

Excess Foreign Exchange Reserves and Overcapitalisation in the Eurosystem

Daniel Gros & Franziska Schobert

Abstract

The national central banks of the euro area have very diverse balance sheets, but they share one aspect in common: Few of them conform to the textbook model of a central bank whose only task is to conduct monetary policy and whose monetary base constitutes its main liability. The balance sheet of the European System of Central Banks is therefore 50% longer than is necessary and than it should be according to the textbook norms. Central banks in Europe have a habit of making their balance sheets as opaque as possible so that it is difficult to determine exactly where the excess items come from. It is clear, nevertheless, that national central banks of the euro countries should clean their balance sheets of about 200 billion euro.

We estimate that about one-half of the reduction in the excess balance sheet items could be achieved by a sale of excess foreign exchange reserves that could be used to reduce public debt. The counterpart would be mainly a reduction in excess revaluation reserves. The remaining half represents "dead wood", i.e. assets and liabilities, vis-à-vis both the private and public sector, that should also be eliminated as they have nothing to do with the management of monetary policy.

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Daniel Gros & Franziska Schobert

1. Introduction: Are European central banks over-capitalised?

In textbooks, central banks have very simple balance sheets. Their liabilities consist of the monetary base, and on the asset side, one finds either domestic assets, i.e. claims on domestic banks or the government, or foreign assets, i.e. foreign exchange reserves plus gold. Some authors add that capital also appears on the liability side and that the accounting for losses and gains on foreign assets due to exchange rate changes is difficult. But the overall impression one gets from textbooks is that the balance sheet of a central bank should be simple. This is not the case in Europe, however.

The job of central banks is to conduct monetary policy, not to maximise profits. The job of the European System of Central Banks (ESCB) is to maintain price stability. Thus, the details of the balance sheets of the constituent national central banks and their profit and loss accounts should be irrelevant. But this is not the case for several reasons.

A first reason is that central banks care about the profitability of their financial position in defining their day-to-day policies. Sometimes great importance is attributed to losses or gains that appear negligible in a macroeconomic context, e.g. if expressed as a percentage of GDP. It is understandable that central banks try to avoid losses. This is indispensable if they want to maintain their financial independence. Moreover, if a central bank makes large losses in some operations, other agents, presumably some private market operators (often called "speculators"), make correspondingly large profits. Loss-making operations thus imply a subsidy for the private sector.

A second reason is that the balance sheet of the European Central Bank (ECB) is negligible as practically all operations are implemented by the national central banks. One has to concentrate on the balance of the system, i.e. of the ESCB in the composition of the Eurosystem (comprising the ECB and the national central banks of the 11 EU member states

participating in Stage Three of EMU from the start). This is different from the situation found even in very federally organised countries. In Germany, the *Landeszentralbanken* do not have their own balance sheets. In the US, each regional Federal Reserve Bank publishes its financial statement individually as well, but these regional balance sheets are irrelevant as they reflect only the policy of the system (which is decided by the Board of Governors of the Federal Reserve System and which also decides how the system is distributed across the regional Federal Reserve Banks). By contrast, the balance sheets of the national central banks of the euro area reflect many other activities as shown below. A further difference from the American system is that the ESCB as such is not even a legal entity.

The consolidated financial statements of the Eurosystem aggregate the national balance sheets, but the aggregation hides the considerable differences in the balance sheets of national central banks. For example, there are great differences in their exposure to foreign exchange losses, their gold holdings and the general structure of their balance sheets.

The combination of these elements is potentially troublesome because the allocation of profits and losses within the Eurosystem is governed by different principles from that of the determination of the common monetary policy. The monetary policy is the same for everybody, but there is no solidarity in financial terms. Decisions on monetary policy are taken by the Governing Council in which each member has one vote. Financial matters are discussed by the governors alone, so that the six members of the Executive Board are excluded, and decisions are taken on the basis of weighted voting (capital shares constitute the weights). There is thus a risk that there are different majorities for the setting of monetary policy and for decisions concerning financial matters, including the distribution of profits from the system.

The fact that the common monetary policy is not reflected in a common balance sheet also means that the system has no automatic mechanism for ensuring financial solidarity in a case where a particular national central bank makes losses. The Treaty recognises this when it leaves this matter to ad hoc decisions by the Governing Council of the ECB as foreseen in Art. 32.4 of the Statutes of the ESCB:

The Governing Council may decide that national central banks shall be indemnified for costs incurred in connection with the issuance of bank notes or in exceptional circumstances for specific losses arising from monetary policy operations undertaken

for the ESCB. The indemnification shall be in the form deemed appropriate in the judgement of the Governing Council.

The inadequacy of the ESCB statute regarding the financing of losses is not uncommon in central banking constitutions.¹ But as losses within the Eurosystem imply transfers across countries, it is more important to provide clear guidelines for this eventuality within the Eurosystem than within a normal (national) central bank.

There is another reason to take a closer look at the structure of European central banks on the eve of EMU which has attracted much public attention.² It is the fact that national central banks in EMU will no longer need all the foreign exchange reserves that they accumulated in the past. Some politicians have even proposed using these excess foreign exchange reserves to fund large-scale European initiatives.³ But foreign exchange reserves are just one part of the overall management of asset and liabilities by central banks. The question of excess reserves is just part of the general issue of why central banks should own large amounts of assets, either in the form of foreign exchange reserves or as claims on commercial banks. The issue of excess foreign exchange reserves liberated by EMU is thus implicit in the entire discussion of this paper. But as foreign exchange reserves and gold are only part of the general problem of over-capitalisation of European central banks, we prefer to discuss this deeper issue instead of concentrating only on the one part that has attracted the most public attention.

We start by briefly examining the opening balance sheet of the Eurosystem and then look at how it relates to that of the component NCBs. We then present a proposal for a "lean" Eurosystem balance sheet, discussing the implications for both the asset and the liabilities side.

¹ See Vaez-Zadeh (1991), p. 70, who cites a review of the central banking laws in some 60 countries; it revealed that almost one-third did not have any specific provisions regarding the treatment of losses.

² For a discussion of EMU's excess foreign reserves, see Brookes (1996); for a broader discussion of the management of Eurosystem assets under EMU, see J. P. Morgan (1998b).

³ The Italian Minister of Defence, Andreatta, proposed this idea in early 1998. See Andreatta (1998).

2. Central Bank Balance Sheets: A Comparative G-3 Perspective

What does the balance sheet of the Eurosystem look like in comparison to that of the other G-3 countries? We will discuss this question separately for liabilities and assets.

Liabilities

Table 1 lists the standard broad items on the liability side for the Eurosystem, the US Federal Reserve and the Bank of Japan.

For the eurosystem we take the opening balance sheet, which is interesting as the starting point, and also in a longer run perspective because now that EMU has begun, national central banks lose any residual control over the evolution of that part of their balance sheets, that reflects their implementation of the common monetary policy.

Table 1
G-3 Central Bank Balance Sheets (Liability Side)
(billions of euro)

	Eurosystem	US Federal Reserve	Bank of Japan	
			1997	1998
Monetary base	429	437	405	455
o/w Banknotes in circulation	342	421	381	422
o/w Deposits of financial institutions	87	16	24	33
Other liabilities and capital accounts	268	85	98	237
Total liabilities and capital accounts	697	522	503	692
Lean Balance Sheet Indicator:				
Monetary base as % of balance sheet total	62%	84%	81%	66%

Sources: Consolidated opening financial statement of the Eurosystem, 1.01.1999; Financial statement of the Bank of Japan, 31.12.1998; Statement of condition of all Federal Reserve Banks, 30.12.1998. (Details may not add to totals because of rounding.)

The first row of this table shows that the euro area, Japan and the US have a monetary base of a similar size. But the more important lesson that emerges from this table is that the euro area balance sheet is much longer than the standard textbook central bank balance sheet. Total liabilities and capital accounts are, at about 700 billion euro, more than one and a half times as big as the monetary base. The data for the US and Japan⁴ in 1997 show that such a large

⁴ In Japan foreign exchange reserves are held outside the central bank, their counterpart positions "Japanese government securities in custody and borrowed" are excluded.

difference between the monetary base and total assets is not a feature of other large central banks.⁵ In Japan the balance sheet lengthened considerably during 1998 because of large-scale rescue operations to shore up the Japanese banking system. This is a first indication that the “leanless” of the balance sheet of a central bank (or the lack thereof) reflects the extent to which it is forced to take over other tasks in addition to conducting a monetary policy geared towards price stability.

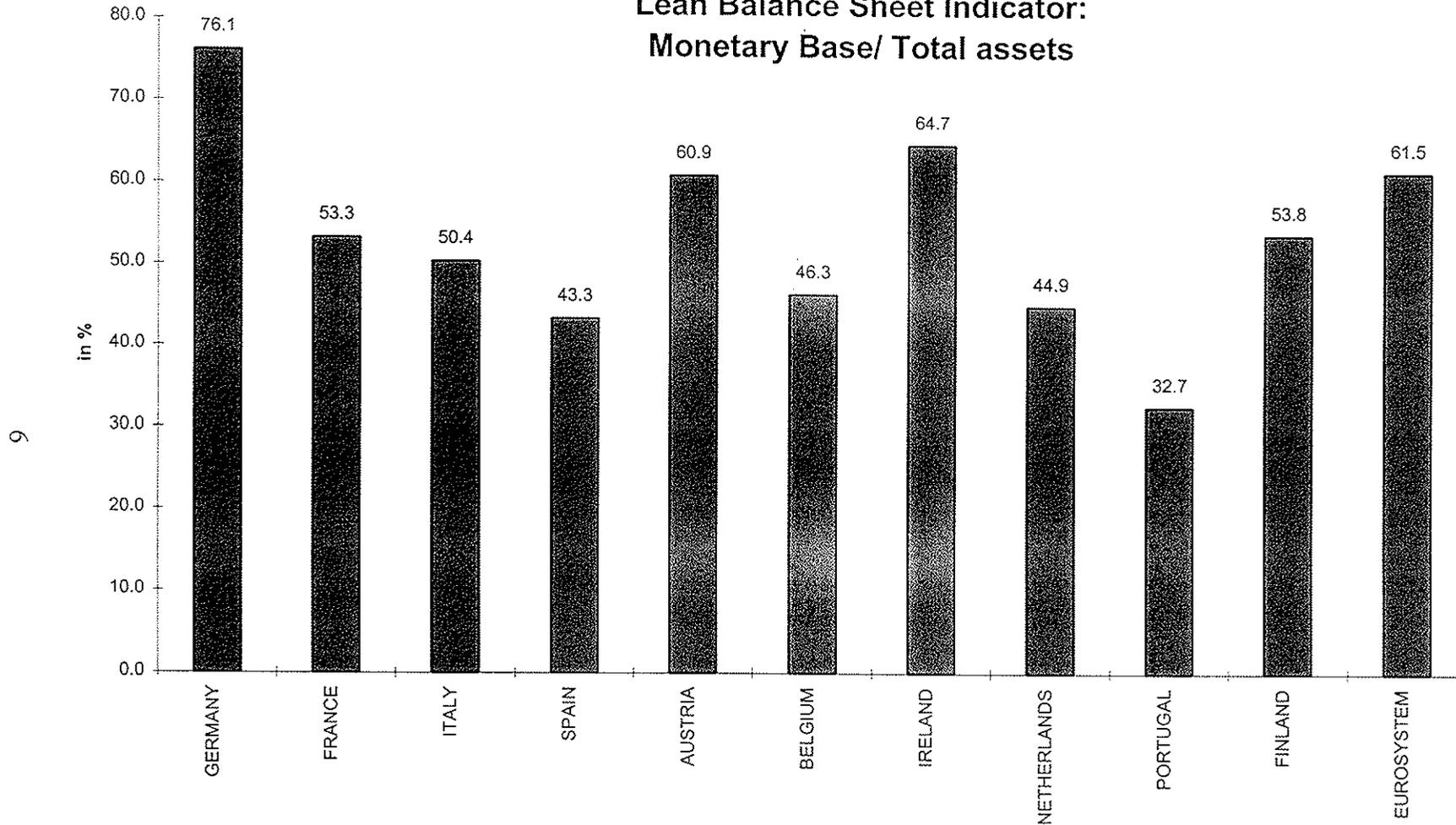
The formal “lean balance sheet” indicator we use is simply the percentage of the monetary base in total balance sheet⁶ liabilities shown in the last row of Table 1. In terms of this indicator, the Eurosystem scores only 62 against 84 for the US Federal Reserve, which constitutes the benchmark. The Japanese value, which was close to the benchmark in 1997, has deteriorated strongly since then for the reasons mentioned above.

The consolidated data for the eurosystem in Table 1 hide the large differences among the constituent national central banks of the Eurosystem. Figure 1 gives therefore the lean balance sheet indicator (the percentage share of liabilities and capital accounted for by the monetary base) for the 11 individual countries of the euro area (plus the eurosystem average). The Bundesbank, with 70%, while still far from the US or the Japanese values, has one of the leanest balances in the EMU-11. The case of Portugal stands out because the total liabilities of the Banco do Portugal are over four times larger than the monetary base. The reason is that when reserve requirements were reduced from about 16%, the Banco do Portugal did not allow commercial banks to dispose of the deposits they had, but transformed them into medium-term liabilities which will mature in 2004. When they mature, the balance sheet of the Banco do Portugal will shrink considerably.

⁵ The size of the asset holdings of EMU-11 national central banks has implications for their profits and hence for the distribution of seigniorage; see Gros (1998).

⁶ Hoping that central banks in Europe no longer have substantial off balance sheet liabilities as, for example the Banque de France, which had large forward and/or Swap positions outstanding whose size was never publicly revealed.

Figure 1
Lean Balance Sheet Indicator:
Monetary Base/ Total assets



Source: Financial statements of national central banks (Spain, the Netherlands and Italy are end of november 1998 figures, data for the Eurosystem are from the 1.1.1999, all others are end of december 1998 figures)

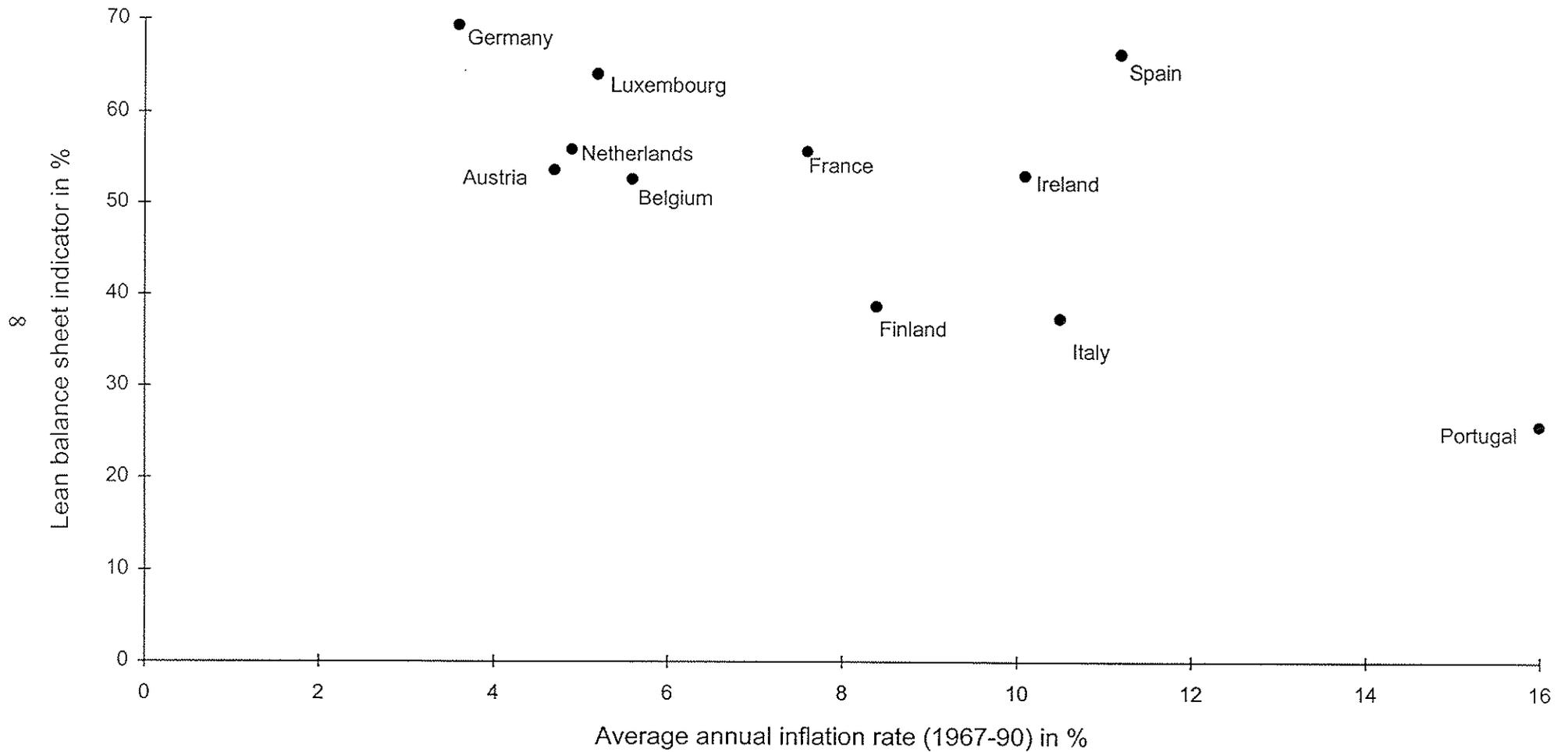
Why did central banks accumulate so many items on their balance sheets that have little to do with the execution of monetary policy? The main reason must be that most national central banks were in a quite different position in recent decades than they are today. During the 1970s and 1980s, most were not independent, inflation was much higher and the national banking systems were often highly distorted. Until capital market liberalisation was imposed through the internal market programme, national central banks in a number of member countries had special relations with certain groups of banks and gave the public sector privileged access to financing. During this period they thus accumulated large stocks of assets that did not result from monetary policy operations. The more distorted the banking system and the higher the rate of inflation, the stronger in general was the incentive for governments to lean on central banks in order to provide cheap financing or to somehow offset the high implicit taxation on the banking sector that resulted from the combination of high nominal interest rates and high required reserve ratios.

After around 1992, all this had to stop, partially because of the liberalisation of banking under the Internal Market Programme and ultimately because the Maastricht Treaty forced governments to make central banks independent and allow them to concentrate on monetary policy in their role as guardians of price stability. Nevertheless, the stocks (of assets and liabilities) that they had accumulated were there; they were frozen, but no national central bank showed much inclination to get rid of them. If this conjecture about the genesis of the excess assets on central bank balance sheets is true, their size should correlate with central bank independence and inflation. This is indeed the case as is shown in Figures 2 and 3.⁷

Figure 2 plots the average inflation rate during the pre-Maastricht period (1967-90) against the lean balance sheet indicator. Countries with higher inflation typically had balance sheets in which the monetary base was only a small part of total liabilities and capital accounts. The

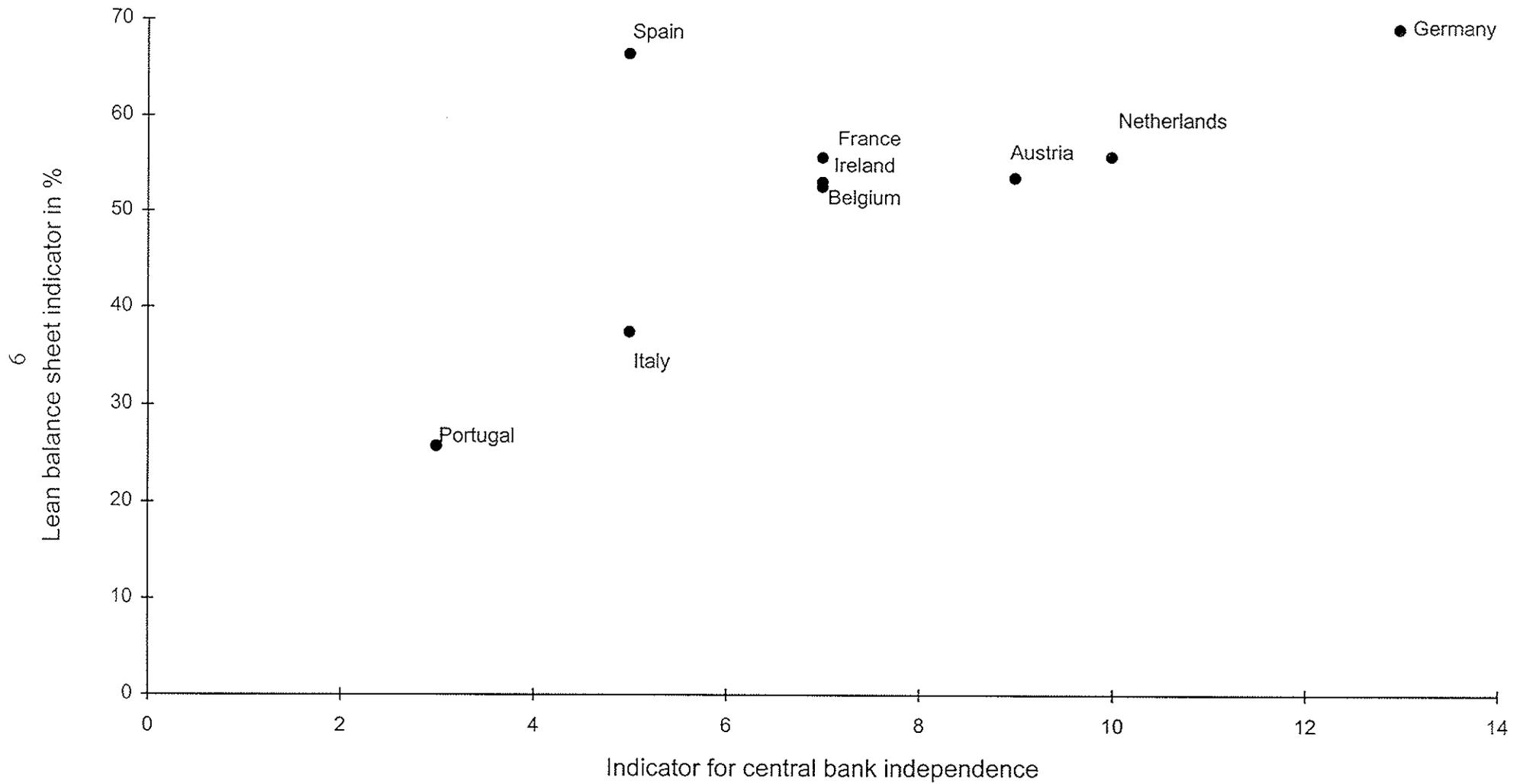
⁷ The "leanness" indicators were calculated directly from central bank balance sheets data. We calculated them also from data from the International Financial Statistics (IFS). Using IFS data gave similar results. In principle, IFS data has the advantage that the IMF provides a common presentational framework, but since some items are consolidated into "other liabilities net", which at times is negative, the IMF data was less useful for our purposes. In any event, both sources yield lean balance sheet indicators that correlate highly with one another.

Figure 2
Average Inflation and Lean Balance Sheet Indicator



Source: Annual reports of national central banks, 1997; IFS, 1997; and authors' calculations. For assumptions, see text.

Figure 3
Indicators for Central Bank Independence and Lean Balance Sheets



Source: Annual reports of national central banks, 1997; IFS, 1998, Grilli, Masciandarro and Tabellini, 1991 and authors' calculations. For assumptions, see text.

correlation coefficient is about -0.7. Under the usual assumptions, it is statistically significant at the standard confidence levels.⁸

The correlation with central bank independence is strong as well. Central bank independence can be measured in many ways; we use here the most popular indicator devised by Grilli, Masciandaro and Tabellini (1991), but other indicators gave similar results.⁹ Figure 3 suggests clearly that the more independence a central bank enjoys, the leaner its balance sheets. The correlation coefficient is again about 0.7 (and 0.8 using IMF data). This result is again statistically significant. Inspection of Figure 3 also reveals that apart from the outlier Spain, all observations are essentially on an upward-sloping curve.

The balance sheets of national central banks today are thus an indicator of their past in terms of independence and price stability. Adjusting balance sheets today cannot change this. Nevertheless, the excess assets and liabilities that central banks still carry on their balance sheets constitute a nuisance and, in some cases, even a potential threat to the financial independence of certain national central banks.

Portugal represents an extreme case (see also Stella, 1998, pp. 23-27). The Banco do Portugal is really a hedge fund. It has leveraged its capital by a factor of almost five to invest in mainly foreign assets and is thus taking enormous risks. Until not so long ago, investing in foreign assets was a better investment than investing in domestic Portuguese assets because the currency was depreciating and domestic interest rates were controlled. But this assessment is completely different under EMU. With non-euro (presumably mostly US dollar) assets larger than its monetary base, the Banco do Portugal runs the risk of making large losses if the US dollar suddenly depreciates.

⁸ The correlation coefficient is -0.6 using IFS data, for the nine degrees of freedom this is also at the standard significance threshold.

⁹ The indicator for legal independence, which is used, is the sum of the indices for political and economic independence by Grilli, Masciandaro and Tabellini (1991). The political independence indicator focuses on appointment procedures for board members, the length of members' terms in office, and the existence of the statutory requirement to pursue monetary stability. The economic-independence indicator considers the extent to which the central bank is free from government influence in implementing monetary policy (Eijffinger and de Haan, 1996, p. 23).

As mentioned above, the balance sheet of the Bank of Japan has expanded during 1998 and its "lean balance sheet" indicator has deteriorated as a result of central bank action taken in order to strengthen the weak Japanese financial system. The liquidity provided for weak banks since the end of 1997 needed to be partly absorbed by the sale of own bills by the Bank of Japan. This experience provides a good illustration of our point: A central bank that is apparently not only engaged in monetary policy but has also been forced to manage structural problems in the banking system experiences a deterioration of its balance sheet structure.

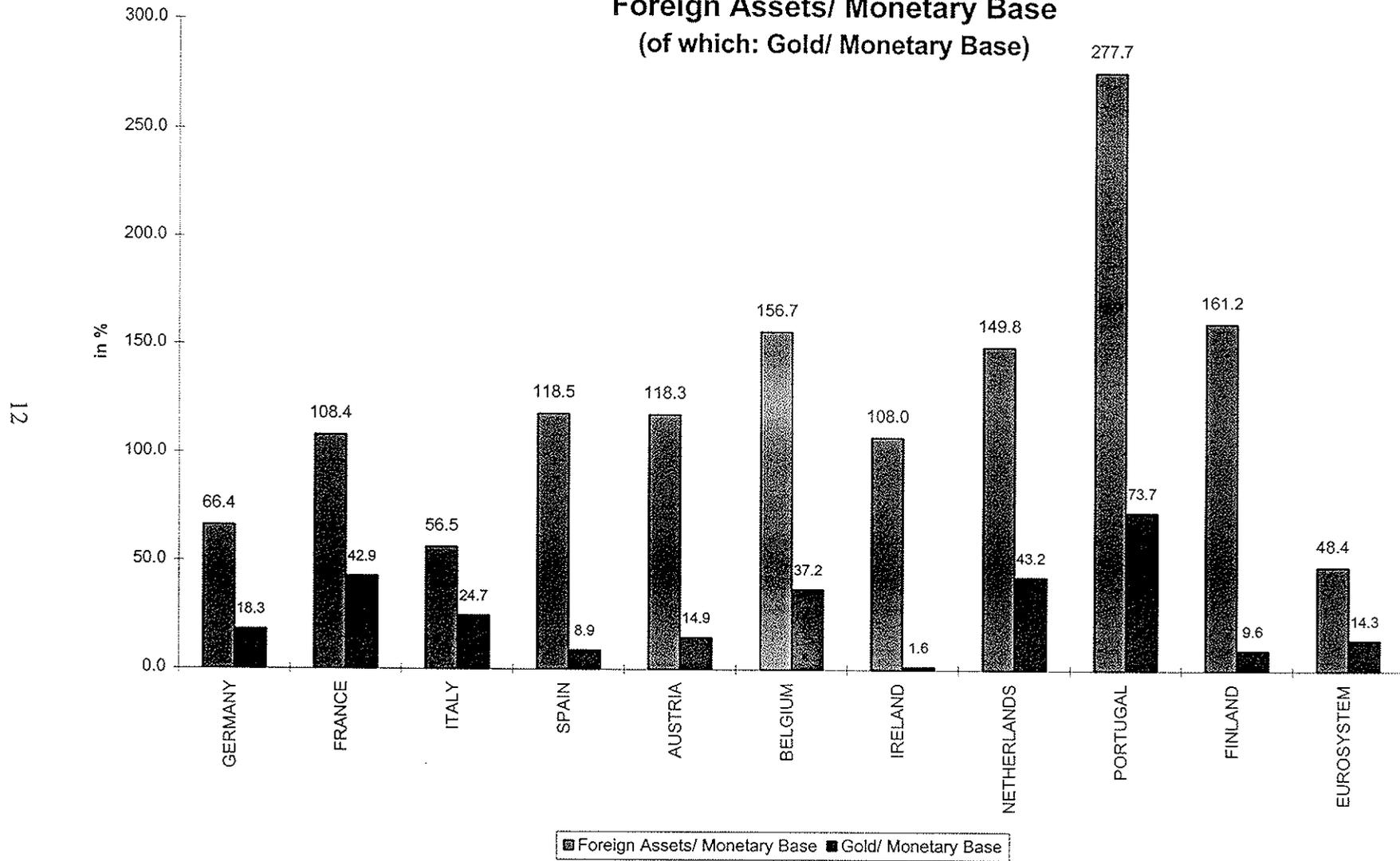
Assets

A first problem which is common to all analysis of the asset side of central bank balance sheets is that of valuing gold. As gold is no longer actively used for monetary policy purposes, we just value gold at market prices. But we would argue that one should no longer count it among foreign reserves. We will return to this proposal below.

A good way to describe the asset structure of a central bank is to look at the ratio of foreign assets (and gold) to the monetary base. (The ratios of foreign assets to total assets would give a similar picture, but be distorted by for countries with low lean balance sheet indicators.). This shows the relative weight of these assets on the balance sheet of a central bank. Figure 4 provides the data. It is apparent that there is great variability among the NCBs within the euro-area, the range in the ratio of overall foreign assets to the monetary base ranges from a low of 56.5% for Italy to over 277.7% in the case of Portugal. In general, as one would expect, the larger countries hold relatively less foreign assets than the smaller ones. In judging the low values of the United States and Japan, one has to keep in mind, however, that these countries hold part of their foreign exchange reserves at a separate foreign exchange office. While in the past it was understandable that smaller countries held more foreign exchange reserves, there is no reason why they should continue to do so once they have entered the euro-area. Hence there is no longer any reason for the great variability in the distribution of foreign exchange reserves among the constituents of the Eurosystem.

The role of gold also varies enormously. It is not really important for some smaller countries, e.g. Austria and Ireland. The French preference for gold clearly emerges as the gold holdings of the Banque de France amount to close to 42.9% of the French monetary base.

Figure 4
Foreign Assets/ Monetary Base
(of which: Gold/ Monetary Base)



Source: Financial statements of national central banks (Spain, the Netherlands and Italy are end of november 1998 figures, data for the Eurosystem are from the 1.1.1999, all others are end of december 1998 figures)

The positions of national central banks at the International Monetary Fund (IMF), including holdings of Special Drawing Rights (SDRs), are also part of foreign exchange reserves, but should be treated differently because they are not affected by EMU. Countries, not currencies, are members of the IMF so that the introduction of the euro does not affect the legal positions of national central banks vis-à-vis the IMF. From an economic point of view, however, it is clear that all countries in the euro-zone should now be treated equally in the sense that when the IMF needs liquidity in euro, it should go to the national central banks in fixed proportions. In a longer-term perspective, it would make sense to use capital shares in the ECB as the key. The corresponding claims on the IMF that will appear on the books of the national central banks should thus be proportional to their share in the ECB, which would facilitate the eventual complete pooling of foreign exchange reserves. This line of reasoning would also suggest (but of course does not imply as a logical corollary) that over time the relative quotas of member countries in the IMF should also be proportional to their capital shares in the Eurosystem.

A more radical solution would be that the IMF deals directly with the ECB from the start of EMU so that the use of the euro by the IMF would lead to claims by the ECB on the IMF. This is explicitly foreseen in Art. 30.5: "The ECB may hold and manage IMF reserve positions and SDRs and provide for the pooling of such assets". National central banks would still be the ultimate beneficiaries of these claims, because they own the shares of the ECB. This solution would also pave the way for a re-arrangement (and probably also a reduction) of the quotas of EMU countries in the IMF (and the World Bank).¹⁰

3. The Eurosystem and Its Components

Constructing a detailed balance sheet for the Eurosystem from national data should in principle be easy. It should be sufficient to add all assets and liabilities in different categories and then account for the limited pooling of reserves of 39.5 billion euro that have been decided so far.

¹⁰ Quotas in the IMF are based, inter alia, on the importance of external trade; with the introduction of the euro, only the trade outside the EMU area counts as foreign trade. As the ratio of intra- to extra-EU trade is approximately 2:1 for most member countries, this implies that EMU would justify on this count a considerable reduction in their IMF quotas.

In reality, however, constructing the balance sheet of the Eurosystem is very difficult because the accounting procedures of most national central banks are so opaque that it is very difficult to find out exactly what kind of assets and liabilities are behind the various items recorded on their balance sheets. Since accounting rules vary from country to country, it is not straightforward to compare balance sheets across countries.

For example, the Banca d'Italia carries a security on its balance sheet, which is a residual of its past links with the Italian treasury before it gained more independence. This claim on the government had a book value of 39 billion euro at the end of 1997, about 20% of the total assets of the Banca d'Italia. But considering its nominal interest rate of 1% and the length of its maturity (the last tranche will become due in 2044), the market value of this asset even at today's low interest rates is only about 30% of its face value.

Another example is Finland. In accord with the Act on the Bank of Finland, fixed assets, shareholdings and long-term expenditures are entered in full as expenditures in the year of acquisition and thus do not appear on the balance sheet. Although the absolute amount of these items is not so important in relation to total assets, it is just one more reason why central bank balance sheets are not easily comparable.¹¹

The case of gold is another example. Given that there is no prospect that gold will ever again be used actively in the international monetary system, it may actually make sense to avoid the continuous revaluation gains and losses that valuing at market prices would imply. But if gold is no longer to be used, one may ask why central banks should still carry it on their balance sheets. The decision by the ECB to use gold for 15% of the total call-up of reserves is difficult to understand from this point of view. In any event, the amount thus obtained, worth about 4 to 5 billion euro, would be insufficient if gold were ever to occupy an important role again.

¹¹ The most egregious case of accounting rules that hide the true value of assets concerns the "lower of cost or market value" used until recently by the Bundesbank. Under this approach, the foreign exchange reserves are valued at the lowest value ever recorded. For example, at the end of 1996, the Bundesbank valued its US dollars in foreign exchange reserves at 1.36 (this rate was briefly reached during a period of exceptional dollar weakness in early 1995), whereas the end-year exchange rate was 1.55. At the end of 1997, the Bundesbank adjusted its accounting principles and valued its dollar reserves at 1.54 (compared with a market rate of 1.79), which was the main reason for the extraordinary high profit in 1997.

The ECB has decided to present its balance sheet and that of the Eurosystem according to the "mark to market" principle. It is impossible to deduce from the aggregate Eurosystem figures, however, what the national components would look like if they all followed the common accounting rules.

The only point about the balance sheet of the Eurosystem that is clear at present is that it has no financial implications, as Art. 26.3 makes clear:

For analytical and operational purposes, the Executive Board shall draw up a consolidated balance sheet of the ESCB, comprising those assets and liabilities of the national central banks that fall within the ESCB.

Moreover, Art. 14.4 of the statutes of the ECB says that national central banks may perform functions "other than those specified in this Statute", unless a majority of two-thirds in the Governing Council finds that they interfere with the monetary policy of the system. It remains to be seen how this provision will be interpreted (or rather how much leeway the governors who dominate the Governing Council will accord themselves). First indications are that the NCBs will not be able to engage in active asset management or undertake a significant number of other transactions at their own discretion.

Box 1

An Example of Simplicity:

The Allocation of Assets and Returns across Federal Reserve Banks in the US

Formally the US Federal Reserve System is much more federally structured than the Bundesbank in that it is based on 12 Federal Reserve Banks which are all legally separate and independent entities, each with its own balance sheet and president who is elected by local representatives. In most respects, however, the System is de facto completely unified, even more than the German System in which the *Landeszentralbanken* have no separate balance sheets because they are de jure only departments (Hauptverwaltungen) of the Bundesbank.

The regional accounting is based on two keys:

- A capital key that is relevant for foreign assets, and a
- Note issue key that is relevant for domestic assets.

Foreign assets and the capital key. The capital of the System is based on contributions from member commercial banks. Any federally chartered (commercial) bank in the US must buy a part of the capital of the Federal Reserve System (on which it obtains a fixed dividend yield of 6%). The participation of each commercial bank is based on its own capital. The share of any Reserve Bank in the total capital of the Federal Reserve System is thus proportional to the sum of the capital of the commercial banks located in its district. (It is surprising that despite the concentration of banking activity in Manhattan, the New York Federal Reserve has only about 20% of the aggregate capital of the System. The reason is that although many large banks are headquartered in New York, their subsidiaries in different states are formally incorporated as independent banks because of the restrictions on inter-state banking. This might now change as all the remaining restrictions on inter-state banking are lifted. One consequence of this could be seen in 1997 when a bank headquartered in the Federal Reserve District of Richmond acquired another large bank from a different area. As a result, the share of the Richmond Federal Reserve in the overall capital doubled in one year.)

The New York Fed has a special role in the System in that it manages all foreign exchange interventions for the System, with the exception of its own account. All foreign exchange interventions are booked directly to an account of the System; the role of the New York Fed is only to provide the personnel that manages this account of the System. The New York Fed acts under instruction from the Board in Washington (and under a special authorisation that has to be formally renewed every year).

The foreign exchange position of the System that results from any interventions is then distributed on the accounts of all Federal Reserve Banks according to the capital key. As foreign exchange positions carry the risk of losses, they are distributed on the basis of the "ability to bear losses" principle, which is supposed to be represented by capital. (Foreign exchange swaps remain on the books of the New York Federal Reserve and thus constitute the only significant exception to the rule that foreign exchange-related operations are distributed according to the capital key.)

Domestic assets and the note issue key. All dollar bank notes have to carry an identifier, which marks them as the liability of a particular Reserve Bank. This was needed at the start of the Federal Reserve System when the dollar was convertible into gold and all the constituent Reserve Banks had their own separate gold holdings. At the beginning of each year, the printing department decides how many notes to print for each of the 12 District Reserve Banks. (Once a note has the New York identifier it is considered issued by the Federal Reserve of New York even if it is handed out to the public by the San Francisco Federal Reserve.)

By law, the issue of currency has to be backed by assets. Each individual Reserve Bank has therefore to have on its book Treasury Bills, or other securities, equivalent to the amount of bank notes with its identifier. But individual Federal Reserve Banks do not engage directly in purchases or sales of securities. Instead, the New York Federal Reserve Bank executes open market transactions on behalf of the System and holds the resulting securities in the so-called System Open Market Account (SOMA). The balance on this account is then distributed over the balance sheets of the individual Reserve Banks according to the note issue key, ensuring that the domestic assets of the entire System are allocated across the individual Federal Reserve Banks according to the amounts of currency that they have issued. The same applies to the returns; there is thus an (almost) perfect correspondence between the allocation of note issue and the allocation of the income from domestic assets. As almost 40% of all notes are issued by the New York Federal Reserve, it is also credited with a similar percentage of the total return on domestic assets, but this is independent of its role as the manager of the open market operations of the System.

4. Adjusting to EMU I: A Proposal for a Lean Eurosystem

We showed above that the balance sheets of national central banks are much more complicated and opaque than necessary. The example of the US shows that even a federally structured central bank can be transparent in its accounting.¹² There is therefore no reason why the national central banks in the euro area should not aim at the "lean" balance sheet of the textbook central bank that is only concerned with conducting monetary policy. This would imply that they simply pay off all their liabilities except the monetary base plus a minimum capital base.

The balance sheet of the Eurosystem would then become much shorter (and simpler) as illustrated in Table 2. The total of assets and liabilities would shrink by about 200 billion euro, from about 700 billion euro to 500 billion euro. The liability side, which in our view should determine the size of the overall balance sheet, would be composed of a euro area monetary base of about 430 billion euro (unchanged) and capital and revaluation reserves of 50-70 billion euro. The amount foreseen for capital was set at about 10-14% of the monetary base which is still much higher than the approximately 4% ratio the Bundesbank and the Federal Reserve hold.¹³ This sum is also several times the capital of the ECB, which is only 5 billion euro. The result would be a lean balance sheet indicator of 86%, in the same league as the other two G-3 central banks.

¹² The Reserve Bank of Australia has set another example in transparency in disclosing not only how it manages its external reserves but also the return it makes on them. See Pringle (1995) and the annual reports of the Reserve Bank of Australia.

¹³ The only reason why a central bank would want to keep a larger capital base is that it might need it in its function as lender of last resort. The lender of last resort function is not a reason to over-capitalise central banks, however. The only danger that a central bank might face as lender of last resort is that it would be obliged to create additional money, but this it can always do without limits independently of its capital. Of course, if a central bank lends big amounts to banks in trouble during a financial crisis, it might have difficulties collecting the loans when the crisis is over. These losses should, of course, not be covered through additional money creation, but they are anyway normally a responsibility of national ministries of finance, which would have to make up any losses national central banks incur as lenders of last resort.

Table 2
A Proposal for a Lean Eurosystem Balance Sheet

Assets	(billions of euro)	Liabilities	(billions of euro)
Foreign assets	130	Monetary base	430
o/w		o/w	
gold	0	banknotes in circulation	340
foreign exchange	100	deposits of financial institutions	90
IMF positions	30		
Domestic assets	370	Capital and reserves	70
Total assets	500	Total liabilities and capital accounts	500

Source: Own elaboration based on data from the consolidated opening financial statement of the Eurosystem.

One obvious item to cut on the liability side will be excessive revaluation reserves. On the proposed Eurosystem balance sheet it is much lower than on the initial balance sheet of the Eurosystem. The purpose of revaluation reserves is to allow the central bank to provide a cushion for fluctuations in the value of its assets. The risky assets on central bank balance sheets are essentially gold and foreign exchange reserves.

One reason why the revaluation reserve could be reduced is that we eliminated gold from the central bank balance sheet and there is thus no need for holding the difference between the former book value and the market value of gold in the revaluation reserves.

The appropriate amount of revaluation reserves would then depend only on the foreign exchange reserves, which dominate the overall risk of the asset portfolio of the Eurosystem. We found that even if a more advanced method (e.g. a value at risk (VAR), see Box 2 for details) is chosen to calculate the need of the Eurosystem for a revaluation reserve, the absolute amount should not be nearly as high as the present revaluation reserve (for an assessment of central bank risk, see Blejer and Schumacher, 1998). Moreover, the proposed capital base could be reduced. Our proposal would still leave the Eurosystem with a very generous capital base compared to the US or the Bundesbank. Further items on the liability side could also be reduced. For example, the various kinds of provisions national central banks keep on their balance sheets but which are not explicitly shown in the consolidated balance sheet of the Eurosystem could be scrutinised in more detail for this purpose.

But even after all this is done, one is left with the question of what mix of foreign and domestic assets should be kept.

Box 2

Estimating the Revaluation Reserves Using the VAR Approach

The amount needed for the revaluation reserve could be estimated by a value-at-risk (VaR) approach. As the volatility of the euro against other major reserve currencies is yet unknown, the sample calculation is based on a portfolio worth 100 billion D-mark using actual volatilities as of the end of 1997. The portfolio consists of US dollars and Japanese yen. The US dollar is the primary reserve currency and the Japanese yen the third most important reserve currency at present. The procedure chosen for computing the VaR is based on a standard variance-covariance model, a most simple model as it is assumed that all asset price changes can be modelled as normally distributed. The VaR of the portfolio (VaR_p) consisting of asset 1 and 2 would be:

$$VaR_p = \sqrt{(VaR_1)^2 + (VaR_2)^2 + 2VaR_1 VaR_2 \rho_{12}}$$

where ρ is the correlation between the two assets and the individual VaR_j of each position is calculated:

$$VaR_j = E_j \times b \times \sigma_j$$

E is the exposure of the individual position, b is a parameter depending on the desired confidence interval and σ_j is the standard deviation of the individual position. The computation chosen for calculating the VaR_p for the foreign assets of the model central bank only focuses on the foreign exchange risk and is non-diversified. Blejer and Schumacher (1998, p. 23) argue that the calculation of a diversified VaR could be favourable for stable conditions; but in scenarios of crisis or contagion, correlations tend to be very high. Thus, it is a more cautious option not to consider effects of diversification. Data for calculating the VaR are taken from the Regulatory Data Set (J. P. Morgan, 1998a) and are adjusted to comply with the volatilities suggested by the Basel Committee on Banking Supervision of the Bank for International Settlements (BIS). The BIS rules require market risk estimates to be calculated over a 10-day holding period and a 99% confidence interval.

The VaR_p of the foreign exchange portfolio of 100 billion D-mark ranges from 4.3 billion to 6.6 billion D-mark (or 4.3 to 6.6%) depending on the composition of the portfolio (a higher US dollar share implying a lower VaR_p in this case). The interpretation of the VaR_p is that, given a foreign exchange portfolio of 100 billion D-mark at the end of 1997, the forecasted amount that may be lost given an adverse market move ranges between about 4.3 billion to 6.6 billion D-mark in 99% of all outcomes over the next 10 days. The procedure chosen has several disadvantages, however; for example, it cannot be applied to non-linear positions and it requires the assumption of normal distributions. Distribution of changes in asset prices have been found to have "thicker tails" than predicted by a normal distribution. This means that extreme movements seem to occur more frequently than predicted by a normal distribution (J.P. Morgan, 1996, p. 64 and p. 65). Thus, especially in times of pressure on the exchange rate, the risk might be underestimated by this method.

For the Eurosystem a revaluation reserve of about 5% would thus be amply sufficient, provided, of course, that the volatility of the euro exchange rate is similar to that of the DM. But even if the euro were to be twice as volatile against the US dollar as the DM, a 10% reserve would still be adequate, but still less than what we propose below.

5. Adjusting to EMU II: The composition of the asset side or what to do with excess foreign exchange reserves?

Even after the balance sheets of the national central banks have been cut down to a reasonable size, one is still left with the question what mixture of assets should remain. The main choice here is between domestic¹⁴ and foreign assets. The total foreign assets of the 11 national central banks (gold plus foreign exchange reserves and IMF positions) is almost of the same size as the monetary base of the system. It follows that some foreign exchange reserves should be disposed of, unless one accepts that the Eurosystem starts off virtually without any domestic assets.

The level of reserves in most industrial countries is primarily determined by the perceived need for reserves for very short-term exchange rate management. Wealth or portfolio considerations do not generally influence the level of foreign exchange reserves held by the central bank but rather their composition. (Roger, 1993, p. 13). It is thus difficult to estimate the optimum level of foreign exchange reserves for countries or areas such as the euro zone which tend to have very open capital markets. They might desire a certain level of reserves not for actually using it in interventions but rather to have a "war chest" for potential speculative attacks. This demand is highly subjective and thus cannot easily be transformed into an operational figure to measure the level of optimum reserves. We would argue that foreign exchange reserve of about 100 billion euro (twice the minimum amount foreseen under the Maastricht Treaty) should be enough.

The issue of excess foreign exchange reserves arises, however, whether or not our proposal of reducing the balance sheet of the Eurosystem is adopted. The general question that arises in

¹⁴ Ideally domestic assets should only consist of claims on the private sector. There is no reason why national central banks that are part of a system which has been barred from financing governments either directly or indirectly, should keep any claim on governments (foreign exchange reserves consist usually of government paper, but on governments outside the area). But as markets in private debt are usually not as deep and liquid as markets in government debt, this proposal might not be feasible. It is also apparent that all non-marketable assets should disappear. As far as possible, national central banks should also realise claims of a similar nature they have on private sector institutions.

this context is why central banks, which are after all part of the public sector, should hold large amounts of low-yielding assets when the government pays a higher rate of interest on its debts.

A related argument applies to the case of gold. As it does not play a role in the international monetary system, there is no reason why it should be held by central banks; the current holdings of national central banks could thus be transferred to national ministries of finance. The question of whether or not gold should be sold is a different issue and depends mainly on expectations about future gold prices. A common argument for not selling the gold reserves of central banks is that major central banks are monopsonic. Gold sales might depress the market price so that the receipts from a massive sale might be disappointing.

National central banks have been extremely reluctant to divest themselves of any assets. The main reason for this attitude is that any bureaucracy instinctively wants to hold on to any control over resources it exercises. The reason adduced by central banks is naturally different. They argue that transferring any assets to governments will only lead to more wasteful expenditure as most governments and parliaments would probably not resist the temptation to use at least part of these assets to finance their deficits instead of just reducing public debt. This view betrays a particular view of democracy, but it is probably also realistic.

We would argue that stripping central banks of their role as investment managers would allow them to concentrate on their role as guardians of price stability and can only increase their independence. Otherwise, they would have to be held accountable not only for price stability, but also for their performance as managers of a large portfolio of foreign investments.

The decisions taken so far by the ECB imply that national central banks will keep all of their foreign assets, but distinguish between their investment portfolios and the rest which they want to keep liquid in case there is a further call on reserves by the ECB. Our position would be that there is no reason why central banks should manage a sizeable investment portfolio on behalf of the country. Even if they perform better than in the past, they are unlikely to outperform the market. An asset swap operation would be particularly appropriate in countries where foreign exchange reserves are large relative to public debt. Portugal represents the extreme in this respect as foreign assets held by the central bank amount to about 10% of GDP compared to an overall, gross public debt ratio of slightly above 60% of GDP.

6. Conclusions

We would argue that the creation of a monetary union and the ESCB constitute a good occasion to simplify and streamline the balance sheets of national central banks, which in many cases contain items that are only of historical interest. Moreover, the ESCB should stop the habit of central banks to hide the true state of their balance sheets from public view. There is no reason why the ESCB should not be completely open about the financial situation of its constituent national central banks.

As this area falls formally under the responsibility of national central banks, it is up to them to act and dispose of parts of their assets and liabilities until the remainder is just equal to the monetary base plus a small capital and an appropriate revaluation reserve. Of the about 200 billion euro excess balance sheet items, the excess assets that represent net wealth amount probably to about 100 billion euro – mostly in the form of the excess foreign exchange reserves. The counterpart on the liability side are revaluation reserves, capital and reserves and other liabilities which are not further disclosed. Identifying the excess revaluation reserves, capital and reserves and the items which comprise the position "other liabilities" would be necessary in order to find out the exact amount of the excess assets which belong to the governments and represent real wealth that was accumulated before EMU started and should be used to reduce public debt.

The direct financial gain from this operation would be modest. There would be an immediate reduction in public debt ratios as measured under the gross concept of the Maastricht Treaty. But the reduction would be modest: the 100 billion euro correspond to about 1.5% of GDP, on average for the EMU-11, compared to public debt of about 70% of GDP now. Moreover, while the reduction in public debt should lead to lower interest expenditure, it will also imply lower transfers of profits from national central banks. The gain for governments lies in the difference between the low returns central banks usually earn on their assets and the cost of public debt. Even if this difference is equal to 2 full percentage points, the total gain for public sector budgets would be only 0.03% of GDP for the EMU-11. For individual countries, for example Portugal or Spain, the gain might be much larger, but it would still remain modest in relation to overall public debt.

Would this reduction in balance sheets impair the ability of the ESCB to conduct its tasks? This cannot be the case. Monetary policy is conducted through asset transactions at the margin, which, provided there is no need to intervene on foreign exchange markets, involve even during exceptional times at most a fraction of the total a central bank has at its disposal.

Over the longer run, central banks should consider further reductions of excess assets and liabilities, which do not reflect the conduct of monetary policy. Gold might be put in a special account with national ministries of finance as there is no prospect that it will ever again have a role in the international monetary system.

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