IRVING FISHER COMMITTEE
ON CENTRAL-BANK STATISTICS

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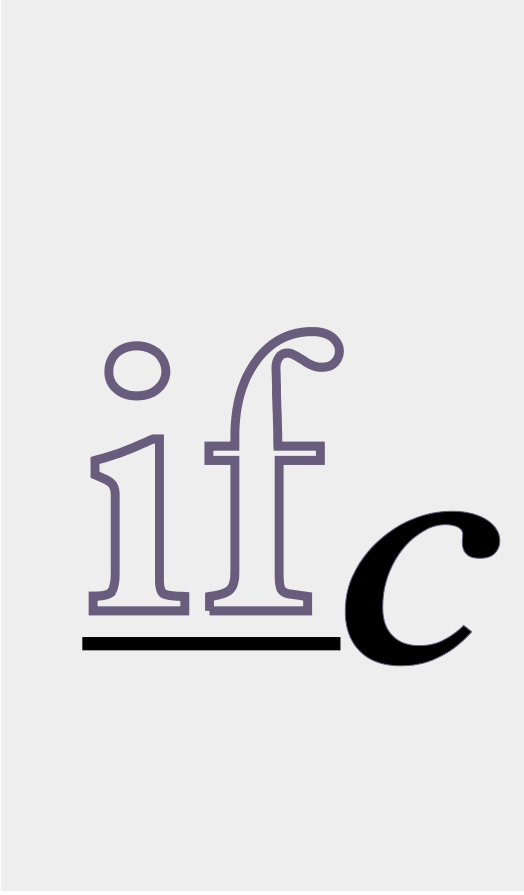

The Irving Fisher Committee is part of the International Statistical Institute

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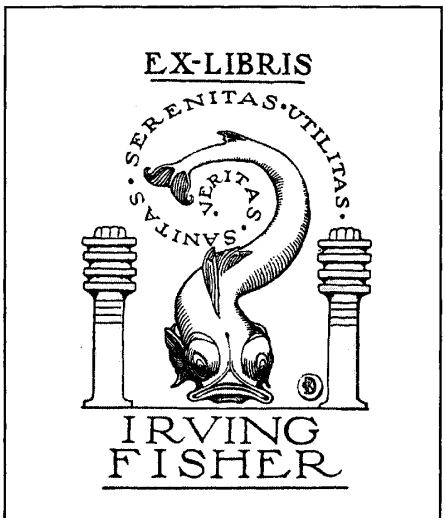

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No 10 – October 2001

What is the IFC?

The Irving Fisher Committee (IFC) is a forum for discussion on statistical issues that are of interest to central banks. The Committee, which derives its name from the great American economist and statistician Irving Fisher, is part of the International Statistical Institute (ISI).

Objectives

By providing a forum for discussion, the IFC aims at:

- participating in the discussion on adapting statistical systems to changing requirements;
- promoting the adoption of international statistical standards and methodologies;
- sharing experience on the development of new statistics and the implementation of new methods of collecting, compiling and disseminating statistical information;
- exchanging views between central bankers and academics on statistical methods and techniques;
- facilitating personal contacts between central-bank statisticians.

Strategy

To achieve its objectives, the IFC organizes conferences, which take place both inside and outside the framework of the ISI's biennial Sessions. The first "outside" conference – on the challenges to central bank statistical activities – is scheduled for summer 2002 at the Bank for International Settlements in Basle.

The conferences are supported by the publication of the IFC Bulletin, which contains the conference papers and other articles.

The IFC has a Web site (http://www.ifcommittee.org), on which an electronic version of the IFC Bulletin can be found.

What kind of topics are discussed?

Any kind of theoretical or practical statistical subject that has a relationship with the activities of central banks can be considered for discussion. The subjects will mostly be in the area of monetary, financial and balance of payments statistics.

Membership and Structure

In principle, the IFC has no personal members. Central banks and other institutions interested in statistical systems and statistical techniques that have a bearing on the collection, compilation and distribution of central-bank statistics can become members by simple application. So far, more than 60 central banks and a number of other institutions have applied for membership. Members are entitled to appoint delegates to participate in the IFC's activities and to contribute to its conferences by presenting papers.

The prime decision-taking body is the assembly of members' delegates at the "administrative meetings" that are organized during the conferences. Here the IFC's strategy is determined. At these meetings an Executive Body is elected, which is charged with the committee's day-to-day business and with the preparation of the "administrative meetings". Likewise, at the "administrative meetings" topics are proposed for future conferences, and a Programme Committee is elected to choose from these topics and to organize the conferences.

A Short History

The Irving Fisher Committee (IFC) was established on the initiative of a number of central banks statisticians who were attending the ISI Corporate Members Meeting at the 1995 ISI Session in Beijing.

In 1997, during the 51st ISI Sessions in Istanbul, the IFC held its inaugural meeting. At the "administrative meeting" held during that Session an Executive Body was established and it was decided to start publishing the IFC Bulletin devoted to the activities of the IFC. Two years later, at the 52nd ISI Session in Helsinki, the IFC's presence was further strengthened. Here a new Executive Body was elected and a Programme Committee was instituted.

In 2001, at the 53rd ISI Session in Seoul, the IFC presented a programme comprising an invited papers meeting on "Financial Stability Statistics" and several contributed papers meetings, at which more than 20 papers were presented. Each of these meetings was attended by 30-60 persons.

IFC Bulletin

The IFC Bulletin is the official periodical of the Irving Fisher Committee. The Bulletin contains articles and the text of papers presented within the framework of the ISI Conferences. It also sees as its task the recording of interesting events concerning Fisher's life. Institutions and individuals active in the field of central-bank statistics can subscribe to the Bulletin free of charge.

EDITORIAL

From Seoul to Berlin, via Basle

Many participants arrived in Seoul in a state of bewilderment, as the final ISI Information Bulletin had rearranged the three IFC Contributed Papers Meetings beyond recognition. Thanks to a flexible attitude of the conference staff, IFC Chairman Marius van Nieuwkerk could just in time achieve that the initial programme of the three meetings was largely restored, be it that two of the meetings had to commence at 7:30 a.m.

In spite of this confused start, the IFC's activities in Seoul have been highly successful. More than twenty papers were presented and the participation in the various meetings exceeded expectations. The Invited Papers Session on Financial Stability Statistics was attended by more than 60 persons, and the attendance of the Contributed Papers Meetings – also those that started at 7:30 a.m. – ranged between 26 and 37 persons. The number of persons participating in the Administrative Meeting was 34.

However, it was generally felt that the IFC's presence could and should be improved. This aim may be brought nearer by the agreement reached between the IFC and the Bank for International Settlements to jointly organize next summer a conference in Basle on the "Challenges to Central Bank Statistical Activities". This will be the first IFC conference outside the framework of the ISI Sessions. Preparatory work on this conference has already been going on for some time. The Executive Body and the IFC Programme Committee have also started preparations to ensure a strong presence of the IFC at the 54th ISI Session in Berlin (2003). According to a preliminary list, the IFC will be assigned in Berlin an Invited Papers Meeting on "The use of hedonic methods for quality-adjusted prices". Outside the framework of the IFC, this list mentions two Invited Papers Meetings in which central bankers should take an interest: "Use of statistics in the financial markets" and "Use of statistics in developing monetary policy". It will be investigated if the IFC can contribute to these meetings in a way that it preserves its own identity.

As regards Contributed Papers Meetings, members are requested to give their views on appropriate themes and to contribute to these meetings by preparing papers or by acting as an organiser or chairperson. Subjects already suggested are: "Stock and Flow Data for Macroeconomic Statistics", "Use of Survey Methods", "Estimated data versus Accounting data as Main Sources" and "The Treatment of Revisions".

Information on the preparatory process for both "Basle" and "Berlin" will be published in future issues of this Bulletin and on the IFC Web site *(http://www.ifcommittee.org)*.

This issue

The IFC Bulletin published most papers for the Seoul Conference in its previous (July 2001) issue. The remaining papers can be found in the present issue, together with some additional information, including the discussants' comments on the invited papers. Moreover, some papers that had already been published in the previous Bulletin reappear here in a more comprehensive version.

This issue also reports briefly on the exchange of views at the Administrative Meeting of the IFC and on a visit to The Bank of Korea.

Furthermore, this issue comprises three articles, two on the statistical measurement of the "New Economy", by Hans-Peter Glaab and Philip Turnbull respectively, and one on the cost of the lack of statistics by Johan Östberg.

The publication of Irving Fisher's "Short Stories on Wealth" is continued with the numbers 56-64, devoted to inflation and deflation.

Short Report of the IFC Administrative Meeting, Seoul, 24 August 2001

The meeting was attended by the following persons: Acx, Al-Raisa Ali Hamdan, Ambroise, Bajtay, Boamah, Carson, Cevik, Dandorfer, Ece, Enoch, Hagino, Halsall, Israel, Kitamura, McIntosh Hume, Meganck, Melis, Olenski, Ovi, Pak, Pécha, Poullet, Priyonoi, Radipotsane, Schubert, Signorini, Steger, Turnbull, Utsunomiya, Van den Bergh, Van Nieuwkerk, Van Wijk, Vojtisek, Wharmby.

Within the framework of the 53rd ISI Session, an Administrative Meeting, to be considered as the General Assembly of the Irving Fisher Committee, was held on 24 August 2001. The meeting was attended by 34 persons, representing the member organisations (central banks and some other institutions). The discussions and the decisions taken are here briefly summarised.

Chairman *Marius van Nieuwkerk* opened the meeting at 11:45 a.m. After having welcomed the participants , he presented the proposed agenda, which was adopted.

It was announced that the IFC would organize its **first independent conference** at the Bank for International Settlements in Basle in August 2002 (tentative data August 20-22). Sharing experiences should be the principal drive in selecting the themes. *Paul Van den Bergh* submitted a draft programme holding the following subjects:

- Statistics and Monetary Stability;
- Central Bank Statistics and Financial Stability;
- Constraints on Central Bank Activities;
- Co-operation with National Statistical Offices;
- Improving the use(fulness) of Central Bank Statistics for the financial markets;
- Statistical Analysis at Central Banks;
- Central Bank Co-operation on Statistical Issues.

The participants in the Administrative Meeting were invited to comment on the proposal and to provide potential organisers through written procedure by mid-September 2001.

In the discussions following the presentation of the proposal, *Philip Turnbull* insisted that the IFC should go beyond the scope of central bank statisticians. Therefore, the announcement of the conference should be addressed to a broader public (national statistical offices, the academic world and selected market participants). *Erich Dandorfer* supported that proposal and wished the Executive Body to take the actions required for reducing the rather isolated position of the IFC within the ISI. *Aurel Schubert* held that the IFC activities were well done but should be made available to third parties. *Al-Raisi Ali Hamdan* pursued that theme by stating that IFC should be the vehicle for sharing experiences with more countries.

The Chairman took note of the comments. The Executive Body would make broader announcements of the Basle conference and would contact several agencies/central banks to enlarge the international participation.

For the **54th ISI Conference**, which is scheduled to take place **in 2003 in Berlin**, the IFC had been assigned one Invited Papers Meeting. The committee would aim at organising three Contributed Papers Meetings. The IFC had submitted three possible themes for the Invited Papers Meeting: Stock and flow data for macro-economic statistics, The use of survey methods, and Price Measurements in the changing economic environment. The latter theme had been selected by the Berlin Programme Committee. The contributions to the Invited Papers Meeting should not be limited to technical issues but should also tackle general policy implications.

Erich Dandorfer wished that the conference should not be confined to academic contributions but that the figures themselves should also be focused on. He also put forward that the IFC should try to be more involved in the Programme Committee of the ISI Conferences.

Bart Meganck explained the structure and functioning of ISI and concluded that he would check if the IFC could become a member of the Programme Committee. The Chairman would examine how the IFC might be able to improve its status within the ISI in order to become the ISI's sixth specialised section. It was not excluded that the IFC might organise an Invited Papers Meet-

ing jointly with the AIOS, or that representatives of central banks might contribute to scientific meetings organised outside the IFC framework if the subjects were in the sphere of central bank statistics. It was, however, stressed that the IFC should preserve its autonomy.

IFC members were invited to forward further themes for the Contributed Papers Meetings to the IFC Secretary before mid-September 2001.

Regarding the **IFC Bulletin**, several participants having put forward their points of view, it seemed that it was required to update the mailing list. The Secretary was charged with the update and he would provide more copies of the Bulletin, if explicitly requested by a member.

Subsequently, the Chairman introduces a number of **administrative matters**. He submitted the nomination of *Paul van den Bergh* and of *Rudi Acx* as member of the Executive Body and Secretary of the IFC respectively. Both proposals were endorsed by the Administrative Meeting, as were proposals to the effect that in the next two years *Marius van Nieuwkerk* should remain in office as Chairman and *Bart Meganck* and *Hans van Wijk* should remain members of the Executive Body .

Philip Turnbull proposed a system of president-elect to smoothen the activities of the Executive Body. He further suggested to select on a pro-active basis as member of the Executive Body a person belonging to the country that would hosts the next ISI Conference. *Carol Carson* pointed out that all regional areas were not represented within the IFC Programme Committee. The Chair-

IFC Executive Body and Programme Committee

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man would consider the proposal as to the system of president-elect and would take the necessary steps to improve the active contribution of all regions.

Satoru. Hagino, currently working at the IMF, suggested that *Yoshiyuki Kitamura* (Bank of Japan) took his place as member of the Programme Committee. The appointment would become official upon authorisation by the Bank of Japan.

The Chairman closed the meeting at 1 p.m.

Visit to The Bank of Korea

On the occasion of the ISI Session, the Executive Body and the Programme Committee of the Irving Fisher Committee had an opportunity to visit The Bank of Korea on 27 August 2001, following an invitation by Dr Seontae Lee, Assistant Governor, and Mr Jung Ho Chung, Director General. Dr Lee described the statistical activities of The Bank of Korea, which, in addition to the production of monetary and financial statistics, encompassed the compilation of Korea's national accounts.

During the exchange of views it was once more recognised that central bank statisticians around the world were faced with similar challenges. Special attention was paid to the difficulties met in measuring the "new economy", the process of seasonal adjustments, the quality of data collected from directly reporting economic agents and the compilation of macroprudential indicators (financial soundness indicators). It was emphasised that the Irving Fisher Committee might be the forum offering central bank statisticians an opportunity to look for appropriate solutions and to exchange experiences. The 2002 independent IFC Conference in Basle and the IFC sessions at the 54th ISI Conference in Berlin in 2003, would deal with most of the aforementioned challenges.

The information contents of statistical data and the revision policy were discussed in the light of the recent development of the Korean economy, which is still not on an equilibrium path after the crisis of the last years, as may be learned from the leading data. Recently a new definition of the monetary aggregates was launched to comply with international standards. The mission statement of Price Stability is made very clear to all visitors of The Bank of Korea, by means of a huge text in the central entrance hall (see photograph).

Upon request by the IFC Chairman, Dr Lee would consider an active involvement of The Bank of Korea in the IFC's activities.

Statistical measurement of the "New Economy"

(including hedonic price indicators)[1]

Hans-Peter Glaab (Deutsche Bundesbank)

Although the problem of statistically recording "new economy" activities and the problem of applying the "hedonic" approach to calculate price indices are quite often linked to one another, in principle these aspects should be strictly separated. There are two issues involved:

- How can monetary transactions (= values) in the new economy be recorded, and, based on this:
- How can monetary transactions be broken down into their price and volume components?

1. Statistical recording of the new economy

Without committing ourselves to an exact definition of the "new economy", it may be said that the new economy is about the use of modern information and communication technology (for example, the Internet) in the production and distribution of goods, services and information.[2] In order to be able to use such modern technology, a technological infrastructure (hardware and software) is necessary.

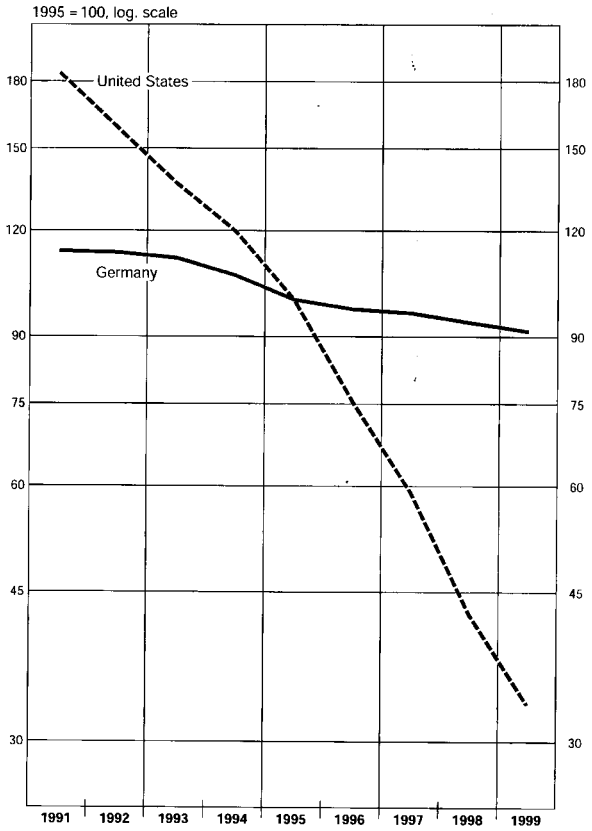
The type of transactions conducted in the new economy does not differ substantially from those of the "old economy". If we look at the classification of economic sectors in the national accounts tables, we are unlikely to find any branch of the economy which has remained unaffected by the new economy. The new economy is not a specific economic sector, but instead covers all sectors. For statistical recording this means that – at least from a German perspective – we are facing the same kind of problems as in the past: the opportunity of statistically recording the new economy in industry and trade is a great deal bigger than recording the new economy in the service sector.

Thus, it should be possible to capture the production of and trade in IT products by means of the existing statistical reporting system, though of course under the premise that the economic agents are subject to periodical reporting requirements and/or sufficiently represented in sample surveys. This also applies to e-commerce in goods – both B2B and B2C. This "e-turnover", however, gets lost in the "normal" turnover – this is at least the case in Germany – and is not recorded separately. The situation in the banking and insurance industry, and generally in the services sector – areas that were already in the past less well covered by statistical recording – poses a greater problem. Looking at the "top ten" most popular e-business sites is not a great help, either, because the number of hits does not say much about the number of e-business transactions.

1) *Paper presented at a meeting of the Statistics Committee of the European Central Bank, 17-18 May 2001.*
2) *Occasionally the term "new economy" is associated with other phenomena such as the deregulation of markets previously under government supervision or of markets serviced by state-run enterprises (telecommunications, transport, energy); even general globalisation is sometimes covered by this term.*

Prices of IT equipment in Germany and the United States

Figure 1



2. Significance of the new economy

Since the new economy is being given credit for enormous productivity and growth gains, efforts are increasingly being made to also (and in particular) come up with an international comparison of the advance of the new economy. In view of the data availability (few or no data are available (services) or data are not separately recorded (e-commerce)), the focus has been set on the advance of the technical infrastructure, reflecting the underlying assumption: The more widespread the use of the technical equipment in question, the greater the significance of the new economy.

For example, studies are being made on households' spending on IT products or the share of IT products in gross capital formation. In this context, it is not the values but rather volumes, and how they are changing over the course of time, which matter. And exactly at this point (where values are decomposed into the price and volume components) a problem emerges, of which the implications for international comparisons of growth cannot be overstated. Measuring prices and volumes brings out, in extreme form, the classical problem of price measurement: adjusting price changes for quality variations – for, in the case of IT products, plummeting prices have gone hand in hand with considerable quality improvements.

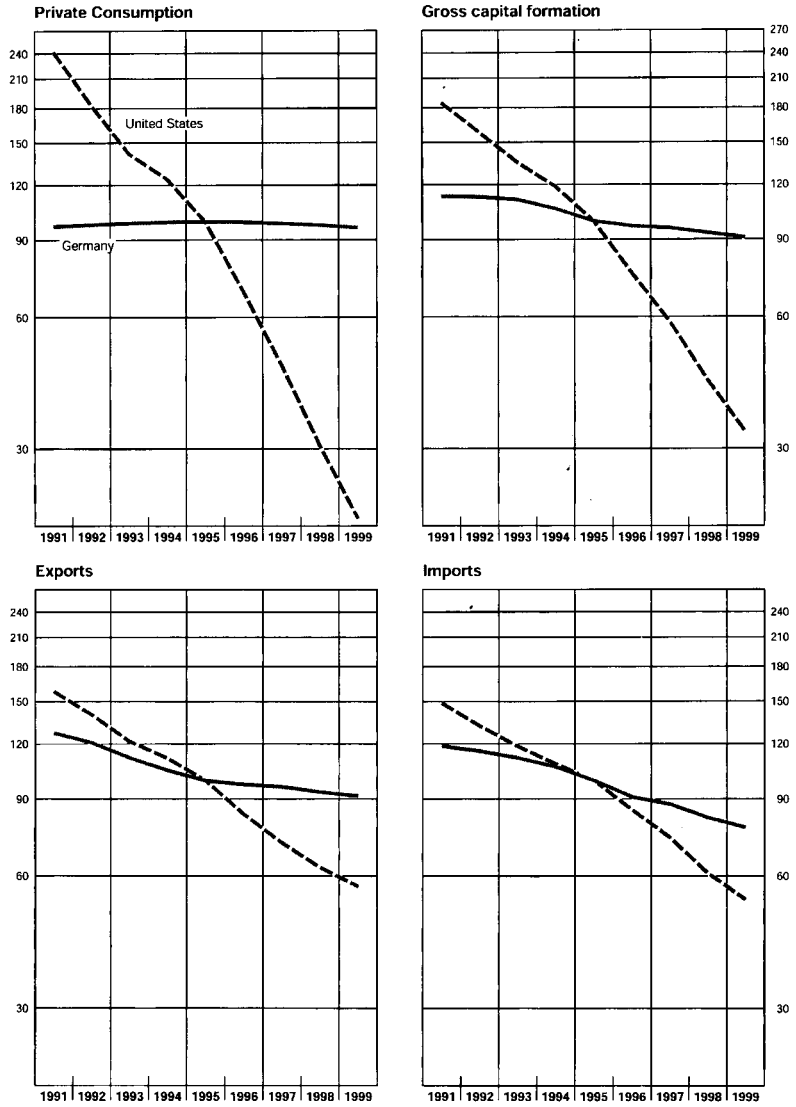
3. Use of US price deflators for IT goods in the German national accounts: results of a rough estimate

In terms of official national accounts data, the much stronger growth of the US economy during recent years (compared to the euro area) has also – and in particular – been explained by the fact that the new economy has attained far greater importance in the United States than in Europe. Against this background, in the Bundesbank's Monthly Report of August 2000 a "box"was published on the topic of "Problems of international comparisons of growth caused by dissimilar methods of deflation – with IT equipment in Germany and the United States as a case in point".

The core message of this box is that the discrepancy between the United States and Germany in the development of real expenditure on IT equipment is to a quite large extent solely due to different methods of deflating prices. Thus, in order to assess quality variations, official statistics in the United States use the hedonic approach, whereas in Germany conventional methods are used. This is a major reason why in the 1990s prices for IT equipment on the US market went down by

Figure 2

Deflators of IT products for final use in Germany and the United States 1995 = 100, log. scale



four-fifths, but in Germany by "only"one-fifth (Figure 1)[1]. As far as IT goods contained in other demand components are concerned, clear-cut differences between the US and German price series can be identified there, too; however, for exports and imports these differences are less pronounced (Figure 2).

These methodological differences in quality adjustment greatly impair the comparability of real data for spending on IT goods. The quintessence of the "grey box", i.e., that in Germany (and thus also in Europe) the new economy has made greater progress than is being reflected in the official figures and that the technological gap between Germany and the United States is being statistically overstated, stirred up a lively debate in Germany about the effects of the US method of calculating price-adjusted aggregates for IT goods on the real growth of German GDP. Estimates range between one-half percentage point and a full percentage point of additional growth per year.

Admittedly, it has not been possible so far to exactly quantify the effect that shifting to a hedonic IT price index would have on overall economic growth in Germany, because such an index currently neither exists in Germany, nor can be calculated on the basis of the available data. An attempt at approximating this effect is grounded in the simplifying assumption that the actual price developments for IT products in Germany and in the United States are essentially identical and that therefore the Federal Statistical Office in Germany would obtain the same price deflators for IT goods as the Bureau of Census if it also used the hedonic approach.

1) *Underlying data as at January 2001.*

Table 1 Real economic growth in Germany using different price indices for IT products

Calculation I: Prices of the year 1995 (Laspeyres fix-type index)

Year	Change of the real GDP from previous year in % using		
	(A)	(B)	(C)
	... price indices for IT-products of the Federal Statistical Office of Germany	... price indices for IT-products of the United States	Difference of the growth rates (B) - (A)
1992	2,24	2,32	0,08
1993	-1,09	-1,01	0,08
1994	2,35	2,37	0,02
1995	1,73	1,83	0,10
1996	0,77	1,04	0,27
1997	1,40	1,75	0,35
1998	2,05	2,57	0,52
1999	1,56	2,28	0,72

In such a procedure, however, it should be noted that the deflation of US national accounts data differs from the Federal Statistical Office's way of calculation not only by using hedonic price indices, but also – regardless of the price indices used – in the general concept of price deflation in the national accounts. The Federal Statistical Office calculates the real aggregates of the national accounts in constant prices of a specific base year (currently 1995), thereby holding on to the prices of that year (Laspeyres fixed-weight index). To calculate the US economy's annual real growth rates, by contrast, the prices of the year under review and the respective previous year are used (Fisher chain-type index). This different method of price adjustment in the national accounts as such leads, ceteris paribus, to different results in real growth rates. Consequently, if we attempt, for example, to calculate rates of real GDP growth in Germany that are more comparable with real US growth rates than the current ones, it will not suffice to merely replace the German price indices for IT goods with the US price indices. It will be additionally necessary to look at the different price deflation methods in Germany and the United States.

Against this background, the Bundesbank decided to perform its own calculations to quantify the "quality adjustment component", taking into account the dissimilar price deflation methods in Germany and the United States. The underlying data chosen for these calculations comprised data on the expenditure components of German GDP (private consumption, government consumption, gross capital formation, exports and imports), split up – as far as possible – into non-IT goods and IT goods. However, calculating on this highly aggregated base of data implies highly simplifying assumptions. Therefore our calculations are primarily designed to illustrate the interconnections. However, for actual GDP growth the actual numbers themselves have only a very limited informative value.

In a first step, the price indices for IT goods within the individual expenditure components were replaced by the corresponding US price indices. The deflation of the overall economic expenditure components continued to be calculated on the basis of the strategy currently used by the Federal Statistical Office. A comparison between the growth rates of real GDP calculated in that maner and the official growth rates released by the Federal Statistical Office (see Table 1) shows considerable deviations, with the differences increasing the further one departs from the base year (1995) [1]. Accordingly, real growth in 1999, for example, would not have amounted to 1.56 % but to 2.28 %. On closer inspection, however, it seems questionable whether real GDP growth can be measured in an economically sensible fashion by using the growth rate calculated in that manner.

Apparently the Federal Statistical Office's strategy hardly supplies any meaningful results for real growth if major shifts in the price structure of important goods have taken place since the base year, as is the case for IT goods and non-IT goods in the present example. For this reason, when ad-

1) *The rates of change are expressed to two decimal places to facilitate a comparison of the alternative calculation results, which would be complicated by the usual form of representation with differences caused by rounding. Within the framework of the official national accounts, such procedure is admittedly out of the question owing to the well-known margins of error at the current end of the series.*

Table 2 Real economic growth in Germany using different price indices for IT products

Calculation II: Prices of previous year (Laspeyres chain-type index)

Year	Change of the real GDP from previous year in % using		
	(A)	(B)	(C)
	... price indices for IT-products of the Federal Statistical Office of Germany	... price indices for IT-products of the United States	Difference of the growth rates (B) - (A)
1992	2,18	2,31	0,13
1993	-1,08	-0,96	0,12
1994	2,28	2,33	0,05
1995	1,71	1,85	0,14
1996	0,77	1,04	0,27
1997	1,39	1,63	0,24
1998	2,04	2,29	0,25
1999	1,57	1,81	0,24

justing the prices of the expenditure components it may be more appropriate to use constant prices, by which the relative estimate of the value of dissimilar goods can be better represented in each particular period under review. So, for example, one could take as a basis the prices of the previous year (Laspeyres chain-type index; see Table 2). In calculating by that method, if one adheres to the Federal Statistical Office's conventional price indices for IT goods, the growth rates are almost identical to those obtained on the basis of the traditional price deflation method. (Compare column A in Tables 1 and 2). If, by contrast, the German price indices for IT goods are replaced with the US price indices, the differences start to become significant (see Table 2, column B). All in all, if US price indices for IT goods are applied and prices of the previous year are used for adjusting prices of the macroeconomic aggregates, the differences in growth rates reach a level of 0.2 to 0.3 percentage point[1].

An important objection to our approach of using the respective US deflators for the various IT expenditure components could be that the US deflators' deviating patterns across the different IT expenditure components (Figure 2) point to possible inconsistencies which would rule out extending these deflators wholesale to Germany. Rather, it may be advisable to use a uniform hedonic US deflator for the different German IT expenditure components. The results of such a calculation, in which merely the US deflator has been used for all IT goods within all German IT expenditure components, are given in Table 3 for alternative II (Table 2). According to these results, the differences in growth rates have slightly decreased from originally 0.2 to 0.3 percentage point to about 0.2 percentage point[2]. In times when almost any change "to the right of the decimal point" seems to be worth comment, such orders of magnitude are not to be taken lightly.

To sum up, it may be stated that the calculated hedonic effects vary in size, depending on which US deflators and which general deflation methods are used. Therefore – due to the assumptions that have been made, and which are certainly debatable – caution is always advised. Furthermore, the calculation results, which will probably be bandied about unthinkingly in the media and in the public, must always be interpreted with care. One point, however, has probably become clear: The solution in Germany cannot lie in merely shifting to the hedonic approach. In this case it would be absolutely necessary, in our opinion, to shift as well to another deflation method (for example valuation in prices of the previous year). An argument in favour of valuation in prices of the previous

1) *If, instead of the prices for the previous year, the prices for the current year are taken as a basis (Paasche chain-type index), the results yielded are similar. If, for this comparison, constant prices are used which are calculated from the prices of the previous year and the current year – which basically corresponds to the US approach - then the differences lie, as can be expected, between those of the Laspeyres and the Paasche chain-type index.*

2) *Of minor importance is another objection which can be made to our approach. Against the simple replacement of the price indices for IT goods, it may be argued that we are dealing with the development of DM prices, on the one hand, and that of US dollar prices, on the other. Therefore, before substituting the German price indices, the US price indices would have to be adjusted for the exchange rate fluctuations between the DM and the US dollar. However, the differences between the results obtained in this manner remain within bounds and, from a methodological perspective, do not lead to different valuations.*

Table 3 Real economic growth in Germany using different price indices for IT products

Calculation II: Prices of previous year (Laspeyres chain-type index)

Year	Change of the real GDP from previous year in % using		
	(A)	(B)	(C)
	... price indices for IT-products of the Federal Statistical Office of Germany	... the price index for IT-products as a whole of the United States	Difference of the growth rates (B) - (A)
1992	2,18	2,29	0,11
1993	-1,08	-0,99	0,09
1994	2,28	2,32	0,04
1995	1,71	1,81	0,10
1996	0,77	0,98	0,21
1997	1,39	1,57	0,18
1998	2,04	2,23	0,19
1999	1,57	1,74	0,17

year – as opposed to the US approach (Fisher chain-type index) – is the fact that the additivity of the national accounts components in the individual years is maintained, thus continuing to make it possible to calculate the individual components' contribution to growth.

4. Statistical recording of software investments

Up to now, these comments have been restricted to hardware. According to our studies, however, the methods used for recording software investment are not internationally compatible, either. Here, it likewise appears that either German statistics are understating the level or that US figures are overstating it. In Germany, the nominal software investment increased by a total of 66 % between 1992 and 1999, or 6 ½ % p.a. This was significantly less than in the United States, where over the same period it grew by 153½ % or an annual average of 12½ %. Furthermore, as early as in the base year 1991 software investment in Germany had a significantly lower weight than in the United States. For if software investment in both countries is compared to hardware expenditure, then in 1991 in Germany for every DM 100 invested in IT goods, DM 77.4 were invested in software (Table 4). This was only about half of the US ratio. On balance, by the end of the past decade this had not changed.[1]

In view of the technological complementarity between hard- and software, there is hardly any analytical justification for the rather sizeable difference between Germany and the United States in the software/hardware ratio.[2] The main reason for this might be problems in the statistical recording of nominal figures, for both purchased and own-account software. The base data for purchased software in Germany, and also in most other industrialised countries, is extremely weak. Even less data are available for own-account software. This applies in particular to Germany, where own-account software is not allowed to be listed on the assets side of the balance sheet, for reasons of cred-

1) *Such comparisons, however, should be made exclusively in nominal terms, since in real terms the ratio would be very strongly influenced by the US-German differences in deflating prices. These are mainly to be found – as described above - in hardware investment. It is true that US statisticians use hedonic methods for measuring prices of parts of the software as well. This is especially the case with prepacked software (standard software). Furthermore, the price index for custom software is calculated as a weighted average of the price index for prepacked software and an input-based price index (the prices for own-account software are calculated exclusively on a cost basis). But here the hedonic effect is far less apparent than in hardware investments. Taken as a whole, the 13 % decline in US software prices between 1991 and 1995 is significantly lower than that of IT equipment. In addition, the differences in developments of software prices compared with Germany, where the deflator for investments in intangible assets was one-tenth below its 1991 level, are much smaller.*

2) *The Bank of England also comes to a similar conclusion, identifying a software-hardware ratio of 4:10 for the United Kingdom. (Cf.: Monetary Challenges in a New Economy, Speech by Dr Sushil Wadhwani, Member of the MPC of the Bank of England, delivered on October 12, 2000.)*

Table 4 Software Investment as a percentage of hardware investment in Germany and the United States [1]

Year	Germany in %	United States
1991	77,4	150,1
1992	87,2	139,4
1993	100,1	147,0
1994	100,9	147,2
1995	102,9	129,3
1996	103,7	134,1
1997	101,8	146,4
1998	96,1	169,7
1999	95,3	191,0

1 At current prices.

itor protection; therefore, no information can be obtained from the annual accounts of enterprises. In view of the weak statistical substructure in both countries, the difference in the levels of the software/hardware ratio is not surprising. Against this background, no judgement can be made as to what results better represent reality. However it can be said that, if the US ratio is used, real software investment in Germany would be more than DM 30 billion higher; this corresponds to just under 1 % of real GDP.

The differences between the two countries in adjusting prices of IT goods as well as in calculating software investment join the long list of methodological and statistical differences in the calculation of GDP and its components which continue to exist despite manifold efforts at harmonisation. In particular, if differences in recording – as in the case at hand – refer to relatively dynamically growing components, the international comparability of national accounts data is seriously impaired. To that extent, statistical considerations also impose limits on comparative studies on the advance of the new economy.

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Statistical Measurement of the "New Economy"

A review of work undertaken at the Bank of England and the Office for National Statistics[1]

Discussion paper[2]

Philip Turnbull

Introduction

1. In researching this paper, I have primarily reviewed work undertaken in the Bank of England and in the UK Office for National Statistics (ONS). I have not studied relevant academic work, but have looked at papers from INSEE (France) and BEA (US). I am no expert in this subject, and do not attempt to draw any conclusions of my own. However my general impression is that the statistical problems for macro statisticians are not new or unique to the so-called new economy. Nevertheless they have become significantly more important in recent years, given recent high growth rates in that sector of the economy which has commonly come to be called ICT (Information, Communications and Technology).

2. What is meant by the term "New Economy"? Some authors such as *Wadhwani* refer to anything in the traditional macro-economic relationships, which have changed, or may have changed, in recent years. Most authors however seem to use the term as synonymous with the ICT sector, which it is claimed has driven up growth rates and productivity rates throughout all sectors of the economy. Others go even narrower than this and simply refer to the phenomenal growth of E-commerce and the Internet revolution.

Key measurement issues

3. There appear to me to be four key sets of statistical issues identified in the UK literature I have reviewed (listed under references at the end of this paper). First seems to be the question of whether all new activities in the ICT sector are adequately *covered* or identified in existing surveys and measures of GDP. Secondly whether some indicators are *biased* in some way, particularly prices. Thirdly whether standard statistical cl*assificatio*ns are adequate to identify key components of ICT. Finally there is the wider issue of whether *productivity* in the economy is biased downwards linked to the issue of whether underlying productivity trends in the economy have undergone a quantum leap.

Coverage

4. ONS reports and studies seem confident that rapidly expanding new activities such as Internet service providers, and mobile phones are being picked up quickly by existing surveys under the appropriate production and service headings. However they are not always separately identified. The ONS have therefore launched a new annual E-commerce survey of 9,000 businesses as part of a EU wide exercise, and using definitions developed by the OECD. Results were published in May this year. Surveys of ISP providers to provide short-term measures of increase in usage are also be-

1) *The views expressed in this paper are my own and do not necessarily reflect the views of the Bank of England or the Office for National Statistics.*

2) *Prepared for the ECB Statistics Committee meeting in May 2001 (revised September 2001).*

ing conducted by the ONS and the Annual Business Enquiry has check box questions so that all companies involved in E-commerce can be identified for sampling and grossing of survey data. 5. Household surveys are being used to identify the extent of Internet usage outside of the business sector (32% of UK households in Q3 2000) and sales via the internet. Internet prices for books and toys have been collected since January 2000 and will be introduced into the Consumer Price Index during 2001.

Measurement Bias and effects on GDP,

6. The main worry of some commentators has been whether the decline in prices of hardware and software has been faster than the official measured price indices. This is linked to the question of whether the UK should switch to use of a hedonic price index as used in the USA (where the price index has declined much faster). A hedonic price index is based on a multivariate regression equation linking prices to an array of features/facilities of a product, and is claimed to be a better way of standardising for quality changes. It was first used in the US on cars and has since been extended to a very wide range of goods including computer hardware and packaged software. Landefeld and Fraumani report as follows: *"While computers and peripherals use hedonic indexes for all components, only about of computer software uses such indexes…pre-packaged software is deflated with a hedonic index. However in-house software is deflated with an input-cost index, and custom software is deflated with a price index that is a weighted average of the pre-packaged index and a cost-based price index."*

7. Both the ONS (ref 7) Oulton, Wadhwani (based on Oulton) and Lequiller have looked at the effect of substituting the US price index into the UK (and the French) output indicators and final GDP estimates. ONS show that substituting the US price index into the UK index of production would raise its level by 6 percentage points over the period 1994 to 2000 (i.e. about 1 point per year). However Oulton points out that it has a much smaller effect on GDP than anticipated, mainly because production is only about one quarter of GDP. However a second factor is the negative trade balance on computers in the UK. Lequiller shows that in France where a hedonic price index is used for hardware, this still declines by less than the US index.

8. In examining the price effect, all three authors above came to the conclusion that a much more significant difference between the US and the UK is the allocation of total output of the IT industry between final consumption (largely investment) and intermediate consumption. This seems to be a particular problem re software. For example the US ratio of software to hardware within total IT capital investment is 1.4 whereas in the UK it is only 0.4. Oulton estimates that UK IT investment should be at least three times higher than it is and that this plus the use of US deflators would increase GDP growth over recent years by an average of 0.3 percentage points per annum.

9. Lequiller estimates a similar potential effect on French GDP growth by 0.3 pps in 1998. However he is much more skeptical of the US figures since they seem to be based on a series of assumptions on the partitioning of total output, rather than on survey evidence. Interestingly also Lequiller points out that if 'Net National Product' is considered (i.e. after capital consumption or depreciation) then the differences in growth rate are less significant. The ONS have said they think there may be something in the Oulton criticism, although some UK software investment is probably hidden within other headings. They are collecting new and improved data and hope to have a new and improved series of IT investment in time for the 2002 Blue Book round.

Classification Issues

10. Classification headings used within UK official statistics do not map onto the new growth ICT sector very well. Changes are being made to both UK Standard Industrial Classification (UK version of NACE) at the optional forth digit level. More significant changes will presumably need to await the next major NACE review at the EU level, and this still leaves the Input-Output headings adrift from the ICT concept. More significant changes have however been made to the UK standard occupational classification (SOC) which has been used in the 2001 Census of Population and will be used in subsequent household surveys

Wider concepts of the New Economy

11. As mentioned at the beginning of this paper, *Wadhwani* has a much wider concept of the New Economy than just ICT. He starts from the observation that in recent years GDP growth has been systematically under-forecast by models of the UK economy, while inflation has been simultaneously over-forecast. He concludes that relationships and their influence of inflationary pressures must have changed. Productivity growth may be higher than currently and inflationary pressures less. Some of the factors that might have influenced this are the effects of rapid ICT investment; changes in the labour market and a reduction in NAIRU.

12. One further statistical factor may be estimates of the capital stock, which feed into the Bank's estimates of the 'output gap' in the economy. Wadhwani agues for an Index of the Value of Capital Services (IVCS) instead of traditional book or market values. Measuring value in terms of the productive services provided by the capital stock would give a higher weight to assets with short life spans (such as IT) and the experimental IVCS grows faster than the capital stock in the most recent years.

Philip Turnbull
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Bank of England

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The Cost of the Lack of Statistics[1]

Johan Östberg (Sveriges Riksbank)

1. Background

The quality of statistics and the availability of relevant statistical indicators have attracted media's attention in the past few months in Sweden. Newspaper report frequently about the lack of quality in economic statistics, where the main focus has been on statistical indicators related to National Accounts statistics. Economic co-operation, information technology and more integrated financial markets calls for faster and more adaptive indicators relevant for economic analysis and for political decisions as well as for the conduct of monetary policy.

Officials from the Riksbank and Statistics Sweden are involved in two comprehensive studies regarding the new requirements of economic statistics. The Commission on the Review of Economic Statistics have been appointed by the government to propose how economic statistics can be adapted to meet the expanding and new needs for statistics. Although a final report will not be published until the end of 2002, some information can be extracted from an interim report, which was published in April 2001. As the initial part of the study, the Commission has defined changes in the needs and perspectives of users in relation to future Swedish economic statistics. It has been identified that in certain areas, there is a broad agreement among users regarding to what types of statistics that are lacking and to what kind of quality improvements that are necessary.

The second study involving Swedish officials is the Eurostat task force, which has the mission to investigate how the US and other countries benchmark their statistics. The work of the task force is still in an early stage and final results have not been made public. However, some reflections can be made regarding differences in the organisation of the production of economic statistics and in attitudes toward statistics between the US and the EU.

2. The Commisson on the Review of Economic Statistics –- interim report on user needs

The reason for setting up the Commission can be found in a recent public debate in Sweden about the quality of economic statistics. It has also become more obvious in the past few years that high-quality statistics are crucial for the decision-making process in both the public and the private sector.

Structural changes in the economy

In it's interim report, the Commission highlights some changes in the economic environment that have affected the area of economic statistics. One example worth mentioning is the difficulty of describing the new economy. (It should be noticed here that the Swedish industry is very IT-intense and that the Swedish stock exchange is highly correlated with NASDAQ):

According to the Swedish National Accounts, gross investments in software equipment increased by 70 per cent between 1994 and 1999. The share of software investments in 1999 out of total gross investments was 13 per cent. The method of computing software investments is, however, not based on actual reporting from companies, since accounting principles allow these investments to be booked as costs. Other sources are being used, in this case sources based on production data from the computer industry. Furthermore, these data are not collected on a regular basis.

Another problem relates to the conversion of software investments into fixed prices, since relevant price indexes are lacking (there are no hedonic price indicators available in Sweden for this purpose). In this case, wage indexes are used as substitutes, which means that software investments (in fixed prices) could be underestimated. As a result, recorded real GDP growth could be much lower than the actual level.

These findings were first presented in an article published by one of the largest Swedish business-oriented newspapers in October 2000. Even though some of the facts behind the main headlines in the articles were incorrect and refuted by the responsible agency, the matter at issue underlines the importance of having statistical methodology aligned to the economic environment.

1) *Speaking note to a meeting of the Statistics Committee of the European Central Bank, 17-18 May 2001.*

The Commission also states that there are also other areas with especially urgent needs for new statistical measurements. These include reliable price indexes for the business service sector (also affecting real GDP figures), updated input-output-supply-and-use tables in the National Accounts and statistics on capital stocks.

New conditions for the collection of data

The Commission has also identified other areas where structural changes in the environment and the behaviour of respondents have contributed to diminishing quality in economic statistics. Factors like globalisation (e.g. affecting ownership structures and localisation of headquarters) and actions taken to reduce administration costs in companies are important reasons behind lower response rates and lack of data quality. These problems are especially noticeable for large companies since they are selected in almost every sample of statistical surveys.

To some extent, these shortcomings could be eliminated by new information technology such as the Internet, the Commission argues. The use of integrated networks and e-based reporting could offer improved data quality and a faster response.

Timeliness has to be improved

The Commission emphasises that priority has to be given to more timely short-term indicators. The current production time for the National Accounts is at present 73 days in Sweden, while the EMU Action Plan calls for a time lag of maximum 70 days. The Commission points out that the requirements in the action plan are necessary to implement. However, the Commission intends, in its further work, to assess the possibility to produce GDP indicators as fast as in the US. The Eurostat benchmarking study makes an important input for this assessment.

It is clearly an ambitious goal to cut production time for these estimates by more than half. Users and producers of statistics may have to change their perspective, in which reliability and transparency needs to be reassessed. Estimates and models would probably have to be used more extensively and quality control in terms of reconciliation between different statistical measures could be hampered.

The interim report also summarises other user needs. These include detailed statistics of wages, IT-investments, public sector, regional development etc. But users also request other methodological amendments, e.g. to abandon the assumption of unchanged productivity in the public sector in the compilation of national account statistics. Several users are of the opinion that the NSI should be in force to more explicitly influence international harmonisation. It is also important that the harmonisation efforts are user friendly. Neither should they be done on the expense of national interests.

Brought to light so far in the study, users request consistencies with related statistical areas, improved quality, more timely indicators and in some cases better coverage of the statistics. However, it is also evident that users are not unanimous in their requirements. In fact, as where timeliness is being pointed out to be the most important issue by some respondents, quality or rather accuracy is being favoured by others. In cases where the trade-off between timeliness and accuracy is being recognised by the user, most users still seem to prefer either one of the two dimensions. By judging solely from user requirements, current balance between statistical quality and production time does not seem to be biased.

3. The task force on Benchmarking in infra-annual economic statistics

The second study with Swedish participation regarding coverage and timeliness of economic statistics is the Eurostat benchmark study of infra-annual economic statistics. On the initiative of Statistics Sweden, it was agreed that Sweden would set up a task force responsible for an intra-EU benchmarking exercise. It was also agreed that Eurostat would organise a study visit to relevant US agencies. The primary aim of the task force is to study differences in timeliness between US and EU statistics in order to find out whether US practices could be applied to EU statistics. The comparison between EU and US statistics will be carried out during spring 2001 and the intra-EU study in mid-2001. The task force will submit a final report in September 2001. Some extracts from the study can, however, be presented already at this early stage.

Features of the US statistical system

The overall objective of the benchmarking exercise is to improve coverage, quality and timeliness in national statistics and statistics on EU level. Within the scope of the US study, a number of aspects have been observed such as organisational, legal, methodological, political and managerial. All of these aspects are important in understanding variances and differences in the production process of economic statistics.

Organisational

The compilation of economic statistics in the US is carried out by various institutions. The Bureau of Economic Analysis has the overall responsibility for the National (and regional) Accounts and the Balance of Payments/IIP. The Bureau of Labour Statistics produces PPI and CPI statistics while the Federal Reserve Board is responsible for financial accounts, industrial production and capacity utilisation statistics. Clearly, that kind of organisational fragmentation has its advantages and disadvantages. Agencies could only be criticised for their own contribution since a single agency is not in charge of the statistical system as a whole. Agencies also seem to be specialised in an area in which they have comparative advantage. On the other hand, the system is probably not as flexible as corresponding systems in Europe, where the responsibility is often limited to one or two institutions.

Political

The production of Federal economic statistics is "centralised" in the sense that it is performed on a national level. There are no regional considerations taken into account and the federal administration does not produce regional statistics that are aggregated to national data. Involvement of statistical units at State level is limited and strategic discussions about the Federal statistical system are held only on a national level. Therefore, "harmonisation" is hardly a problem. States have also the freedom to choose separate methods for their own purposes and nobody takes any notice if the sum of State estimates differ from the Federal total.

Managerial, legal, cultural etc.

There seems to be less resource constraints compared to the EU, and the ability to attract experienced professionals is of highest priority for the agencies. Highly educated staff members are working with all parts of the production chain, including field specialists that gather information directly from firms.

Generally, people have a positive attitude to statistics and data collection in the US. For certain, pronounced strategies such as the paperwork reduction act and the paperwork elimination act are helpful in this context, but "soft" elements such as patriotism should not be neglected; In the US, statistical indicators are regarded as very important in assessing the economic success of the "Nation".

Methodological focus of US statisticians

It is well known that statistical methodology differs between the US and most systems in the EU. In the US, users and producers of statistics seem to focus more on rapidity and transparency rather than accuracy and reliability. A first estimate of key indicators like the GDP indicator is produced with a time lag of 25–30 days. In the EU, production time is much longer, at the shortest around 55 days and in most countries 70–75 days. In the US, five different GDP estimates are made: three quarterly estimates with a production time of 25 up to 90 days and two annual (published in June).

The BEA has chosen a rather straightforward approach, for the three first estimates an "expenditure approach" is used. GDP is built up solely from the components of the expenditure side of the economy, and there is no reconciliation between expenditures and income at this stage.

Moreover, the process of producing the first estimate of GDP is partly based on data from 2/3 of a quarter where the third month has to be estimated. In compiling annual figures, the BEA uses more complete underlying data. Estimates are continuously improved through the process of benchmarking to the annual surveys. The US agencies seem to be very keen on publishing revisions and information about compilation methods, thus adding transparency to the process.

4. Conclusions and subjects for discussion

User requisites, financial integration, the "new economy" and globalisation have contributed to expanding needs of statistics. Users require more timely indicators, respondents complain of increasing reporting burden and the complexity of the economy is growing. Coverage, accuracy and timeliness are key issues, making life hard for the producers of statistics. However, the introduction of new methods and amendments of legal frameworks takes time: systems have to be developed, new statistical measures needs testing and a supporting organisation has to be built-up.

To meet the new demands, producers of statistics (especially in Europe) may need a change in perspective. If accuracy measures were obtainable, the margin of error could also be specified in quantitative terms by the authority financing the statistics. Since this isn't the case for most of statistical areas we are involved in, much of that responsibility is put on the producers. In order to undertake that responsibility we need benchmarking to evaluate whether the accuracy is sufficient or not. If policy makers are content with the quality of statistics in a country where the production pro-

cess is speedy, why shouldn't other countries, if possible, replicate that process?

This is why the Eurostat task force is so important. It shows that the time it takes to produce GDP indicators varies between less than 30 days in the US to over 80 days in some European countries. But it also indicates a different philosophy among policy makers and statisticians. While most European countries use a similar production process where the compilation has to await the finalisation of supporting surveys, the US compilers rely to a grater extent on estimates and judgements. The quarterly US National Accounts statistics is compiled on the basis of two reporting month and cut-off dates for various supporting surveys are commonly set in the middle of a reporting month. Timeliness is given priority but it cannot be proved that the cost in terms of less accurate statistics is higher than in other countries.

So far, the two studies have provided us with the basis for the following, more general, conclusions that are likely to be valid for most statistics producers outside the US:

- The two studies show that external influences to a greater extent have to be taken into account by most producers of economic statistics. Moreover, the US benchmarking exercise indicates that it should be feasible to increase efficiency (timeliness) in most European countries without loss of overall quality in the statistics. However, a change in perspective towards a more pragmatic view would probably be necessary. Statistics based on estimates and economic models would have to be used more extensively.
- The choice of statistical models and estimation methods could, however, be criticised for being arbitrary. Statistical institutions would have to maintain their credibility by other means than their pure authority. Increased transparency is an important element in this process.
- Producers of statistics must assume the role of the analyst/user. Figures are often taken for granted and statistical measures and methodological issues are not always scrutinised by the users. Consequently, coverage, valuation, classification etc must be based on best practise. In other words, the relevance aspect should have a more prominent role in quality assessment frameworks. Furthermore, we need more than a framework of assessing the quality, we need systems of quality *control*. One example is the current use of book values in foreign direct investment/balance of payments statistics. It is reasonable to ask the question whether this is what the users want, or, if they would prefer a method for calculating market values. Another example is whether the assumption of zero productivity in the public sector is valid or not. The choice of an index or a valuation method could be far more important for the user than the effort of eliminating asymmetries between countries or even reducing the number of revisions. A quality control system would provide producers of statistics with important feedback from users in order to validate methods and statistical results without jeopardising their independence. Such a system would include regular user reference meeting and an analytical toolbox consisting of a set of universal quality indicators (such as revision measures implicit rate of return, stock-flow reconciliation, comparison of valuation changes etc. where applicable).
- However, the benchmarking exercise proves that producers of statistics in the US and in countries within the EU have different rules of the game. Attitudes among the public and reporting agencies seem to be more positive in the US. And above all, EU member states have to take both national considerations (e.g. serving budgetary policy purposes) and EU-wide considerations (for Treaty provisions) in almost every respect. Common standards are crucial in this context but the principle of subsidiarity is equally important. Increased efforts of e.g. input harmonisation could get in conflict with the latter.
- Ambitious projects on EU-wide level could stand in contrast with the objective of having more flexible statistical systems that are sensitive to changes in the economic environment. In the Swedish case, investments in IT-related equipment were partly disregarded by the NSI but this may not be the case in other EU member states, where other areas could be more important. Unlike the US, there are also other constraints such as differences in legal frameworks, language, data availability, company structures etc between member states. Centralised systems for the collection and compilation of data (e.g. if EU institutions would have the responsibility for the collection of EU-wide data) run the risk of failure in this respect.

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Programme of the IFC Conference within the framework of the 53rd ISI Session

Seoul, 22-29 August 2001 [1]

Invited Papers Session 30, 23/8 15:45-18:00

"Financial Stability Statistics"

Recent Developments in Statistical Requirements for Financial Stability, and their Use

Organiser: Philip Turnbull (Bank of England)
Chair: Philip Turnbull (Bank of England)

Papers: Paul van den Bergh (BIS) and Charles Enoch (IMF)
"*The Perspective of International Organisations"* [2]

Sarah Wharmby (Bank of England)
"*The Perspective of a Central Bank of a Developed Country"* [2]

Sunny Yung (Hong Kong Monetary Authority)
"*Monitoring Statistics for Financial Stability of a Small and Open Economy"* [2]

Discussants: Jean-Marc Israël (ECB) and L. Federico Signorini (Banca d'Italia)

Contributed Papers Session 152.2B, 23/8, 7:30-9:10

"The Measurement of External Debt and External Reserves"

Organiser: Carol S. Carson (IMF)
Chair: Carol S. Carson (IMF)

Papers: Daniel O. Boamah (Central Bank of Barbados)
"Foreign Reserves Measurement and Balance of Payments Consistency: Three Carribean Examples" [3]

Petr Vojtisek (Czech National Bank)
"The Measurement of External Debt and External Reserves: The Case of the Czech Republic" [3]

Jean-Marc Israël (ECB)
"Compilation of External Debt and External Reserve Statistics" [2]

Elena Pak (Central Bank of Russia)
"The Measurement of External Debt and External Reserves: The Russian Federation's Experience" [2]

1 *As the final version of the programme differs considerably from that published in the official programme booklet of the ISI and some papers were added, it has been reprinted here.*
2 *Published in the previous issue of the IFC Bulletin (July 2001).*
3 *An earlier version was published in the previous issue of the IFC Bulletin (July 2001).*

Contributed Papers Session 152.2C, 25/8, 7:30-9:10

"Collection of Financial Data from Companies: Statistics and International Accounting Standards"

Organiser: Satoru Hagino (IMF)
Chair: Satoru Hagino (IMF)

Papers: Rudi Acx (National Bank of Belgium and Catholic University of Brussels)
"Timeliness and Reliability of the Financial Statements in the Banking Sector: The impact for macroeconomic data"

Satoru Hagino (IMF)
"Loan and Deposit Valuation: The Methodologies of the Monetary and Financial Statistics Manual and the International Accounting Draft Standard" [3]

Susan Hume McIntosh (Board of Governors of the Federal Reserve)
"Accounting for Stock Options in the United States" [2]

Ghislain Poullet (National Bank of Belgium)
"The Non-Resident Question and National Statistics". [2]

Kiyohito Utsunomiya, Satoru Hagino and Teppei Nagano (Bank of Japan)
"Treatment of Retirement Benefits and Stock Options in National Accounting" [3]

Chris Wright (Bank of England)
"Measuring the Service Earnings of Financial Intermediaries – The role of the Balance-sheet in the production process" [2]

Contributed Papers Session 154 24/8, 9:15-11:30

"The Relationship between Central Banks and Statistical Institutes"

Organiser: Bart Meganck
Chair: Mediyamere Radipotsane (Bank of Botswana)

Papers: Agris Caune and Arvils Sautins (Bank of Latvia)
"Financial information collection system in the Bank of Latvia: Heading toward direct reporting and surveys"

Gregor Bajtay (National Bank of Slovakia)
"The Relationship between the National Bank of Slovakia and the Statistical Office of the Slovak Republic" [2]

Orlando Caliço (Banco de Portugal)
"The Relationship between the Banco de Portugal and the Instituto Nacional de Estatistica – Recent Experience" [2]

Bart Meganck (Eurostat)
"Cooperation between Central Banks and Statistical Offices at Supranational Level" [2]

Guido Melis (National Bank of Belgium)
"Integration of the trade statistics in the balance of payments of the Belgian-Luxembourg Economic Union and the current account of Belgium"

Aurel Schubert (Oesterreichische Nationalbank)
"The Relationship between Central Banks and Statistical Institutes - The Case of Austria"

Józef Oleński (National Bank of Poland)
"How to Square the circle of Official Statistics – Towards new Partnership of Central Banks and National Statistical Offices" [2]

Mediyamere Radipotsane (Bank of Botswana)
"The Relationship between Central Banks and Statistical Institutes – Botswana's Case" [2]

Financial Stability Statistics

INVITED PAPERS

Recent Developments in Statistical Requirements for Financial Stability, and in their Use

The Perspective of International Organisations

Paul van den Bergh (BIS)
and Charles Enoch (IMF)

Appendices to the earlier published paper

Task Force
on
Statistical Data and Metadata Exchange (SDMX)

Common Statement by Participating Institutions

The BIS, ECB, EUROSTAT, IMF, OECD, and the UN have joined together to focus on business practices in the field of statistical information that would allow more efficient processes for exchange and sharing of data and metadata within the current scope of our collective activities.

The goal is to explore common e-standards and ongoing standardization activities that could allow us to gain efficiency and avoid duplication of effort in our own work and possibly for the work of others in the field of statistical information.

We intend to do this by taking advantage of existing and emerging:
- *exchange protocols,* such as GESMES/CB which was implemented by central banks for exchanging time series;
- *dissemination formats,* such as that implicit in the IMF Dissemination Standards Bulletin Board (DSBB); and
- *e-standards,* such as Extensible Markup Language (XML).

Table 2 Core and Encouraged Sets of MPIs

Core Set	
Capital adequacy	Regulatory capital to risk-weighted assets Regulatory Tier I capital to risk-weighted assets
Asset quality	Nonperforming loans to total gross loans Nonperforming loans net of provisions to capital Sectoral distribution of loans to total loans Large exposures to capital
Earnings and profitability	Return on assets (net income to average total assets) Return on equity (net income to average equity) Interest margin to gross income Noninterest expenses to gross income
Liquidity	Liquid assets to total assets (liquid asset ratio) Liquid assets to short-term liabilities
Sensitivity to market risk	Duration of assets Duration of liabilities Net open position in foreign exchange to capital
Encouraged Set	
Deposit-taking institutions	Capital to assets Geographical distribution of loans to total loans Gross asset position in financial derivatives to capital Gross liability position in financial derivatives to capita Trading and foreign exchange gains (losses) to total income Personnel expenses to noninterest expenses Spread between reference lending and deposit rates Spread between highest and lowest interbank rate Customer deposits to total (non-interbank) loans Foreign currency-denominated loans to total loans Foreign currency-denominated liabilities to total liabilities Net open position in equities to capital
Market liquidity	Average bid-ask spread in the securities market [1] Average daily turnover ratio in the securities market [1]
Nonbank financial institutions	Assets to total financial system assets Assets to GDP
Corporate sector	Total debt to equity Return on equity (earnings before interest and taxes to average equity) Earnings before interest and taxes to interest and principal expenses Corporate net foreign exchange exposure to equity Number of applications for protection from creditors
Households	Household debt to GDP Household debt service and principal payments to income
Real estate markets	Real estate prices Residential real estate loans to total loans Commercial real estate loans to total loans

1 *Or in other markets that are most relevant to bank liquidity, such as domestic foreign exchange markets.*

DISCUSSANTS' COMMENTS

L. Federico Signorini (Banca d'Italia)

The three papers in this session, which look at things from different national and institutional points of view, are complementary in content. Together, they provide a clear and useful summary of the state of play. Each starts by describing, in similar terms, the context: recurrent financial crises in recent years damaged the financial markets and the general economies of the countries concerned, and at times appeared to threaten the fabric of the world financial system. There is therefore widespread demand for new statistics on systemic risk. The aim is to try to foresee such crises in order to prevent them, or limit the damage. International institutions and individual countries are responding by co-operating in establishing new standards, putting existing data to new use, and experimenting with the collection of new data.

Rather than commenting on the details of each paper, I choose to concentrate on one issue that underlies all three. This is the issue of *selectivity and cost-effectiveness*.

No one disputes the severity of the problems financial crises cause. No one disputes that better information is needed. One should not, however, assume that statistics are free, or that all conceivable statistics on some subject are equally useful for a particular purpose, such as crisis prevention. Statistics impose costs on reporters and compilers, i.e., on society. As any other undertaking that uses scarce resources, they must prove their worth.

This point is hardly touched in the papers explicitly, but is important for their subject, both in conceptual and in practical terms. In recent years rapidly changing standards and expanding requirements put a significant strain on the providers of financial statistics world-wide. Agents are requested to bear an ever-growing reporting burden; statistical agencies, including statistics departments in central banks, must ask for additional resources to cope with new obligations. Not always have the benefits of this been obvious. And despite increasing efforts there still seems to be (as one speaker remarked) "wide demand, less supply".

Economists in the audience will have spotted the obvious missing link: a market price. Since statistics is a public good, of course, no market-clearing price can be found. However, this only reinforces the need for a careful appraisal of costs and benefits.

Recognising this general point, the European system of central banks has recently established a formalised procedure for matching merits and costs of any proposals for new or enhanced statistical requirements in the monetary domain. While far from flawless, this procedure seems useful. It compels users to articulate and prioritise their needs in a clear way, and providers to supply a rough, but reasoned, calculation of costs. It is a start.

Some such approach should apply to financial stability indicators, too. One must resist the temptation of blindly accumulating as many new indicators as one can think of. The role of each proposed indicator in monitoring financial conditions and forecasting disturbances should always be carefully considered. One should ideally be able to show which indicators are such that predictions about crises *conditional* on them are significantly better than unconditional predictions. Admittedly, this is not always easy. But there is some econometric literature on this. Results, as Yung's paper reminds us, are ambiguous. In general they do not seem to point to obvious gaps in the data available. This is not irrelevant; it does make the case for a blanket expansion of statistical requirements harder.

International standards are the key point here. Standards are essential to comparability and reliability, but they are *very* costly. Countries should by no means be discouraged from experimenting with new statistical tools. Institutions in each country are likely to concentrate on what they know best, is most relevant to their financial structure, and is comparatively easy to get data about. Each country will learn from other countries' experience; the two "national" papers here are useful examples of this kind of exchange, but experimentation is also crucial to the analytic approach that is advocated above. Imposing ever-growing, uniform requirements on the world is another matter. Co-ordination, as statisticians in international organisations know, is difficult and resource-intensive. Harmonisation of national statistics, by definition, imposes transition costs, which are easily underestimated. The grand total is huge when such cost are incurred by all countries at the same time. Relevance and cost of any particular statistics differ across countries because of different tra-

ditions and economic or institutional structures. International requirements rarely replace national ones entirely.

All this makes the task of international standard setters a difficult one. While a standardised set of core statistics is important, it is also essential that changes to it are rare, selective, and – to the extent possible – well grounded in empirical research. The IMF survey presented by Enoch and Van den Bergh is useful, but more than an 'opinion poll' of users would ideally be needed. (Such an exercise yields *stated*, rather than *revealed*, preferences; the distinction is crucial to the argument). Improving the quality of existing data may be more important that adding new sets. Frequent, wholesale expansion of requirements will almost certainly cause a misallocation of resources. One should also consider that an inundation of new data may sometimes do more harm than good. With hindsight, it is clear that before some recent financial crises existing statistics had been flashing warning signals well in advance. They were just overlooked. Adding to the haystack will hardly make it easier to find the needle.

A specific remark concerns the so-called macro prudential indicators. There still are crucial issues to be settled on e.g. the way to aggregate micro data (averages? variances? thickness of tails? See the paper by Enoch and Van den Bergh) or the choice of definitions (see the paper by Wharmby, which shows how wildly the evaluation of country exposures varies depending on this). In some countries the issue is further complicated by the untested boundaries between the responsibilities of prudential supervisors and monetary authorities in the event of a crisis, a point which to some extent reflects on the choice of indicators and the mode of collection. Therefore, while experimenting and reflection is certainly welcome to continue, it seems advisable that for a time only a limited set become part of international standards.

One should also consider the possibly under-used information provided by macro data and financial market data, two classes of statistics that are very relevant for the purpose at hand—and have one thing in common: all countries already have them, so additional costs in adapting and improving them are likely to be low. Improving the quality of existing data and making better use of them is often a rational, cost-effective choice.

Much, welcome progress has been made in the last few years or decades in the quality, availability and comparability of financial data at the international level. But at some point decreasing returns are bound to set in. Statistics has its limits; in crisis prevention, an indefinite expansion of data is in the end no substitute for sound policies.

Jean-Marc Israël (European Central Bank)

As said by the previous discussant, the cost-effectiveness of any new sets of statistics needs to be assessed. Be it from conceptual or practical viewpoint, recent financial crises were not primarily linked with lack of information, or imbalances or weaknesses of the financial sector of the economies affected. External factors raised strong concerns across markets which had sometimes overlooked worrying signals and then overreacted with contagion effects. Macroeconomic statistics already provide much information on the developments of the financial and non-financial sector (important for the credit risk) of an economy and its situation vis-à-vis the rest-of-the-world (risks linked e.g. to capital, interest and exchange rate). The EU Banking Supervision Committee has started to elaborate on an overall approach to financial stability based on (i) the identification and collection of indicators, (ii) the regular monitoring of important structural developments in the EU banking system, (iii) a framework for assessing financial sector soundness from a macro-prudential perspective, and (iv) ad hoc contributions such as "asset prices and banking stability" (April 2000) and "EU banks' margins and credit standards" (December 2000). The BIS provides statistical data and undertakes analysis to monitor the huge size and increasing complexity of the international financial markets. BIS consolidated banking statistics give a good insight into the financial sector and its external debtors/creditors on an ultimate beneficiary basis. Market indicators of volatility available from commercial data providers and stress testing have also proved useful in a number of instances. Work is also ongoing under the umbrella of the IMF and the OECD in this field.

In any event, before obtaining a new set of meaningful and relevant data for analytical purposes, the various speakers raised some important issues for further clarification, as follows.

Why a new set of data? Requirements/needs of some international organisations

As indicated by Paul van der Bergh, the BIS has already set up, and is now in the process of enhancing further, the "consolidated banking statistics" in order to provide a measure of the gross exposure of the main banking systems to country risks. This framework has been developed in the context of various concerns on the development of assets prices, the measurement of stress and contagion effects in financial systems, the systemic financial disturbances (in some countries). These statistics are of wide general use for macro-prudential analysis.

Charles Enoch noted that an extensive survey on the usefulness of macro-prudential indicators received a strong response, largely supportive, leading the IMF to define a number of "Financial Stability Indicators" (FSIs). Consideration will be given to making a few of these mandatory for countries subscribing to the "Special Data Dissemination Standard" in due course; others of these indicators are encouraged.

Before undertaking much effort to provide harmonised data there is a need to foster an initial and regular assessment of the risks at play in various markets. Indeed the approaches vary considerably among the different users, be they focusing on macro or micro-prudential analysis, be they central banks, the IMF or BIS interested in overall financial stability or investors attempting to assess risks. This would have an impact on the methodological concepts which need to be agreed, such as market vs. nominal value (and their exact definition), residual (vs. initial) maturity / accruals vs. due for payment / ultimate beneficiary and actual debtor vs. first known counterpart.

What is to be measured? Definition of the coverage

The population under scrutiny is clearly the financial sector: in the first place the banks (in the euro area the "Monetary Financial Institutions" cover credit institutions, Money Market Funds, Central Banks and a few other institutions), perhaps also certain "other financial intermediaries" for some indicators e.g. on the asset side and for the measurement of credit risk. Residency is the most relevant criterion, but it is also important to classify the institutions through their headquarters. As noted by Sarah Wharmby, there may be a substantial difference between the two approaches.

Another key feature is the data definition, as shown in the following examples. The perimeter retained mainly for classifying the quality of the on-balance sheet claims (ultimate risk bearer vs. direct counterpart) may lead to somewhat different outcomes. Whereas outstanding positions are by far easier to collect and analyse, transactions may also be useful, if timely, especially in periods of turbulence. Addressing the relevant categories of on/off balance sheet accounts is important (e.g. liabilities/derivatives positions).

How to assess the reporting? Difficulties of measurement

The harmonised framework for macro economic statistics, based on international standards such as the System of National Accounts (1993) and the Balance of Payments Manual (5th edition), is not sufficient as shown by S. Wharmby and S. Yung. Focusing on the financial sector, banking statistics such as those currently compiled by the BIS are too partial to cover macro-prudential need. However, they are of use especially when harmonised as they already are within the euro area (as it was a prerequisite to compile the monetary aggregates). Besides, supervisory information does not meet most criteria for proper aggregation.

Aggregation may not provide relevant information in the case of small open economies like Hong Kong, where a major player would distort all data.

Questions and remarks

- Besides international guidance [by BIS/IMF] and national policies [BoE], regional agreements, e.g. the euro area, are important – cf. the work of the ECB/BSC
- When and how does a debtor country become insolvent? [e.g. Turkey]
- What role is expected from these FSIs: warning to whom?
- The new development of harmonised FSIs as promoted by the IMF may not accommodate some situations and may cost much. How are the IMF / creditor countries / financial markets expected to *act* to prevent and/or *react* to financial turbulence?

The Measurement of External Debt and External Reserves

CONTRIBUTED PAPERS

Foreign Reserves Measurement and Balance of Payments Consistency: Three Caribbean Examples

(Extended version of an earlier published paper)

Daniel O. Boamah (Central Bank of Barbados)

Foreign exchange reserves are financial instruments at the disposal of monetary authorities for the primary purpose of financing international payments imbalances.

Foreign assets in most countries are decomposed into two broad components: those of monetary authorities and those of commercial banks. The former usually comprise holdings of monetary gold, claims on non-residents, special drawing rights (SDR), reserve position in the Fund and the use of Fund Credit. Whether or not a foreign asset should be included in a country's foreign reserves is dictated by two internationally accepted criteria: 'effective control' and 'availability'. The monetary authorities should not only have 'effective control' over the asset but it should also 'be available' to meet a balance of payments (BOP) need.

This paper seeks to document and discuss the various approaches to the measurement of foreign reserves in Barbados, Jamaica and Trinidad and Tobago. It also examines trends in the identified reserve measures, assesses how they conform to BOP accounting procedures and discusses their suitability or otherwise for measuring reserve adequacy in the three countries.

Concepts and Measurements

The Central Banks of Barbados, Jamaica and Trinidad and Tobago have used slightly different approaches to identify reserve assets over time, sometimes necessitated by changing economic circumstances. For instance, Barbados includes amounts receivable from the Caricom Multilateral Clearing Facility (CMCF) which became bankrupt in 1983 but Trinidad and Tobago does not include those and any other loans to its CARICOM neighbours. Jamaica's net foreign position excludes the Central Bank's net medium term liabilities but such borrowings are included in Barbados' foreign position. Nevertheless, the underlying concept of what constitute foreign reserves has not differed markedly.

Published documents of international reserves of the three countries broadly identify the following:

- The net international reserves (NIR) position of the Central Bank, representing gross foreign reserves less outstanding short-term liabilities of the bank and any credit advanced by the International Monetary Fund (IMF);

- The net official reserves (NOR)[1] position which represents the Central Bank's NIR position, the central government's foreign reserves and those of public agencies controlled by the monetary authorities.
- The net foreign position (NFP) of the country as a whole, which represents the net official reserves position plus the net foreign position of the commercial banking system.

The bankruptcy of the CMCF rendered about 75% of Barbados' foreign assets illiquid but the Central Bank continued to include these balances among its published foreign assets. However, for its own internal monitoring purposes, it nets out both its short-term foreign liabilities and the CMCF balances and calls the remainder **available reserves**. This series is solely for internal use and is not published.

Trinidad and Tobago has operated under a regime of freely floating exchange rate since 1993. Unlike Barbados, its definition of external assets exclude all loans made to its Caribbean neighbours who are members of the Caribbean Economic Community (CARICOM), on the grounds that such loans were unavailable to the country for BOP purposes.

Also, with that country's change from fixed to floating exchange rate regime in 1993, and the simultaneous removal of all exchange controls, the net foreign position of the commercial banks effectively moved out of the direct control of the monetary authorities and therefore did not meet the internationally accepted definition of reserve assets. Therefore, changes in commercial banks foreign assets and liabilities were no longer reckoned as suitable for financing payment imbalances but as part of net capital movements of the private sector.

Jamaica has also operated under a regime of floating exchange rate since 1991, but unlike Trinidad and Tobago (and Barbados), its definition of net foreign position of the country excludes the Central Bank's medium-term liabilities. Another significant difference is that in Jamaica changes in commercial banks' net foreign position were not recognised as part of the aggregates to finance overall balance of payments surpluses or deficits as far back as in 1983, almost eight years before the country changed to a floating rate regime.

The charts illustrate tax-trends in the NIR, NOR and NFP were estimated for the period 1981 to 1999. They were generally positive for Barbados and Trinidad and Tobago. For Jamaica, however, all the three measures were consistently negative from 1981 until 1993.

Conformity and Consistency of the Identified Reserve Measures to BOP Accounting Procedures

As measures of foreign exchange reserves, the NIR and NOR[2] concepts in Jamaica and Trinidad and Tobago appear to conform to the two internationally accepted criteria of effective control by the monetary authorities and availability for balance of payments purposes. In Barbados, however, since the reported series of all three aggregates include the largely unavailable CMCF balances, they violate the availability criteria.

The NFP aggregates for Jamaica and Trinidad and Tobago adequately conform to the two criteria up to the periods when they moved from fixed to floating exchange rate regimes. With the change in exchange rate regimes when the net foreign positions of commercial banks were effectively outside the control of the respective countries' monetary authorities, they became unsuitable for balance of payments purposes.

It should be stressed, though, that to the extent that the NFP series in Jamaica exclude the country's central bank's medium-term liabilities (which by definition should be available for financing any balance of payments imbalances), it provides a rather poor measure of any imbalances from that country's international transactions. **Table 1** summarises each country's position relating to the effective control and availability criteria.

But how consistent are the identified reserves to the actual measurement and interpretation of balance of payments? If they are consistent, then changes in the stock figures should provide a reasonable indication of the respective countries' overall balance of payments surpluses or deficits.

1 *Barbados does not report the NOR series in the official publications, preferring to refer to that series as the NIR of the monetary authorities. For the purpose of this analysis, that series has been designated NOR.*

2 *To the extent that loans from the IMF are effectively under the control of the monetary authorities and are also available for periods greater than one year, a case may be made for these medium-term liabilities to be included among the respective countries assets for balance of payments purposes.*

For a fixed exchange rate regime, changes in the broad concept of reserves, the NFP, is the appropriate variable to examine. For a floating exchange rate regime, the appropriate reserves stock [1] should be the NOR. Changes in commercial banks' net foreign assets are considered not as financing items but as part of inflows for the private sector.

Data for Barbados suggest that over the period 1981 to 1999, changes in the NFP were largely consistent with the overall balance of payments positions adjusted for official transactions. The dominant items in official financing over the period involved transactions with the IMF, but also included borrowings by the Central Bank purely for BOP purposes.

The pattern of reserve movements in Trinidad and Tobago was similar to that in Barbados up to 1987. During the period 1981-1987 changes in the broader reserve stock (NFP) provided a good indication of the overall balance of payments surpluses and deficit positions. An important departure was that in 1984 and 1985, there were significant diversions between changes in the NFP and the overall balance because of valuation differences arising from the devaluation of the Trinidad and Tobago currency in 1985. Also during 1987 and 1992, differences between changes in NFP aggregates and the overall balances arose primarily from exceptional financing items. The latter were the result of book entry inflows arising from debt rescheduling negotiations by the monetary authorities.

For the period 1993 to 1996, Trinidad did not engage in any official financing arrangements, and changes in the NOR virtually matched the overall balance of payments positions of that country.

Changes in the NFP in Jamaica, as published in official sources had no bearing with the island's BOP surpluses or deficits positions, even for the period 1981 to 1990 when the island maintained a fixed exchange rate. Instead, for almost the entire period of the analysis changes in the NOR provided a more accurate indication of the overall balance aggregates. Unfortunately the notes to the BOP tables gave no indication why changes in the net foreign assets of the commercial banks are treated as items above the line and in essence, considered as reserves deriving from normal BOP transactions rather than as financing items even during the period when the island maintained a fixed exchange rate. This needs to be further investigated.

3. Adequacy of the Identified Reserve Measures for BOP Purposes

A country's demand for foreign reserves for balance of payments purposes is determined by a number of factors, including more importantly, the degree of openness of its economy and the variability in the size of its payments imbalances.

Estimates of the import reserve cover ratios (IRRs) were calculated for the three countries, using the NOR, NFP and GOR (gross official reserves) measures. The IRRs represent the number of months worth of imports that could be paid for from a given stock of reserves.

The GOR measure is included to emphasise the point that the concept of gross reserves is the more relevant measure when it comes to assessing adequacy of reserves for transaction purposes. GOR represents the amount of reserves for transactions at each point in time. As data for Jamaica suggests, the net concept of reserves can be negative for a prolonged period of time and the use of negative reserves is therefore inappropriate for measuring import cover since the country obviously financed transactions during those periods of negative reserves.

For the period 1981-1999 considered, Trinidad and Tobago had the highest import cover ratio, averaging 4.8 months under the NOR measure and 5.6 months under the GOR measure. As expected, the Trinidad and Tobago authorities maintained on average, a lower level of import reserve cover in the post-1993 period of floating exchange rate (7.6 months) compared with (2.8 months) in the period of fixed exchange rate.

The average import cover ratio for Barbados was 2.3 months under the NOR measure and 3.2 months under the GOR measure. Although the import cover ratios for Barbados were generally lower than for Trinidad and Tobago, they were relatively more stable, with a standard derivation of 0.73 (with GOR) compared with 5.57 for Trinidad and Tobago.

The Jamaican data underscores the importance of using the gross concept of reserves rather than the net concept of measuring reserve adequacy. The import cover was a negative 2.7 months under the NOR measure but was a positive 2.0 months under the gross concept.

Unlike Trinidad and Tobago, Jamaica maintained a higher level of import cover during the period of floating exchange rate (2.54 months) than under the period of fixed exchange rate (1.53

1 *Indeed for a pure floating regime in which there is no intervention by the monetary authorities, the current account deficit is equal to private and official capital inflows. In that case there should be no change in net foreign assets. However, in both Trinidad and Tobago and Jamaica, the authorities keep reserves to allow for discretionary intervention in the exchange market to influence the exchange rate as they see fit.*

months). That may be due more to the exigencies of the period rather than the result of a deliberate policy. Jamaica experienced extreme balance of payments problems in the period immediately preceding the shift to a floating exchange regime in 1991.

Conclusions

The note has attempted to identify some of the conceptual and practical issues in the measurements of foreign reserves in three Caribbean countries. It has examined trends in the various measures of foreign reserves and, in the process, has sought to point out some of the practical differences in how these aggregates are measured in the three countries.

It has also examined the extent to which the reserve aggregates conform to normal BOP accounting procedures, assessed their consistency to BOP measurements and discussed their suitability for measuring reserve adequacy in the three countries. If the paper should help in any way to make it easier for the users of these statistics to interpret and analyse the foreign reserves and balance of payments issues of the three countries, our efforts would not have been in vain.

July 17, 2001

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The Measurement of External Debt and External Reserves – The Case of the Czech Republic

(Extended version of an earlier published paper)

Petr Vojtisek (Czech National Bank)

The Czech National Bank (CNB) is responsible in the Czech Republic for measuring external debt and external reserves and for compiling the balance of payments and the international investment position. The CNB is allowed to demand data on flows and on assets and liabilities for this purpose.

The information on external debt is available in three variables. The first is the international investment position, which includes all external liabilities. The second, external debt, represents liabilities excluding equity capital and equity securities. All this information is published quarterly. External debt is broken down as follows: by convertible and non-convertible currencies, by short-term and long-term debt according to original maturity, and by debtor and creditor sectors. Data are collected from the central bank, banks, brokers, government and non-financial institutions. The third variable is debt service. This covers liabilities longer than one year broken down by debtor and creditor sectors and by year. The data are collected from all banks and from selected non-financial institutions.

The data on external reserves are published monthly. Since April 2000 they have been published in accordance with the Special Data Dissemination Standards. The main sources are the balance sheet and central bank dealing.

The CNB uses the data on external debt and reserves for analytical purposes, especially in relative terms. The external debt and reserves figures are very important indicators of "external vulnerability". These indicators are broken down into four components: current account, debt, liquidity and other indicators. The following very brief commentary on the external development of the Czech economy will give a better understanding of how the indicators have behaved.

In the mid-1990s the Czech Republic exhibited quite strong growth, but this was accompanied by a pick-up in domestic demand. The external imbalance worsened and the economy consequently underwent a period of turbulence in 1997. The former fixed exchange rate regime was changed to a flexible one at that time. This period is the most important for evaluating the relevancy of the indicators. Since that event, macroeconomic policy has been more prudent and the external sector trend has become acceptable. There was a deterioration on the current account in 2000, due mainly to rising oil prices.

This paper focuses on describing these indicators and their development during the short history of the Czech Republic. The aim of the paper is to ascertain whether the indicators, including external debt and reserves figures, can explain external developments.

1. Current account indicators:

a) current account deficit as a percentage of GDP,

b) trade deficit as a percentage of GDP,

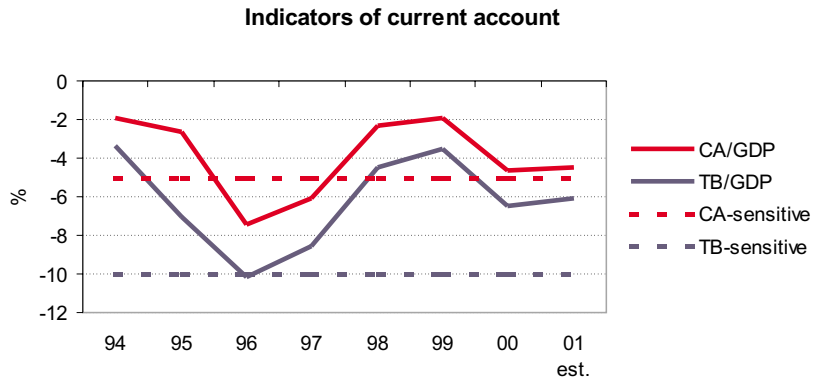
The trend and sensitive level are monitored. The sensitive level is considered to be 5% of GDP in the case of the current account and 10% in the case of the trade deficit.

There was a significant worsening in the run-up to the monetary turbulence, reflecting strong domestic demand. The subsequent tightening pushed back the figures to acceptable levels.

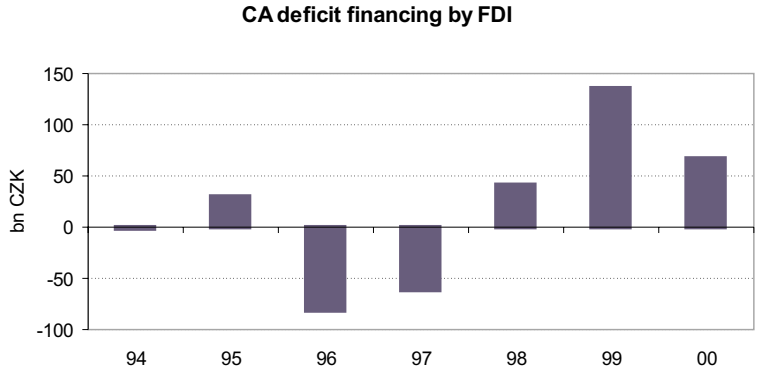
c) current account deficit financing by non-debt inflow (foreign direct investment)

If the country is experiencing a current account deficit, full offsetting financing of the deficit by non-debt inflow is viewed as safe.

In the period of highest current account deficit, the FDI was insufficient to finance the deficit. Since 1998 the FDI inflow has been much bigger and has covered the deficits.



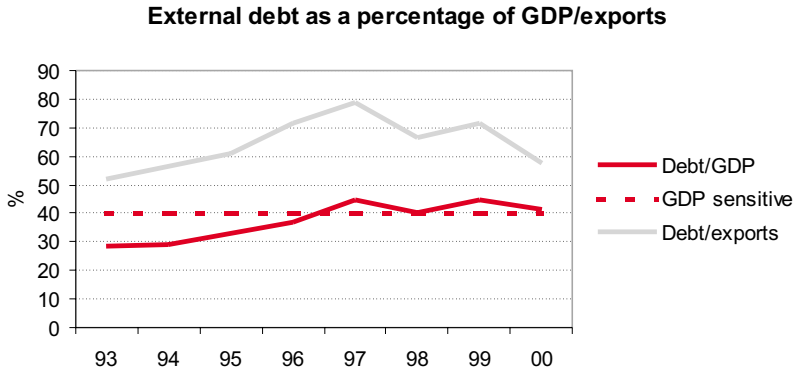
In the Czech case, all indicators actually exceeded their sensitive levels during the period of the greatest external imbalance and subsequent monetary turbulence in 1997. Since then, all three indicators have remained on the safe side of their sensitive levels, evidencing an improvement in the current account.



2. Debt indicators

a) total debt as a percentage of GDP/exports

The trend is monitored. For total debt, 40% of GDP is considered the sensitive level.



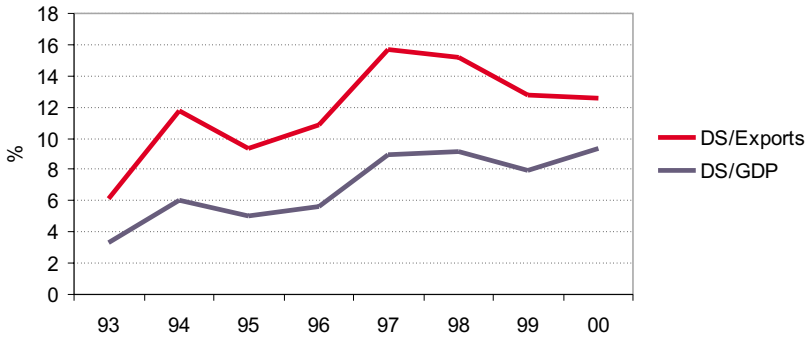
Prior to 1998, the debt indicators had been increasing continuously, reflecting the role of foreign funds during the transition period and the increasing external imbalance. The ratio to both GDP and exports peaked above the sensitive level in 1997. Since 1998, the ratio to GDP has stabi-

lised close to the sensitive level with a very moderate declining tendency. The ratio to exports has fallen rapidly owing to an increasing volume of exports.

b) debt service as a percentage of GDP/exports

The trend is monitored.

Debt service as a percentage of GDP/exports

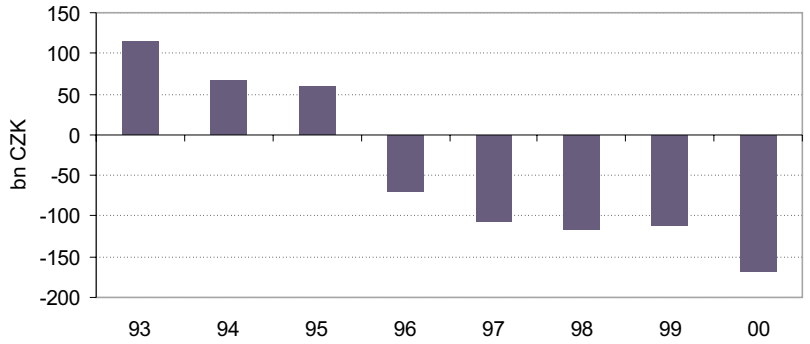


The development of the debt service ratios is very similar to that of the total debt indicators. The small fluctuation in the slope of the curves reflects the repayment schedule. A more concentrated volume of repayments represents an increase in the debt service ratio and a decline in the debt ratio in the period in question. Again, debt service expressed in terms of exports reflects the growing share of foreign trade in our economy. Exports represented three quarters of GDP in 2000, compared with one half in 1993.

c) international investment position

The IIP shows more about the nation's liabilities than do the debt indicators.

International investment position



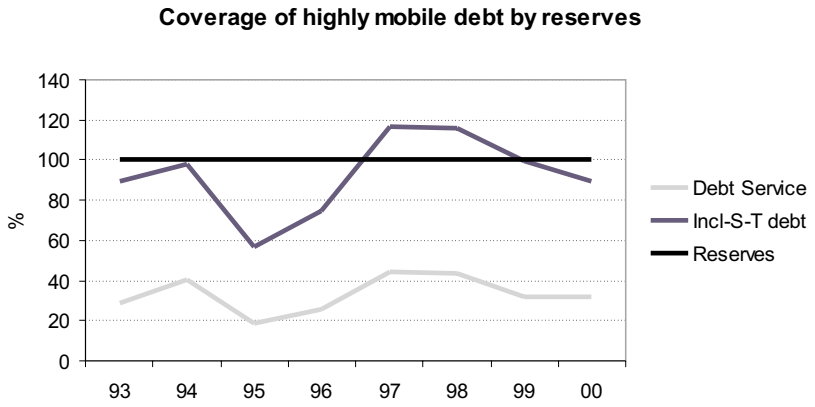
The IIP underwent significant changes during the transition period in the Czech Republic. A dominant factor has been inflow of foreign direct investment, which worsens the position. The total volume of foreign direct investment in the Czech Republic exceeded investment abroad by CZK 800 billion. Nevertheless, foreign investors have made the most effective contribution to the restructuring of the supply side of the Czech economy.

3. Liquidity indicators

a) coverage of highly mobile debt by international reserves

Highly mobile debt represents debt service in the relevant year and short-term debt. The trend for this indicator is monitored.

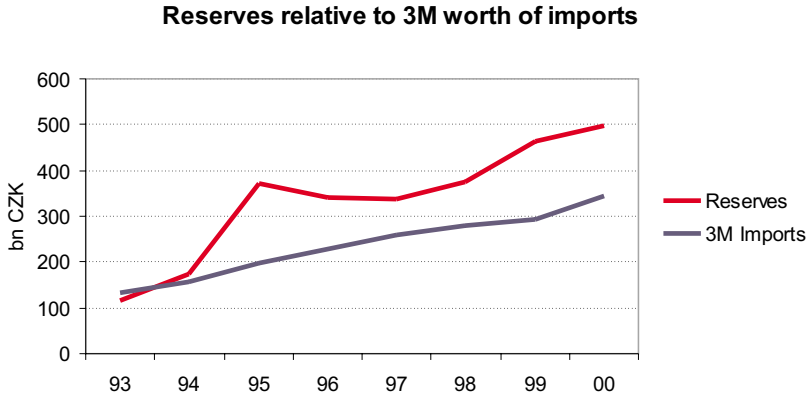
The international reserves currently cover this debt in the Czech Republic. The ratio has shown an improvement in recent years. This indicator did not increase before the monetary turbulence,



and there was even a quite sharp decline recorded in 1995. This might be explained by the exchange rate regime: under the fixed regime the central bank purchased foreign exchange during the period of strong capital inflow and created larger reserves. The reverse flow in 1997 worsened the level of the indicator. In both cases the reserves were the dominant factor – debt service was not excessively volatile.

b) external reserves relative to three months' worth of imports of goods and services

Three months' worth of imports of goods and services is considered the sensitive level. This period is usually necessary for arranging additional reserves.



In the Czech Republic, the reserves have stood at four months' worth of imports of goods and services over the last six years. The 1997 monetary turbulence occurred despite this indicator remaining at the safe level. Only a small decline in the reserves in terms of imports was recorded, from 5.6 months' equivalent in 1995 to 4.4 and 3.9 months' equivalent in 1996 and 1997 respectively.

4. Other indicators

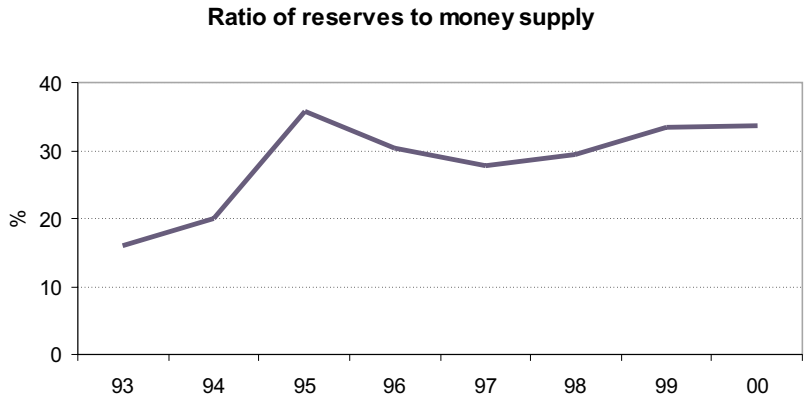
a) ratio of external reserves to money supply

The trend is monitored.

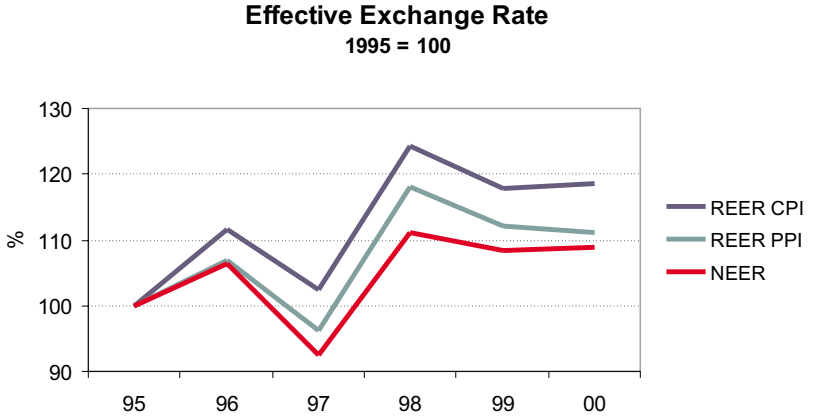
External reserves represent one third of the money supply, with moderate fluctuations in recent years. This level was reached during the fixed exchange rate period. The steady ratio indicates that money supply growth is not exceeding the growth in reserves.

b) nominal and real effective exchange rate

The trends are monitored. The effective exchange rates are calculated vis-à-vis 22 countries representing almost 90% of foreign trade as a basic index. The base period is 1995. Values over 100% represent appreciation. The effective exchange rates in real terms are deflated by the CPI



and PPI differentials. These variables indicate the tightness of the competitive environment for domestic undertakings compared with that abroad.



There has been a stronger appreciating trend in the REER than in the NEER. The underlying reason from the medium-term point of view has been the positive inflation differential. Nevertheless, over the past three years the changes in the REER have been due more to the NEER, since the differential is very modest. The slope of the appreciating trend seemed too steep in 1996, thus eroding the competitiveness of domestic producers. Nevertheless after the monetary turbulence in 1997 and the depreciation of the currency, the level of both the NEER and the REER moved upward again. The moderate appreciation in the REER seems appropriate for emerging markets, reflecting the catching up process with developed countries in both the economic and price level.

Conclusions

Practical application of the indicators of external vulnerability, including debt and reserves, gives reasonable outcomes:

- almost all indicators worsened before the monetary turbulence, and those with a sensitive level exceeded that level;
- the reserves-related indicators reached their present level at the end of the fixed exchange rate regime and since then have remained more or less steady;
- the reserve-related indicators did not clearly indicate the unsustainable developments in the external sector; this might be explained by the strong capital inflow during the fixed exchange rate regime, which resulted in significant creation of reserves;
- markets are more tolerant of a high indicator level – even if it is above the critical level – than they are of a deteriorating trend.

Résumé

L'allocution traite la mesure d'indicateurs extérieurs notamment pour les objectifs analytiques dans la Banque Nationale Tchèque. La plupart d'eux sont suivis dans l'expression relative. La dette extérieure et les réserves y jouent un rôle important. Lors de l'analyse le trend est suivi et quelques indicateurs sont comparés avec de niveaux sensibles de telle façon comment les marchés financiers les perçoivent. L'évolution des indicateurs mentionnés en République tchèque caractérise bien l'évolution réelle. Nombre de cas correspondent aussi avec une évolution spécifique dans la période de transformation.

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Update in the Field

Carol S. Carson

External Debt Statistics: Guide for Compilers and Users

A Guide on External Debt Statistics

The need for comprehensive and reliable information on external debt has long been recognized. Given recent financial market developments, such as the huge growth in private sector financial flows and, associated with this, the increasing use of instruments to manage and redistribute risks, international agencies have produced a draft guide – *External Debt Statistics: Guide for Compilers and Users (Guide) – to* provide clear guidelines for measuring and presenting external debt data, advise on their compilation and use, and inform readers on the work of international agencies in this field.

A draft guide to provide clear guidelines for measuring and presenting external debt data, ...

Produced under the auspices of the Inter-Agency Task Force on Finance Statistics (TFFS),[1] the draft *Guide* updates the *External Debt: Definition, Statistical Coverage and Methodology – widely* known as the *Grey Book* and published in 1988 by the BIS, IMF, OECD, and World Bank.

The conceptual framework used in the draft *Guide* is derived from the *System of National Accounts 1993* and the fifth edition of the IMF's *Balance of Payments Manual (BPM5),* also issued in 1993. The stock of external debt is presented in two types of tables: one focuses on the role of the public sector; and the other covers all resident institutional sectors, as presented in the International Investment Position (IIP) in *BPM5.* The *Guide* goes beyond the 1993 *SNA* and *BPM5* frameworks in specifying the concepts for the measurement, and tables for the presentation of external debt on a remaining maturity basis, by the currency of denomination and in a debt-service payment schedule. Data by type of external debt reorganization and by the ultimate obligor – rather than the immediate obligor typically reported in economic statistics – are also specified.

... advise on their compilation and use, and inform readers on the work of international agencies in this field.

The appendices in the draft *Guide* provide glossaries of external debt terms and of financial instruments, and cover the relationship between the IIP, the balance of payments transactions, and the national accounts. Also, reflecting the potentially complex nature of external debt analysis, further types of external debt data series are specified in the appendices, such as external debt by creditor sector, the interest composition of external debt, and trade-related external debt.

The draft *Guide* is available to view at *http://www.imforg/np/sta/ed/guide.htrn* on the IMF's website.

August 2001

1 *The Task Force is chaired by the IMF and its recent work has included representatives from the Bank for International Settlements (BIS), the Commonwealth Secretariat, the European Central Bank, the European Statistical Office, the International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development (OECD), the Paris Club Secretariat, the United Nations Conference on Trade and Development, and the World Bank.*

Collection of Financial Data from Companies – Statistics and International Accounting Standards

CONTRIBUTED PAPERS

Timeliness and Reliability of the Financial Statements in the Banking Sector: The impact for macroeconomic data

Rudi Acx (National Bank of Belgium and Catholic University of Brussels)

1. Introduction

The European Central Bank (ECB) discusses in the January issue of its Monthly Bulletin [1] the policy-making under uncertainty. One of the elements contributing to uncertainty is related to the trade-off between timeliness and reliability in statistical data. Due to the pressure exerted by the private and official users of the statistics, the timeliness occupies a central place in the production of statistics. As the users require more and more fixed release dates for statistics, the reliability in terms of stable statistics, not prone to large and frequent revisions, forms a major challenge for the producers. In this paper the revisions of data communicated in the financial statements, which must be remitted within a fixed period, by the credit institutions in Belgium are analyzed. Before representing the results, the scope of the analysis is described.

2. The Scope of the Analysis

The monthly reporting according to the new instructions started from the January 1st, 1999 on, the day of the creation of the Euro area. The paper considers two distinct periods in the analysis. A first period covers April 1999-August 1999, which can be considered to coincide with the steepest part of the learning curve - without taken into account all potential errors inherent to the first months of a new reporting system. A second period deals with July 2000 - November 2000, which must be considered as a period in which the credit institutions are adapted to the reporting. In between the two periods an ECB-Regulation came into effect. This Regulation monitors and sanctions credit institutions which do not comply with the prescriptions on timeliness and quality, among others, of the reported data.

The analysis of the Belgian data is limited to those credit institutions which have to report within 10 bank working days after the end of the reference month (the so-called "quick reporters"). The group of quick reporters, which is de facto very stable in terms of composition, covers at least 95 pct. of the total balance sheet of the credit institutions resident in Belgium. The group is com-

1 *European Central Bank, Monthly Bulletin, Monetary policy-making under uncertainty, January 2001, pp. 43-55.*

posed of 40 credit institutions out of the 120. The individual data reported by the credit institutions have to be aggregated, according to harmonized definitions, into national aggregates by the National Bank of Belgium. These aggregates are sent by the 15th bank working day following the end of the reference month to the ECB, which is in charge of the compilation of the euro aggregates. The monthly reporting to the ECB may, as part of the normal procedure, contain also revisions in the national aggregates related to the month preceeding the reference month. The analysis centers on the comparision between the data in the initial reporting and the data in the reporting one month later. Revisions on periods earlier than those covered in the normal procedure are rare.

3. The Revisions by the Individual Credit Institutions

The comparison of the two periods reveals substantial improvements for the second over the first period. The number of credit institutions reporting revisions during the second period came down to 3, which represents only one sixth of the number during the first period. Even more impressive is the decrease in the number of revised data cells. The monthly average during the second period represents only 5 pct. of the monthly revised data cells during the first period. About 0.5 pct of the potential data cells were subject to revisions in the concerned period of 2000, while during the first period over 10 pct. were revised.

Not only the number of credit institutions implied in revisions decreased, the degree of concentration within the group of institutions reporting revisions increased considerably. Over the last period concerned, one single institution was responsible for over 80 pct. of the total revisions. The close monitoring of weak performing institutions, in terms of reporting, helps to detect potential errors, in an early stage, which contributes to a higher quality of the released data. As a consequence the uncertainty in the macroeconomic data compiled with these data can be remedied. However the reduced number of credit institutions reporting revisions in the second period, are still reporting large amount revisions. The spread of the magnitude of the revisions has not shown a significant improvement.

Table 1 Revisions by individual credit institutions

Variables	April 1999 - August 1999	July 2000 - November 2000
Number of credit institutions reporting revisions (monthly average)	18	3
Number of revised data-cells (monthly average)	276	15
Number of revisions as pct. of the potential number of data cells (period average)	10,26	0,57
Number of different credit institutions responsible for revisions (period figure)		
for 50 pct.	7	0
for 80 pct.	16	1
for 90 pct.	20	2
for 100 pct. of cumulative revisions	32	9
Spread of the revisions in data cells (period figure)		
0 - 1 mln euro (absolute value)	40,6	43,4
1 - 10 mln euro (absolute value)	26,0	23,7
over 10 mln euro (absolute value)	33,4	32,9

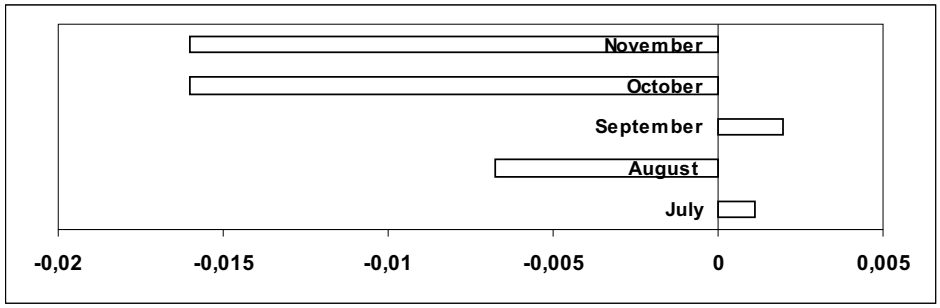
These prevailing large revisions, do not prevent that the global revisions on the national monetary aggregates, and more specifically M3, have been smaller over the second period.

Table 2 Impact of the revisions on the aggregated national data (averages of monthly absolute values)

	Percentage change of the level			Revision of the monthly growth rate		
	M1	M2	M3	M1	M2	M3
April 1999 - August 1999	0,96	0,43	0,38	0,0100	0,0039	0,0043
July 2000 - November 2000	0,85	0,32	0,18	0,0101	0,0038	0,0022

The data revision by the Belgian credit institutions may have an impact on the revision of the M3-growth rate for the Euro area as a whole. During the second period under review, the Belgian data influenced twice an upward and three times a downward revision of the M3-annual growth rate for the Euro area. In all cases, as Belgium represents only 5 pct. of the M3-aggregate of the Euro area, the impact was limited.

Figure 1 Impact of the Belgian revisions on the annual growth rate of M3 for the Euro area
(July 2000-November 2000)



Résumé

The survey on the financial data used for the compilation of monetary aggregates proves that revisions are of minor importance. The initial release of a growth figure is only marginally influenced.

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Loan and Deposit Valuation: The Methodologies of the Monetary and Financial Statistics Manual and the International Accounting Draft Standard

(Extended version of an earlier published paper)

Satoru Hagino (International Monetary Fund)

This paper deals with differences between the methodologies in (1) the Fund's Monetary and Financial Statistics Manual (MFSM), published in 2000, and (2) "Draft Standard and Basis for Conclusions, Financial Instruments and Similar Items" (hereafter, Draft Standard) released in December 2000 by the Joint Working Group of Standard Setters (JWG) under the auspices of the International Accounting Standards Committee (IASC). The Draft Standard builds upon the IASC discussion paper, "Accounting Methods for Financial Assets and Financial Liabilities" (1997). The finalized version of the Draft Standard is expected to supercede IAS39 "Financial Instruments: Recognition and Measurement" (current standard).

The MFSM and Draft Standard provide recommendations on the valuation of financial assets and liabilities for macroeconomic statistics and commercial accounting, respectively. The MFSM and Draft Standard recommend the valuation of most financial assets and liabilities on the basis of market values or approximations of market values. In the Draft Standard, "fair values" encompass market values – i.e., values based on market price quotations – and market-value approximations that arise when market-price quotations are unavailable. In the MFSM methodology, market value and fair value are separate concepts, and fair value applies only when a market-value approximation is needed – i.e., for financial assets and liabilities that are not traded in financial markets or are traded only infrequently.

The MFSM and Draft Standard differ in their recommendations for the valuation of loans, as well as for the valuation of deposits. The MFSM recommends that loans be recorded at book value (i.e., historical cost plus accrued interest). In the MFSM methodology, loans that become tradable in secondary markets should immediately be reclassified as securities. The Draft Standard does not make this tradability distinction, and loans are not reclassified as securities if they are traded[1] The Draft Standard recommends that all loans and deposits be valued at fair values. The MFSM does not provide specific guidance on deposit valuation and, therefore, does not categorically state whether the fair-value method should be applied to some or all types of deposits.

The Draft Standard applies the fair-value method to liabilities, as well as to financial assets. In accordance with the Draft Standard, an increase in an enterprise's credit risk reduces the fair values of its loan and deposit liabilities. From the enterprise's perspective, a decline in its liabilities constitutes a gain. In the MFSM methodology, the enterprise's increased credit risk does not lead to a reduction in the value of loan or deposit liabilities.

The MFSM and Draft Standard differ in their treatment of expected loan losses. The MFSM recommends that the value of the loan portfolio not be adjusted for expected loan losses, but that supplementary data on expected loan losses should be reported. By subtracting expected loan losses from the book value data, "realizable" values of loan portfolios (i.e., loans less expected loan losses) can be calculated. The Draft Standard requires that the fair-value principle be applied in measuring both impaired and unimpaired loan assets, thereby taking into account expected loan losses. It requires that impaired loan assets be disclosed and that changes in their fair values be presented separately in the income statement or in the notes to the financial statements.[2]

1 *The components approach to the recognition of financial assets in the Draft Standard permits contracts to be divided into two or more components that each can be fair valued. This approach recognizes that such individual components are sometimes unbundled and traded separately in modern financial markets. In contrast, the MFSM classifies a financial instrument as an indivisible contract.*

2 *IAS 39, the current standard, contains specific treatment of non-traded assets, which comprise loans, investments, and receivables that are not held for trading and any financial asset that does not have a quoted market price in an active market and whose fair value cannot be readily measured. IAS 39 recommends that non-traded assets be reduced to their estimated recoverable value. Such reduction in value can be made directly or through the use of an allowance (i.e., provision) account for asset impairment or loan loss. The concepts of non-traded assets and allowance accounts do not appear in the Draft Standard.*

Fair value in both the MFSM and the Draft Standard is based on present value-i.e., the discounted value of future cash flows from the financial asset or liability.[1] The Draft Standard describes present value in more detail than the MFSM. According to the Draft Standard, the present value calculation can account for credit and noncredit risks [2] by either risk-adjusting the projected cash flows in the numerator of the present value formula or by adjusting the discount rate in the denominator. For loans, the Draft Standard specifically recommends that the discount rates in the denominator be adjusted for credit risk in calculating present values. The Draft Standard indicates that the credit risk adjustments to the discount rates should be based on a credit grading system – an external credit rating system or credit ratings that are developed by the enterprise itself The Draft Standard recommends the calculation of tlre present value – i.e., fair value-of deposits by taking into account the same factors used in calculating the present value of loans.

For monetary policy and financial market analysis, fair-value and book-value data on loans and deposits have advantages and disadvantages. Fair-value data reflect the influence of economic conditions such as credit risk and interest-rate risk on the current value of loans and deposits. Book values, which are based on historical acquisition costs, reflect the economic circumstances at the time of the transactions, and valuation changes are recorded only when the loans or deposits are settled and gains or losses are realized. Application of the fair-value method for loans and deposits is consistent with the modern approach to valuing the components of financial instruments that are unbundled. In particular, the fair-value method for loans and deposits is fully consistent with the fair-value methods that aie applied for securitized assets and financial derivatives. In contrast, book-value data have an advantage in that they show the nominal amount of total financial obligations without imposing any of the estimation assumptions (e.g., discount rate specifications and credit-risk adjustments) that are inherent in the fair-value method. Compilers of monetary and financial statistics in many countries would have difficulty in obtaining high-quality data on the fair value of loans and, especially, on the fair value of deposits. Fair values for deposit liabilities, as calculated by depository corporations themselves, would be unlikely in many cases to pass the scrutiny of auditors and examiners, given that depository corporations would tend to understate the credit risks of their own institutions. It is inconceivable that an audit would be conducted in every period – week, month, or quarter-that monetary and financial data are compiled.

A major issue for deposit valuation arises from the central role of money aggregates and their deposit components in macroeconomic policy analysis. A framework for monetary policy analysis based on fair-value components of the monetary aggregates would need to be developed. Even if such a framework were developed, policy makers and analysts would still need book-value deposit data for use in more traditional analysis of the nominal and real money stock.

Another specific need of macroeconomic statistics is flow data on transactions. The methodology for the compilation of monetary and financial statistics has traditionally focused on stocks and period-to-period changes in stocks. In the absence of source data on transactions, period-to-period changes in the book values of financial asset and liabilities have been used to approximate transactions flows. The MFSM recommends the compilation of stock data and data on three separate flow components – transactions, changes in value, and other changes in the volume of assets (OCVA) – that together account for period-to-period changes in outstanding stocks. In contrast, commercial accounting for financial instruments, which focuses on the gains or losses from financial assets and liabilities, does not measure the separate components for transactions, [3] changes in value, and OCVA.

A choice between book-value and fair-value data is not feasible, given the different data requirements for macroeconomic statistics and commercial accounting purposes. It is recommended that both types of data be reported to compilers of monetary and financial statistics. Estimation of fair values for loans and deposits is inherently difficult, but should become easier with the development of widely accepted valuation formulas, rich databases, and estimation techniques that have been approved by supervisory agencies and regulators. Reporting of book-value data for the monetary and financial statistics is comparatively easy, given that such data are directly obtainable from existing information systems (primarily, general and subsidiary ledgers) and are already reported in nearly all countries. By definition, the compilation of book value data does not require the extensive use of estimation techniques.

1 *For the calculation of fair values, the MFSM alternatively recommends the use of market prices of financial assets and liabilities that are market traded but otherwise similar to the non-traded financial assets and liabilities that are being fair valued.*

2 *Non-credit risks include the risk that an enterprise is able to sell a financial instrument only at a discounted price because of the lack of marketability or the risk that the volatility of market price is so high that selling price is uncertain.*

3 *Cash flow statements in the commercial accounting framework, by definition, do not show noncash transactions in detail.*

Reporting of fair values for loans and deposits would be a useful augmentation of the data available for monetary policy and financial market analysis. Using fair-value data along with the data recommended in the MFSM would provide more information for thorough analysis of financial sector lending in the macroeconomic context. Similarly, reporting of fair value deposit data will be useful for policy purposes, if the fair-value data do not substitute for book-value data. Availability of deposit data on a fair-value basis would facilitate new types of financial sector analysis and, at the same time, would complement the data currently used for existing types of analysis.

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Comments
on
"Measuring the Service Earnings of Financial Intermediaries – The role of the balance sheet in the production process"

by *Chris Wright* (published in the previous IFC Bulletin)

***Kiyohito Utsunomiya* sent us the following commentary:**

Measuring the service earnings of financial intermediaries is one of the most important issues that national accountants should further explore. The questions raised in the paper are fundamental ones.

There are at least two reasons why I am skeptical about regarding total earnings from the balance sheets of financial intermediaries as added value in the national accounts. First, modern financial theory tells us that the main functions of financial intermediaries are: 1) to provide the transformation of risk and to match maturities; 2) to reduce the degree of imperfect information between lenders and borrowers; and 3) to provide a payment system. What we should regard as value added are those services produced by financial intermediaries. Indeed, in order to provide those services, financial intermediaries need to hold their own positions, but holding their own positions and dealing in their own accounts does not equate with the provision of services. Second, even if their activities based on their own positions contribute to market making, their earnings by trading in their own accounts are different from value added in the sense of national accounting. Some of those activities should be regarded as capital gains. In fact, they sometimes suffer huge capital losses. It seems reasonable to define only the premiums or fees they charge explicitly or implicitly when they make transactions as value added.

Treatment of Retirement Benefits and Stock Options in National Accounting[1]

(Extended version of an earlier published paper)

Kiyohito Utsunomiya, Satoru Hagino, Teppei Nagano (Bank of Japan)

Introduction

In 1993, the System of National Accounts (SNA) was revised for the first time in 25 years and the Statistical Commission of the United Nations has recommended the implementation of the new system (93SNA) as an international standard.[2] On the other hand, in business accounting, accounting standards still vary among countries but the International Accounting Standard Committee (IASC) has been promoting standardization in recent years.

Under these circumstances, when it comes to the valuation of financial instruments, mark-to-market valuation has become popular in many countries. It can be said that the accounting concept of business accounting is getting closer to that of national accounting in which stocks are evaluated based on market price.

Mark-to-market valuation has even influenced the method of measuring compensation cost in business accounting. Actuarial liabilities for retirement benefits are recorded at fair value and losses arising from the change in value are treated as compensation costs in the income statement. As for stock options, a Joint Working Group of Standard-Setters in IASC drafted a paper suggesting that the change in value of stock options during a vesting period should be included in compensation cost, though this is not yet a majority idea. Furthermore, the IASC discussed the idea "employee benefits" such as retirement benefits and stock options should be looked at comprehensively. This is a challenge for national accounting, because the fundamental assumption of national accounting is that income gains – including compensation of employees, which are treated as flow transactions – are conceptually distinguished from holding gains, which are treated as reconciliation.

This paper focuses on retirement benefits and stock options, and discusses the treatment of these newly developed "labor liabilities." The key point is whether national accounting should regard gains/losses arising from the change in value of retirement benefits or stock options as income gains (flow transactions) or holding gains (reconciliation).

We develop our argument as follows. In section 1, the concepts of flow transactions and reconciliation in national accounting are summarized. In section 2, we explain how retirement benefits are recorded under 93SNA and point out the problem in the method of recording internal reserves. In sections 3 and 4, we illustrate two approaches of recording under-funding of pension funds and stock options and, show how a change in recording method has a quantitative effect on macroeconomic statistics, and finally summarize our discussion.

1. Distinction between Transactions and Reconciliation in National Accounting

1.1 Framework of 93SNA

SNA provides an overall view of economic activities by tracing the following accounts (Chart 1): 1. *Production Account* records the production (output) and the use of goods and services when producing this output (intermediate consumption); the balancing .item is value added. *2. Distribution of Income Accounts* record the distribution and redistribution of incomes and shows, for sectors that have some final consumption, how disposable income is allocated between final consumption and savings; the balancing item is savings. 3. *Capital Account and Financial Account* [3] record

1 *The opinions expressed in this paper belong to the authors, and should not be ascribed to the Bank of Japan nor to Research and Statistics Department.*

2 *A comprehensive system of national accounts was first established in 1968 (68SNA).*

3 *In Japan's SNA, capital account and financial account are combined and called as Capital Finance Account.*

transactions linked to acquisitions of non-financial assets and transactions in financial instruments; the balancing item is either net lending or net borrowing. 4. *Reconciliation Account* records changes in assets and liabilities which are due to factors other than the accumulation transactions. 5. *Balance Sheets* display assets and liabilities valued at the end of an accounting period.

In the following context, it is important that "reconciliation" be conceptually distinguished from "flow transactions" in the SNA. Furthermore, a key characteristic of 93SNA is that the reconciliation account is divided into two accounts. *Revaluation Account* records "changes in the value of assets, liabilities, and net worth due to changes in the level and structure of prices, which are reflected in holding gains and losses" (12.2) [1] and *Other Changes in the Volume of* Assets *Account* [2] records other changes in the reconciliation account. In addition, holding gains in the revaluation account are partitioned into neutral holding gains and real holding gains for analytical purposes. "Real holding gains" are defined as "the value of the additional command over real resources accruing to the holding of an asset as a result of a change in its price relatively to the price of goods and services in general in the economy." In short, it is "real holding gains" that illustrates the effect of real appreciation in market value on assets and liabilities in 93SNA.

1.2 Distinction between Real Holding Gains and Income Gains

Though real holding gains are clearly distinguished from income gains in 93SNA, there are still questions whether real holding gains should be regarded as equivalent to income gains. This is because, in fact, real holding gains have an influence on the economy and, in concept, can be regarded as implicit transfers of real purchasing power.

In this respect 93SNA describes that "Real holding gains are important economic variables in their own right that need to be taken into account as well as income for purpose of analysing consumption or capital formation. It can be argued that real holding gains ought to be assimilated with income as defined in the System to obtain a more comprehensive measure of income" (12.81). However, 93SNA continues that "there is no consensus on this [opinion]" and "their [real holding gains] impact on economic behavior is not the same as that of income received in cash or in kind" (12.81). The conceptual distinction between real holding gains and income gains is considered to be very important in 93SNA.

Still, the line between income gains and holding gains is not clear. Income gains are recorded on an accrual basis, and are sometimes imputed even though transactions on a cash basis are not observed. For example, we assume that the interest of a zero-coupon bond is credited over the life of the bond and the interest accruing is reinvested in the bond. In this case, the change in value of the zero-coupon bond by reinvestment is not a holding gain but acquisition of the bond by income gains measured on an accrual basis [3].

If so, what cases should be imputed as income gains? Recent movements in business accounting raise this problem to the level of national accounting.

1.3 Concept of Employee Benefits and Compensation of Employees

Compensation of employees is recorded at the time "an employee becomes entitled to receive from an employer in respect of work done during the relevant period, whether paid in advance, simultaneously, or in arrears of the work itself" (7.21) in 93SNA. In practice, corporate compensation plans are diverse. Under these circumstances, IASC proposes a comprehensive concept of "Employee Benefits" in IAS19. Employee benefits include not only wages in cash but also wages in kind, receipts from retirement benefit plans, share-based payments, vacations, and so on.

Measuring and recording these benefits is one of the most important issues in national accounting as well as in business accounting. As shown in Chart 2, the SNA of Japan has not recorded compensation of employees on an accrual basis. 93 SNA does not provide clear guidance on these issues either.

We focus on the treatments of retirement benefits and stock options in national accounting in the followings.

1 *From "System of National Accounts 1993 ", the same hereafter.*

2 *Other changes in the volume of accounts are defined as "changes that are due to factors such as discoveries or depletion of subsoil resources, destruction by war or destruction by natural catastrophes" (12.2).*

3 *In detail, see the appendix.*

2. Treatment of Retirement Benefit in National Accounting

2.1 New Accounting Standards for Retirement Benefits

In June 1998, the Business Accounting Deliberation Council introduced new accounting standards for retirement benefits in Japan, which came into effect from fiscal periods beginning on or after April 1, 2000. The new standards basically follow Financial Accounting Standards 87 (FAS87) and International Accounting Standards 19 (IAS19); and propose that actuarial liabilities of retirement benefit plans must be recorded on an accrual basis and evaluated on a fair value basis.

The new business accounting standards for retirement benefits can be briefly summarized as follows:

1. Actuarial liabilities of retirement benefits are calculated comprehensively. The distinction between internal reserves and external reserves is not connected with the calculation of actuarial liabilities.
2. Actuarial liabilities of retirement benefits are calculated by discounting the benefit obligations to the present value.
3. The difference between actuarial liabilities and pension assets is recorded as "reserves for retirement allowances" in the balance sheet. The amount recognized as "retirement benefit expenses" is the sum of expenses minus the amount of expected return on pension assets.
4. Differences arising from changes in plan amendments or those in assumptions -such as the expected long – term rate of return – could be amortized over a fixed number of years.

These standards are basically consistent with the principle of national accounting in the sense that retirement benefits are measured on an accrual basis and the actuarial liabilities of retirement benefits are evaluated on a fair value basis. Nevertheless, they highlight problems in recording retirement benefits in national accounting.

First, in national accounting, internal reserves must be clearly distinguished from external reserves. Second, in the distribution of income account, retirement benefits must be recorded on a cash base. Third, 93SNA does not provide a clear guideline for under-funding of corporate pension plans.

In the next sub-sections, the former two points are discussed (the third point is examined in section 3).

2.2 Internal Reserves and External Reserves

National accounts are expected to provide an overview of the relationship among sectors of the macro economy. When looking at external reserves, the pension funds sector plays an important role as financial intermediary. On the other hand, internal reserves are grasped as a direct relationship between corporations sector and households sector. Thus, 93SNA requires contributions to pension funds to be treated as "employer's *actual* social contributions" and imputed contributions to internal reserves be treated as "employer's *imputed* social contributions".

In practice, however, it is difficult to value an employer's imputed social contributions. 93SNA notes that "the only practical alternative may be to use the unfunded social benefit payable by enterprises during the same accounting period as an estimate of the imputed remuneration that would be needed to cover imputed contributions"(8.73). This is the case with the SNA of Japan.

It should be noted that this method is appropriate only when plan amendments such as age structure of labor force are almost fixed. As a matter of fact, as it rapid ages, the Japanese economy does not meet the requirements for this approximation. Now that business accounting is introducing new accounting standards, other methods that use residuals between total contributions and contributions to pension funds [1] should be reconsidered on compiling employer's imputed social contributions.

2.3 Accrual Recording

While 93SNA regards pension reserves as financial assets held by households, it stipulates that receipts from pension funds on a cash basis are included in *disposable income* of households. This is because "pensioner's households tend to regard the pensions they receive as income in the form of current transfers"(9.14). To do so, pension contributions recorded as compensation for employees

1 *Total contributions are obtainable from financial statements and contributions to pension funds from the data on pension funds.*

are transferred by households sector to pension funds sector in distribution of income accounts. As a result, the amount of pension contribution has no effect on disposable income. However, this causes an inconsistency with financial accounts in which pension reserves, originating from pension contributions, are held by households sector. To reconcile this, 93SNA introduces an adjustment item.[1]

Receipts from internal reserves are also included in disposable income like those from pension funds. However, 93SNA does not regard internal reserves as liabilities of corporations because there is no clear pool of accumulated assets from which to pay benefits. This treatment needs a further complex recording rule which defines imputed contributions to internal reserves as households' income that is transferred from households to corporations immediately.

In theory, it is clearer to assume that households acquire financial assets by imputed contributions to internal reserves. In practice, however, the distinction between external reserves and internal reserves is becoming unclear in Japan [2]. Thus, the method of recording internal reserves in national accounting must be reexamined.

3. Treatment of under-funding of Pension Funds

3.1 Actual Condition of under-funding in Japan

As new accounting standards for retirement benefits were introduced, the under-funding of corporate retirement benefit plans has drawn the attention of economists and analysts. Regarding the under-funding of pension funds, 93SNA takes a very optimistic view; "if the plan is under-funded, there is some expectation that the situation is temporary, typically by adjusting contributions" (13.78).

The situation, however, is very serious in Japan, partly because the under-funding of internally reserved benefit plans, for which there were no reserves in accordance with actuarial calculations, is added to that of pension funds. Some studies show that the amount of under-funding is more than 40 billion yen (Chart 3). New accounting standards will have a serious impact on the activities of corporations from now on. Thus, the treatment of under-funding in national accounts is very important when analyzing the Japanese economy.

3.2 Recording of under-funding

The idea of recording under-funding can be classified itito two approaches. One records changes in the value of the under-funding as compensation of employees (we call this the "compensation approach"). The other records those as holding gains (we call this the "swap contract approach"). For simplification, we assume that retirement benefit plans are limited to pension plans in the following. Although internal reserves and external reserves must be treated differently, the essence of our discussion remains unchanged.

a. Compensation Approach

The compensation approach is based on the view that under-funding occurs because the amount of contributions to pension funds on a cash basis was insufficient and the recognition for under-funding is considered to be an additional contribution. In this view, under-funding is recorded as follows (Chart 4.2): 1) under-funding accompanied by changes in the value of pension funds is recognized as compensation of employees; 2) the households sector acquires pension reserves from this compensation; 3) the pension funds sector holds the rights to collect assets from the corporations sector, accounts receivable; 4) the corporation sector owes liabilities to the pension funds sector, accounts payable.

The compensation approach regards changes in the value of the pension funds as current transfers in distribution of income accounts and as financial transactions in financial accounts.

1 *In order to achieve this, it is also necessary to add pension contributions, and subtract pension receipts, from disposable income to get a figure for savings that is the same as what it would have been if pension contributions and pension receipts had not been recorded as current transfers.*

2 *In Japan, some companies transferred securities that are accumulated as internal reserves to "retirement benefit trusts" in order to protect the rights of employees to receive their pensions even when the company falls into bankruptcy. In this case, fund management is conducted by companies. Thus, while securities are accumulated externally, this system does not indicate the establishment of new pension funds.*

b. Swap Contract Approach

The swap contract approach is based on the view that when under-funding occurs, actuarial liabilities of pension funds are reevaluated. For example, if the discount rate is lowered, actuarial liabilities increase and the under-funding is recorded. It seems reasonable that corporations are supposed to make an implicit swap contract with pension funds – i.e., corporations guarantee the fixed return to pension funds.

In this view, the under/overfunding corresponds to the market value of the swap contract. The case of under-funding is recorded as follows (Chart 4.3): 1) pension reserves increase, corresponding to the change in the discount rate; 2) the market value of the swap contract between a corporation and pension fund increases.

The swap contract approach regards changes in the value of pension funds as revaluations of a swap-like contract in the revaluation account. They are recorded neither as current transfers in distribution of income accounts nor as financial transactions in financial accounts.

Both approaches have advantages and disadvantages. We must examine closely their consistency within the national accounts, their influence on macroeconomic figures, and consistency with business accounting.

From the perspective of consistency in 93SNA, the swap contract approach is desirable. 93SNA suggests that the change in the value of actuarial liabilities that results from changes in benefit structure should be accounted for the other changes in the volume of asset account.[1] It is natural to account the change in actuarial liabilities that results from changes in the discount rate for revaluation account because both the other changes in the volume of asset account and revaluation accounts are parts of reconciliation account as pointed out in section 1.1.

If we look at macroeconomic figures, our concern is that the compensation approach will make compensation of employees too volatile. For example, a study shows that when the discount rate rises from 3.1% to 5.5%, actuarial liabilities decrease by 14 billion yen, which equals 5% of the compensation of employees (Fiscal Year 1999). Since the discount rate corresponds to market interest rates, these changes in the discount rate are to be expected. Business accounting eases the change in the value of actuarial liabilities by adopting a method whereby differences arising from changes in plan amendments or in assumptions are amortized over a fixed number of years. However, this kind of amortization cannot be adopted for national accounts because stocks are evaluated on a fair value basis and the difference in the stock at the end of the last accounting period must be recorded as transactions or in reconciliation account. In addition, the compensation approach regards the decrease of under-funding – the increase of overfunding – as the decrease in the compensation of employees. It is strange that a change in market interest rates directly affects the compensation of employees.

Nevertheless, the compensation approach is worth considering because it is consistent with business accounting. The new business accounting standards for retirement benefits indicate that retirement benefit expenses are calculated as the sum of expense – including amortization cost of under-fundingm – inus the amount of expected return on pension assets and are accounted for compensation costs [2].

4. Treatment of Stock Options

4.1 Treatment of Stock Options in Business Accounting

An increasing number of companies use stock options as part of their compensation packages. In the U.S., many companies, particularly startup IT companies, are said to have granted stock options in exchange for wages and salaries in the 90s. In Japan, the granting of stock options was permitted in 1997, and the number of companies that grant stock options has been increasing (Chart 5). In fiscal year 1999 (FY1999), this number surpassed 400, which is twice as many as that in FY1998. It is undeniable that stock options have influence on macro economic conditions.

However, the treatment of sock options is still unclear even in business accounting. In Japan, business accounting standards for stock options have not yet been stipulated. In US business accounting standards FAS123 recommends that stock options should be recognized as compensation costs on a fair value basis at grant date, but it also allows companies to adopt APB Opinion 25, in

1 *However, this treatment seems to be inconsistent with the treatment of contributions to pension funds recorded as compensations of employees on a cash basis in distribution of income accounts.*

2 *In U:K. business accounting, service costs are regarded as compensation costs, but interest costs and the amortization cost of under-funding are regarded as financial costs. For details, see FRS17 (Retirement Benefits). This is similar to the swap contract approach.*

which stock options are valued at the difference between the share price at the grant date arid the exercise price of the stock option. In fact, few companies have chosen to adopt FAS123 for transactions with employees. .

Under these circumstances, a Joint Working Group of Standard-Setters in IASC drafted a paper in October 2000, which suggested that compensation costs should be valued at the fair value of stock options at vesting date (we call this the "G4+1 statement" [1]). This statement pays attention to the fact that a stock option loses its effect if the employee quits his or her job during the vesting period. According to this view, compensation for working during the vesting period should be reflected in the compensation for employees.

4.2 Treatment of Stock Options in National Accounting

There is no guideline for stock options in 93SNA. The transferable economic value of stock options is unclear. Some argue that stock options should be regarded as contingent assets. Stock options are not recorded in Japan's SNA. In the U.S. national accounts (NIPA), only the non-qualified stock option's value calculated by the difference between the exercise price and the share price at exercise date is included in wages at the time stock options are exercised. In this case, stock options are recorded on a cash basis.[2]

In concept, a stock option is considered to be a kind of financial derivative. The value of a stock option should be recorded as compensation of employees on an accrual basis using an option-pricing formula when a stock option is granted. The idea of recording at grant date is as follows (Chart 6.1): 1.the fair value of the stock option is recorded as compensation of employees at grant date (distribution of income account); 2.companies issue "warrants" and households acquire these warrants via compensation (financial account).

The critical point is how changes in the value of stock options should be treated. Two approaches can be considered like the treatment of the under-funding of pension funds.

a. Compensation Approach

The compensation approach regards changes in the value of stock options as compensation of employees (Chart 6.2). The G4+1 statement is considered to be a type of the compensation approach. If we apply the G4+1 statement to national accounting, changes in the value of stock options are treated as compensation of employees for the vesting period and as holding gains after the vesting date.

b. Option approach

The option approach regards changes in the value of stock options as reevaluations (Chart 6.3). In this approach, compensation of employees is evaluated on the value of the stock options at the grant date suggested in FAS123. In other words, stock options are treated in the same way as ordinary financial derivatives after the grant date.

The difference between the compensation approach and the option approach is important not only for the recording of stock options but also for the whole system of national accounts. The compensation approach has the advantage that "the employee's services are valued at a price that reflects the performance in the share price achieved at the end of the contract" (G4+1, 5.34). In other words, the compensation approach considers that the value of work after the grant date is reasonably evaluated by the change in the value of stock options after the grant date. Hence, compensation of employees is affected by changes in share prices after the grant date. This view is conceptually inconsistent with the assumption in national accounting that income gains are distinguished from changes in share prices. In this sense, it is impossible to adopt the compensation approach to the current system of national accounts.

The compensation approach seems to focus on a side of real essence of stock options. Stock options are "a means of giving them [employees] a benefit directly related to the performance of the share price that results from – or at least coincides with – their effort"(G4+1, 5.34). The option approach cannot highlight this characteristic of stock options. This problem shows how the distinction between income gains and holding gains becomes ambiguous. It may be time to reexamine the "dichotomy" between income gains and holding gains.

1 *This treatment is proposed by the working group of standard setters that consists of the accounting standard boards of Australia, Canada, New Zealand, the United Kingdom and the United States (G4+1).*

2 *Stock options in the United States are classified into two major types: incentive stock options (ISOs), which are tax free compensation packages, and nonqualified stock options (NSOs). The NIPA only record NSOs as compensation of employees because compensation of employees is estimated based on the statistics regarding income tax in the NIPA.*

4.3 Estimation

In this subsection, for the purpose of grasping the impact of stock options on compensation of employees, we roughly estimate both values of stock options at the grant date and at the end of the accounting period. The calculation is based on the Black-Scholes model, using data compiled from the notes in financial statements. [1]

The value of stock options in Japan is shown in Chart 7. The fair value of stock options at grant date is 110 billion yen in FY1999 and at the end of March 2000 it is 330 billion yen. These figures are less than 0.1 % of the compensation of employees throughout FY1999. Therefore, the treatment of stock options in national accounting is of little importance at the moment.

In contrast, Chart 8 shows that the fair value of stock options issued in the United States by the Dow Jones Industrial Average 30 members is estimated at grant date to be $12 billion in 1998. This amount, which reflect only 30 companies and exclude new-born IT companies, corresponds to 0.2 % of compensation of employees in the United States. This estimation indicates that stock options are regarded as an important compensation method in the United States. Furthermore, the fair value of stock options at the end of 1998 is estimated to be $40 billion. Since share prices in the United States rose during the 1990s, stock options will have a crucial influence on compensation of employees if the compensation approach is adopted. The current treatment of NIPA is similar to the compensation approach although the treatment of the current NIPA is based on cash basis accounting. Hence, it should be noted that the total amount of compensation of employees in the US will change substantially if stock options granted after the mid1990s are exercised one after another.

Conclusions

This paper focuses on the treatment of retirement benefits and stock options, with reference to the impact of the under-funding of pension funds and stock options on the compensation of employees. We present two approaches: the compensation approach, which regards changes in the value of pension funds or stock options as compensation of employees, and the swap contract approach or option approach, which regards them as holding gains. Though business accounting has evolved in line with the compensation approach, this approach is inconsistent with the current SNA. It is conceptually desirable to adopt a swap contract approach or option approach in national accounting.

Still, however, the compensation approach is a way to highlight a side face of real essence of the under-funding and stock options that the swap contract approach or option approach cannot focus upon. In a sense, they focus on the actual economy where the distinction between income gains/losses and holding gains/losses has blurred. It seems that the “dichotomy” between income gains and holding gains itself should now be reexamined.

The System of National Accounts is a multi-purpose system and when compiling national accounts, we should respect the consistency of the system. In this sense, we cannot adopt the compensation approach unless the system is comprehensively revised. Even so, when investigating developments in the real economy, statisticians and compilers of national accounts should continue to consider the concept of national accounting. At the same time, they must endeavor to disclose detailed data for users and indicate the impacts on the economy that would be caused by alternative approaches. This will enable them to recompose the data and understand the impact of an alternative approaches on the economy even under the present system of national accounts.

Appendix: Recording the Accrual of Interest on Zero-Coupon Bonds

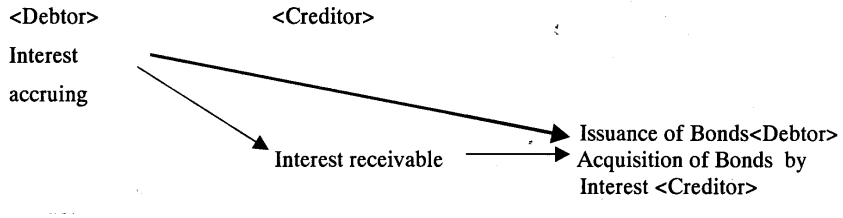
1. Treatment of Zero-Coupon Bonds

Zero-coupon bonds are sold at prices substantially lower than prices that are redeemed on maturity. Although zero-coupon bonds do not entitle holders to fixed or variable money income, the balance between the issue price and the redemption price is regarded as the value of interest over the life of the bond in 93SNA.

1 *As for the assumptions of the estimations, see footnotes in Chart 7.*

2. Accrual of Interest and Reinvestment

To understand the treatment of a zero-coupon bond in 93SNA, consider the case when a five-year bond with a face value of 100 yen is issued at the price of 80 yen. The balance between the issue price and the redemption price is distributed over time until its maturity as interests accruing every year. This interest is supposed to be effectively reinvested in the bond by its holders because the interest is not paid to the holder on a cash basis. In this case, the effective interest rate endogenously calculated is about 4.5 percent and interest is increased year after year.



Interest Accruing [1]

Year		1	2	3	4	5
Cash Flow	-80	0	0	0	0	100
Interest		3.65	3.82	3.99	4.17	4.36
Price of the Bond	80	83.65	87.47	91.46	95.64	100.00

3. Debtor Approach and Creditor Approach

Under 93SNA, how do we calculate interest when market interest rates are changed? There is no consensus on this point and two approaches are proposed: the "Debtor Approach" and the "Creditor Approach."

The debtor approach calculates the interest by the effective interest rate that is decided at the time the bond is issued. In this view, despite revaluation of the bond price, the value of interest is fixed. The creditor approach calculates the interest by the current effective interest rate that changes along with market interest rates. In this view, when market interest rates are changed, both the value of stocks and interest are reevaluated.

Consider a case when the market interest rate drops from 4.5% to 3.5% and the price of a zero-coupon bond rises to 90 yen two years after the issuance of the bond.

Debtor Approach

Year		1	2	3	4	5
Cash Flow	-80	0	0	0	0	100
Interest		3.65	3.82	3.99	4.17	4.36
Holding gains			2.53	-0.77	-0.84	-0.92
Price of the Bond	80.00	83.65	90.00	93.22	96.55	100.00

Creditor Approach

Year		1	2	3	4	5
Cash Flow	-80	0	0	0	0	100
Interest		3.65	3.82	3.22	3.33	3.45
Holding gains			2.53			
Price of the Bond	80.00	83.65	90.00	93.22	96.55	100.00

1 *In this paper, we calculate an effective interest rate as a continuous composition interest.*

If we adopt the debtor approach, holding gains/losses are recorded every year after the market interest rate drops even though the market interest rate changes *only once.* In the debtor approach, the sum of holding gains over the life of the bond necessarily results in zero in the end.

On the contrary, if we adopt the creditor approach, holding gains are recorded only when market interest rates drop. This is because the effective interest rates in the creditor approach are lowered to 3.5%. The creditor approach decreases interest accruing instead of recording holding losses as in the debtor approach.

Japan Government Bonds issued on July 20, 1994 are a typical example that illustrates the difference between the debtor approach and creditor approach.

Income Gains and Holding Gains
(Annual rates)

	Yield to Maturity	Debtor Approach		Creditor Approach	
		Income Gains	Holding Gains	Income Gains	Holding Gains
94/40	2.78	3.73	-0.94	3.55	-0.76
95/10	5.95	3.75	2.20	3.40	2.55
/20	30.94	3.74	27.20	1.72	29.22
/30	5.36	3.52	1.84	1.48	3.88
/40	9.48	3.47	6.01	0.92	8.56
96/10	-4.75	3.47	-8.22	1.36	-6.11
/20	0.42	3.51	-3.09	1.43	-1.02
/30	5.18	3.55	1.63	1.10	4.08
/40	2.93	3.51	-0.58	0.92	2.01
97/10	2.66	3.52	-0.86	0.73	1.94
/20	-0.08	3.54	-3.62	0.82	-0.91
/30	3.38	3.62	-0.24	0.47	2.91
/40	0.52	3.59	-3.07	0.46	0.06
98/10	0.77	3.59	-2.82	0.40	0.36
/20	0.44	3.62	-3.18	0.39	0.05
/30	0.40	3.70	-3.29	0.39	0.01
/40	0.36	3.69	-3.33	0.40	-0.04
99/10	0.68	3.73	-3.05	0.17	0.51
/20	0.16	3.76	-3.60	0.20	-0.04

4. Conclusions

As shown in the case of this JGB, the debtor approach overestimates interest income and capital losses when market interest rates are lowered. According to the debtor approach, while creditors purchasing this JGB in the second quarter of 1999 received interest at an annual rate of 3.76%, while they suffer holding losses at an annual rate of 3.60%. Japan's SNA actually includes these biases by using the debtor approach.

According to the creditor approach, a creditor receives interest at an annual rate of 0.20% in the second quarter of 1999. The creditor approach is said to record interest reflecting changes in the economic situation and seems to be a reasonable way of recording interests.

In fact, a Joint Working Group of Standard-Setters in IASC drafted a paper [1] in December 2000 suggesting that interest payable/receivable should be calculated using market interest rates. This paper contends that financial instruments should be evaluated on a fair value basis and, for consistency with the fair value evaluation of financial instruments, interest should be also evaluated on a fair value basis. This idea, in concept, is the same as that of the creditor approach.

Still, however, it must be noted that the concept of "interest" in the creditor approach is drastically different from that of the debtor approach. If we adopt the creditor approach, the amount of interest that will be recorded in the future is influenced by changes in market interest rates. In other words, interest is contingent income in the creditor approach.[2] Hence, the change in market interest rates – he change in the price of bonds – brings about not only a change in holding gains but also creates a change in income gains. If we consider the creditor approach to be desirable to measure the economy, we may have to reexamine the "dichotomy" between inoome gains and holding gains.

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Abstract

In national accounting, there is a framework consisting of three accounts, flow, stock, and reconciliation between stock and flow. In this framework, income gains in the flow transactions are distinguished from holding gains.' However, it is hard to make a clear distinction in some aspects. This paper focuses on retirement benefits and stock options whose treatments have been frequently discussed in business accounting and examines how they should be treated in national accounting.

Recently, in business accounting, liabilities related to compensation, such as actuarial liabilities of retirement benefits and stock options, has been principally evaluated at fair value and some of gains/losses arising from revaluation of these liabilities has been already included in compensation cost. As for retirement benefits, the change in value of actuarial liabilities of defined-benefit pension plans are recorded as compensation cost in Japan's Accounting Standards and Financial Accounting Standards (FAS).[3] *As for stock options, the Joint Working Group of Standard Setters in International Accounting Standard Committee (IASC) drafted a paper suggesting that the change in value of stock options during vesting period should be included in compensation cost, though this idea is not yet a majority opinion even in business accounting.*

In Japan, the liability amount of defined-benefit pension plans cannot be ignored against the background of rapid aging. It is strongly required that such liabilities should be recorded at fair value in national accounting. However, the way of recording these liabilities is not precisely defined in 93SNA. If national accounting records gains/losses arising from revaluation as compensation of employees as business accounting does, this treatment will be inconsistent with that of gains/losses arising from changes in the benefits structure. In addition, from the practical point of view, this will probably make compensation extremely volatile. Once interest rates increase, actu-

1 *Joint Working Group of Standard-Setters(2000) "Financial Instruments and Similar Items."*

2 *If we adopt the creditor approach, the balance between the issue price and the redemption price does not equal the sum of interest over the life of a zero-coupon bond.*

3 *The business accounting standards in the United States.*

arial liabilities may decrease rapidly and corporations may get windfall earnings. Considering these factors, it seems better to treat gains/losses arising from revaluation as holding gains.

As for stock options, it is inferred from the statement of 93SNA that the option premium at the grant date should be regarded as compensation of employees. However, 93SNA does not refer to the treatment of gains/losses arising from revaluation either. In the US national accounts, gains arising from revaluation of stock options are widely recognized as compensation of employees.

From the viewpoint of consistency, it is obvious that national accounting should not include gains/losses in compensation costs. This is because the gains/losses of stock options reflect changes in stock prices directly. Our analysis suggests that the total amount of compensation of employees in the US will change substantially if stock options granted after the mid-nineties are exercised one after another.

In summary, it is conceptually desirable, for the sake of consistency under the current SNA, to treat gains/losses arising from revaluation of retirement benefits and stock options as holding gains. Nevertheless, this conclusion is based on consistency and may not focus on the real essence of these liabilities. In a sense, fhey spotlight the recent actual economy where the distinction between income gains/losses and holding gains/losses are ambiguous. Thus, statisticians and compilers of national accounts should reexamine the concept of national accounting, and at the same time, should disclose detailed data. This will enable users to recompose the data and understand the impact of an alternative approach on the economy even under the present system of national accounts.

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Chart 1 System of National Accounts 1993

(Current Accounts)	Production Account	Production Account	Input-Output Tables
	Distribution of Income Accounts	Allocation of Primary Income Account	
		Secondary Distribution of Income Account	
		Use of Income Account	
(Accumulation Accounts)	Capital Finance Account	Capital Account	
		Financial Account	Financial Transactions (Flow of Funds Accounts)
	Reconciliation Accounts	Revaluation Account	Reconciliation between Flows and Stocks (Flow of Funds Accounts)
		Other Changes in the Volume of Assets Account	
		Others	

Chart 2 Employee Benefits

	Employee Benefits in Business Accounting	Treatment in Japan's National Account	Notes
Present Benefits in Cash	Wages	Compensation of Employees Wages and Salaries	
Present Benefits in Kinds	Housing Allowance etc Contributions to Health Insurance Society Paid Vacations	Compensation of Employees Wages and Salaries Compensation of Employees Employers' Actual Social Contributions Not Recorded	Vacations are recorded in financial statements only in a few countries.
Future Benefits in Cash	Unfunded Employee Social Benefits Plans Corporate Pension Plans	Compensation of Employees Employers' imputed Social Contributions Compensation of Employees Employers' Actual Social Contributions	Underfundings of retirement benefit plans are not recorded in national accounting.
Future Benefits in Shares	Stock Options	Not Recorded	Standard treatment is not stipulated in business accounting.

Chart 3 Under-funding of Pension Funds

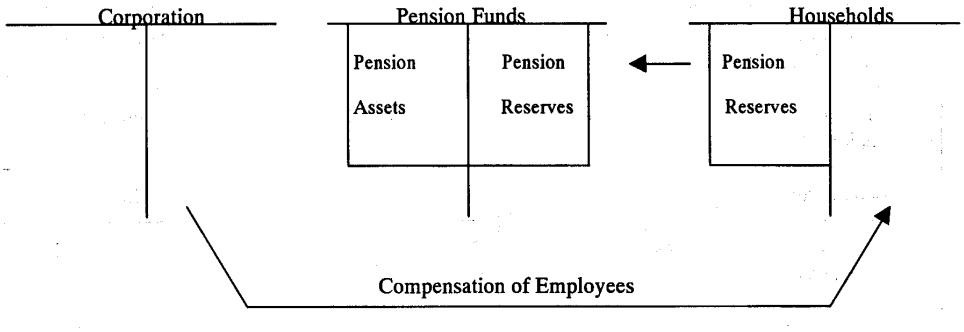
Research Institution	LTCBR	NLI Research Institute	Goldman Sachs, Japan
Amount of under-funding	45 trillion yen	43 trillion yen	80 trillion yen
Number of employees	11.7 million	4.89 million	4 million
Discount rate	3.0?	3.1?	2.0?
Surveyed companies	Companies with owner's equity of one trillion yen or more	Companies Listed on All Stock Exchanges	Companies Listed on Tokyo SE

Sources:
LTCBR "*SOKEN CYOUSA*" November 1998
NLI Research Institute "*NENKIN* Strategy" February 1999
Goldman Sachs, Japan "Portfolio Strategy" October 1998

Notes: Research papers are available in Japanese only.

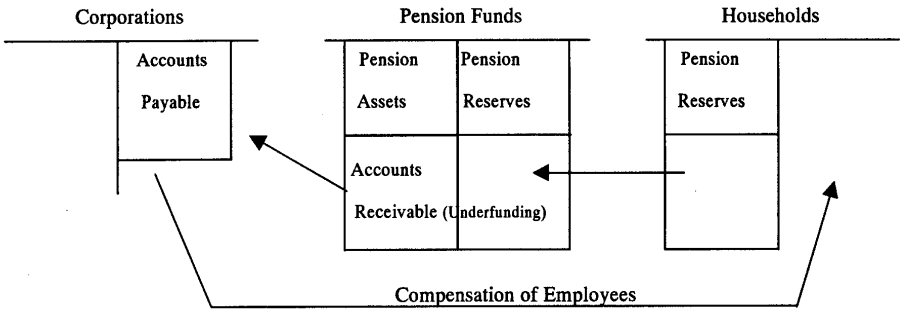
Chart 4 Treatment of Under-funding

1. Contribution to Pension Funds
(Balance sheet)



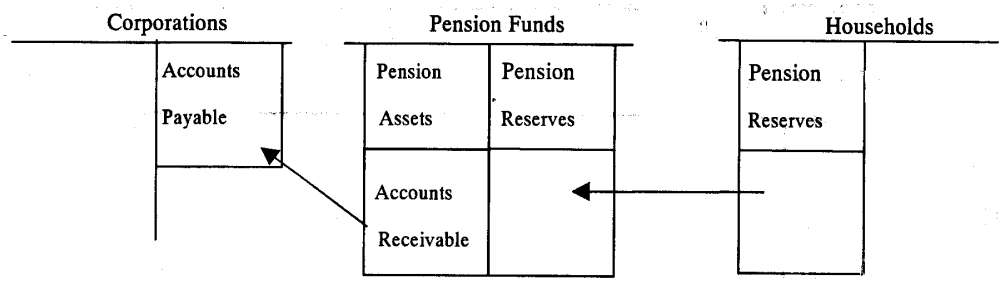
(Financial Account)
Pension reserves are recorded as the increases of household assets and pension funds liabilities. The amount of the increase equals the increase of pension assets.

2. Treatment of Under-funding <Compensation Approach>
(Balance sheet)



(Financial Account)
Pension reserves are recorded as the increases of household assets and pension funds liabilities. The under-funding is recorded as accounts payable/receivable.

3. Treatment of Under-funding <Swap Contract Approach>
(Balance sheet)

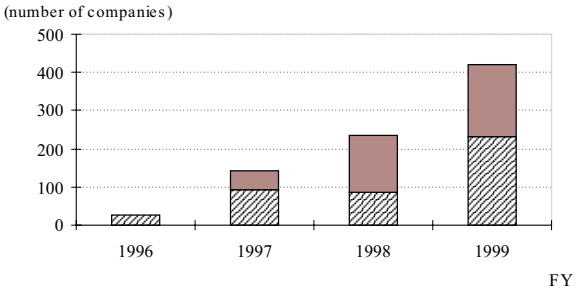


(Financial Account)
Not recorded

(Reconciliation Account)
Pension reserves are recorded as the increases of household assets and pension funds liabilities.
The under-funding is recorded as accounts payable/receivable.

Chart 5 Developments of the Grant of Stock Options in Japan

(Number of companies)

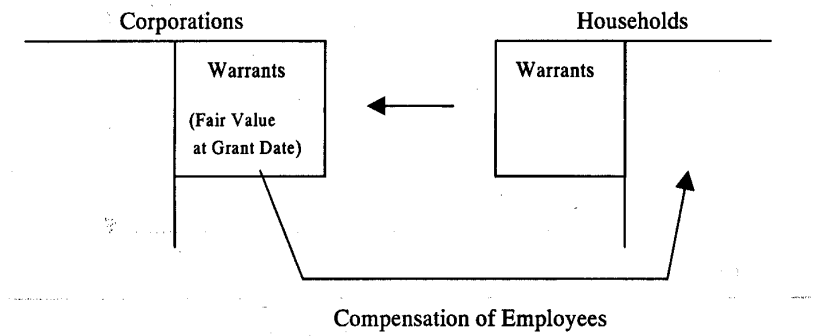


Sources:
DAIWA SMBC "sutokku opusyon dounyu happyou gaisya (announcement of companies introducing stock options)" 20 November 2000 (Japanese only)

Notes: Multiple votes of companies are included.

Chart 6 Recording Method of Stock Options

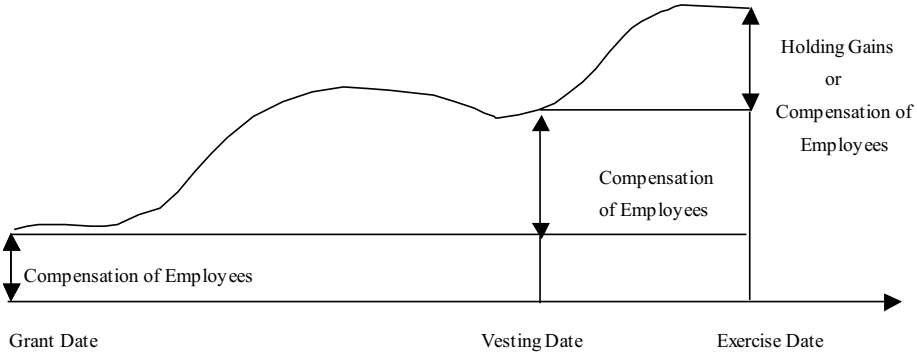
1. Grant Date
(Balance sheet)



(Financial Account)
Warrants are recorded as the increases of household assets and corporations liabilities.

2. Compensation Approach

Fair Value of Stock Options

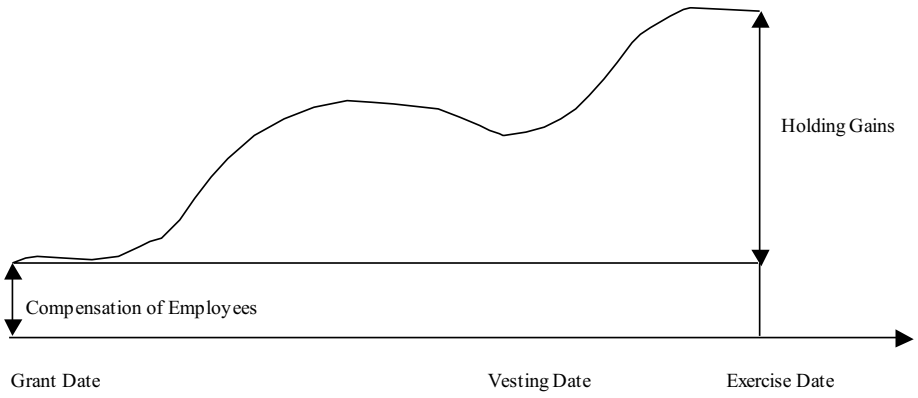


(Financial Account)
Change in the value of stock options are treated as the issuance of warrants by corporations and as the acquisition of warrants by households during vesting period.

(Reconciliation Account)
Change in value of stock options are treated as revaluation after the vesting date.

3. Option Approach

Fair Value of Stock Options



(Financial Account)
Fair value of stock options is recorded as the assets of households and as the liabilities of corporations at the grant date.

(Reconciliation Account)
Change in value of stock options is treated as revaluation after the grant date.

Chart 7 Fair Value of Stock Options in Japan

(trillion yen)

	Fair Value at Grant Date	Fair Value at the end of March 2000	Number of companies
FY1997	254.1	224.3	95
FY1998	327.7	1,087.2	145
FY1999	1,094.4	3,331.2	222
FY2000(First half)	1,811.3	?	425

Notes

1. Calculated based on the following assumptions:

Option Pricing Formula	Black-Scholes Model
Amount of option granting	Number recorded in Financial Statements
Risk free interest rates	2%
Volatility	Calculated from share prices during the first half of 2000.
Grant date	The day the grant is announced
Dividend	Not considered

2. Stock options include warrants that are paid to employees as compensations.

Sources:
DAIWA SMBC "sutokku opusyon dounyu happyou gaisya (announcement of companies introducing stock option)" 20 November 2000 (Japanese only)
Commercial Law Center "Commercial Law Review-Data Book" (Japanese only)
IBJ Nikko Information System,Ltd. "Funding Eye"
Financial statement of corporations

Chart 8 Fair Value of Stock Options in the United States – DJIA 30 companies

(million dollars, %)

	Fair Value at Grant Date	Fair Value at the end of the Year
1996	6,360	77,996
1997	9,988	104,391
1998	11,977	145,049

Notes: Exclude stock options issued by Eastman-Kodak and AT&T.

The Relationship between Central Banks and Statistical Institutes

CONTRIBUTED PAPERS

Financial information collection system in the Bank of Latvia: Heading toward direct reporting and surveys

Agris Caune and Arvils Sautins (Bank of Latvia)

The Statistics Department of the Bank of Latvia is responsible for the compilation of monetary and banking statistics and balance of payments statistics. The Bank of Latvia took over the compilation of the balance of payments statistics from the Central Statistical Bureau starting with the data for 2000. In order to fulfil these tasks, financial information is collected from a variety of sources.

Monetary and Banking Statistics.

Reporting institutions, for monetary statistics purposes, are all those credit institutions that are licensed in the Republic of Latvia. "The Monthly Financial Position Report" with supplements (full balance sheet data) is collected from all credit institutions. Banks submit data electronically, using the interbank data transmission network. Credit unions submit data on paper.

To obtain true flows for monetary analysis purposes, the main items of credit institutions' aggregated balance sheets are adjusted for valuation effects arising frorn changes in exchange rates of the lats against foreign currencies. Monthly flows are calculated as a difference between the previous and current end-month amounts outstanding minus adjustments.

Balance of Payments Statistics.

In order to compile the balance of payments statistics, the Bank of Latvia collects financial information from different data sources - banks, enterprises, legal authorities and others - using a mixed collection system (ITRS - International Transaction Reporting System with direct reporting elements supplemented by surveys and administrative sources).

Monetary authorities
Information on the monetary authorities sector is derived from the Bank of Latvia balance sheet and profit and loss statement.
General government
Information on the general government sector is derived from administrative sources.
Banks
Information on the banking sector is derived from the monetary and banking statistics which provides residency split for balance of payments needs.
Other sectors
The main data source on other sectors for the monthly balance of payments key items is the International Transaction Reporting System, which is an open, settlement-based system, supplemented by direct reporting system elements. Information on non-bank resident external payments made

via domestic banks is reported to the Bank of Latvia by domestic banks unless the amount of the payment is below the threshold of LVL 1000. Information received from domestic banks is supplemented by the information from non-bank residents - direct reporters - that report to the Bank of Latvia on incoming external payments. Starting with the year 2001, the direct reporting element was broadened by introducing a new reporting form under the International Transaction Reporting System for non-bank residents making external payments via foreign banks. Information on non-bank resident external payments is collected on a monthly basis. When submitting information, nonbank residents have to show the code of any external payment chosen in accordance with the List of External Payment Codes. The List comprises 108 codes that are divided in 9 groups.

The International Transaction Reporting System has its pros and cons. On the one hand, the system is very useful for keeping a register of enterprises involved in foreign transactions, which can be used for sampling when designing surveys. These data also represent investment market values and are very important for compiling the monthly balance of payments key items. Yet this system also has its minuses. These data are not appropriate for the compilation of some of the quarterly balance of payments items, for instance, goods, which is compiled on transaction basis. For some balance of payments items, e.g., trade credit or a part of non-cash investments made by non-residents, it does not provide any information whatsoever. For that reason, the International Transaction Reporting System is supplemented by different surveys when the quarterly balance of payments is compiled.

Commencing with the reporting period for year 2000, when the responsibility for the balance of payments compilation was transferred to the Bank of Latvia, it devoted a great effort to improve its data sources. The overall tendency is toward survey methodology.

Until 2001, the principal survey, taken by the Central Statiscal Bureau, was the survey on enterprise external settlements. This survey was the main data source for foreign investment in Latvia and abroad, investment income and export and import of services. Therefore, the survey form was broad and in many cases probably too complicate for respondents. Another problem for the Bank of Latvia as the agency responsible for the compilation of ihe Balance of Payments was the lack of individual data as data from Central Statistical Bureau according by Statistical Law of Latvia were received on an aggregated basis. As the Bank of Latvia took over the compilation, it revised this survey by splitting it in two. One of the resulting surveys is used to collect data on foreign investment abroad and in Latvia, other one - on transportation services. These steps allowed the Bank of Latvia to reduce the number of respondents, improve on sampling methodology, and get more detailed information on several Balance of Payments items.

The Bank of Latvia also uses data from surveys taken by other institutions and from administrative sources. A survey on financial intermediation was launched in close collaboration with the Securities Market Commission.

Nevertheless, there are some additional tasks for the future. The most important of those is to supplement the foreign investment form, so as to get not only stock, but also flow data. The development of a special survey on other services and for insurance companies is also currently underway.

Résumé

Le Département de Statistique de la Banque de Lettonie collecte directement des statistiques sur la monnaie et le financement de même que la balance des paiements. La Banque de Lettonie remplaçant le Bureau de Statistique dans la responsabilité de la balance des paiements en commençant par les statistiques pour l'année 2000. Afin d'accomplir cette tâche, l'information financière est collectée de nombreuses sources.
Pour les besoins de statistiques monétaires, les établissements rapporteurs se définissent comme tous les établissements de crédit autorisés en République de Lettonie. Afin de collecter des statistiques pour la balance des paiements, la Banque de Lettonie fait usage de plusieurs sources: banques, entreprises, administrations publiques et autres, en utilisant un système de collection mixte, ITRS.

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Integration of the trade statistics in the balance of payments of the Belgian-Luxembourg Economic Union and the current account of Belgium

Guido Melis (National Bank of Belgium)

Introduction

From 2001 onwards trade statistics are being used to establish the 'goods' component of the balance of payments of the Belgian-Luxembourg Economic Union (BLEU) and the current account of Belgium. Before, Belgium and Luxembourg were still the only countries of the European Union where this was not done.

The integration of trade statistics does not mean that they are taken over as such, but that they will be adjusted,whether or not in combination with the information collected via the international payments (ITRS), in order to adapt them to the balance of payments methodology. [1]

The use of trade figures not only has an impact on the balance of the goods item and on the geographical allocation [2], but may also result in double countings of goods and services as far as transactions of nonresidents are encompassed in the trade statistics (community concept and national concept).

1. Methodological adjustments

According to the BPM5, the goods component is composed of the following items: general merchandise, goods for processing, repair on goods, goods procured in ports by carriers and non-monetary gold (held as a store of value and other).

General merchandise

- 'Return of goods' will be deducted either from imports or exports. In trade statistics 'returns' are added to exports or imports.
- Goods for processing and non-monetary gold are separate headings in the balance of payments. The amounts involved are substracted from 'general merchandise'.
- The same applies to goods bought in ports; only the receipts side, since expenditure is not recorded in foreign trade statistics.
- Transactions with international institutions located in Belgium and Luxembourg, which do not appear in trade statistics, are added.

Goods for processing

Processing comprises receipts (or expenditure) in respect of imported goods, which are re-exported after processing, or vice versa. Car assembly and clothing made in lower-wage countries may be referred to as examples in this respect.

The trade statistics record both incoming and outgoing flows as imports and exports, whereas the collecting system based on payments only registers the balance, the amount due for the processing.

But the payments for processing abroad (receipts for processing in the domestic market) never meet the balance between the value of exported (imported) and re-imported (re-exported) goods.

This is due to the fact that some goods do not return after processing to the country having commissioned the work. but are either destined for the home market where the processing took place, or are exported directly to third countries.

For that reason the item 'goods for processing' is compiled as follows: the value of the re-imported (re-exported) goods for processing is the basis from which the payment for processing is deducted in order to calculate the value of the goods before processing. The differences between the

1 *Balance of Payments Manual, fifth edition, IMF, 1993 (BPM5)*

2 *In trade statistics the country of origin and the country of destination are used for external EU trade, the country of consignment and the country of destination for the internal trade.*

calculated amounts and the registered amounts are regarded as final exports/imports and are thus added to general merchandise.

Repair on goods
Costs of repair on all movable goods, including transport equipment. Although repair on goods (like processing) are no genuine good transactions but services related to goods, they are recorded under trade of goods.

Goods procured in ports by carriers
This is better known as provisioning or catering supplies. On the receipt side the data of the trade statistics are used; on the expenditure side, the payments data are applied.

Non-monetary gold
A distinction is made between gold held as a store of value (i.e., as an investment), and gold for industrial use.

The former figures derive from the payments collection system, the latter from trade statistics.

2. Community and national concepts

The National Bank of Belgium, charged with establishing the balance of payments of the BLEU (up to end 2001), produces two series of balances, according to two concepts:

- *Community concept*
  Here the 'goods component' is based on all arrivals and dispatches of goods in Belgium and Luxembourg relating to goods either coming from outside the EU and destined to other EU countries, or coming from other EU countries and to be exported to non-EU countries. These data according to 'the community concept' are only sent to the European Central Bank and to Eurostat with a view to allowing them to apply the consolidation on the European level. So as to make this consolidation possible, the geographical allocation for the intra-EU trade reporting was changed from country of origin to country of consignment.

- *National concept*
  The statistics according to the national concept, which relies on the principle of economic residence (transactions for account of nonresidents are excluded), are used in the official publications (website National Bank of Belgium, quarterly bulletin), are forwarded to the IMF and OECD and serve 'national' needs too (national accounts).

3. Impact on the figures

In order to measure this influence on the figures[1], the statistics for the year 2000 according to the different concepts are being compared:

	(Billion EUR)		
	Import	Export	Balance
Former concept (payments)	169.8	162.4	7.4
of which: non-EU	*71.6*	*72.8*	*-1.2*
National concept	174.4	167.7	6.7
Community concept	196.8	183.1	13.7
of which: non-EU	*75.9*	*78.3*	*-2.4*

Between the former concept and the national concept the difference, especially on balance, is not very important (-0.7 billion EUR)[2] The gap between the former concept and the community con-

1 *Production of data April 2001.*
2 *Over the past 5 years the average is -0.4 billion EUR.*

cept is larger (6.3 billion EUR on balance) although for external EU trade, where the community concept stands for, it is rather limited (-1.2 billion EUR).

4. Risk of double counting

When goods are imported in Belgian for account of a nonresident, stored, eventually repacked and finally exported to other EU countries, the export registration is based on the invoice value, which encompasses not only the value of the imported goods but also the services rendered by Belgian residents, as well as the profit margin. As the services rendered mostly are already included in the appropriate items of the balance of payments, the integration of the trade statistics in the community concept (where transactions by nonresidents are not excluded) may result in double counting.

5. Conclusion

The integration of trade statistics in the balance of payments occurred smoothly and the influence on the figures whether for national or for European needs remains acceptable. The only problem, but it should be marginal, is possible double counting.

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The Relationship between Central Banks and Statistical Institutes - The Case of Austria

Aurel Schubert (Oesterreichische Nationalbank)

I) Central banks and NSIs are natural partners in the production of information on the structure and the state of the economy

Quantitative information in general and on the structure and the state of the economy in particular is gaining in importance. Although the national statistical institutes (NSIs) are the main suppliers of this kind of information, they cannot cover all the national as well as international needs alone, as the central banks (NCBs) also produce and hold important information, especially about the financial sector. With the rapidly growing volumes of financial flows – withing an economy as well as across borders – the relevance of these data produced by the central banks is also growing. There is a complementarity between the data produced by the NSIs and the NCBs. This creates a need for cooperation and coordination between these institutions on a national level, as well as on a European or international level. As the old fences between the markets disappear, the fences, between the statistics generating institutions have to disappear too in order to allow for the creation of a coherent statistical system.

II) NSIs and NCBs have to find a division of labor that builds on the comparative advantages of the respective institutions

NSIs and NCBs together have to supply a coherent and consistent core diagnosis of the – national or European – economy, based on the harmonized framework of the ESA 95 (or SNA 93). The division of labor should be based on the respective comparative advantages. The two institutions should work in a complementary way, avoiding any redundancies. Around this set of core information there can be national "satellite statistics" for more specific markets , issues or questions, developed in a decentralized and not necessarily (internationally) harmonized way.

III) The Central Banks could concentrate on the financial statistics while the NSIs focus on the real side of the economy

The general trend towards more accountability of all public institutions increasingly leads to cost pressures and resource constraints. The NCBs as well as the NSIs have to show the public that they are efficient managers of resources. This requires first of all an efficient division of labor, with the NSIs focussing on the real economy and the NCBs on the financial side. Mutual trust is then a crucial precondition for such a partnership, as well as a clear definition of the respective competences. But there is also the need for a legal framework that allows and even encourages but does not hamper such cooperation.

Within each institution, efficiency has to reign on both the input as well as the output sides. This implies that the relevant information has to be gathered in the least costly way, and the information received has to be processed efficiently and put to as many uses as possible. This requires close cooperation with the respondents, i.e. a good knowledge about what kind of relevant information is already available, for instance in the companies' accounting systems.

For the cooperation between NSIs and NCBs to work smoothly, a formal framework needs to be created that specifies the respective duties and responsibilities. It needs to be revisited and – if necessary – updated on a regular basis.

IV) International organizations support or, sometimes, even enforce the cooperation

Sometimes the shortest way from the NCB to the NSI, or vice versa, might be via an international institution, like the ECB or the IMF. Their demands for coherent and consistent national data increase the need for cooperation on a national level.

V) In Austria, a newly enacted Statistics Act 2000 as well as the reorganisation of the NSI could form the basis for a redefinition of the relationship of the two statistics-producing institutions

Cooperation between the NSIs and the NCBs can be informal or formalized. As far as Austria is concerned, after years of rather strained relations informal cooperation has been increasing for some time. Formal cooperation, however, has been rather limited, especially compared with the situation in many other European countries. With January 1, 2000 a new Statistics Act came into force, creating the basis also for an extended formal cooperation. Its main intentions are to redefine the role of official statistics in Austria, to define the main principles of statistical work, to implement enlarged requirements for publishing the results of statistical work, to reduce the burden on the respondents, to strengthen the data protection (privacy) rules, as well as to give the NSI a completely new legal and organizational form.

A central role in the area of formal cooperation is being played by the Statistical Council, a body that brings together statistical experts from different government ministries, public organizations, social partners as well as the central bank. Among other tasks, it is intended to further the coordination between the different institution's statistical activities.

This Act also allows the NSI to outsource part of its activities or to enter into contracts with other statistics providers. This forms a useful basis for a redefinition of the formal cooperation between the NSI (Statistik Austria) and the Oesterreichische Nationalbank (OeNB). Both institutions have been in talks to prepare a framework agreement (Memorandum of Understanding) for cooperation, establishing the basic rules and responsibilities. This MoU will comprise the guiding principles of cooperation while the detailled definition of the mutual commitments in the different statistical areas will be specified in separate Annexes to the MoU.

It is intended that the main areas of shared or common responsibility will be the National Accounts, the Balance of Payments (BoP), and the company register.

The OeNB will contribute the Financial Accounts to the National Accounts, while Statistik Austria will concentrate on the real side.

In the area of balance of payments in the present arrangement the OeNB is responsible for the balance of payments compilation, however, using the trade data supplied by Statistik Austria. For the future we see as a logical development to transfer the responsibility for the services and the capital account to the NSI and for the Central Bank to concentrate on the Financial Account of the BoP plus the investment income.

In the area of the development of an Austrian company register we see the main responsibility with Statistik Austria, however, the OeNB can add a lot of input on the cross-border activities of the companies. Especially when moving to a survey and direct reporting based BoP collection system, the OeNB will need a reliable and up-to-date company register with all the information required for representative surveys (e.g. for foreign direct investments). In addition, a reliable and complete register helps to reduce the reporting burden on the respondents, as many of the questions can be answered directly from the registers.

The cooperation between the two institutions will, however, not be limited to these areas and will develop further over time. We are eager to profit from the experiences of other countries in this area.

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Fisher's Short Stories on Wealth 56-64

Arthur Vogt

The present batch deals with pathology of inflation and deflation. The next batch will deal with their therapy (cf. introduction to the series, ifc bulletin of June 1998:17). Economic pathology treats the disorder of the economic machine, therapy shows how it can be remedied. In Stories 8 to 12 the subject of inflation and deflation was treated already, then under the head of "physiology".

In Story 65 Fisher writes about the "advent of index numbers" in his generation. Price index theory is one of his most important research fields. The most famous tests for price indices are the time and the factor reversal tests introduced by him. Fisher (1922) devoted the whole chapter iv "The great reversal tests" to them. In Vogt and Barta (1997:72) a group theoretical interpretation of these two tests, together with 6 (or 14) analogous tests is given. In the following this interpretation is enlarged to magic squares.

Magic squares, seat orders and price indices

For Livia, 8 years
who understood nearly all.

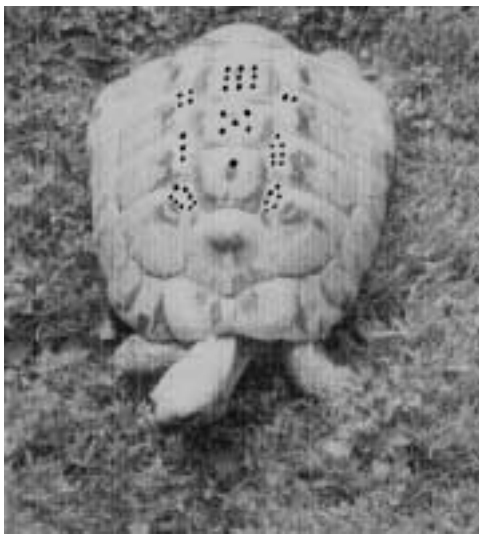
> Economists do it in a complicated way yielding wrong results.
> Mathematicians do it in a simple way yielding correct results.
> Irving Fisher was a mathematician.

In ancient China a just and wise monarch ruled between 2205 and 2198 BC. This was the emperor Yu. Kongfutse told that the monarch had once been occupied with buidling a dam on the Yellow River to stop the floods. While he was sitting on the bank of the river, immersed in thoughts, a devine turtle named Hi appeared to him. On the turtle's back there was a figure with number signs (Schimmel 1993:29). It looked like

Fisher's Short Stories on Wealth, 1926-1933

*Dr. **Arthur Vogt** has drawn our attention to a series of simple explanations of elementary principles of economics which Fisher wrote in an agreement with the Worker's Education Bureau. Fisher called them "Short Stories of Wealth". The bureau issued them monthly for publication in any union newspaper that desired to print them. They appeared in the "Brotherhood of Locomotive Firemen and Enginemen's Magazine", "Trade Union News", "Labor Herald" etc.*

The stories had never been reprinted and had not been included in "The Works of Irving Fisher" (General Editor W.J. Bates, Consulting Editor J. Tobin), which was published in 1997. However, the Stories are worth to be read up to the present day. Besides the scientific and historical interest they are of didactical use as they are models of explaining economic phenomena to the public. The IFC Bulletin decided to publish all these "Short Stories of Wealth"



One sees that the numbers 2, 4. 6, 8 and 1, 3, 7, 9 are grouped around the 5, a number which was highly esteemed in ancient China. All the horizontal, vertical and diagonal lines produce the sum of 15. The constance of these sums is a characteristic property of magic squares. In 3x3 squares this sum is 15. The even numbers are placed in the corners, the odd ones between them. We only regard the corner elements 2, 4, 6, 8. Once, these elements are placed, the position of the others are determined. To draw the connection with price indices we will identify 2, 4, 6, 8 with the four vectors

2 p_0 = prices in the base situation,
4 q_0 = quantities in the base situation
8 p_1 = prices in the observed situation
6 q_1 = quantities in the observed situation.

The four vectors have dimension n, the number of commodities. Furthermore we will identify

p_0 with lady of couple p
q_0 with lady of couple q
p_1 with gentleman of couple p
q_1 with gentleman of couple q.

The reversal tests correspond to the possibilities of placing the two couples round a table so that each lady sits opposite her gentleman (Vogt and Barta 1997:72). The condition "that each lady sits diagonally opposite her gentleman" corresponds exactly to the magic square condition "the sum of the elements in both diagonals is 15". The diagonal condition once fullfilled, determines the places of the other elements. E.g. between 2 and 4 has to be 9.

We identify the 8 possible 3x3 squares with the 8 reversal tests. More precisely, the squares should be identified with the corresponding antitheses (Vogt and Barta 1997:70).

Identity test: *identity symmetry*

$$P(\vec{q}^{\,0}, \vec{p}^{\,0}, \vec{q}^{\,1}, \vec{p}^{\,1}) \quad P(\vec{q}^{\,0}, \vec{p}^{\,0}, \vec{q}^{\,1}, \vec{p}^{\,1})$$

4	**9**	**2**	
3	**5**	**7**	. . . . . (1)
8	**1**	**6**	

To the **time reversal** test (Fisher 1922:64) *central symmetry*

$$P(\vec{q}^{\,0}, \vec{p}^{\,0}, \vec{q}^{\,1}, \vec{p}^{\,1}) \quad \frac{1}{P(\vec{q}^{\,0}, \vec{p}^{\,0}, \vec{q}^{\,1}, \vec{p}^{\,1})}$$

corresponds:

6	**1**	**8**
7	**5**	**3**
2	**9**	**4**

. . . . . (2)

To the **factor reve**rsal test (Fisher 1922:72): *vertical axe symmetry*

$$P(\vec{q}^{\,0}, \vec{p}^{\,0}, \vec{q}^{\,1}, \vec{p}^{\,1}) \quad \frac{\vec{q}^{\,1}\vec{p}^{\,1} / \vec{q}^{\,0}\vec{p}^{\,0}}{P(\vec{p}^{\,0}, \vec{q}^{\,0}, \vec{p}^{\,1}, \vec{q}^{\,1})}$$

corresponds:

2	**9**	**4**
7	**5**	**3**
6	**1**	**8**

. . . . . (3)

To the **simultaneous time and factor reversal** test (Vogt 1987): *horizontal axe symmetry*

$$P(\vec{q}^{\,0}, \vec{p}^{\,0}, \vec{q}^{\,1}, \vec{p}^{\,1}) \quad \frac{\vec{q}^{\,1}\vec{p}^{\,1} / \vec{q}^{\,0}\vec{p}^{\,0}}{P(\vec{p}^{\,1}, \vec{q}^{\,1}, \vec{p}^{\,0}, \vec{q}^{\,0})}$$

corresponds:

8	**1**	**6**
3	**5**	**7**
4	**9**	**2**

. . . . . (4)

To the **quantity reversal** test (Funke and Voeller 1978): *diagonal left down to right up symmetry*

$$P(\vec{q}^{\,0}, \vec{p}^{\,0}, \vec{q}^{\,1}, \vec{p}^{\,1}) \quad P(\vec{q}^{\,1}, \vec{p}^{\,0}, \vec{q}^{\,0}, \vec{p}^{\,1})$$

corresponds:

6	**7**	**2**
1	**5**	**9**
8	**3**	**4**

. . . . . (5)

It is to mention that Ibn Izra introduced this square which is called the “square of Salomon”.

The **price reversal** test (Funke and Voeller 1979): *diagonal left up to right down symmetry*

$$P(\vec{q}^{\,0}, \vec{p}^{\,0}, \vec{q}^{\,1}, \vec{p}^{\,1}) \quad \frac{1}{P(\vec{q}^{\,0}, \vec{p}^{\,1}, \vec{q}^{\,1}, \vec{p}^{\,0})}$$

corresponds:

4	**3**	**8**
9	**5**	**1**
2	**7**	**6**

. . . . . (6)

To the **"Number 7"** revesal test (Vogt and Barta 1997:72): *90 degrees anticlockwise rotation*

$$P(\vec{q}^{\,0}, \vec{p}^{\,0}, \vec{q}^{\,1}, \vec{p}^{\,1}) \quad \frac{\vec{q}^{\,0}\vec{p}^{\,1} / \vec{q}^{\,1}\vec{p}^{\,0}}{P(\vec{p}^{\,0}, \vec{q}^{\,1}, \vec{p}^{\,1}, \vec{q}^{\,0})}$$

corresponds:

2	**7**	**6**
9	**5**	**1**
4	**3**	**8**

. . . . . (7)

To the **"Number 8"** revesal test (Vogt and Barta 1997:72): *90 degrees clockwise rotation*

$$P(\vec{q}^{\,0}, \vec{p}^{\,0}, \vec{q}^{\,1}, \vec{p}^{\,1}) \quad \frac{\vec{q}^{\,0}\vec{p}^{\,1}}{\vec{q}^{\,1}\vec{p}^{\,0}} \; P(\vec{p}^{\,1}, \vec{q}^{\,0}, \vec{p}^{\,0}, \vec{q}^{\,1})$$

corresponds:

8	**3**	**4**
1	**5**	**9**
6	**7**	**2**

. . . . . (8)

A 180 degrees rotation yields central symmetry, i.e. square (2).

According to Schimmel (1993), Chinese philosophy identified square (1) with the element fire, square (2) with water and square (7) with earth. A research should be done with which square the fourth element air should be identified. Furthermore the squares corresponding to the Chinese elements wood and metal should be found out.

56. Inflation and deflation an economic disease

Fisher enters the field of the present batch, economic disorder, the "pathology" of economics. But he mentions already a mean of therapy for inflation and deflation: using the dollar as a (constant) unit of buying power. In Story 67 he will treat this idea further. In the title of an article, he used the poetic expression for an unstable dollar "the dance of the dollar".[1]

Fisher mentions a concept which he introduced himself into economics: money illusion. Two years before, he published a whole book with this title (Fisher 1928). In Stories 8-12 from 1926 he did not yet mention this expression.

57. Big harm from unstable dollar

It is astonishing for the commentator that Fisher wrote about the adjustment of incomes to the change in prices that "this is not and cannot be the case". Thanks to index numbers to which Fisher made important contributions, we today enjoy – more or less – indexed wages and penions.

1) *"The Business Cycle Largely a 'Dance of the Dollar'", Journal of the American Statistical Association 18, 1024-1028, reprinted in "The Works of Irving Fisher, vol. viii, 1997.*

The field of interest subject of Stories 22 to 32 is also treated. In long-time contracts dollars of today are exchanged for dollar of the future. It makes tremendous difference whether the dollar shrinks or expands.

Fisher mentions another variable unit than the dollar which is "still in use", the month. The same time as he wrote the present Story, he gave a talk on calendar reform aiming e.g. to standardize the month length (Fisher 1930, Vogt 2000). He argued that January 1, 1933, would be the most convenient day for putting the new calendar into effect…

58. Evils of inflation

Fisher uses the expression "the new poor of Europe" for the victims of inflation during and after the World War 1914-1918. In a speech given in 1941, he used the expression that the inflation "practically wiped out the middle class in Germany".

Fisher once quoted a saying from the French revolution time: "After the paper money printing machine comes the guillotine".

59. Too much money

Fisher mentions the "most striking example of the money illusion" at that time. The President of the Reichsbank stated: In a few days we shall be able to issue in one day two-thirds of the total circulation. - In the meantime happened a more extreme inflation: in Hungary after the war. The price index grew from 1 in mid-1945 to

3 806 000 000 000 000 000 000 000 000 (3806 quadrillions)

in mid-1946. In Fisher (1946) this example is mentioned.

61. How inflation and deflation affect investors[1]

Fisher explains the rule that bondholders loose and stockholders win during inflation. During deflation it is converse: bondholders win and stockholders loose. Fisher (1933:62) illustrates it:

> If the bond issue occurs in 1864, the fall of the price level follows; therefore the dividends fall, but the fixed interest on the bonds has proportionately more buying power. On the other hand, if the bonds are issued in 1896, the rise of the price level follows; therefore, the dividends rise, but the fixed interest on the bonds has proportionately less buying power.

62. The unstable dollar and unstable employment

Fisher explains that a rising price level stimulates and a falling price level depresses business. During inflation, producers get higher prices, but costs, as wages, rents etc, are lagging. Conversely, a falling price level diminishes profits. One might call Fisher's argument the producer's side argument. The consumer's side argument reads: The consumer, in inflation time, wants to spend his income before it looses its value. In Story 58, Fisher gives a drastic example from the German inflation after World War 1914-18: "A wife would meet her husband when he got wages, snatch the money and run to the grocer to spend it before the soaring prices would soar still higher".

63. Stable money important for labour

Fisher does not think that index numbers will be used for mending the dollar "from the outside" by indexing prices. He favours a mending the dollar "from the inside" with a dollar of constant buying power, i.e. stable prices.

Fisher mentions "long term contracts" which prevent adaptation of wages during inflation. Thanks to index numbers we, today, are glad to have long term contracts – but with index links!

1) *Story 60 apparently does not exist. Number 59 is from January 1931 and number 61 from February 1931.*

64. Review of harm done by inflation and deflation

Unstable money produces an unjust transfer from one class of society to another. Although it is not a loss to society as a whole, it is not a zero-sum-game. Losses exceed the gains.

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Short Stories on Wealth

Irving Fisher

56. Inflation and Deflation an Economic Disease[1]

I HAVE now finished two of the four divisions into which economics seem most properly to be grouped. The first divisions consisted in describing and defining the fundamentals – wealth, property, services, price value, capital and income. I called all this "economic anatomy." The second division consisted in explaining how all this economic machinery works – how prices, the level of prices and distribution of wealth are determined. I called all this "economic physiology."

So far we have not criticised the economic machine and its working. It was taken for granted. But no one is satisfied stopping here. Every one recognizes that the economic machine gets out of order and needs correction. Some are radical enough to propose rebuilding it from the ground up. We must therefore, before ending these short stories, say something about the disorders of the economic machine and how they can be remedied.

In doing this we enter a very controversial field. To avoid undue discussion I shall try to be conservative and sometimes I may seem dogmatic.

The first disorder is two-fold – a sort of economic chills and fever – or inflation and deflation, or changes in the buying power of money. This disease is the commonest and the worst of all those we shall examine. It is especially dangerous because so often overlooked. Few even suspect that the dollar ever changes. At the present moment our depression in trade is largely due to just such a change.

The persistent idea that a dollar is a stable unit like a yardstick, instead of varying, as it really does, in purchasing power, is what I call the "Money Illusion."

Some people think gold is stable because "the price of gold" never varies. In the United States pure gold sells at about $20 an ounce (exactly $20.67) and has remained at that fixed price ever since 1837 when the pure gold content of a dollar was fixed at about one-twentieth of an ounce (exactly 23.22 grains) of pure gold. Of course the two figures mutually imply each other and afford absolutely no evidence that gold is constant in its buying power over other commodities. They merely mean that gold is constant in terms of gold.

I once jokingly asked my dentist – at a time when people were complaining about "the high cost of living" – whether the cost of gold for dentistry had arisen. To my surprise he took me seriously and sent his clerk to look up the figures. She returned and said: "Doctor, you are paying the same price for gold that you always have."

Turning to me the dentist said: "Isn't that surprising? Gold must be a very steady commodity."

"It's exactly as surprising," I said, "as that a quart of milk is always worth two pints of milk."

"I don't understand," he said.

"Well, what is a dollar?" I asked. "I don't know," he replied. "That's the trouble," I said. "The dollar is approximately one-twentieth of an ounce; there are, therefore, twenty dollars in an ounce of gold, and naturally an ounce of gold must be worth $20. The dollar is a unit of weight, just as truly as the ounce. It is a unit of weight masquerading as a stable unit of value or buying power."

Our fixed-weight dollar is as poor a substitute for a really stable dollar as would be a fixed weight of copper, a fixed yardage of carpet, or a fixed number of eggs. If we were to define a dollar as a dozen eggs, thenceforth the price of eggs would necessarily and always be a dollar a dozen. Nevertheless, the supply and demand of eggs would keep on working. For instance, if the hens failed to lay, the price of eggs would not rise but the price of almost everything else would fall. One egg would buy more than before. Yet, because of the Money Illusion, we would not even suspect the hens of causing low prices and hard times.

In what sense then should a dollar be fixed, if not in weight? Evidently in buying power. We use

1) *The Lather, Cleveland, Vol. XXXI, No. 2, October 1930, pp. 21-22.*

a dollar as a unit of value, or buying power, not as a unit of weight. We have other units of weight, the pound, ounce, grain, gram. We want these units of weight for weighing. But the dollar is a unit of weight never used for weighing; 23.22 grains of copper or even silver is not a dollar. Only 23.22 grains of gold is a dollar and then, while the grain seems to us weight, the dollar does not. We never think of it in any such way. We think of it as a unit of value. No one cares, or should care, what a dollar weighs. What it buys is the vital question. As an economist, General F.A. Walker said "Money is as money does" or "the dollar is what the dollar buys." To confuse the fixed weight of the dollar with a fixed value is like confusing a fixed weight of a yardstick with a fixed length. If the Bureau of Standards should put out yardsticks always weighing the same, that would not insure their having the same length. They could be used accurately for weighing sugar but not, with any great accuracy, for measuring cloth.

It follows that our dollar could be used accurately for weighing sugar, but it can not at present be used with accuracy, for measuring value. This fact nevertheless is hidden from us by the Money Illusion.

57. Big Harm from Unstable Dollar[1]

MOST people imagine that a low price level is due to an abundance of goods and a "high cost of living" to a scarcity of goods – that a fall or rise of the price level represents a sort of feast or famine in goods. On the contrary, it represents, rather, a famine or feast in money. The inflation and deflation are not merely relative; they are usually also absolute.

But if we grant that price movements are chiefly movements in the value of money, the question naturally arises: What of it? The money yardstick changes, but the thing measured does not greatly change. What harm can there be if prices double simply because money is plentiful and not because goods are scarce? We must use twice as many dollars to buy things with simply because we have twice as many dollars to use. Is this not merely, or chiefly, a matter of bookkeeping? How, then, can it be of any real importance?

It would, indeed, be of no importance if everybody's income were adjusted to the change in prices. But this is not and cannot be the case. Even if our physical yardstick should vary, such a change, though purely a bookkeeping matter, would confuse all commitments of merchants made in terms of yards, such as sales of cloth, carpet or wire. This would be serious, but a change in the money yardstick, the dollar, is far more serious, and for three reasons:

(1) The physical yardstick merely affects the sales of those few goods which happen to be manufactured in yards. It is important in the ribbon market, but not in the wheat, sugar, cotton, goal, oil, lumber, or steel markets. Its variations would not affect the sales of goods measured, in bushels, quarts, cords, pounds, tons, acres, gallons, kilowatts, or days' work.

The monetary yardstick, on the other hand, affects all sales. In every sale where we find the yard as the goods-unit, we find the dollar as the money-unit, so many yards of carpet are sold for so many dollars of money. Likewise every commitment in pounds, bushels, quarts, or anything else, involves an equivalent commitment in dollars. The dollar is used as much as all other units put together.

If, then, we are at such pains to standardize the yard, the pounds, and every other goods unit, having – as we do – official sealers of weights and measures to prevent the cheating of the public because of changes in those goods-units, how much more important is it to stabilize the unit of money, applying, as it does, to every purchase and sale?

(2) This monetary yardstick is used for long-time contracts, in which the dollars of today are exchanged for dollars of the future. There are, to be sure, time contracts in yards and other units, but they are far less frequent, less important and of shorter duration. They generally imply money also, as future yards, present tons of coal for future tons. But we are constantly contracting to pay present dollars for future dollars.

Now if a man continues to pay you a certain number dollars, ten years hence, for a loan of a certain number of dollars today, it makes tremendous difference both to him and to you whether the dollars in which you are paid have meanwhile shrunk or expanded. It makes tremendous difference, for instance, to a bond holder.

This evil (number 2) is far more serious than the first evil (number 1). The great network of

1) *The Lather, Cleveland, Vol. XXXI, No. 3, November 1930, pp. 28-29.*

long-time contracts, running months, years, generations, or even centuries, includes hundreds of billions of dollars in promises to pay money – promissory notes, mortgages, debentures, railway bonds, government bonds, leases, annuities, pensions, insurance policies, savings bank deposits, and so on.

(3) A change in the physical yardstick would be at once detected. But the disastrous effects of the subtle change in the dollar are not perceived because of the Money Illusion. Added havoc is thus wrought because the source of the trouble is unrecognized. If we only knew in advance how our dollar changes, we could, to a certain extent, provide against it, just as we can largely provide against the harm done by one other variable unit still in use, the month. We know in advance that February is a short month and March a long one.

For these three reasons, then – the universality of the use of the monetary unit in exchange; its unique use in time contracts; and the invisibility of its tricks – our unstable dollar is vastly more harmful than an unstable physical yardstick or pound weight would be.

58. Evils of Inflation[1]

INFLATION of prices disturbs all loan contracts. So does deflation. When there is inflation, and the price level rises, the creditors lose and the debtors gain. It might seem at first that this is as broad as it is long since the debtor gains exactly as much as the creditor loses. It might be argued that no harm can be done to society as a whole either by inflation or deflation since the average wealth would not be changed.

But one might as well reason that when a bank vault is robbed or when your house is burglarized, society is none the poorer. If you, the victim of the robbery, should be told, "What you have lost the burglar has gained, and therefore society as a whole is just as well off!" that would be cold comfort to you.

In somewhat the same sense our burglarizing dollar is defrauding people, even if it does so impersonally. Something is taken away from its rightful owner. The evil is not (primarily at least) general impoverishment; it is social injustice. Unlike burglary or personal fraud, there is no violation of the letter of the law as to debts, but there is a defeat of its spirit and intent.

Extreme examples are always the clearest. The story is told of a Polish clothier, deciding to retire from business, who sold his 100 suits of clothes for 100,000 Polish marks and invested the proceeds in a "secure" three-year mortgage at 6 percent, thus receiving 18,000 Polish marks in interest and the safe return of his 100,000 Polish marks of principal at the end of three years. But this whole 118,000 Polish marks would then buy only one suit of clothes! Nominally he had received 6 per cent interest. Actually he had lost practically all, interest and principal alike.

In the city of Budapest a benevolent woman founded a genteel poorhouse for just such victims of inflation. When a friend of mine visited that poorhouse he was shown into a little hall bedroom, with one small iron bedstead for two people, a drygoods box for a washstand and on that a tin wash basin. There, he was told, lived two judges of the highest court who had invested their savings in bonds and other "safe" securities. Currency depreciation had reduced the buying power of their once ample incomes to practically nothing. They had become objects of charity.

One of the German witnesses who appeared before the Dawes' Commission was a working man, representing, he said, fifteen million German laborers. When asked what labor most needed, he said "a more stable currency." He said the workman had no way to lay up for a rainy day, to put by money in order to have it, ready to pay the doctor and nurse at the coming of a baby into the family, or to provide for old age or funeral expenses. The mark would lose much of its buying power over night. A wife would meet her husband when he got his wages, snatch the money and run to the grocer to spend it before the soaring prices would soar still higher.

Millions of European savings bank depositors had their life savings swept away. Because of the Money Illusion, few had the understanding to withdraw their deposits in the early stages of inflation, and, had they done so, still fewer would have known how to reinvest them wisely so as to profit by the price movements.

In many countries of Europe the inflation during and after the World War literally ruined middle class investors who had invested in bonds; they were the creditors and lost practically their whole principal by the fall of the German mark, the Polish mark, the Russian ruble, and the Aus-

1) *The Stone Cutters Journal, December 1930.*

trian crown. These investors – including teachers, lawyers, judges, clergymen, physicians, clerks, depositors in savings banks, the small holders of bonds, the recipients of life insurance money – came to be called "the new poor of Europe." Some of these, who had every reason to expect to retire in comfort, became day laborers doing anything at all to scrape together a bare subsistence in their old age.

59. Too Much Money[1]

INFLATION means, fundamentally, too much money in proportion to the real wealth and income. Yet, strangely enough, while inflation is going on, the general public finds it hard to admit that there can be too much money. Money, however abundant, always seems scarce.

After a rapid inflation once starts, the clamor for more money often grows louder and louder.

The most striking example of the money illusion in relation to inflation may be found in Germany. The President of the Reichsbank, speaking before the Reichstag, on August 7, 1923, flatly stated, "The note issue at present amounts to 63,000,000,000,000,000; in a few days we shall be able to issue in one day two-thirds of the total circulation." The strangest thing was the matter of course way in which this casual announcement was received. Here was inflation going on at terrific speed and ever accelerating, yet no one seemed to care how it would inevitably end.

This heedless optimism reminds one of the definition of an optimist, suggested by a famous Yale wit (William Lyon Phelps), as a man who, having fallen out of a nineteenth story window, was heard to mutter just before striking ground, "So far so good."

A few, of course, grow rich during inflation by going into debt and then having their debts virtually wiped out by that inflation. Hugo Stinnes, the famous war-time millionaire of Germany, was an outstanding example. Some-times the same people or families who profited by inflation got caught in the reverse tide of deflation, and were ruined. The Stinnes heirs were examples. `

Even America has not escaped these evils. A workingman who, in 1896, had put one hundred dollars into a savings bank found, in 1920, that his principal, plus compound interest at 4.5 per cent, amounted to about three hundred dollars. On the face of it he had his principal back and in addition $200 of profit, or accumulated interest. This $200 seemed a genuine reward of thrift. But it was an illusory profit. The appearance of was due to a sort of bogus accounting in terms of a varying dollar.

When our American depositor came to spend his $300 in 1920 he found prices nearly four times as high as they had been in 1896; consequently his entire accumulation of $300 would buy only about three-quarters as much as his original $100 would buy in 1896. He would have come off better if he had spent his $100 in 1896. If he had turned his $100 into furniture, jewelry or some other representative commodity in 1896 and simply held that commodity until 1920, he would have had the use and benefit of it during all that period, together with a big advantage over the man who saved; for this commodity would have "appreciated" about four-fold. As it was, his only reward of thrift was punishment. He had really lost, not only his interest, but also part of his principal.

It can all be put in figures. He deposited 100 dollars in 1896. In 1920, each of these dollars was worth 26 2-3 cents of the 1896 buying standard. He took out 300 dollars in 1920, worth 300 x26 2-3 = 80 dollars of the 1896 standard. In short, he put in 100 dollars and took out the equivalent of 80 such dollars. Instead having, as interest, something over and above his $100 of principal he had really lost 20 dollars of his original principal. Instead of receiving a reward for his self-denial, the saver was heavily mulcted for his abstinence and forethought by our will-o'-the-wisp dollar. There was really no such thing as interest. It was all wiped out by the fall of the dollar. If the reader is astonished and incredulous to learn that our magic dollar made interest vanish, it is because the money illusion has hitherto hid the truth from him.

Any gold bond bought in 1896 and running to 1920, or any intermediate date, proved to be a veritable gold brick. Yet, because of the money illusion, even to this day few know it. Yale University lost heavily during the no-interest period. Yale had recently to ask for a further endowment of $20,000,000, largely, as President Angell said, because of the fall in the purchasing power of the dollar. About $7,000,000 of the new endowment was required to restore the purchasing power of the income from the bonds, mortgages and notes held in 1914. Of course, the same sort of losses were sustained by other endowed universities, foundations, hospitals and churches.

1) *The Lather, Cleveland, Vol. XXXI, No. 5, January 1931, pp. 28-29.*

61. How Inflation and Deflation Affect Investors[1]

TO illustrate how, as between stockholders and bondholders, this lottery works, consider a company which, say, before the War in 1913 had outstanding a hundred million dollars of bonded debt and a hundred million dollars of stock. Each yields 5 per cent, five million dollars, so that, before the War, the corporation distributed between these two classes of investors, bondholders and stockholders, ten million dollars. This, for convenience, will be called profit. Let us now see what happens if the buying power of the dollar is cut in two, that is, if the price level doubles (which it actually did between 1913 and 1919). Suppose then, that this company did the same physical volume of business after the War as it did bef6re, but at the doubled price level. It would then have doubled the profit – in dollars. For, if the expenses double and the receipts double, the difference between the two, the profit, must also double. The profit would thus be twenty million dollars instead of ten million dollars. But while nominally this twenty million of profit would be double the original ten million, in real value it would not be double but merely the same.

Now this twenty million dollars would not be distributed evenly between bondholders and stockholders, as the ten million had been! Why? Because the bondholders are restricted by contract to their 5 per cent. They will get, out of the twenty million, the same five million as before – the same, that is, nominally, but in real value only half. What is left out of the twenty million (fifteen million dollars) will now go to the stockholders. Nominally, then, the stockholders will get three times what they did before the War (fifteen million instead of five), but when we allow for the dollar having been depreciated one-half, what they really get is one and one-half times as much value.

Thus the stockholders get more real value than before the War, while the bondholders get correspondingly less. Inflation, quite impersonally, if you please, has picked the pockets of the bondholders and put the value into the stockholders' pockets, simply by the change in the value of the dollar.

Suppose, now, that the wind blows the other way. Then the exact opposite happens. Prices are, let us say, cut in two by deflation and the company's expenses and receipts are both cut in two. It follows that the profit will also be halved. Hence the company will distribute not $10,000,000 but $5,000,000 (of course, the $5,000,000 at this lower price level is worth just as much as the $10,000,000 was before). But this $5,000,000 will not be evenly divided between stockholders and bondholders; for, under their contracts, the bondholders are entitled to five per cent. They will therefore take the entire $5,000,000, leaving nothing at all for the stockholders! The company is on the verge of bankruptcy. If the process goes much further a receivership follows. The blame would be attributed to the management; but it would be the robber's dollar that had done the harm.

Like the stockholder is the farmer, already discussed, who mortgaged his farm, while his creditor is like the bondholder. When, as in 1919, there is inflation, the farmer gains at the expense of his creditor. When, as in 1921, there is deflation, his creditor gains at the expense of the farmer. Governments lose and gain in the same great gamble.

The effects of inflation and deflation on the huge war debts are interesting. In a Memorandum on Public Finance, 1922-1926, of the League of Nations, the public debts of the countries of the world are recalculated to give their equivalent in pre-war buying power. We find that Italy in 1914 owed 16 billion lire, but in 1925 owed the equivalent of only 13 billion (of pre-war buying power). That is, in spite of the huge war expenses which enormously increased the debt in lire, the real debt burden had actually decreased because of the depreciation of the lira. When the debtor Italian government gained by this inflation, its creditors (Italian and foreign citizens) lost.

The depreciation of the German mark, of course, practically wiped out Germany's internal debt, although after the paper mark disappeared Germany had the grace to "revalorize" her domestic debt that is, she has undertaken to repay it in part so that she still owes on that account the equivalent of one and three-fourths billion gold marks. Individual Germans and German companies were not always so gracious. One large steamship company is said to have paid off its entire bonded debt, originally a huge one, running into many millions of dollars, for the equivalent of $1,100.

1) *The Lather, Cleveland, Vol. XXXI, No. 6, February 1931, pp. 21-22.*

62. The Unstable Dollar and Unstable Employment[1]

WE have seen that the chief fault of our present dollar is that it is uncertain in buying power. As long as it is used as a measuring stick every contract is necessarily a lottery, and every contracting party, even a laboring man contracting for his wages, is compelled to be a gambler without his own consent.

Unstable money also explains, at least in part, the so-called "business cycles." Booms, recessions such as we are now passing through, liquidation and recovery have long puzzled the business world. While certain plausible, and partially true, explanations have readily been given, they were incomplete and unconvincing. Wherever unstable money does its work we find the public mystified; for unstable money remains behind the scenes. Its tricks are like those of a sleight-of-hand artist. Because of the "Money Illusion," one of the principal causes of booms and panics is unperceived. Only after an economic and statistical analysis do we come to realize that trade fluctuations are caused, in large part, by changes in the buying power of the dollar.

Monetary depreciation (rising price level) temporarily stimulates, and monetary appreciation (falling price level) depresses business. The reason is simple. When producers get higher prices they do not, at first, have to pay correspondingly higher costs; for instance, wages and salaries do not rise so fast, being fixed by contract for months or years in advance. Much less do they, at first, have to pay higher rent and interest. Such lagging of important expenses usually involves a lagging of total expenses behind total receipts. Consequently, profits, the excess of receipts over expenses, tend at first to increase. Conversely, a falling price level diminishes profits.

Now the profit taker is the captain of industry, on whose decision depends the rate of output. Hence it follows that, when the price level rises and profits increase, industry is expanded, employment is full and easy, and business booms; but when profits decrease, industry is contracted, employment is lessened and business is depressed.

One of my own statistical studies shows that almost every fall in the buying power of the dollar leads a little later to an increase in the volume of trade; while almost every rise in the dollar leads to a decrease in that volume. The statistics of bankruptcies and unemployment follow this same relation to the changes in the dollar.

Few economic problems have seemed more baffling than the unemployment problem, although none is of greater human interest or has received more attention. This relation of unstable employment to unstable money has been studied extensively by the International Labor Office at Geneva from its establishment in 1920. M. Henri Fuss, Chief of the Unemployment Service of the Office, has shown that, during the period of 1919-25, deflation occurred in 22 countries and was followed by a depression in all these countries, with three unimportant exceptions. A more recent study by the same offices reaches the same result.

In the United States and England, the deflation of 1920-21 threw millions out of work. Unemployment became the mother of revolutionary unrest. In England a second deflation was brought about in 1925 in order to bring the British pound back to the gold basis, at the old ratio of $4.87 to the pound sterling. Again came unemployment, labor discontent, and with this condition the greatest strike in England's history. The British Home Secretary estimated the cost of the strike at two billions of dollars – "a loss greater even than that of the South African War." Of course, other causes were involved in the loss; but deflation was a powerful factor and all the greater because hidden from view by the Money Illusion.

This second English deflation, with other European deflation, helped to drag down the American price level also and the American deflation is one chief cause for American unemployment today.

63. Stable Money Important for Labor[2]

AS we have seen, society in general profits through stable money and no class of society is likely to gain anything in the long run. There is one class, however, which invariably loses and that is labor. The laborer is the victim not only of unemployment caused by deflation, but also of the high cost of

1) *The Lather, Cleveland, Vol. XXXI, No. 7, March 1931, p. 29.*
2) *The Lather, Cleveland, Vol. XXXI, No. 8, April 1931, pp. 27-28.*

living caused by inflation. Some other classes have a chance at least of temporary benefit from either an upswing or a downswing of prices; but the laboring man, handicapped economically and otherwise, is the most helpless member of society in the face of these conditions.

It is true that when prices are rising he usually finds it easy to get and keep a job, but he finds it more difficult than ever to get and keep a living wage. His money wages almost always lag very considerably behind the rising cost of living.

The most extreme instances of loss of real wages occurred in Germany during the early days of the great inflation which began in the middle of 1922. In one particular week in January, 1923, the wages of skilled labor of all kinds had advanced to more than 500 times the level of 1913. But the cost of living had advanced more than 1,100 times; so that the workman's weekly wage of 18,000 marks would buy less than half what his weekly wage of 35 marks bought in 1913.

In fact, throughout the period of the great inflation there was a continuous marathon race between the cost of living and the wage rates. In the later days of this period, wage adjustments in accordance with the cost of living index were made daily, but wages for both skilled and unskilled workers in all industries and occupations, except mining, continued to lag behind prices.

The height of absurdity was reached in December, 1923, when the average weekly wage of a metal worker was almost 30,000,000,000,000 (30 million million or 30 trillion) marks, or about 850 billion times the 1913 wage, while the cost of living had increased about 1,250 billion times. This metal working Croesus with his pay satchel bulging with trillions of marks (truly "wealth beyond the dreams of avarice") was barely able to pay the butcher, the baker and the paper-shoe maker, since his 30 trillions would buy only about 70 per cent as much as his 36 marks would in 1913.

Higher wages, such as these in Germany, with prices ever going higher, are well styled by Edward A. Filene "counterfeit" wages. In so far as they pass for real wages, the workman is the victim of the Money-Illusion.

When, on the other hand, as now, the price level is falling the wage earners who are lucky enough to have jobs are helped by a reduced cost of living, but the hordes of the unemployed mean that labor, on the average and in the long run, loses by falling prices.

In short, in either case, labor loses. The real wages. of labor, as a class, are reduced, either by wages lagging behind the high cost of living (during inflation) or by some workers being out of jobs and having no wages at all (during deflation).

Out of these economic evils arises another derivative evil, that of social discontent. The very fact that the people do not understand the change in the buying power of the dollar leads them to discontent. For instance, when inflation is going on and wages lag behind prices, the workman often thinks the employer is in some sort of a game to defraud him of every increase of wages by raising the cost of living against him.

Popular discontent always follows in the wake of inflation or deflation. When the price level rises rapidly the laborers rightly feel themselves to have been victimized, and the more radical among them come to hate society. As inflation goes on, the workers grow continually more dissatisfied and attribute their plight to an intentional plundering by a social system of "exploitation."

Out of such discontent, therefore, come socialism, communism, anarchism, and other radical theories. Even the most reasonable workmen as well as the most reasonable employers are apt to get into disagreements because of unstable money. Unstable money is a chief cause of bad industrial relations.

When the price level is rising the workmen complain, as we have seen, of the high cost of living and demand higher wages. This is a reasonable demand, but the employers are likely to resist, especially if they have long-time contracts or understandings with the workmen. A strike is often the result of the difference between these two viewpoints.

When, on the other hand, the price level is falling the employers try to reduce wages. This also is reasonable, but the workmen are almost certain to resist, especially if they have a contract or understanding to their advantage. A lockout is likely to result.

It follows, therefore, that unstable money is one of the chief causes of industrial unrest, and stable money. one of the chief hopes for industrial peace.

64. Review of Harm Done by Inflation and Deflation[1]

OUR story about the harm done by unstable money began with the observation that it makes our bookkeeping misleading, producing an unjust transfer of values from one class of society to another, but not, primarily, a loss to society as a whole. What some lost others have gained.

But we can find the losses exceed the gains, owing to the indirect harm of uncertainty, depression, unemployment, discontent, strikes, lockouts, sabotage, riots, violence, Bolshevism. These can only mean a dead loss to the general public.

The loss is felt whether the price level is rising or falling.

When the price level is rising and business is temporarily stimulated, "prosperity" is largely a sham. Bondholders, most salaried men, many wage earners and all others whose incomes are fixed, or nearly fixed, in dollars are then far from prosperous. We must remember that "prosperity" is a business man's term, one that describes a condition of class interest rather than a condition of general welfare. It follows that, during inflation, the supposed "prosperity" of the period is really a class prosperity – as increased welfare of profit-takers at the expense of the welfare of others.

Moreover, as with ordinary gambling, even the gains of the winners are largely swept away in the end. When the price level is rising the strikes, riots and violence, which often occur, as secondary effects of the rising price level, take away the profits of the winners by blocking the wheels of industry and even destroying its tools. It is not so much a question of who is going to get the profits as it is a question of whether there are to be any profits. It does not seem too much to say, for instance, that, economically speaking, Germany probably suffered more after the war from her colossal inflation than from the war itself.

When, during a period of falling prices, the apparent gainer is not the profit-taker but the creditor, the winner is also just as likely to lose his winnings. The bondholder is, usually and normally, the simple investor of capital, the "silent partner" in business. He lacks the temperament and training to be a risk-bearer or captain of industry. But, after years of a falling price level, during which he himself has been draining, unobserved even by himself, the lifeblood of the enterprise whose bonds he holds, until there is no profit left for the captain of industry who has been managing it or for the stockholders who risked their capital, the mortgage is foreclosed and the captain, held responsible for the shipwreck, is forced out, discredited, humiliated, and unable to explain or even to understand that the disaster was not wholly his fault. The fault has arisen from his unreliable instrument of reckoning, the dollar. Next, the bondholders or their representatives, often lawyers, take control, whether or not they know how to run the business. Thus the management often drifts into wrong hands and turns into mismanagement. The bondholder has unconsciously been a Shylock, exacting his pound of flesh until the once productive enterprise is bled to death.

The workmen who are thrown out of work during a period of depression never regain their lost wages. Nor is what they lose gained by their employers nor by anyone else. Idle men and idle machines represent total losses to all society.

Unstable money robs sometimes one class and sometimes another; it upsets all sorts of calculations and economic relationships and adjustments; it causes harmful fluctuations in trade and unemployment, and produces discontent, labor troubles, class hatred and violence; and in the end it represents general economic loss. These evils of unstable money may be reduced to three: social injustice, social discontent and social inefficiency.

1) *The Lather, Cleveland, Vol. XXXI, No. 9, May 1931, p. 27.*