Money, financial investment and financing

Reimund Mink[1]

1. Introduction

A three-dimensional system of accumulation accounts and balance sheets, with a breakdown of the financial corporation sector and of the financial asset and liability categories as proposed for the new System of National Accounts (2008 SNA), and a breakdown by counterpart, opens up the possibility of identifying monetary aggregates in a matrix, and thus of analysing monetary developments in the broadest possible financial framework, in a way that makes it easier to relate them to the economic developments recorded in the production and income accounts. The monetary aggregates comprise money stock, and changes in it, and are reflected in the developments of the so-called counterparts of money, derived by exploiting certain accounting identities. All countries measure monetary developments, in many cases considering that monetary growth is related to developments in economic activity and, over the longer term, in inflation, or that it contains valuable information concerning financial stability. Numerous definitions of money are possible; the national choice is likely to be an empirical matter, depending on what measure or measures best relate to developments in the national economy.

This paper develops such a three-dimensional system to identify the relevant holders, issuers and financial assets, and to provide a breakdown of holders into financial and non-financial sectors, since their money holdings may have different implications for economic activity and inflation. The rest of the world is assumed to be money-neutral. Financial assets as monetary variables are considered here to comprise currency (issued by the central bank), liquid deposits with the central bank and other deposit-taking corporations, and marketable short-term debt instruments issued by the money-issuing sector (both with an initial maturity of up to one year), as well as shares or units issued by money market funds. Similarly, counterparts to money are identified in the three-dimensional system as domestic credit and the net external assets of money issuers.

2. Three constituent elements of an integrated system of institutional sector accounts

There are essentially *three constituent elements* of an integrated system of institutional sector accounts. First, the system is built around a sequence of coherent, consistent and integrated macroeconomic accounts and balance sheets. Second, the components of each account are a means of recording uses and resources, or changes in assets and liabilities, during the accounting period, while a balance sheet covers the assets and liabilities at the beginning or end of this period. Third, these accounts and balance sheets are drawn up for all resident sectors of an economy, and for the rest of the world.

---

[1] Reimund Mink, European Central Bank, Kaiserstrasse 29, D 60311 Frankfurt am Main. E-mail: reimund.mink@ecb.int. The views expressed in this paper are those of the author and do not necessarily reflect the views of the European Central Bank. Comments made by Peter Bull and Steven Keuning have been much appreciated.

The *sequence of accounts and balance sheets* is shown in Table 1. Transactions are the result of mutually agreed interactions between institutional units. They are represented in the current, capital and financial accounts. Other flows are either revaluations or other changes in the volume of assets. They are recorded in the revaluation account, and in other changes in the volume of assets account.

Table 1

Transactions, other flows and stocks, as presented in the system of accounts

<table>
<tr><th>Transactions</th><th rowspan="2">Other flows</th><th colspan="2" rowspan="2">Stocks</th></tr>
<tr><td>Current account
Production of goods and services, generation, distribution, redistribution, and use of income</td></tr>
<tr><td rowspan="2">Capital account
Net acquisition of non-financial assets, saving and capital transfers</td><td rowspan="2">Revaluation account
Holding gains and losses in non-financial assets, financial assets and liabilities</td><th colspan="2">Balance sheet</th></tr>
<tr><th>Assets</th><th>Liabilities and net worth</th></tr>
<tr><td>Financial account
Net acquisition of financial assets, and net incurrence of liabilities</td><td>Other changes in the volume of assets account
Other changes in the volume of non-financial assets, financial assets, and liabilities</td><td>Non-financial assets
Financial assets</td><td>Liabilities
Net worth</td></tr>
</table>

The transactions recorded in the financial account and in the capital account, together with the revaluation account and the other changes in the volume of assets account, fully explain the accumulation of assets, liabilities and net worth between the opening and the closing balance sheet for the accounting period (Table 2).

Table 2

Relationship between flows and stocks

Stocks of assets, liabilities and net worth at the beginning of accounting period t

+ flows (changes in assets, liabilities and net worth during period t due to

transactions;

revaluations; and

other changes in the volume of assets)

= Stocks of assets, liabilities and net worth at the end of accounting period t

The financial account shows transactions of each institutional unit or sector in the national economy and of the rest of the world, in each category of financial assets and liabilities. A financial balance sheet may also be drawn up to show only financial assets and liabilities, with net financial assets as the balancing item.

Financial assets and liabilities are classified according to their legal characteristics, liquidity and economic purpose. Table 3 shows the proposed SNA classification of financial assets and liabilities. While financial innovation leads to a need for new types of financial assets, the classification is intended to provide broad definitions that allow for international comparability and for the inclusion of new instruments within the existing categories. Provision is made for subdividing further, particularly according to original maturity and type of instrument.

Table 3

Asset and liability classification

Asset/liability
Non-financial assets (no liability positions)
Financial assets/liabilities
Monetary gold and special drawing rights *(SDRs)* (no liability position for gold bullion)
Currency and deposits (transferable deposits – interbank positions, other transferable deposits – and other deposits)
Debt securities (short-term, long-term)
Loans (short-term, long-term)
Equity (listed shares, unlisted shares, other equity ***and investment fund shares*** (money market fund shares/units, other investment fund shares/units)
Insurance, pension, and standardised guarantee schemes (non-life insurance technical provisions, life insurance and annuity entitlements, pension entitlements, provisions for calls under standardised guarantees)
Financial derivatives (options, forwards) ***and employee stock options***
Other accounts receivable/payable (trade credit and advances, other)

Institutional units are grouped into *institutional sectors*. The proposed SNA classification of institutional sectors as shown in Table 4 includes nine sub-sectors of the financial corporations sector.

Table 4

Institutional sector classification

Institutional sector
Non-financial corporations (NFC)
Financial corporations (FC) (central bank, deposit-taking corporations except the central bank, money market funds (MMF), non-MMF investment funds, other financial intermediaries except insurance corporations and pension funds (ICPF), financial auxiliaries, other financial institutions (except financial intermediaries and ICPFs), insurance corporations (IC), and pension funds (PF))
General government (GG) (central government, state government, local government, social security funds)
Households (HH)
Non-profit institutions serving households (NPISH)
Rest of the world (RoW)

It is not always useful to distinguish all nine sub-sectors at the same time in a system of institutional sector accounts. However, they constitute a flexible set of building blocks for alternative aggregations that can be compiled according to different needs and possibilities. Further disaggregation within one of the sub-sectors may be desirable on occasion – for example, to distinguish different types of deposit-taking corporations or insurance corporations. One useful combination is to treat all financial corporations as monetary financial institutions, thus including the central bank, deposit-taking institutions and money market funds, since they issue financial instruments that are considered to be a constituent of broad money.

3. A system of accumulation accounts and balance sheets with counterpart sectors

The system of accumulation accounts and balance sheets, as described so far, is two-dimensional. They are limited in that they do not reveal counterpart sectors to the transactions, other changes in assets or balance sheet positions. In other words, although they show which sectors are acquiring financial assets, and what financial assets they are trading in, they do not identify the sectors issuing the assets. Similarly, while they make it possible to identify net borrowing sectors, and show how they borrow, the financial accounts and balance sheets do not show which sectors acquired and are holding the borrowing instruments. The same applies for other changes in assets. Thus, a complete picture of the financial flows and positions in the economy is not furnished. We explain below how such a picture may be obtained.

A three-dimensional system of accumulation accounts and balance sheets, with a breakdown of the financial corporation sector and of the financial asset and liability categories, as proposed for the 2008 SNA, and a breakdown by counterpart, opens up the possibility of identifying monetary aggregates in a matrix, and thus of analysing monetary developments in the broadest possible financial framework. The growing importance of financial innovation can be better reflected in this way, as can the distribution of risks and rewards associated with different sources of financing and financial investment options. Financial transactions are also presented in a way that makes it easier to relate them to the economic developments recorded in the production and income accounts.

Full analysis of financing and investment – financial and non-financial – requires additional information on the sources and destinations of a sector's funds. The flow of financial assets through the economy and the financial relationships between sectors can then be traced. For example, it is often important for policy-makers to know not only what types of liabilities (and financial assets) general government is using to finance its deficit, but also which sectors (or rest of the world) are providing the financing. For financial corporations (and those supervising them), it is important to know not only the composition of the financial assets acquired, but also on which sectors these are claims. In addition, it is often necessary to analyse financial transactions between sub-sectors within a sector (central government transactions with local government or social security funds, or central bank transactions with deposit-taking corporations).

Such detailed from-whom-to-whom accounting information is necessary to understand how financing is being carried out, how it is changing over time, and how it is affecting the long-term development of financial markets and institutions. In particular, these from-whom-to-whom accounts and balance sheets can be useful in relating financial transactions to the behaviour of the non-financial economy. Joint presentation of the capital and the financial accounts (showing a complete record of transactions contributing to the net acquisition of assets and the net incurrence of liabilities) provides a tool to combine financial and non-financial investment and the various sources of financing via net saving, net capital transfers and net incurrence of liabilities, thus establishing a link between financial activity and the "real" economy. For financial projections, the use of time series from relevant parts of the from-whom-to-whom accounts makes it possible to examine the implications of components of an economic projection by means such as testing a number of separately prepared sector or market forecasts for consistency, as well as to study the implications for future financial transactions of a particular set of assumptions about future events (eg interest rates, exchange rates, growth and sectoral surpluses/deficits).

Extending the system of accumulation accounts and balance sheets to include counterpart information requires detailed statistical information on transactions from only one counterpart, which can then serve to improve the accounts of the other counterpart sectors as well. Table 5, extended to reveal net acquisition and net incurrence of liabilities in the form of debt securities by institutional sector, suggests a solution involving the introduction of the third dimension. The table shows that the debt securities acquired by households and non-profit institutions serving households (275) are changes in claims on debt securities issued by non-financial corporations (65), by financial corporations (43), by general government (124) and by non-residents (43). It also indicates that non-financial corporations incurred liabilities in the form of debt securities (147). Similar tables could be compiled for other financial assets, such as loans or deposits. All of the counterpart information revealed in the financial account may be replicated (in terms of outstanding amounts) in an expanded form of the balance sheet.

Table 5

A from-whom-to-whom institutional sector financial account

Debtor sector / Creditor sector		**Net incurrence of debt securities by**						
		Non-financial corporations	**Financial corporations**	**General government**	**Households and non-profit institutions serving households**	**Economy**	**Rest of the world**	**Total**
Net acquisition of debt securities by	Non-financial corporations	30	11	67		108	34	**142**
	Financial corporations	23	22	25		70	12	**82**
	General government	5	2	6		13	19	**32**
	Households and non-profit institutions serving households	65	43	124		232	43	**275**
	Economy	123	78	222		423	108	**531**
	Rest of the world	24	28	54		106		**106**
	Total	**147**	**106**	**276**		**529**	**108**	**637**

The counterpart analysis can be extended to sub-sectors, as it may be particularly helpful in spelling out the role of financial intermediaries in mobilising financial resources and making them available to other sectors in appropriate forms, through maturity/asset transformation. Banking transactions and positions, and those of insurance corporations and pension funds, are likely to be of great interest. The further expansion may also reveal a growing (or shrinking) role for other types of financial intermediaries and financial institutions, and shed light on the nature of their business, in terms of the counterparties with whom they deal, as well as the instruments they utilise. Thus, Table 5 may be further expanded to show sub-sectors of the financial corporation sector as creditors of the resident non-financial sectors (non-financial corporations, general government, and households including non-profit institutions serving households) and non-residents. A table showing all debtor/creditor relationships would contain numerous cells, many of which would be blank. For simplicity, therefore, in this illustrative exercise, only some portions of the tables have been expanded. Table 6 is an example of how to show debtor and creditor counterparts where applicable for specific sub-sectors of the financial corporation sector. These counterparts are broken down by type of claim, residency and debtor or creditor sector. Depending on the availability of data, different degrees of detail may be shown regarding, for example, currency and deposits (by creditor sector), loans (by debtor sector), or insurance, pensions and standardised guarantee schemes (by creditor sector).

Table 6

Detailed from-whom-to-whom financial account or balance sheet showing financial assets and liabilities of financial corporations by type of claim and debtor/creditor

Financial assets of financial corporations / **Type of claim and debtor**	**Monetary financial institutions**[1]	**Insurance corporations and pension funds**	**Other financial corporations**
Monetary gold and special drawing rights (SDRs)			
Monetary gold			
SDRs			
Currency and deposits			
Currency			
Transferable deposits			
Residents			
Non-residents			
Other deposits …			
Debt securities			
Short-term			
Non-financial corporations			
Financial corporations			
General government			
Households and non-profit institutions serving households			
Rest of the world			
Long-term …			
Loans			
Short-term …			
Long-term …			

Table 6 (cont)

Detailed from-whom-to-whom financial account or balance sheet showing financial assets and liabilities of financial corporations by type of claim and debtor/creditor

Financial assets of financial corporations / Type of claim and debtor	Monetary financial institutions[1]	Insurance corporations and pension funds	Other financial corporations
Equity and investment fund shares			
Equity			
Resident corporations			
Listed			
Unlisted			
Other equity			
Non-resident corporations …			
Investment fund shares			
Money market fund shares/units			
Residents			
Non-residents			
Other investment fund shares/units …			
Insurance, pension, and standardised guarantee schemes			
Non-life insurance technical provisions			
Life insurance and annuity entitlements			
Pension entitlements			
Provisions for calls under standardised guarantees			
Financial derivatives and employee stock options			
Other accounts receivable			
Trade credit and advances			
Other			
Liabilities of financial corporations / Type of claim and creditor	**Monetary financial institutions[1]**	**Insurance corporations and pension funds**	**Other financial corporations**
Currency and deposits …			
Currency			
National			
Residents			
Non-residents			
Foreign			
Residents			
Transferable deposits			
by institutional sector			
Other deposits …			

[1] Monetary financial institutions include the central bank, deposit-taking corporations, and money market funds.

The other changes in assets accounts may also be broadened to show the holding gains or losses and other changes in the volume of assets by institutional sector, financial asset or liability, and counterpart sector. Such detailed statistical information could be provided in the future through security-by-security or corporate balance sheet databases.

4. Integration of money in the system of institutional sector accounts

The three-dimensional system of accumulation accounts and balance sheets as described so far opens up with a breakdown of the financial corporation sector and of the financial asset and liability categories, as proposed for the new SNA, and a breakdown by counterpart, opens up the possibility of identifying monetary aggregates in a matrix, and thus of analysing monetary developments in the broadest possible financial framework, in a way that makes it easier to relate them to the economic developments recorded in the production and income accounts. The monetary aggregates comprise money stock, and changes in it, and are reflected in the developments of the so-called counterparts of money, derived by exploiting certain accounting identities. All countries measure monetary developments, in many cases considering that monetary growth is related to developments in economic activity and, over the longer term, in inflation, or that they contain valuable information concerning financial stability. Numerous definitions of money are possible; the national choice is likely to be an empirical matter, depending on what measure or measures best relate to developments in the national economy.

This section sets forth a system to identify the relevant holders, issuers and financial assets, and, among the holders, to distinguish between financial and non-financial sectors, since their money holdings may have different implications for economic activity and inflation. The money-issuing sector is assumed to consist of the central bank, resident deposit-taking corporations and resident money market funds (the monetary financial institutions, or MFIs). Money holders are the remaining resident sectors, including the remaining sub-sectors in the financial corporation sector. Modifications may be necessary in cases where central government is treated as a money issuer and only the remaining government sub-sectors as money holders. Holdings of money by the money-issuing sector itself are netted out. The rest of the world is assumed to be money-neutral. In other words, neither the liabilities of non-residents nor non-resident holdings of money issued by resident money issuers are counted in the national money stock. Financial assets as monetary variables are considered to comprise currency (issued by the central bank), liquid deposits with the central bank and other deposit-taking corporations (with an original maturity or period of notice of up to one year), marketable short-term debt instruments issued by the money-issuing sector (with an initial original maturity of up to one year) and shares or units issued by money market funds.

Table 7 shows, in ***bold italics***, *money holders'* financial transactions in *assets* representing monetary claims on *money issuers*. The outstanding money stock could be identified in a similar way in the financial balance sheet. Similarly, counterparts of money may be identified in the three-dimensional framework. Counterpart analysis uses the balance sheet identity to relate changes in money to other transactions of the money-issuing sector(s) in an analytically useful way. Table 8 shows the counterparts of money. The *domestic credit* counterpart reveals how the change in money is related to lending by money issuers to other residents in all forms, including the acquisition of securities issued by them. This counterpart comprises a portion of the assets of the money-issuing sector: loans to, acquisition of securities issued by, and other forms of lending to all other resident sectors, including other entities in the financial corporation sector. Another component of the assets of the money-issuing sector, net of liabilities to non-residents, consists of the *external* counterpart: the net external assets of the money-issuing sector (in balance sheet terms), or changes in them (corresponding to transactions in the financial account).

Table 7

Monetary aggregates in the framework of institutional sector accounts

Creditor / Type of claim and debtor (MFI)	Non-financial corporations	Financial corporations		General government	Households and NPISH	*Money holders*	Rest of the world
		Monetary financial institutions[1]	Other financial corporations				
Currency and deposits							
– short-term	***50***	60	***5***	***10***	***150***	***215***	60
– long-term	10	20	0	0	30		10
Debt securities							
– short-term	***10***	30	***5***	***5***	***20***	***40***	30
– long-term	5	10	0	0	10		10
Money market fund shares/units	***5***	5	***2***	***0***	***20***	***27***	0
Equity and other investment fund shares/units	0	5	5	0	5		2
Financial derivatives and employee stock options	2	10	10	0	0		10
Other accounts receivable/ payable	1	2	2	0	0		2
Money	***65***		***12***	***15***	***190***	***282***	
Domestic non-monetary liabilities	18		17	0	45	**80**	
External liabilities							124

[1] Monetary financial institutions include the central bank, deposit-taking corporations, and money market funds.

Table 8

Counterparts to monetary aggregates in the framework of institutional sector accounts

Type of claim and creditor (MFI) \ Debtor	Non-financial corpora-tions	Financial corporations		General govern-ment	House-holds and NPISH	*Money holders*	Rest of the world
		Monetary financial institu-tions[1]	Other financial corpora-tions				
Currency and deposits		80					30
Debt securities	*60*	40	*10*	*40*		*110*	60
Loans	*60*		*6*	*20*	*120*	*206*	45
Money market fund shares/units		5					0
Equity							
Other investment fund shares/units	*5*	5	*10*			*15*	5
Insurance, pension, standardised guarantee schemes			*3*	*0*		*3*	0
Financial derivatives and employee stock options	*2*	10	*0*	*0*	*0*	*2*	5
Other accounts receivable/ payable	*0*	2	*0*	*0*	*0*	*0*	5
Domestic credit	*127*		*29*	*60*	*120*	*336*	
External assets							**150**
Net external assets (external counterpart)							26 (= 150 – 24)

[1] Monetary financial institutions include the central bank, deposit-taking corporations, and money market funds.

The transactions and positions of the rest of the world correspond (after some rearrangements) to the balance of payments and the international investment position. Net external assets, summarising the money-*issuing* sector's transactions with the rest of the world, link to money through the banking balance sheet accounting framework. The balance of payments identity may then be used to show how the money-*holding* sectors' transactions with the rest of the world relate to changes in money, since the money issuers' balance of payments transactions must equal all other resident sectors' balance of payments transactions with the opposite sign (for this purpose, it is desirable to have eliminated errors and omissions in the balance of payments when compiling the sector accounts and balance sheets; otherwise they may be attributed to the money-holding sectors). Table 9 provides a simplified example of this relationship.

Table 9

Balance of payments items balancing transactions in the external counterpart of money

Current and capital accounts	Direct investment		Portfolio investment			Other investment		Financial derivatives	Errors and omissions	Transactions in the external counterpart of money
	By resident units abroad (non-MFI[1])	By non-resident units in the economy	Assets (non-MFI)	Liabilities		Assets (non-MFI)	Liabilities (non-MFI)			
				Equity	Debt instruments					
–9	–6	4	–47	32	4	–32	23	–3	6	–26

[1] All institutional units except monetary financial institutions, which include the central bank, deposit-taking corporations, and money market funds.

There are practical challenges in integrating money in the system of institutional sectors. The definition of money is not necessarily based on the classification of financial assets and institutional sectors as described above. One example is the use of different maturity thresholds and valuation methods in money and banking statistics and in the compilation of institutional sector accounts. Another example is more detailed distinctions between money issuers, money holders and money-neutral sectors, with central government often being treated as a money-issuing sector.

5. Money, financing and financial investment

A final step needed is to embed money in a table that shows the financing and financial investment of an economy's institutional sectors and of the rest of the world, based on data provided by the money-issuing sector, along with supplementary data on securities issuances and holdings (Table 10).

The sources of financing (613) provided by the money-issuing sector (MFIs) are broken down into short-term (467), long-term (107) and other financing (39). *Money* can be derived by subtracting the short-term financial investment of the money-issuing sector vis-à-vis money issuers – the intra-sector transactions (95) – and the investment of the rest of the world in money (90) from the non-consolidated short-term financing figure (282 = 467 – 95 – 90). It is also directly shown as the financial investment of the money-holding sectors in monetary variables (currency and deposits, short-term debt securities and money market shares/units). Their investment in *(domestic) non-monetary liabilities* includes net acquisitions in long-term deposits, long-term debt securities, equity and other financial assets. Further, *domestic credit* (336) is shown as financing by the money-holding sector in the form of loans granted by monetary financial institutions (206), debt securities (110), equity (15) and other financial instruments (5), as indicated in Table 10. External assets and liabilities are derived as total financial investment (124) and financing (150) of the rest of the world vis-à-vis the money-issuing sector.

The table provides a somewhat limited view of the financing and financial investment process within an economy. Thus, the table could be expanded to include all sources of financing and uses of financial investment for all institutional sectors. For non-financial corporations, for instance, financing sources that would then be included are the liabilities incurred vis-à-vis other non-financial corporations, non-MFI financial corporations or government. The same is true for the sector's financial investments, in which equity play a rather important role. The inclusion of non-financial investment, saving and net capital transfers (the capital account) would make it possible to carry out a complete analysis of investment, financing and debt by institutional sector.

Table 10

Money as part of a table on financing and financial investment

Financial investment								Item	Financing							
NFC	Other FC	GG	HH/ NPISH	MFI	Econ- omy	RoW	Total		NFC	Other FC	GG	HH/ NPISH	MFI	Econ- omy	RoW	Total
65	12	15	190	220	502	90	592	Short-term	30	3	10	60	467	570	22	592
50	5	10	150	60	275	60	335	Currency and deposits					335	335		335
10	5	5	20	30	70	30	100	Debt securities					100	100		100
5	2	0	20	5	32	0	32	Money market fund shares/units					32	32		32
				125	125		125	Loans	30	3	10	60		103	22	125
15	5	0	45	369	434	22	456	Long-term	95	26	50	60	107	338	118	456
10	0	0	30	50	90	10	100	Deposits					70	70	30	100
5	0	0	10	180	195	10	205	Debt securities	60	10	40		35	145	60	205
				126	126		126	Loans	30	3	10	60		103	23	126
0	5	0	5	10	20	2	22	Equity and other investment fund shares/units	5	10			2	17	5	22
				3	3		3	Insurance, pension, standardised guarantee schemes		3	0			3	0	3
3	12	0	0	24	39	12	51	Other	2	0	0	0	39	41	10	51
2	10	0	0	17	29	10	39	Financial derivatives and ESO	2	0	0	0	32	24	5	39
1	2	0	0	7	10	2	12	Other accounts receivable/payable	0	0	0	0	7	7	5	12
83	29	15	235	613	975	124	1099	Total	127	29	60	120	613	949	150	1099

References

[1] “Sectoral money holding: Determinants and recent developments”, ECB, Monthly Bulletin (MB), August 2006.

[2] “Financing and financial investment of the non-financial sectors in the euro area”, ECB, MB, May 2001.

[3] “Developments in private sector balance sheets in the euro area and the United States”, ECB, MB, February 2004.

[4] “Developing a euro area accounting matrix: issues and applications”, Jellema, T., Keuning, S., McAdam, P. and Mink, R., ECB Working Paper No. 356, May 2004.

[5] “Quarterly Monetary Union Financial Accounts for ECB monetary policy analysis”, Mink, R., IFC Bulletin No 12, 2002.

[6] Draft chapter 26 of the revised System of National Accounts (2008 SNA). http://unstats.un.org/unsd/sna1993/draftingPhase/ChapterIssueMatrix.asp

[7] “Selected Key Issues of Financial Accounts Statistics”, Mink, R., IFC Bulletin No 21, 2005.

[8] “Monetary presentation of the balance of payments”, ECB, MB, Euro Area Statistics Table 7.2.

[9] “Council Regulation (EC) No. 2223/96 of 25 June 1996 on the European system of national and regional accounts in the Community” (ESA95), Brussels, 25 June 1996.