	25.7	11.1	0.9	19.5
Loan/saving from NGO	0.6	0.4	1.9	2.0
Loan/saving from saving and credit coop	1.5	0.4	1.1	6.5
Member of a savings group (yes only myself)	10.9	3.0	3.6	6.1
Retirement annuity/provident fund/pension fund	22.3	4.1	22.5	17.2
Endowment/investment policy	8.5	1.3	8.0	2.5
Education insurance cover	2.6	1.5	8.9	1.2
Transaction	**43.6**	**6.7**	**26.8**	**17.7**
Savings/transaction accounts and ATM cards	36.8	6.2	22.1	14.2
Current/cheque account	2.3	0.9	8.3	4.1
Debit card	5.3	0.0	2.7	0.2
Credit card	12.5	0.4	6.2	1.8
Garage card	0.4	0.0	0.9	0.5
Transaction/transmission account	7.9	0.0	4.6	2.3
Credit	**49.6**	**12.6**	**26.8**	**27.7**
Mortgage bond or housing loan from bank	2.3	0.0	6.9	2.2
Current or cheque account (assuming that individuals that qualify for this will also qualify for credit)	17.7	0.9	8.3	4.1
Credit card[1]	12.5	0.4	6.2	1.8
Transaction/transmission account (assuming that individuals that qualify for this will also qualify for credit	7.9	0.0	4.6	2.3
Vehicle finance from a bank	6.2	0.0	2.0	0.7
Loan from a bank	11.7	0.0	5.3	4.1
Personal overdraft with a bank	1.1	0.2	4.1	0.2
Business overdraft with a bank	0.2	0.2	1.2	0.0
Loan from registered microlender	4.2	1.1	1.4	2.8
Loan from unregistered microlender	3.6	5.6	0.6	4.0
Loan/saving from NGO	0.6	0.4	1.9	2.0
Store account	29.1	6.0	15.2	16.1
Loan/savings from savings and credit coop	1.5	0.4	1.1	6.5
Insurance	**47.6**	**56.0**	**36.5**	**19.2**
Membership of burial society	21.2	51.7	10.3	12.6
Funeral policy	20.9	10.3	30.6	9.4
Life insurance policy	26.0	2.4	19.6	6.3

[1] Credit/charge card used at a gas/fuel/petrol filling station.

Source: G:enesis 2004

Much of this will not show up in any measure of domestic borrowing in Botswana, unless such stores financed their trade credit with loans from Botswana banks.

Contrary to the common belief that a large number of Batswana use micro lenders to get credit, the survey found that as few as 4.2 percent of Batswana households admitted having obtained credit from the registered micro lenders, while 3.6 percent got credit from the unregistered micro lenders. While coming top on obtaining credit from the registered micro lenders, households in Botswana were third on obtaining credit from the unregistered micro lenders. Therefore, from the survey, Batswana do not use micro lenders as much as is generally believed. However, these results need to be interpreted with some caution, as the survey itself suggests that there might be some under-reporting in an area where respondents may be reluctant to reveal their involvement.

From the results of the survey, one can confidently conclude that the majority of Batswana are major users of financial products that are available in the market, particularly in the formal sector. They are also either promoting some form of saving or obtaining some form of credit, regardless of whether they are formal or non-formal. However, despite the belief that they use micro lenders a lot, this does not seem to be the case.

Statistical challenges

Generally, getting accurate statistics is not easy, and this is certainly the case when trying to get a full picture of household savings and credit in Botswana. Looking at the information on household deposits and credit from the commercial banks, one could confidently say there is generally good coverage. The major problem lies in the categorisation of credit data, with a large proportion of household borrowing reported under “other”. This groups all the items that are difficult to classify from the category of household credit. There is scope for under-reporting on both credit for residential property, as well as that for motor vehicles borrowing, as some of the financing for these assets is lumped under “other”. Households may borrow describing their borrowing as for personal use, when, in fact, it is used either to develop or improve their homes, buy automobiles and to fund some small businesses. Indeed, in 2005, household credit figures had to be revised downward after one of the banks re-categorised some of its lending into the business category. Also trade credits to consumers may be shown as business credit of the banks.

As well as classification, under-reporting could also be due to the fact that it is not only the commercial banks that provide financial services to households. Other companies provide credit to their staff in the form of housing, motor vehicle or personal loans; and such facilities, if in the form of direct credit to employees rather than employers’ guarantees of bank lending, will not be captured in the commercial banking statistics, at least not in a format that is readily identifiable as household borrowing. It may show up as credit to the business who then on-lend to their employees.

A major challenge lies with the micro lenders, which are not easily accessible institutions. For instance, while there is a perception that activities of money lenders are widespread in the country, information on such activities suggests that they may not be that important, after all. Nevertheless, they do provide the household sector with some financial services that should be recorded. But the challenge is how to collect these very important data. The extent to which Batswana are also accessing credit in very large numbers through store accounts may be even more important, but there is virtually no information on this (not least because of the extent to which this activity is based in South Africa). All these are challenges to the accuracy of the household statistics in the country.

Despite the challenges mentioned above, the Bank of Botswana is looking at opportunities for improving compilation of statistics. There is a monthly publication, the “Botswana Financial Statistics” (BFS), which is posted on the Bank’s website (www.bankofbotswana.bw).

For the financial sector, the main focus is on monthly data from commercial banks. Relevant information is also included from the balance sheets of other financial institutions, including those that both accept deposits and lend to households. There are various improvements that are being made on the data compilation, including the recent move from the monetary survey to the depository corporations' survey format. The Bank plans to produce and publish a full-scale financial sector survey in future.

Conclusion

This paper looked at the form of household saving and borrowing in Botswana, drawing on a range of information, including comprehensive financial reporting, survey data and anecdotal evidence. Botswana households save in two types of financial institutions - formal and non-formal financial institutions. In the formal financial institutions they save because the prevailing deposit rate is higher, hence they expect high returns from their savings. However, while theoretically it is expected that when the real interest rate rises, savings should also follow, this relationship is found not to be that strong in Botswana.

Another main reason for saving is to help spread the cost of funding the acquisition of durables, education and home improvements. However, it is found that household use credit to fund these, hence the increase in the growth of credit. This, alongside the rapid development of the country, both economically and socially, supported the increase in borrowing. Consistently upward trends in nominal wages have also encouraged a preference for borrowing. Looking at the credit figures from the commercial banks, Batswana are net borrowers but when the pension funds and life assurances systems are considered as saving, households are net savers. It is clear that rather than saving through financial institutions such as banks, they tend to save through pension funds and life insurance for retirement, albeit through mostly contractual and involuntary savings schemes.

An alternative way of savings is through groupings, known as metshelo. Through these, households group themselves and form schemes where they contribute towards informal savings. There is a belief that through these schemes, money can multiply faster than at the formal financial institutions. Also the requirements for accessing credit from such schemes, are not as cumbersome as those offered by formal institutions.

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Comparing wealth distribution across rich countries: the Luxembourg Wealth Study project

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Introduction

The study of the distribution and composition of household wealth is a flourishing research field in a rich and aging world. Empirical analysis must, however, cope with considerable weaknesses in the available data. Household surveys of assets and debts, for instance, typically suffer from large sampling errors due to the high skewness of the wealth distribution as well as from serious non-sampling errors. In comparative analysis these problems are compounded by differences in the methods and definitions used in various countries. Indeed, in introducing a collection of essays on household portfolios in five countries, Guiso, Haliassos and Jappelli mention "definitions" as the "initial problem" and warn the reader that "the special features and problems of each survey … should be kept in mind when trying to compare data across countries" (2002: 6-7). Likewise, Davies and Shorrocks conclude their extensive survey on the distribution of wealth by remarking that: "Adoption of a common framework in different countries, along the lines that have been developed for income distributions, would improve the scope for comparative studies" (2000: 666).

These concerns have led researchers and institutions from a number of countries to join forces to launch the Luxembourg Wealth Study (LWS) - an international project to assemble existing micro-data on household wealth into a coherent database. As the experience of the Luxembourg Income Study (LIS) has clearly shown in the study of income distribution, the availability of such database is likely to spur comparative research on household net worth, portfolio composition, and wealth distributions, and to stimulate a process of harmonization of definitions and methodologies. The purpose of this article is to describe the genesis and structure of the project, to summarize the main features of data sources, and to discuss the classification of wealth variables and some comparability issues.

Genesis, goals and participants

The idea of the Luxembourg Wealth Study originated at the 27th General Conference of the International Association for Research in Income and Wealth, held in Djurhamn, Sweden in August 2002. Following the discussion in a session on the size distribution of household wealth, it was recognized that the international comparability of wealth data was far lower

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[1] Luxembourg Income Study and DIW Berlin. Eva Sierminska is the LWS project co-ordinator, Andrea Brandolini and Timothy Smeeding are the LWS project leaders. Further information on the LWS project is available at http://www.lisproject.org/lws.htm. We are very grateful to all sponsoring institutions and participants in the LWS project. We thank Markus Säylä, and Ulf von Kalckreuth and Elmar Stöss for providing us with data for Finland and Germany, respectively. The views expressed here, however, are solely ours, and do not necessarily reflect those of any of the sponsoring institutions.

[2] Banca d'Italia, Economic Research Department.

[3] Syracuse University and Luxembourg Income Study.

than that of income data. The successful LIS experience, begun almost two decades earlier (Smeeding 2004), suggested the way forward: a cooperative project gathering producers of wealth micro-data aimed at creating a cross-country comparable database. After two more meetings at LIS offices in Luxembourg, in July 2003, and at the Levy Economics Institute in New York, in October 2003, the LWS was officially launched in March 2004 as a joint project of LIS and institutions from nine countries: Canada, Cyprus, Finland, Germany, Italy, Norway, Sweden, the United Kingdom, and the United States. Austria has also joined in spring 2006, making LWS a ten nation enterprise at present.

The primary goal of the project is to assemble and to organize existing micro-data on household wealth into a coherent database, in order to provide a much sounder basis for comparative research on household net worth, portfolio composition, and wealth distributions. The ex post harmonization of existing data is seen as the first stage of the project. The establishment of a network of producers and experts of data on household net worth aims at promoting a process of ex ante standardization of definitions and methodologies. The elaboration of guidelines for the collection of household wealth statistics, as done for income by the Canberra Group (2001), is an important task for the foreseeable future. In light of these goals the first workshop on the "Construction and Usage of Comparable Microdata on Wealth: the Luxembourg Wealth Study" was organized by Banca d'Italia in Perugia, Italy in January, 2005. The outcome of this conference was a series of technical papers available on the LWS website, which provide the basis for future discussions in constructing comparable wealth survey data.

Participants in the LWS project are a varied group. Sponsoring institutions include statistical offices (Statistics Canada, Statistics Norway), central banks (Central Bank of Cyprus, Banca d'Italia, Österreichische Nationalbank), research institutes (Deutsches Institut für Wirtschaftsforschung-DIW, UK Institute for Social and Economic Research-ISER, through a grant awarded by the Nuffield Foundation), universities (Åbo Akademi University), and research foundations (Finnish Yrjö Jahnsson Foundation, Palkansaajasäätiö-Finnish Labour Foundation, Swedish Council for Working Life and Social Research-FAS, US National Science Foundation). Representatives from several other public institutions (Statistics Sweden, Banco de España, De Nederlandsche Bank, US Federal Reserve Board, US Internal Revenue Service, UK Department for Work and Pensions, Organisation for Economic Co-operation and Development, World Bank) as well as researchers from many universities have taken part in different stages of the project.

The partnership with the LIS is a strong asset, as it allows the LWS project to take advantage of the 20-year LIS experience in harmonizing household survey data and making them accessible to researchers world-wide through an innovative remote access system (see http://www.lisproject.org for further details). The same access rules will be followed by the LWS as it becomes merged with LIS in 2007. The β-version (test version) of the database has been released and is being tested by researchers participating in the project. The comparison of the β-version of the database with the original national sources was the object of the technical conference that took place in December 2006 in Luxembourg. The test phase will lead to the preparation of the final α-version of the database that is expected to be made public sometime in 2007. The release of the α-version to the research community will mark the end of the first stage of the LWS project. Afterwards, the maintenance and updating of the dataset will be part of the regular LIS activities, as decided by the board of LIS country members in July 2005 and to be discussed again in July 2007. As in LIS, participation in the LWS work will be open to any country that has the relevant information and wants to join the project. Future participation in the project has already been discussed with Australia, the Netherlands, New Zealand and Spain.

A sketch of data sources

The data sources included in the LWS database and some of their characteristics are listed in Table 1. (The Austrian survey is covered here for sake of completeness but no further comments will be made in the paper, as the work to include this survey in the LWS database is underway.) Although all countries rely on sample surveys among households or individuals, there are differences in collection methods across surveys. For example, in two Nordic countries the data are supplemented with information from administrative records (mostly wealth tax registers). Some income information is also supplemented by tax registers in Canada and Finland. Sample sizes are widely different, ranging from 895 households in Cyprus to 22,870 units in Norway.

The surveys also differ by purpose and sampling frame (see Sierminska 2005, for further details). Certain surveys have been designed for the specific purpose of collecting wealth data (CA-SFS, CY-SCF, IT-SHIW, US-SCF), whereas others cover different areas and have been supplemented with special wealth modules of longitudinal household panel surveys (GE-SOEP, UK-BHPS, US-PSID). Some surveys over-sample the wealthy and provide a better coverage of the upper tail of the distribution (CA-SFS, CY-SCF, GE-SOEP, US-SCF), but at the cost of higher non-response rates. Others ask only a small number of broad wealth questions, but achieve good response rates (eg, US-PSID). Germany applies a special case of "bottom-coding", because financial assets, durables and collectibles, and non-housing debt are only recorded when their respective values exceed 2,500 euros. Tax registers may contain more precise estimates, but they suffer from underreporting due to tax evasion and tax exemptions, or to valuation criteria based on fiscal or administrative rules rather than market prices (see below).

Definitions are also not uniform across surveys. In general, the *unit of analysis* is the household, but it is the individual in Germany, and the nuclear family (ie a single adult or a couple plus dependent children) in Canada. A household is defined as including all persons living together in the same dwelling, but sharing expenses is an additional requirement in Cyprus, Italy, Finland, Norway, Sweden and the United States. This implies that demographic differences reflect both the definition of the unit of analysis and true differences in the population structure.

The *household's head* is defined as the main income earner in most surveys, but it is defined as the person most knowledgeable and responsible for household finances in Germany, Italy and the United Kingdom. The United States is the only country where the head is taken to be the male in a mixed-sex couple. Multiple household's heads are allowed in Norway wherever the partners in a couple are not married or cohabiting, or adult children are present, since the head is defined with reference to each nuclear family within the household. As in the LWS database the unit is taken to be the household, in these cases the household's head has been identified with the main income earner.

The surveys included in the LWS archive differ in many other respects, and some more closely related to wealth variables are discussed in the next Section. Full documentation of each survey's features will be an important constituent of the LWS archive. The LWS documentation will also report which of these differences in the original surveys were corrected for in the harmonization process, and which were not.

LWS variables and wealth classification

The number and definition of recorded wealth variables vary considerably across surveys. As shown in Table 1, the number of wealth categories ranges from a minimum of 7 in the UK-BHPS to 30 or more in the IT-SHIW, the NO-IDS and the US-SCF. This number compounds with the detail of the questions: in some surveys, there are few simple summary questions; in

other surveys, the very high level of detail leads to a considerable multiplication of the number of separate recorded items. The US-SCF is by far the most detailed wealth survey of those included in the LWS database: checking accounts, for instance, are first separated into primary and secondary accounts, and then distinguished according to the type of bank where they are held.

The great variation in the amount of recorded information makes the construction of comparable wealth aggregates a daunting task. This problem has been approached by defining an ideal set of variables to be included in the LWS database. This starts with a general classification of wealth components, from which totals and subtotals are obtained by aggregation. This set is then integrated with demographic characteristics (including health status) and income and consumption aggregates, plus a group of variables particularly relevant in the study of household wealth: realized lump-sum incomes (eg, capital gains, inheritances, *inter-vivos* transfers) and "behavioural" variables such as motives for savings, perceptions about future events (eg, bequest motivation), attitude towards risk, and so forth.

This ideal list has been pared down after a comparison with the information actually available in the LWS surveys. With regards to wealth, this process has eventually led to identify the following categories:

- *Financial assets*: Transaction and savings accounts, CDs; Total bonds; Stocks; Mutual and investment funds; Life insurance; Pension assets; Other financial assets.
- *Non-financial assets*: Principal residence, Investment real estate; Business equity; Vehicles; Durables and collectibles; Other non-financial assets.
- *Liabilities*: Home secured debt, which is the sum of Principal residence mortgage, Other property mortgage, and Other home secured debt (including lines of credit); Vehicle loans; Instalment debt (including credit card balance); Educational loans; Other loans from financial institutions; Informal debt.
- *Net worth*: Financial assets plus Non-financial assets less Liabilities.

Crossing this classificatory grid with the information available in each LWS survey gives rise to the matrix of Table 2. This Table illustrates the difficulty of transforming the original sources into a harmonized database: coverage and aggregation of wealth items vary widely across surveys. An acceptable degree of comparability can be obtained for four main categories of financial assets: deposit accounts, bonds, stocks, and mutual funds - with the partial exception of Germany which does not record information on checking deposits. The remaining financial components are available only for some countries. For non-financial assets the greatest comparability is obtained for principal residence and investment real estate. Liabilities are present in all surveys, though with a varying degree of detail. Applying the minimum common denominator criterion to this matrix, four LWS aggregates are defined: total financial assets, including deposit accounts, stocks, bonds, and mutual funds; non-financial assets, including principal residence and investment in real estate; total debt; and net worth, ie the sum of financial and non-financial assets net of total debt. Business equity is not available for all nations, but is comparable for at least seven nations. If one is willing to focus on a smaller subset of nations, more complete definitions are possible.

These LWS aggregates are broadly comparable, but fall short of perfect comparability, since underlying definitions and methods vary across surveys. Moreover, these aggregates fail to capture important wealth components, such as business equity and pension assets - two items that are particularly difficult to measure (Bonci et al 2005; Brugiavini, Maser and Sundén 2005). As their importance differs across countries, cross-national comparisons are bound to reflect these omissions. Some indication is provided by the comparison between the LWS definitions and the national definitions of net worth. The LWS database includes the variables which are part of the national concept but are excluded from the LWS definition. This allows users to reconcile the different definitions, as shown in Table 3 for five countries. The first message of Table 3 is reassuring: once the missing items are included back in net

worth, the LWS figures closely approximate those released in official publications. On the other hand, more worryingly, the weight of these omissions is significant and varies considerably across countries: it goes from about a half in the two North-American nations to less than a fourth in the three European nations of Table 3. This evidence is a salutary warning of the high cost of cross-country comparability using current survey practices: until a greater standardization of wealth surveys is achieved ex ante, we have to trade off higher comparability against a somewhat incomplete picture of national wealth.

Valuation criteria, non-response patterns and imputation procedures

Other methodological differences, in addition to those concerning definitions, affect comparability. Some relate to the way assets and liabilities are recorded (as point values, by brackets, or both) and to their accounting period. Wealth values generally refer to the time of the interview, but in four countries end-of-year values are registered (Table 1). Moreover, in half of the surveys included in the LWS database the reference period for income differs from that for wealth. This points at an important difference that needs to be borne in mind: unlike income and earnings surveys which deal with receipts accrued many times during the year, asset or wealth surveys ask the respondents to report their household balance sheet, including the value of assets and liabilities which may not have been marketed for a long period, such as the value of one's owned home or the total value of all financial instruments.

The very same criteria to value assets and liabilities may differ (Atkinson and Harrison 1978: 5-6). In most cases, wealth components are valued on a "realization" basis, or "the value obtained in a sale on the open market at the date in question" (Atkinson and Harrison 1978: 5), as estimated by the respondent. There are important exceptions, the most relevant being the valuation of real property in Sweden and Norway on a taxable basis. Statistics Sweden calculates the ratios of purchase price to tax value for several types of real estate and geographical locations, and then uses them to inflate the tax values registered in the survey. This procedure is however not applied to Norwegian data, although Statistics Norway estimated that in the 1990s the taxable value of houses was less than a third of their market value (Harding, Solheim and Benedictow 2004: 15-6, fn. 10). These diverse choices are likely to affect comparisons between the two Scandinavian countries as well as between them and the other countries relying on valuation at market prices as estimated by respondents.

Lastly, there are different patterns of non-response and different imputation procedures. For instance, the CY-SCF has a rather detailed set of questions, but the number of missing values is very high: only 349 households, out of 895, provided enough information to estimate the LWS net worth concept (Table 4). The overall response rate of the IT-SHIW is rather low, about 36 per cent in the 2002 wave, net of units not found at the available address, but item non-responses are few. LWS net worth cannot be derived for 14 per cent of the households in the UK-BHPS. Banks, Smith and Wakefield (2002) have applied a "conditional hot-deck" imputation method at the benefit unit level to alleviate the missing information problem, but it is still to be determined whether LWS will follow the same methodology. In the US-PSID financial assets as well as housing equity are imputed. Discussions are under way whether this imputation method can be followed to obtain values for the principal residence and mortgages that would reduce the overall proportion of missing values. In the US-SCF item non response is tackled by using a sophisticated multiple imputation program (Kennickell 2000), while in the GE-SOEP it is currently treated by replacing missing values with the overall mean (a multiple imputation procedure will be used in the updated versions of the LWS data).

A synthetic assessment of the information contained in the LWS database is provided by the comparison of LWS-based estimates with their aggregate counterparts in the national

balance sheets of the household sector (which include non-profit institutions serving households and small unincorporated enterprises). This comparison is presented in Table 5, where all variables are transformed into euro at current prices by using the average market exchange rate in the relevant year, and are expressed in per capita terms to adjust for the different household size. The aggregate accounts provide a natural benchmark to assess the quality of the LWS database, but a proper comparison would require a painstaking work of reconciliation of the two sources, as discussed at length by Antoniewicz et al (2005). The aim of Table 5 is more modestly to offer a summary view of how the picture drawn on the basis of the LWS data relate to the one that could be derived from the national balance sheets or the financial accounts. LWS estimates seem to represent non-financial assets and, to a lesser extent, liabilities better than financial assets. In all countries where the aggregate information is available, the LWS wealth data account for between 40 and 60 per cent of the aggregate wealth. Note that these discrepancies should not be attributed to deficiencies of the LWS data, since they reflect not only the under-reporting in the original micro sources, but also the exclusion of some items in the LWS definitions to enhance cross-country comparability as well as the different definitions of micro and macro sources.

To sum up, despite the considerable effort put into standardizing wealth variables, there remain important differences in definitions, valuation criteria and survey quality that cannot be adjusted for at this time. Moreover, the degree to which LWS-based estimates match aggregate figures varies across surveys.

Conclusions

Reliable statistics on the composition and distribution of private wealth is a pre-requisite for the study of the well-being of households and their consumption and financial behaviour. As recently stressed by Campbell, “measurement” is a “challenge” faced by researchers studying household finance, because “… households guard their financial privacy jealously: in fact, it may be more unusual today for people to reveal intimate details of their financial affairs than to reveal details of their intimate affairs” (2006: 3). This challenge is stretched to the limit when we move to comparative analysis, since the difficulties in collecting data on household finances are compounded by the need to standardize these data across countries. Yet, the exercise is worth taking.

First of all, in a number of countries there are enough data which, once they are properly treated, could shed light on cross-national differences in household finances. The detailed work on the single items recorded in each of the surveys included in the LWS database has allowed us to construct a set of variables and wealth aggregates which are broadly comparable across countries. Researchers must be aware that many problems remain and that comparative results must be taken with some caution, but the LWS project shows that cross-national analysis of household wealth holding is indeed feasible.

The second important reason for the LWS endeavour is that comparing micro and macro sources on household wealth across countries is an effective way lo learn about relative weaknesses and methodological differences. It is instrumental in defining an internationally agreed frame for the collection and classification of household wealth at the individual level - as done in the past by LIS for income statistics. Cross-national differences will never be eliminated entirely, and perfect comparability is hardly achievable. But the LWS project provides a starting point for a much needed process of ex ante standardization of methods and definitions. The release of the α-version of the LWS database to the scientific community will allow a considerable progress in substantive research on household wealth on a comparative basis, but it must also be seen as a first step toward the construction of better cross-country comparable wealth data.

Table 1

LWS household wealth surveys

Country	Name	Agency	Wealth year[1]	Income year	Type of source	Over-sampling of the wealthy	Sample size	No of non-missing net worth	No of wealth items
Austria	Survey of Household Financial Wealth (SHFW)	Österreichische Nationalbank	2004	2004	Sample survey	No	2,556	–[2]	10
Canada	Survey of Financial Security (SFS)	Statistics Canada	1999	1998	Sample survey	Yes	15,933	15,933	17
Cyprus	Cyprus Survey of Consumer Finances (SCF)	Central Bank of Cyprus and University of Cyprus	2002	2001	Sample survey	Yes	895	349	24
Finland	Household Wealth Survey (HWS)	Statistics Finland	End of 1998	1998	Sample survey	No	3,893	3,893	23
Germany	Socio-Economic Panel (SOEP)	Deutsches Institut für Wirtschaftsforschung (DIW)	2002	2001	Sample panel survey	Yes	12,692	12,129	9
Italy	Survey of Household Income and Wealth (SHIW)	Bank of Italy	End of 2002	2002	Sample survey (panel section)	No	8,011	8,011	34
Norway	Income Distribution Survey (IDS)	Statistics Norway	End of 2002	2002	Sample survey plus administrative records	No	22,870	22,870	35
Sweden	Wealth Survey (HINK)	Statistics Sweden	End of 2002	2002	Sample survey plus administrative records	No	17,954	17,954	26
United Kingdom	British Household Panel Survey (BHPS)	ESRC	2000	2000	Sample panel survey	No	4,867[3]	4,185	7
United States	Panel Study of Income Dynamics (PSID)	Survey Research Center of the University of Michigan	2001	2000	Sample panel survey	No	7,406	7,071	14
	Survey of Consumer Finances (SCF)	Federal Reserve Board and US Department of Treasury	2001	2000	Sample survey	Yes	4,442[4]	4,442[4]	30

[1] Values refer to the time of the interview unless otherwise indicated. [2] Net worth cannot be calculated owing to the unavailability of information on non-financial assets. [3] Original survey sample. Sample size can rise to 8,761 when weights are not used. [4] Data are stored as five successive replicates of each record that should not be used separately; thus, actual sample size for users is 22,210. The special sample of the wealthy includes 1,532 households.

Source: LWS database.

Table 2

Wealth classification matrix in LWS

Asset or liability	LWS acronym	Canada	Cyprus	Finland	Germany	Italy	Norway	Sweden	United Kingdom	United States	United States
		SFS 1999	SCF 2002	HWS 1998	SOEP 2002	SHIW 2002	IDS 2002	HINK 2002	BHPS 2000	PSID 2001	SCF 2001
FINANCIAL ASSETS											
Total	TFA	Σ	Σ	Σ	Σ	Σ	Σ	Σ	Σ	Σ	Σ
Deposit accounts: transaction, savings, CDs	DA	Y	Y	Y	Y[1]	Y	Y	Y	Y[2]	Y	Y
Total bonds: savings and other bonds	TB	Y	Y	Y		Y	Y	Y	Y		Y
Stocks	ST	Y	Y	Y		Y		Y		Y	Y
Mutual funds and other investment funds	TM	Y	Y	Y		Y	Y	Y			Y
Life insurance	LI	–	Y	Y	Y[3]	–	Y	–	Y[2]	Y[4]	Y
Other financial assets (exc. pension)	OFA	Y	Y	Y		Y	Y	Y[5]	–		Y
Pension assets	PA	Y	Y	Y		–	Y	–	–	Y	Y
NON-FINANCIAL ASSETS											
Total	TNF	Σ	Σ	Σ	Σ	Σ	Σ	Σ	Σ	Σ	Σ
Principal residence	PR	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Investment real estate	IR	Y	Y	Y	Y	Y	Y	Y	Y[6]	Y[7]	Y
Business equity	BE	Y	Y	–	Y[6]	Y	Y[6]	Y[6]		Y	Y
Vehicles	VH	Y	Y	Y	Y[8]	Y	Y	–	Y[9]	Y[9]	Y
Durables and collectibles	DRCL	Y	–	Y	Y	Y	Y	–	–	–	Y
Other non-financial assets	ONF		–	–	–	–	–	Y[5]	–	–	Y
LIABILITIES											
Total	TD	Σ	Σ	Σ	Σ	Σ	Y	Y	Σ	Σ	Σ
Home secured debt	HSD	Σ	Σ	Y	Σ	Y	–	Y[10]	Y	Σ	Σ
Principal residence mortgage	MG	Y	Y		Y		Y[11]	–		Y	Y
Other property mortgage	OMG	Y	Y		Y			–		Y[7]	Y
Other home secured debt	OHSD	Y	–		–		Y	–		–	Y

Table 2 (cont)

Wealth classification matrix in LWS

Asset or liability	LWS acronym	Canada	Cyprus	Finland	Germany	Italy	Norway	Sweden	United Kingdom	United States	United States
		SFS 1999	SCF 2002	HWS 1998	SOEP 2002	SHIW 2002	IDS 2002	HINK 2002	BHPS 2000	PSID 2001	SCF 2001
Vehicle loans	VL	Y	Y	Y	Y	Y	Y^{11}	Y^{10}	Y^{9}	Y^{9}	Y
Installment debt (incl. credit card balance)	IL	Y	Y			Y			Y^{12}	Y	Y
Educational loans	EL	Y	Y	Y		–	Y	Y			Y
Other loans from financial institutions	OL	Y	Y	Y		–	Y	Y			Y
Informal debt	ID		Y	–		Y	–	Y			Y

[1] Excludes checking deposits. [2] DA and LI recorded together. [3] Includes only some pension assets. [4] Includes collectibles and some mutual funds not included in TB. [5] OFA and ONF recorded together. [6] Business assets only. [7] IR recorded net of OMG. [8] As recorded in the 2003 wave. [9] VH recorded net of VL. [10] HSD, VL and IL recorded together. [11] MG, OMG, VL and IL recorded together. [12] Includes also VL, which implies a double-counting.

Source: LWS database, β-version (July 15, 2006). "Y" denotes a recorded item; "–" denotes a not recorded item; "Σ" indicates that the variable is obtained by aggregation of its components.

Table 3

Reconciling the LWS and national net worth concept

Averages in thousands of national currencies

Wealth variable	Canada	Finland	Italy	Sweden	United States
	SFS 1999	**HWS 1998**	**SHIW 2002**	**HINK 2002**	**SCF 2001**
LWS net worth	102.5	69.3	154.2	537.8	213.1
+ pension assets	83.0	0.6	–	–	74.4
+ other financial assets	2.5	1.6	0.3	24.5	13.1
+ business equity	26.9	–	23.5	80.0[1]	74.7
+ other non-financial assets	28.5	6.5	24.4	17.8	20.6
LWS adjusted net worth	243.4	78.0[2]	202.4	660.1	395.9
LWS coverage ratio[3]	*42.1*	*88.8*	*76.2*	*81.5*	*53.8*
National source net worth	249.3	79.8	204.4	660.0	395.5

[1] Business assets only. [2] It does not include other debts. [3] Percentage ratio of LWS net worth to LWS adjusted net worth.

Source: LWS database, β-version (July 15, 2006) and country sources: Statistics Canada (2006a); Finnish data provided by Markus Säylä; Brandolini et al (2006); Statistics Sweden (2004); Aizcorbe, Kennickell and Moore (2003). Household weights are used.

Table 4

Share of missing values in major components of LWS net worth

Per cent

Wealth variable	Canada	Cyprus	Finland	Germany	Italy	Norway	Sweden	United Kingdom	United States	United States
	SFS 1999	SCF 2002	HWS 1998	SOEP 2002	SHIW 2002	IDS 2002	HINK 2002	BHPS 2000	PSID 2001	SCF 2001
Non-financial assets	–	25	–	3	–	–	–	2	2	–
Financial assets	–	21	–	4	–	–	–	9	–	–
Debt	–	43	–	3	–	–	–	7	3	–
Net worth	–	61	–	4	–	–	–	14	5	–
Sample size	15,933	895	3,893	12,692	8,011	22,870	17,954	4,867	7,406	4,442

Source: LWS database, β-version (July 15, 2006).

Table 5

Per capita household wealth in LWS database and national balance sheets

Euros and per cent

Wealth variable	Canada	Cyprus	Finland	Germany	Italy	Norway	Sweden	United Kingdom	United States	United States
	SFS 1999	SCF 2002	HWS 1998	SOEP 2002	SHIW 2002	IDS 2002	HINK 2002	BHPS 2000	PSID 2001	SCF 2001
LWS database										
Non-financial assets	28,237	32,763	31,920	53,507	50,965	14,605	33,132	61,436	63,170	77,686
Financial assets	8,018	6,294	6,181	7,971	8,913	22,066	12,943	11,036	31,332	47,059
Debt	9,577	3,719	6,032	11,202	2,590	29,561	16,159	13,572	20,857	26,707
Net worth	26,678	35,339	32,069	50,276	57,288	7,110	29,916	58,901	73,646	98,037
National balance sheets										
Non-financial assets	32,492	–	–	69,234	78,417	–	–	67,728	66,679	
Financial assets	51,157	38,099	20,317	44,731	48,780	42,268	40,927	87,199	123,768	
Debt	13,813	15,825	7,147	18,750	7,089	33,629	16,577	20,471	31,003	
Net worth	69,836	–	–	95,215	120,108	–	–	134,457	159,444	
Ratio of LWS to NBS										
Non-financial assets	87	–	–	77	65	–	–	91	95	117
Financial assets	16	17	30	18	18	52	32	13	25	38
Debt	69	23	84	60	37	88	97	66	67	86
Net worth	38	–	–	53	48	–	–	44	46	61

Source: LWS database, β-version (July 15, 2006) and country sources: Eurostat (2006) for financial assets and debt of European countries; Deutsche Bundesbank, Brandolini et al (2006) and Office for National Statistics (2006) for non-financial wealth in Germany, Italy and the United Kingdom, respectively; Statistics Canada (2006b); Board of Governors of the Federal Reserve System (2006). LWS figures are given by the ratios between wealth totals and number of persons in each survey; household weights are used. National balance sheets (NBS) figures are obtained by dividing total values for the sector "Households and non-profit institutions serving households" by total population. All values are expressed in euros at current prices by using the average market exchange rate in the relevant year.

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