

# Central bank balance sheets and fiscal operations

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## 1. Introduction

For a private corporation, or a commercial bank, accounting data are a means by which management accounts to shareholders for its performance. In these cases performance is measured by profits and the net worth of the firm. The interpretation of accounting statements is more complicated for central banks, as their main objective is not to maximise profits but to accomplish social goals such as low inflation and a stable financial sector. Striving for these goals will affect the central bank's accounts but the accounts will not give direct information on its performance in achieving them.<sup>2</sup> However, central bank balance sheets may reveal a lot about the institutional environment affecting the conduct of monetary policy, including the relative degree of central bank independence.<sup>3</sup>

This paper reviews how a central bank's involvement in activities such as foreign exchange intervention and restructuring banking systems at the behest of the government may affect its balance sheet and the possible implications. Section 2 argues that if such operations leave the central bank with low, or even negative, capital its (perceived) independence and ability to conduct monetary policy may be affected. Section 3 sets out some stylised facts about central banks' balance sheets, and highlights the role of seigniorage in increasing capital and that of the main quasi-fiscal activities in reducing capital.

## 2. Does capital matter for a central bank?

Central banks are not like other banks. Their sole right to issue domestic currency gives them a franchise value not captured by conventional measures of central bank capital.<sup>4</sup> They are not concerned with profit maximisation. Their equity is generally not traded. They are implicitly backed by the government's ability to raise taxes. The government could always recapitalise the central bank by issuing bonds, and even sell these bonds to the central bank itself - although financial markets may take a dim view of such a transaction. Low capital may be desirable, as there may be better uses for public funds. Furthermore, it might be argued that a low-capitalised central bank will have to be more circumspect in lender of last resort operations and so less moral hazard will arise. Table 1 shows that some central banks, in both advanced and emerging economies, operate with very low capital ratios.

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<sup>2</sup> Sullivan (2000) argues that profits may be relevant for certain aspects of central bank activity, such as the provision of banking services to governments, and that accounting information on costs is relevant for assessing how efficiently the central bank has been achieving its goals. However, cash flow statements do not convey much useful information about central bank operations. Breuer (1999) notes that successful intervention by central banks to stabilise foreign exchange rates should be profitable, as it involves buying low and selling high.

<sup>3</sup> The most common measures of central bank independence in econometric studies refer to legal status (appointment procedures, terms of governors, role of board, statutory objectives, limits on lending to governments, etc), the turnover of governors and expert opinion. None of the major studies use central bank balance sheet data to construct their measures.

<sup>4</sup> Stella (1997) interprets this franchise value plus the book value of capital as the "net worth", that is, the value investors would be willing to pay if the central bank were put on the market. Fry (1993) estimates that an average central bank maximising the steady state level of seigniorage would have a net worth of 100% of GDP. Pringle (2003b) suggests the true value of the Federal Reserve System is several times the market capitalisation of Microsoft, the world's most highly valued company. On the other hand, Blejer and Schumacher (2001) focus on explicit or implicit contingent liabilities of central banks to argue they really have negative net worth.

Fukui (2003) opines that in practice central banks with low or negative capital have experienced difficulties in conducting monetary policy. Approaching the government frequently would compromise its (perceived) independence, and may even reduce confidence in the currency. Furthermore, as the public may (rightly or wrongly) regard negative net worth as indicating the central bank is poorly run, it may erode the bank's general reputation; see Vaez-Zadeh (1991).

In some countries, the desired capital of the central bank is made explicit. For example, recent legislation in Indonesia prevents the transfer of profits to the government until the central bank builds its capital up to 10% of its monetary liabilities. The Reserve Bank of India aims at capital and reserves of 8% of assets. In general, the desirable amount of capital depends on the shocks to which the balance sheet is subject. This in turn depends on the functions allocated to the central bank (more capital if it holds the international reserves) and the policy regime (more capital if defending a peg). Blejer and Schumacher (1998) suggest central banks should use an explicit "value-at-risk" approach relating capital to the volatility of factors affecting the various components of the balance sheet, and the Reserve Bank of New Zealand has done so; see Sullivan (2000).

### 3. Key influences on central bank balance sheets

#### A typical central bank balance sheet

A generic central bank has a balance sheet composed of domestic currency liabilities and a varying mix of domestic and foreign currency assets (Table 1). A central bank may have quite low subscribed capital but have built up substantial reserves from retained earnings or put aside large specific provisions (Table 2); the arrangements governing the extent to which profits are used to increase central bank capital or paid to governments are summarised in Table 5. The central bank's main liabilities are often termed "base money".<sup>5</sup> The most important liability is often currency (notes, and in some cases coin, on issue). Banks generally hold settlement balances with the central bank, which may be quite small. They are often required to hold minimum deposits, generally calculated as an average over a fortnight or month, which may or may not be remunerated at something like a market rate (Table 4).<sup>6</sup> Central banks are often bankers to governments and in Hong Kong SAR, Israel and Singapore government deposits are a large proportion of liabilities.

Some central banks have issued substantial amounts of their own securities as an instrument for monetary policy. One advantage of this is that by not needing to hold government securities they may avoid the temptation of (indirectly) lending to governments. It may also be a way of funding a temporary increase in expenditure without having to go the government for funding, and central bank paper can usually be issued at very close to yields on government paper. However, it may not be popular with governments as central bank paper could crowd out government issues. It could also lead to increased pressure to lend to governments if the central bank can fund such loans through issue of its own paper. Central bank paper constitutes around half the central bank's external liabilities in Korea and over a fifth in Hong Kong, Hungary, Mexico and Poland (Table 1). In Hong Kong the securities were issued to establish a benchmark yield curve to help develop the corporate bond market as well as an instrument for open market operations, given that successive government surpluses meant there were no government bonds on issue. A number of central banks use their own paper for repo operations and collateralised lending; see Mohanty (2002).

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<sup>5</sup> Terms such as "high-powered money", "outside money" and "the monetary base" are also used, virtually interchangeably.

<sup>6</sup> Originally the required reserve ratio was seen as a monetary policy tool (in the money base/money multiplier framework), but these reserves are now viewed more as a prudential measure and a tax on banks, although they may facilitate the operation of monetary policy.

Table 1  
**Central bank balance sheets**  
 % to GDP, end-2002

	Liabilities							Assets					
	Currency	Banks' required deposits	Other bank deposits	Central bank securities	Government deposits	Other liabilities	Capital, reserves etc	Foreign assets	Loans to government	Government bonds	Claims on financial institutions	Claims on private sector	Other assets
Hong Kong	9.8	0.0	0.0	9.7	24.1	5.8	25.8	70.2	0.0	0.0	5.0	0.0	0.0
India <sup>1</sup>	11.6	2.6	0.1	0.0	0.0	1.0	5.0	12.0	0.6	6.0	0.3	0.0	1.4
Indonesia	6.0	2.3	0.0	0.0	6.9	20.5	2.0	18.1	17.2	0.0	1.0	0.5	0.9
Korea	4.1	2.5	3.2	14.1	1.9	2.9	1.4	23.1	0.2	0.9	5.0	0.1	0.8
Malaysia	7.6	4.2	15.4	3.4	3.9	2.5	8.4	36.7	0.0	0.0	0.8	2.2	5.6
Philippines <sup>2</sup>	5.6	2.7	0.0	0.0	2.5	15.2	4.5	21.1	2.0	4.5	0.6	0.0	2.2
Thailand	10.3	0.9	0.1	0.0	1.0	6.5	30.0	31.2	0.4	1.8	5.6	0.0	9.7
Brazil	3.8	6.0	0.0	5.1	6.7	15.3	0.4	11.7	0.0	20.5	0.0	1.7	3.4
Mexico	4.3	2.5	0.0	3.7	1.4	0.7	0.6	8.1	0.0	0.0	2.2	0.0	2.8
Peru	3.3	5.5	0.1	1.0	5.8	3.0	0.4	17.1	0.0	0.2	0.1	0.0	1.7
Czech rep. <sup>3</sup>	10.1	23.5	0.0	0.0	0.5	2.4	-2.1	30.6	0.0	0.0	0.0	0.0	3.7
Hungary	7.7	2.2	3.9	8.4	0.5	2.7	0.2	16.9	6.0	1.0	0.1	0.0	1.6
Poland <sup>2</sup>	6.1	1.6	0.0	2.8	1.4	1.5	5.2	16.5	0.0	0.9	1.0	0.0	0.2
Israel	3.7	10.3	0.0	0.0	10.7	1.1	0.6	23.0	1.0	1.2	0.6	0.0	0.5
SouthAfrica	3.6	1.5	3.4	0.7	0.1	3.6	0.0	6.0	0.0	1.3	1.1	0.0	4.4
Turkey	2.8	3.3	1.6	0.0	1.5	19.2	1.0	15.9	0.0	10.5	0.1	0.0	2.9
Australia	4.6	0.0	0.1	0.0	1.3	1.7	0.8	5.6	0.0	2.8	0.1	0.0	0.1
Canada	3.6	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0	3.5	0.0	0.0	0.2
Euro area	5.6	0.0	4.0	0.1	0.6	2.2	2.2	5.3	0.3	1.2	5.6	0.2	1.9
Switzerland	9.5	1.1	0.0	0.0	1.7	0.3	16.7	12.8	0.0	0.6	0.5	0.0	15.3

<sup>1</sup> June 2002. <sup>2</sup> November 2002. <sup>3</sup> April 2003.

Source: Central banks; BIS estimates.

The central bank generally has a mixture of foreign currency (“international reserves”) and domestic currency assets (mostly government bonds and some deposits with banks). Swapping between these two types of assets can be an important means of influencing the exchange rate. Domestic monetary policy is often implemented by sales and purchases of the domestic currency assets. Occasionally, as in Brazil and Malaysia, central banks also have significant claims on the non-bank private sector.

Table 2  
**Components of central bank capital**  
Percent to total central bank assets

	Emerging economies <sup>1</sup>			Advanced economies <sup>2</sup>
	Median	Maximum	Minimum	Median
Paid-up capital	0.1	6.2	-4.0	0.0
Reserves	2.0	18.6	-15.2	2.4
Revaluation accounts	0.0	16.6	-7.4	5.7
Provisions	0.0	2.3	0.0	0.0
Retained profits	0.0	31.7	-2.5	0.0
Total	8.8	31.7	-15.2	15.3

<sup>1</sup> Argentina, Brazil, Bulgaria, Chile, Croatia, Czech Republic, Hong Kong SAR, Hungary, India, Israel, Korea, Malaysia, Mexico, Poland, Russia, Singapore, South Africa, Thailand and Turkey. <sup>2</sup> Australia, Austria, Belgium, Canada, Denmark, ECB, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom and United States.

Source: compiled from most recent central bank annual reports as at May 2003.

### Recent trends in central bank balance sheets

Central bank assets have tended to fall relative to GDP over the past two decades. However, there are important exceptions. A number of Asian economies concluded after the Asian crisis that it was prudent to hold rather larger international reserves; see Hawkins and Turner (1999).<sup>7</sup> They have chosen to hold these reserves on the central banks’ balance sheets. Some of these economies have floating exchange rates, so the reserves are not there to implement a peg. But they may provide assurance that excessively large depreciations could be resisted or speculative attacks repelled without resorting to extremely high interest rates.

To the extent that the international reserves are a form of national precautionary saving, rather than directed towards exchange rate objectives, it might be argued that they should be held by a separate government agency. This could be akin to the agency in Norway that holds some of the proceeds from oil sales or the Land Fund in Hong Kong, which held the proceeds from property sales until 1998. There are some countries, such as Canada, where the international reserves are at least partly held by authorities other than the central bank. But in emerging economies, the central bank may bring the most competence, independence and transparency to the management of such funds.

### Factors affecting the capital of an independent central bank

While most central banks’ primary focus is monetary policy, they are also involved in a range of other activities. Some of these, such as bank supervision, contribute to operating costs but have no other

<sup>7</sup> In Pringle and Carver’s (2003) survey, over 90% of central banks expected reserves to be built up further.

impact on their balance sheets. Most central banks no longer make loans to the private sector. The main means by which an independent central bank's capital is increased is through seigniorage, and it is reduced by distributions of profits to the government. These influences are discussed further below.

### **Seigniorage**

Seigniorage is the profit that accrues to central banks from their being in a special position of paying no or low interest on two of their main liabilities: currency and banks' deposits with the central bank. Seigniorage arising from the issue of currency (Table 3) is calculated as a market interest rate (at least a potential rate of return on central bank assets) multiplied by currency on issue (ignoring costs of printing the currency, as these are relatively small in all but the smallest economies). Currency seigniorage has declined in a number of emerging economies as inflation rates have fallen.

An argument fashionable some years ago that there was a (high) optimal rate of inflation, and thus seigniorage, based on the costs (including distortions) of other taxes, has fallen out of favour.<sup>8</sup> Such a high inflation rate would have adverse consequences for economic efficiency.

Furthermore, in the longer term people will move away from holding inflation-prone currencies, so the short-term increase in seigniorage revenue may be more than offset by a longer-term decline. Nowadays central banks aim at low inflation and accept that seigniorage is likely to remain low.

Table 3  
Currency seigniorage/GDP (%)

	Average early 1980s	Average 1999-2001
China	1.3 <sup>1</sup>	0.7
Indonesia	0.4	0.3
Korea	0.3	0.2
Philippines	1.4	0.6
Singapore	0.4	0.1
Thailand	0.3	0.1
Brazil	3.9	0.8
Mexico	5.1	0.3
Hungary	1.9 <sup>2</sup>	0.5
Poland	1.4 <sup>2</sup>	0.3
Russia	5.1 <sup>2</sup>	1.4
South Africa	0.2	0.2
Advanced economies <sup>3</sup>	0.2	0.1

<sup>1</sup> 1985-90. <sup>2</sup> 1990-95. <sup>3</sup> Simple average of Australia, Canada, Switzerland and the United Kingdom.

A second type of seigniorage arises from the funds banks hold with the central bank. As required reserve ratios have been reduced over time, and closer to market rates have been paid on these compulsory balances, this source of seigniorage has become less important, although it is still higher in some emerging economies than in advanced economies (Table 4).

<sup>8</sup> Fischer et al (2002) conclude that seigniorage is maximised when inflation reaches 174%. By contrast, their reading of the literature is that economic growth in emerging economies is maximised at inflation rates below 50%, probably below 10%.

Table 4

## Seigniorage accruing from banks' balances with central banks

	Required deposits	Interest rate paid on banks' balances with central bank	Banks' balances with central bank <sup>1</sup> / GDP (%), 2001	Seigniorage/GDP (%), 2001
China	6%	1.9%	27	0.1
Hong Kong SAR	No	Market rate <sup>2</sup>	10	None
India	3-5.5%	6.5% (at bank rate)	4	0.1
Indonesia	5%	None	4	0.6
Korea	2.9%	None	3	<0.1
Malaysia	4%	None	17	0.5
Philippines	11% <sup>3</sup>	4% (on 40% of required deposits)	4	<0.3
Singapore	3%	None	5	0.1
Thailand	6%	None	3	0.2
Brazil	0-45% <sup>4</sup>	9.8%	6	0.6
Chile	3.6-9.0% <sup>5</sup>	Half of previous month's inflation rate	35	
Colombia	2.5-13.0%	75-100% of inflation target	2	0.1
Mexico	None	Market rate <sup>2</sup>	2	None
Peru	6%	None on required deposits; 2% on other	10	1.0
Czech Republic	2%	Repo rate on required deposits	16	<0.8
Poland	4.5%	None	4	0.6
Russia	7-10%	None	4	0.5
Israel	0-6%	None on required deposits; <market rate on excess	40	<1.0
South Africa	2.5%	None	2	0.2
Turkey	6%	40%	8	1.5
Australia	No	Cash rate less 25 bp <sup>2</sup>	1	<0.1
Euro area	2%	Market rate	5	None
Japan	0.05-1.2%	None	4	<0.1
Switzerland	No	None	2	<0.1
United States	3-10%	None	1	<0.1

<sup>1</sup> Reserve money (line 14) less currency (line 14a) from *International Financial Statistics*. <sup>2</sup> On settlement balances. <sup>3</sup> Only applies to commercial banks, not rural and cooperative banks. <sup>4</sup> 45% of the average daily balance of demand deposits exceeding BRL 2 million and 10% of the balance of time deposits exceeding BRL 30 million. <sup>5</sup> Depends on currency and maturity of deposits.

Sources: Mohanty (2002); central banks; IMF, *International Financial Statistics*; BIS estimates.

### **Expenditure cuts or revenue increases**

A central bank may also affect its capital position by generating more net revenue. It can pay less on banks' balances with it or charge more for services such as note distribution, bond registries or banking facilities for government. Or it could raise reserve requirements on banks, as has been done in the past in Brazil and the Philippines. If pushed too far, however, this could amount to excessive taxation of the financial system and inhibit its efficient development and growth.

### Central bank transfers to government and capital injections

Central bank capital will be reduced by transfers to the government (Table 5). Governments, as the “shareholder”, are entitled to receive part of any accumulated profits of the central bank, after a prudent proportion of any such profits has been put aside for the capital and reserves of the central bank. There may be a rule governing the size of such transfers, it may be at the discretion of the central bank, at the discretion of the government, or a matter of negotiation between them (Table 5). Most central banks distribute over half their profits; see Kurtzig and Mander (2003) for a further discussion. In a few countries central banks also pay tax to the government; see the paper by Tetangco in this volume for more on this.

Table 5  
Central bank profits and the government

	How transfer of central bank profits to government is determined	Size of transfers/GDP (%)				
		1997	1998	1999	2000	2001
China	Government decides	np	np	np	np	np
Hong Kong SAR		0.8	2.4	3.7	1.5	0.2
India	CB decides but government may overrule	0.4	0.3	0.5	0.5	0.4
Indonesia	By law	0.1	0.0	0.0	0.0	0.0
Korea	90% of profits	0.2	0.3	0.4	0.2	0.7
Philippines	75% of distributable profits	0.4	0.2	0.1	0.1	0.1
Singapore	Minimum shares to reserves and government; CB decides on rest	1.4	1.7	1.3	1.3	1.7
Thailand	25% of profits to reserve, 90% of remainder to bond redemption fund and 10% to government	0.3	0.0	0.0	0.0	0.0
Argentina	By law	0.1	0.2	0.2	0.3	0.1
Brazil	By law	0.0	0.0	0.0	0.0	0.1
Colombia	By law	0.1	0.1	0.8	0.3	0.8
Mexico	Profits transferred after maintaining real capital	0.0	0.0	0.0	0.0	0.0
Peru	25% of profits, by law	np	np	np	np	np
Czech Republic	Legislature decides CB budget	0.0	0.0	0.0	0.0	0.0
Hungary	Based on average profits of previous years	0.0	0.4	0.2	0.1	0.2
Poland	<98% of profits, by law	0.2	0.1	0.4	0.7	0.4
Russia	50% of profits	0.1	0.0	0.0	0.0	0.1
South Africa	90% of profits, by law	0.1	0.1	0.0	0.0	0.0
Turkey	20% to reserves, then 6% dividend, by law	0.1	0.1	0.1	0.2	0.3
Australia	By government, consults with CB	0.4	0.3	0.4	0.5	0.2
Canada	All transferred	0.2	0.2	0.2	0.2	0.2
Euro area	CB decides	...	...	...	0.0	0.0

Notes: np = not published; CB = central bank.

Sources: Central banks; IMF, *International Financial Statistics*.

There is an asymmetric aspect in the vast majority of countries: profits are transferred to governments but losses are met by reductions in capital and reserves. This may present a problem for central banks now that most mark to market.<sup>9</sup> While in the longer term the differential between domestic and foreign interest rates may offset exchange rate movements, over an annual accounting period exchange rate movements can be volatile, generating valuation losses in some years and gains in others. One approach to this problem is to transfer extraordinary profits to reserves before making a distribution to the government.

It could be argued that *all* the current year's profit should be transferred to the government (after some rule-based provisioning) and *only* the current year's profit. A discretionary profit distribution might be regarded as akin to the central bank providing credit to the government, which, as shown in Table 6, is expressly prohibited in many countries.

Reducing transfers to government will only gradually rebuild the balance sheet. For example, the paper by Marshall in this volume refers to a period of several decades. A faster result would require a capital injection by the government. A dramatic example of recapitalising a central bank occurred in the Philippines in 1992, when a new central bank was created to have a clean start after the previous central bank had incurred large bad debts.

## **Central banks as bankers to government**

### ***Central bank lending to government***

A survey of central banks by the BIS in 1999 found that the majority were not required, and often not allowed, to lend to governments, either by legislation or written agreements with their government. Particularly strong prohibitions exist in Brazil, Chile, Peru and Poland, where lending to the government is precluded by the constitution. Table 6 shows the recent situation, although of course there may be cases where the reality differs from the written provisions. Furthermore, these prohibitions may be circumvented by the central bank lending to banks and the government borrowing from them; Stasavage (1997) cites instances of this in Africa. The situation would have looked quite different a decade ago, when lending to governments was quite a common practice.

It may be inappropriate to ban completely central bank lending in developing countries with very small financial sectors as this might prevent the government from smoothing temporary gaps between expenditure and revenue. But it is often argued that such lending should be limited and at market rates (as determined by the central bank); see Cottarelli (1993) for a discussion on setting such ceilings.

### ***Involvement in the government bond market***

The same general arguments against the central bank making loans to governments also apply to buying bonds issued by it, particularly if at below market rates. When the government bond market is not very deep and budget deficits are high, it may be difficult for central banks to avoid some involvement. As the paper by Mohan in this volume points out, being both debt manager and monetary authority, the Reserve Bank of India has been supporting the government's borrowing programme but combines such operations with an active liquidity management operation to avoid adverse monetary implications. In some emerging economies, it is regarded as desirable for central banks to make markets in government bonds in order to develop the markets. But in others, central banks stay away from this activity to avoid being caught with large holdings of government securities; see Al-Jasser and Banafe (2002).

Central banks may be involved in the government bond market as a cashier or registrar. This need not involve any significant impact on the central bank balance sheet, or conflict with central bank independence, so long as it is clear that the central bank is not expected to support prices or transact to ensure an orderly market. And there may be advantages to the central bank having such a role, as

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<sup>9</sup> Pringle (2003a) points out the IMF is pressing central banks to use international financial reporting standards which require marking to market, although his own opinion is that it would be better to develop a specific standard for central bank accounting. Courtis and Mander (2003) provides a number of papers on central bank accounting issues.



the information it acquires may facilitate liquidity management. In Asia, central banks are involved in an initiative to develop an “Asian Bond Fund” as an alternative investment vehicle to US Treasuries for investing the large international reserves there; see BIS (2003).

Table 6  
**Government funding by central banks**

	Overdraft	Loan	Purchase of bonds in primary market	Purchase of bonds in secondary market
China	Prohibited by law	Prohibited by law	Prohibited by law	Allowed
India	Limited, bank rate +2%	Short-term	Allowed	Allowed
Indonesia	Prohibited by law	Prohibited by law	Prohibited	Allowed
Korea	Allowed	Limited amounts at rates set by CB	Allowed	Allowed
Malaysia	Allowed	Limited amounts for short term	Allowed	Allowed
Brazil	Prohibited by cons	Prohibited by cons	Prohibited	Allowed
Chile	Prohibited by cons	Prohibited by cons	Prohibited by cons	Prohibited by cons
Mexico	Mandatory, limited at market rate	Prohibited by law	Prohibited by law	Allowed
Peru	Prohibited by cons	Prohibited by cons	Prohibited by cons	Limited
Czech Republic	Limited by law	Limited by law	Limited amount	Only short-term
Hungary	Prohibited by law	Prohibited by law	Limited amount	Limited amount
Russia	Prohibited by law	Prohibited by law	Prohibited by law	
Israel		Limited amounts for short term	Prohibited	Allowed
Turkey	Prohibited by law	Prohibited by law	Prohibited by law	Allowed
Canada	Limited amount	Limited amount at market rates	Allowed	Allowed
Euro area	Prohibited by law	Prohibited by law	Prohibited by law	Allowed
Japan	Prohibited by law	Limited amount	Allowed	Allowed
United Kingdom	Limited	Prohibited by MT	Prohibited by MT	Allowed
United States	Prohibited by law	Prohibited by law	Prohibited by law	Allowed

Note: Cons = constitution; CB = central bank; MT = Maastricht Treaty.

Sources: Van 't dack (1999); central banks.

### **Government deposits**

In their traditional role as banker to governments, central banks have usually accepted deposits from them; see Van 't dack (1999) for a fuller description. Government deposits can sometimes be a large proportion of central bank liabilities, notably in Hong Kong, Israel and Peru; see Table 1. Governments may choose to place deposits with the central bank rather than with commercial banks for a number of reasons. One is competitive neutrality, not wanting to give an imprimatur to one private bank. Another is credit risk; governments know the central bank will not collapse. In some cases, building up the central bank balance sheet, and so potentially the amount of international reserves, may be seen as usefully bolstering the confidence of foreign investors in the economy. Changes in government

deposits affect the money supply and might provide a useful monetary policy tool in those countries where central banks have the authority to shift deposits between their books and those of commercial banks (for example, Canada, Malaysia and South Africa). When Asian economies faced large capital inflows before the 1997 crisis, the depositing of surplus government funds at the central bank helped to sterilise part of the rising stock of international reserves.

Sometimes, government deposits can be a volatile item, leading to problems for liquidity management. For this reason in some countries there are coordination and notification arrangements between the government and central bank governing movements in deposits. There is also the question of the return to be paid on funds placed by governments with central banks, which may hinge on whether the central bank is viewed as a “banker” or a “funds manager” to the government.<sup>10</sup>

While it could be argued that running down government deposits has the same effect on liquidity as the central bank lending to the government, in practice it is not seen as involving the same risks to central bank independence or constraints on the operation of monetary policy.

### **Quasi-fiscal activities of central banks**

The government may push the central bank into quasi-fiscal activities that lead to central bank losses. Examples include intervention in foreign exchange markets, issuance of central bank securities to build up foreign reserves, and participation in restructuring of the banking system.

Avoiding such problems has been facilitated by a shift in sentiment in favour of central bank independence. Governments are increasingly willing to tie their own hands and not require central banks to be subservient to their fiscal needs. However, it is relatively easy for governments to proclaim their central banks to be independent when times are good. When times are bad, governments may again be tempted to turn to central banks to help them out of budgetary difficulties. It might be argued that to keep financial markets calm, and bond yields low, not only must central banks *be independent*, they must be *perceived as independent*, and (even more difficult) *expected to remain independent*.

### ***Sterilised foreign exchange intervention***

Some central banks have suffered large losses following massive, but futile, intervention in the foreign exchange market.<sup>11</sup> Losses are particularly likely if the intervention attempts to defend an exchange rate inconsistent with economic fundamentals and other policy settings and goals. For example, the government may set an exchange rate target band inconsistent with the interest rate settings required to meet an inflation target. In some cases intervention has been an indirect form of subsidy. Quirk et al (1988) cite large losses in forward transactions by central banks, as much as several percentage points of GDP, to protect exporters or unhedged domestic borrowers from losses.

In other cases the government may direct the central bank to hold large amounts of international reserves and the return on these may fall short of the cost of the central bank borrowing to buy them. In Chile, the central bank issued promissory notes in the 1990s to fund accumulation of international reserves with a view to holding back the appreciation of the peso, and the resultant interest expenses are still causing it to make losses; see the paper by Marshall in this volume. In Mexico, the authorities have said they want to limit further accumulation of foreign reserves to prevent such losses mounting further; see Mexico Ministry of Finance (2003). In these cases, it might be better if responsibilities are made clearer, such as by international reserves being at least partly on the government's balance sheet rather than all with the central bank.

### ***The involvement of central banks in reviving the financial system***

Central bank balance sheets may be affected by various responses to financial crises (see Hawkins and Turner (1999) for a further discussion of such responses):

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<sup>10</sup> In some cases (such as Japan, South Africa and the United States) government deposits are unremunerated.

<sup>11</sup> Successful foreign exchange interventions will be profitable but in a survey of central banks by Neeley (2000), none regarded seeking profits as a motive for such intervention.

*Extending credit directly to commercial banks.* In Indonesia, the central bank provided substantial liquidity support to private banks that suffered deposit runs in 1997-98. Nasution's paper in this volume describes how a dispute with the Indonesian government about this left the central bank having to make large interest payments but being denied some interest revenues it believes it is owed. In Chile, the central bank funded its involvement in bank rescues in the early 1980s by issuing promissory notes. The paper by Binay in this volume describes how the central bank's role in bank restructuring in Turkey led to a significant deterioration in its balance sheet, due to both liquidity injections and purchases of government paper. There are more positive experiences; in Poland, the central bank supported commercial bank restructuring in 1993-97 by purchasing securities issued by banks. The operation was quite small (less than 1% of the central bank's assets) and most of the debt has since been redeemed on originally agreed terms.

*Assisting commercial banks by reducing reserve requirements or increasing the interest paid on such reserves.* For example, during its mid-1990s banking crisis Lithuania lowered reserve ratios from 12% to 10%. Argentina relaxed reserve requirements to deal with a bank run in 1995; see Salater (2003).

*Financing asset management corporations (AMCs) established to buy banks' non-performing loans.* AMCs usually fund themselves by issuing government-guaranteed bonds, and central banks may be pressed to buy some of these bonds. They may also be pressed to take an equity stake in AMCs. For example, the People's Bank of China is funding to a substantial (but uncertain) degree the AMCs that hold many of the non-performing loans of the big four state-owned commercial banks. It has offset the potential increase in reserve money from these operations with other transactions. However, the AMCs may be unable to recover enough from selling the assets they are taking from the banks to repay the central bank; see Ma and Fung (2002). Furthermore, the big banks are still not lending on a fully commercial basis and more bad loans may arise.

*Financing agencies established to take equity stakes in banks to assist in their recapitalisation.* Examples include Danamodal in Malaysia and Fobaproa in Mexico (see Hawkins (1999) and Graf (1999) respectively). Central banks may also be pressed to lend to, or take equity stakes in, such agencies. In Malaysia, the value of the central bank's equity in Danamodal has been preserved as banks have merged and repaid about half the amount provided by Danamodal, and the central bank looks likely to be repaid its investment. However in Mexico the outcome looks less favourable. The Bank of Mexico lent \$100 billion to Fobaproa. The assets of Fobaproa are now being transferred to a new government agency, but it apparently will not take over the debt to the Bank, leaving the Bank with a large loss. In Thailand, bank recapitalisation was financed by special government bonds largely to be repaid from the operating revenues of the central bank; see the paper by Rattakul in this volume.

*Support to borrowers.* This is less likely to involve the central bank, although in Mexico a programme of subsidised lending to the agricultural sector was transferred to the central bank.

#### **4. Conclusions**

Central banks, with their special status, do not need large amounts of capital, although they generally prefer to have at least positive capital and to maintain their independence from government prefer not to have to approach them for funding. Capital can usually be built up as seigniorage exceeds operating expenses. Capital is lowered by payments to the government. With mark-to-market accounting such payments should only be made after a prudent amount of any extraordinary profits are placed in reserves. Most central banks no longer lend to governments. However, governments sometimes press central banks to engage in quasi-fiscal activities such as sterilised foreign exchange intervention and assisting or restructuring financial intermediaries. In some cases such activities have severely eroded central banks' capital. If only for reasons of transparency and accountability, it might be preferable if such activities were instead reflected in the fiscal accounts.

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