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Working Paper

Issues in central bank finance and independence

Working Paper, No. 2008-13

Provided in Cooperation with:
Federal Reserve Bank of Atlanta

Suggested Citation: Stella, Peter; Lonnberg, Åke (2008) : Issues in central bank finance and independence, Working Paper, No. 2008-13, Federal Reserve Bank of Atlanta, Atlanta, GA

This Version is available at:
https://hdl.handle.net/10419/70713

FEDERAL RESERVE BANK of ATLANTA

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WORKING PAPER SERIES

FEDERAL RESERVE BANK *of* ATLANTA WORKING PAPER SERIES

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Abstract: Conventional economic policy models focus only on selected elements of the central bank balance sheet, in particular monetary liabilities and sometimes foreign reserves. The canonical model of an "independent" central bank assumes that it chooses money (or an interest rate) unconstrained by a need to generate seignorage for itself or the government. Whereas a long line of literature has emphasized the dangers of fiscal dominance influencing the conduct of monetary policy, this paper considers the relatively novel idea that an independent central bank could be constrained in achieving its policy objectives by its own balance sheet situation. If one accepts this potential constraint as a valid concern, the financial strength of the central bank as a stand-alone entity becomes highly relevant for ascertaining monetary policy credibility. We consider several strands of evidence that clearly indicate fiscal backing for central banks cannot be assumed, and hence financial independence is relevant to operational independence. First, we examine 135 central bank laws to illustrate the variety of legal approaches adopted with respect to central bank financial independence. Second, we examine the same data set with regard to central bank recapitalization provisions to show that even in cases where the treasury is nominally responsible for keeping the central bank financially strong, it may do so in purely a cosmetic fashion. Third, we show that, in actual practice, treasuries have frequently not provided central banks with genuine financial support on a timely basis, leaving them excessively reliant on seignorage to finance their operations or forcing them to abandon policy objectives.

JEL classification: E42, E58, E63

Key words: central bank independence, central bank capital

The authors thank Claudia Jadrijevic for excellent research assistance. They also thank Alejandra Naughton, Ulrich Klüh, Jerome Vandenbussche, Christopher Sims, and other participants at the Federal Reserve Bank of Atlanta's conference, Fiscal Policy and Monetary/Fiscal Policy Interactions, held April 19–20, 2007, for comments. The views expressed here are the authors' and not necessarily those of the Federal Reserve Bank of Atlanta or the Federal Reserve System. Any remaining errors are the authors' responsibility.

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ISSUES IN CENTRAL BANK FINANCE AND INDEPENDENCE

I. INTRODUCTION

This paper discusses several issues in what might be termed "central bank finance." A particular focus is placed on the financial structure of the central bank balance sheet and the legal and institutional arrangements shaping central bank and government financial relations. The importance of those relations for central bank financial independence is stressed.

It would appear that the corporate financial structure of central banks has received little explicit attention in recent decades apart from the debate surrounding the establishment of the European Central Bank. The index of Stiglitz's textbook "Economics of the Public Sector" (second edition) yields but one reference to "central bank" in a footnote on page 26 to the discussion of how to define the public sector. The index of Tirole's "The Theory of Corporate Finance" yields no mention of central banks.

This neglect of central bank corporate finance may be attributed to several factors which have led to the view that central bank finances can be ignored as they are either: macroeconomically insignificant; properly analyzed only within the consolidated public sector accounts; or irrelevant owing to the central bank's unlimited ability to create money. Each of these factors will be considered in turn in this paper as the views based on them underpin the dominant tendency to model the independent monetary policy process as the choice of either a money supply or interest rate unconstrained by any requirement that the central bank intertemporal budget constraint be met. This last assumption we have found in many countries to be highly problematic.

The view taken in this paper is that it is necessary to evaluate the corporate financial structure of the central bank as a stand-alone entity, particularly when one is evaluating the monetary policy credibility of an independent central bank.[2] That said, for other purposes it is appropriate for the state's consolidated budget and balance sheet to be the focus of attention

[2] By independent here we mean neither constrained to pay specific dividends to government nor the recipient of automatic treasury coverage of losses.

and hence the assets and liabilities, as well as the income statement of the central bank are appropriately amalgamated with the fiscal accounts. For example, in evaluating sovereign debt sustainability or the overall fiscal stance, consolidating the operations and balance sheet of the treasury and central bank can be essential.[3]

These views are controversial, however, as is the substance of the concept of central bank financial independence. The controversy is reviewed in Section III of this paper. In Section II we will discuss why there has been increasing interest in central bank finance in recent years; Section IV considers the results of a review of legal provisions pertaining to these questions; while Section V asks whether treasuries provide financial support to central banks in practice. Section VI provides some ideas as to how financial independence can be safeguarded.

II. The Increasing Relevance of Central Bank Financial Strength and Independence

In part, the impression that central bank finance is a new concept is illusory and reflects a certain innocence or ignorance in certain parts of the world where central banks have been habitually quite profitable and either seemingly financially unconstrained (in a fiat money world) or subject to strict limits on the nature of their balance sheets (under metallic standards). Part of the failure to see the relevance of central bank financial strength is clearly related to the situation in most countries where economic textbooks have been written and published. The U.S. Federal Reserve system has made a profit every year since 1915. De Nederlandsche Bank has made a profit every year save one since 1814. Walter Bagehot, in his classic "Lombard Street," wrote "Of the ultimate solvency of the Bank of England, or of the eventual safety of its vast capital, even at the worst periods of its history, there has not been the least doubt" (page 208, 14th ed., 1873). Recent institutional arrangements in the United Kingdom which ensure that the Treasury underwrites the risk attending emergency

[3] See, for example, Robinson and Stella (1987) and IMF (2002).

lending—such as has been the case with Northern Rock as in September 2007—provide even greater assurance of the Bank of England's financial position.

However, in other parts of the world, central bank financial problems have been quite prominent for decades, in particular, those difficult situations where central bank financial structures have been debilitated by quasi-fiscal operations. Central banks have been unable to meet their most basic functions—including supply of banknotes—owing to financial distress; have changed policy in order to reduce losses; and, in at least one case, the Philippines, have been placed into liquidation.

In a number of cases, the root of long-standing problems has been the provision of credit to ailing banking systems and the respective central banks' subsequent attempts to issue debt to control their immediate macroeconomic consequences.[4] In those situations, central banks have found themselves financially weakened (abandoned rather than independent)—and highly constrained in terms of policy options—whatever the legal or theoretical considerations that suggest that they *should have been supported* by treasuries. As the current president of the Central Bank of Costa Rica has said "We, the central bank, have a negative net worth...and this remains our greatest challenge."[5]

More recently, concerns have been raised about (potential) financial difficulties being registered by advanced country central banks—and in central banks in important emerging financial markets.[6] Here it is useful to separate the recognition of financial losses and the actual causes of the losses.

Regarding the *recognition* of financial losses, the general movement toward greater financial transparency in central bank financial accounts has been apparent over the past 15 years.[7]

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[4] A good recent example is the Dominican Republic. See http://www.bancentral.gov.do/actividades.asp?a=bc2006-11-08

[5] Francisco de Paula Gutierrez, as interviewed in *Central Banking*, Vol. XV, No. 4, May 2005, page 82.

[6] For example, BusinessWeek online (2003).

[7] See Stella (2008b).

This has been accompanied by improved clarity in world accounting standards for corporations in general. Of particular relevance in this respect is the gradual adoption of International Financial Reporting Standards (IFRS) for corporates, which has spread to certain central banks.

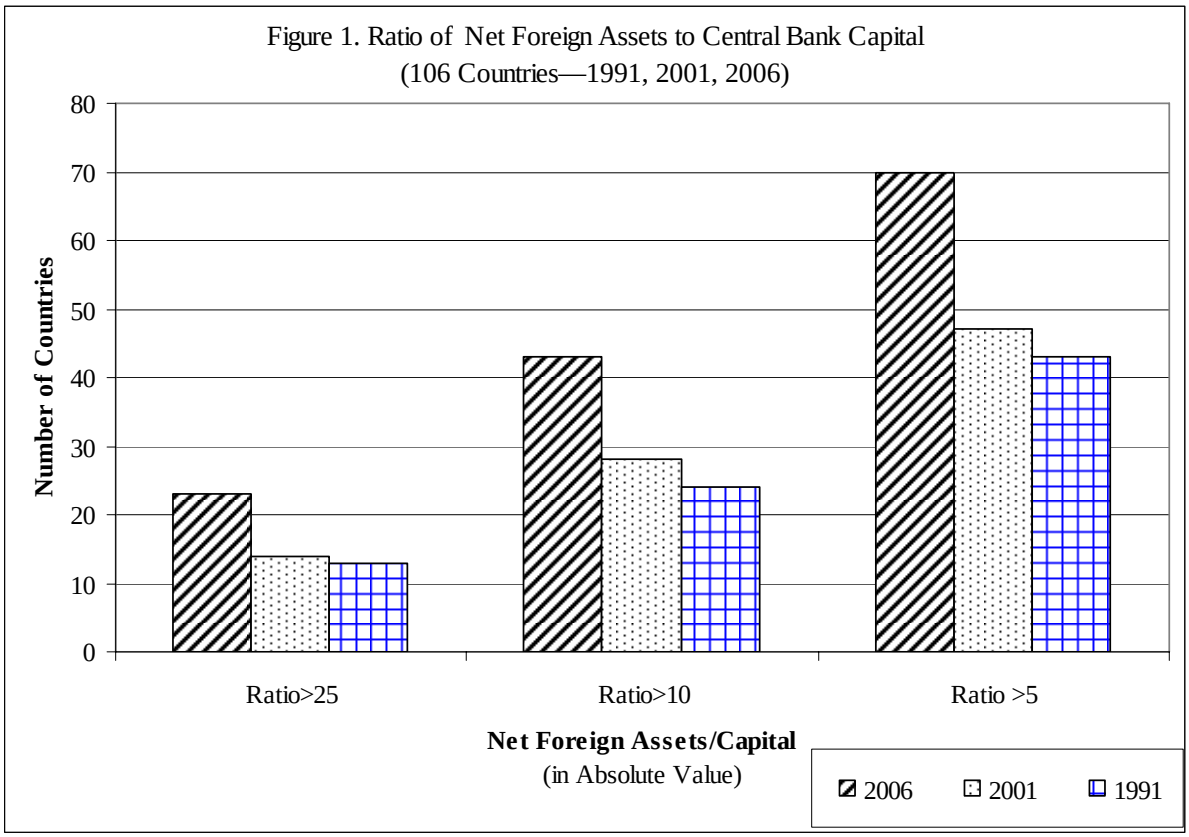
A key element of IFRS is the requirement that foreign exchange revaluation changes be brought to the profit and loss account of the entity in question. As most central banks—as an essential element of their institutional roles—have large net exposures to foreign currencies, the adoption of IFRS brings with it the possibility of volatile income and balance sheet statements. Even in those countries where IFRS has not been adopted, there has been a worldwide trend to adopt mark-to-market and/or fair value accounting for assets and liabilities. Thus central banks which previously might have revalued their assets infrequently or at arbitrary values, are increasingly recognizing asset price volatility.

Whereas in the past, central banks might have set aside revaluation losses and/or accumulated losses in opaque asset accounts, they are now more likely to reflect these losses in the profit and loss accounts and in equity. Thus the risks coming from heightened exposure in particular to foreign exchange revaluation losses have become more apparent. The combination of this trend with mechanical rules for distribution of central bank profit that were designed for a less volatile environment raises an important corporate finance issue that will be touched upon later.

Apart from the increased recognition of volatility, central banks have become more exposed to volatility and under increased profit pressures. Volatility has risen as central banks have accumulated large volumes of foreign exchange reserves, in absolute terms and as a proportion of their assets. This has been the case particularly in countries experiencing current and capital account surpluses—energy exporters and high real growth exporters in Asia. This increase in the exposure of central banks to exchange rate volatility has been noted both by

researchers and the financial press[8]. This accumulation of foreign exchange reserves has exposed those central banks both to potential revaluation losses were their currencies to appreciate against the major international reserve currencies and to cash flow losses. The cash flow losses result from the issuance of central bank debt to sterilize the local currency counterpart of foreign exchange purchases when exchange rate appreciation has been resisted. The global rise in the magnitude of capital flows, in relation to the size of central bank balance sheets, has increased central bank balance sheet leverage. These factors have contributed to a rise in the risks inherent in the balance sheet and consequently to a rise in the risk that central bank capital—as conventionally defined—may be exhausted. (See Figures 1 and 2)

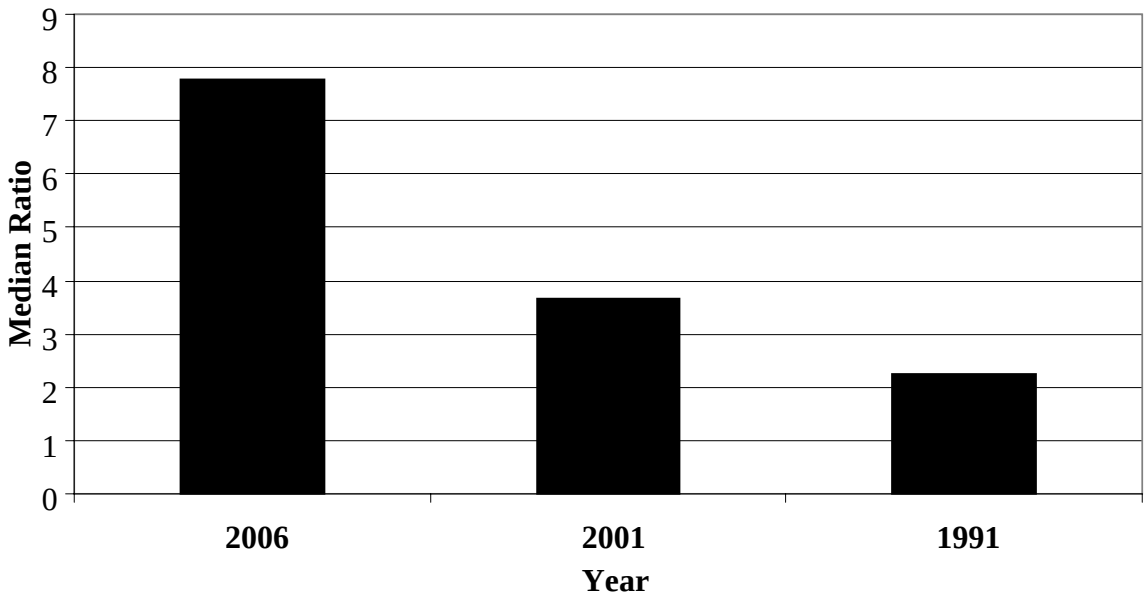
Figure 1. Ratio of Net Foreign Assets to Central Bank Capital
(106 Countries—1991, 2001, 2006)



Source: *International Financial Statistics*

[8] See *The Economist* (2005). Sims (2003a) points out the higher relative exposure to foreign exchange revaluations of the ECB compared to the U.S. Federal Reserve. Stella (1997) suggests that the (then) capital policy of the Bank of Norway arose to shield capital from this volatility.

Figure 2. Ratio of Net Foreign Assets to Central Bank Capital for 106 Countries



Source: *International Financial Statistics*

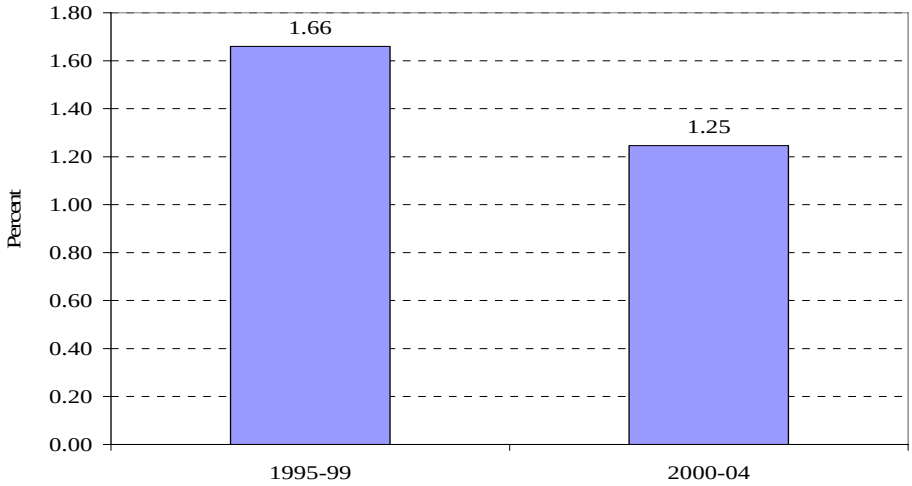
Another factor behind the concern regarding central bank finances has been a global decline in inflation and consequently declining central bank income from the inflation tax[9]. With a reduction in the quantity of non-interest bearing money, lower inflation, and rising foreign exchange sterilization costs and revaluation risks, the prospects of central bank losses have increased. Somewhat preceding this decline in inflation in many countries has been a reduction in the quantity of unremunerated reserve requirements and lessened taxation of the financial system. Globalization of capital flows has played a part in this, beginning in the 1970s with the development of the Eurodollar market largely motivated by the desire to avoid restrictive U.S. regulations. This enhanced competition for U.S. domiciled banking activity eventually was met with reduced regulation. The globalization of currencies and ease of cross-border financial transactions is now a world wide phenomenon. Indeed the spread of sophisticated financial products and enhanced technological capacity to transfer funds across

[9] The global decline in inflation has undoubtedly slowed the erosion of central bank seigniorage (i.e., income from the monetary base at zero inflation) caused by technological innovation away from the use of cash and unremunerated balances at central banks, but this has not been sufficient to reverse the clear overall trend.

borders is seen by some to be the root cause for the worldwide decline in inflation.[10] Thus the capacity of the central bank to impose taxes on its regulated financial sector has been reduced.

There has been a global trend of increased central bank corporate leverage and risk, potentially larger contingent liabilities arising from growth in domestic and international financial markets coupled with the central bank's role in providing lender of last resort financing, rising sterilization expenditures, and declining income. Evidence of the magnitude of the last factor is provided in Figure 3 below.

Figure 3. Median Return on Average Assets in a Sample of 91 Central Banks 1/
(Median Value)



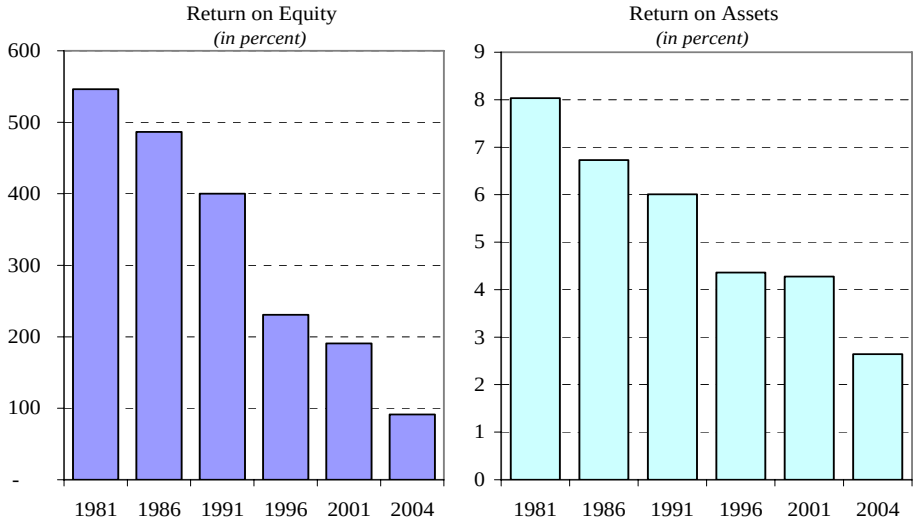
1/ Countries with less than 3 observations in each subperiod were eliminated from the sample.
Source: Calculations with data from Bankscope.

Examining the median is intended to provide a global overview of trends and clearly masks different situations in different countries. Perhaps the most prominent case of recent concern has been that of Japan where the deflation problem reached its most profound level since the Great Depression era.[11] In other countries the situation remains quite comfortable but the trend is also evident in Figures 4 and 5.

[10] See Kroszner (2006).

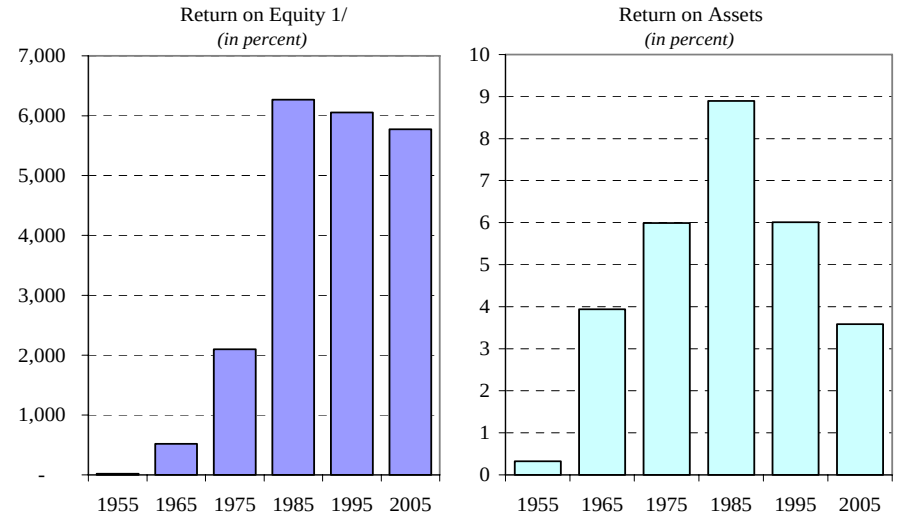
[11] See Goodfriend (1994), Olivier and Svensson (2004), Okina (1999), Cargill (2005), Sims (2003a).

Figure 4. U.S. Federal Reserve System



Source: Board of Governors of the U.S. Federal Reserve System, Annual Report, various issues.

Figure 5. Bank of Canada



1/ Includes C$5 million in capital and C$25 million in the "Rest Fund."
Source: Bank of Canada, Annual Report, various issues.

The last explanation for the increased attention being paid to central bank finances is simply that it is a by-product of the increased attention being given central bank independence in general during the last two decades. A particularly prominent example of this is the delineation by the European Union of financial independence as one of the key components of central bank independence. The creation of the European Central Bank led to considerable

thinking about central banking best practice in general and to central bank independence in particular.[12]

The European Union, through the European Monetary Institute (the precursor to the European Central Bank) has stressed the importance of central bank financial independence as an element in overall independence.[13] That this issue is taken seriously can be seen in the determination by the Commission of the European Communities that Swedish legislation in 2002 "…is assessed not to be compatible with the Treaty and the ESCB Statue"[14] and in the Opinion of the European Central Bank expressed on proposed government amendments to the Suomen Pankki Act (Finland's central bank).[15] In both cases, the fiscal relationship between the State and the central bank was not deemed sufficiently well-defined to ensure that the central bank would always have adequate financial resources to meet its obligation under the Treaty.

III. Is Central Bank Financial Independence a Sensible Concept?

A. Technical Insolvency vs. Policy Insolvency

The point of analyzing financial issues as they pertain to central banks is not with a view to assessing profitability. The graphics provided in Section II are useful as indicators of central bank financial stress, but they are not particularly useful unless they have some correlation with policy performance. The preliminary econometric evidence suggests that central bank

[12] See *Legal Aspects of the European System of Central Banks*, ed. Amicorum and Zamboni Garavelli, European Central Bank.

[13] EMI (1998) "Convergence report" if an NCB (national central bank) is fully independent from an institutional and functional point of view, but at the same time unable to avail itself autonomously of the appropriate economic means to fulfill its mandate, its overall independence would nevertheless be undermined. In the EMI's opinion, NCBs should be in a position to avail themselves of the appropriate means to ensure that their ESCB-related (European System of Central Banks) tasks can be properly fulfilled. Page 295.

[14] European Monetary Institute, 2002, Convergence Report, (Frankfurt). www.ecb.int/pub/pdf/conrep/cr2002en.pdf

[15] European Central Bank, 15 October 2003 (CON/2003/22) and 20 January 2004 (CON/2004/1).

financial strength is so correlated.[16] Supportive evidence is also available in numerous case studies.

However, there are important voices suggesting that the concept itself—central bank financial strength—is not sensible. Either because a central bank—having the power to create money—need not worry about its financial situation and/or the treasury will always stand behind it with its capacity to tax.

A particularly cynical view is that the treasury always controls central bank finances, whatever the law or practice might suggest. Hence the "integrated public finance" view is valid always and everywhere. Buiter (2006) argues that although a central bank may be able to resist, for a time, attempts by the treasury to appropriate its assets, 'Ultimately, a determined treasury will be able to overcome such obstacles, be they conventions, laws or constitutional arrangements, provided there is popular political support for such depredations."[17]

The view that central bank and treasury finances are inextricably intertwined appears prevalent in U.S. official circles. For example, Alan Greenspan has remarked, "When there is confidence in the integrity of government, monetary authorities—*the central bank and the finance ministry*—can issue unlimited claims denominated in their own currencies and can guarantee or stand ready to guarantee the obligation of private issuers as they see fit…. Central banks can issue *currency, a non-interest-bearing claim on the government*, effectively without limit. They can discount loans and other assets of banks or other private depository institutions, thereby converting potentially illiquid private assets into risk less *claims on the government in the form of deposits at the central bank*. That all of these claims on government are readily accepted reflects the fact that a government cannot become

[16] See Ize (2006), Stella (2008b), and Klüh and Stella (2008), forthcoming.

[17] While we agree with this statement, we do *not* agree with the notion that in situations where there is, or has been, political support for central bank independence, laws, institutional arrangements and central bank financial strength are irrelevant for credibility and policy outcomes during a meaningful time horizon. In the long run, of course, all laws, arrangements and constitutions can be modified.

insolvent with respect to obligations in its own currency. A fiat money system, like the monies we have today, can produce such claims without limit."[18] (Emphasis added)

This is quite an unequivocal and strong form of the integrated central bank and government view. Both currency and deposits at the central bank—the entire monetary base—are considered to be the direct liability of the government.

A different perspective—but arriving at the same conclusion that the central bank's financial situation should not be a cause for concern—is found in a statement of Laurence H. Meyer before a U.S. congressional committee: "Creditors of central banks however are at no risk of a loss because the central bank can always create additional currency to meet any obligation denominated in that currency."[19]

A third view, coming from a still different perspective was expressed by the U.S. General Accounting Office after assessing the appropriate level of Federal Reserve System capital: "We found no widely accepted, analytically based criteria to show whether a central bank needs capital as a cushion against losses or how the level of such an account should be determined."[20]

These statements raise a number of interesting issues, the most important of which is not whether the government/central bank can meet its temporary liquidity requirements in local currency but whether other government commitments would be violated—in real terms—were the central bank to exercise its power, i.e., create enough money to meet all of its (and government's) securitized and monetary obligations.

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[18] See Greenspan (1997).

[19] Statement of Laurence H. Meyer, Board of Governors of the Federal Reserve System, before the Committee on Banking and Financial Services, U.S. House of Representatives, May 3, 2000, page 7.

[20] U.S. General Accounting Office (2002).

Viewed as an integrated whole, the point, as Sims (2003b) has shown, is that there are clear limits to a government's, and central bank's, ability to commit to an inflation target in the absence of a fiscal anchor.[21] From the viewpoint of an independent central bank the point is that the actions necessary to avoid its own financial default circumscribe the strength of the policy outcome the central bank can orchestrate—even supposing it has no financial commitment to its shareholder(s) and no domestic currency liquidity constraint.[22] Thus the interesting focus of analysis is not whether the central bank can avoid technical insolvency but whether the central bank can meet its policy commitments given its financial situation.[23]

This distinction between technical insolvency and policy "bankruptcy" can be traced back a considerable time. As cited above, Bagehot (1873) argues essentially that no one even dreams the Bank of England could be insolvent. But later in the book he notes that the Bank of England's Banking Department had failed three times. How to reconcile this with the safety of the capital? The answer lies in the power of the government to change or suspend the law governing the conversion of Bank of England obligations into specie (gold or silver coins or bullion). Thus the Parliament's ability and willingness to suspend the law, not the Bank's ability to create claims, is what protected the Bank's capital. Which brings us back to the original point, that if the ultimate policy goal was to maintain convertibility and liquidity in the market, had not the Bank failed, even though, with the suspension of conversion, its capital was preserved?

B. Policy Insolvency—Does the Central Bank Balance Sheet Alone Matter?

If we accept that policy insolvency is the more relevant concept this does not necessarily imply that the central bank financial situation—independently—is worth analyzing. Indeed, the question posed above, in the integrated view, would likely be answered in the negative. That is, were the central bank to arrive at a situation where its policy decisions were being impacted by its financial condition, the treasury would, could, or should always assist.

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[21] Sims (2003b).

[22] Ize (2005) provides an insightful discussion of the situation facing the Central Bank of Costa Rica.

[23] See Stella (1997).

Goodhart (1999) outlines the view that the central bank balance sheet does not matter and it is noteworthy that—in a fiat money environment—he emphasizes the importance of the financial backing of the state to achieve central bank objectives, not the ability of the state to renege on its commitments. "CBs in some countries, mainly in Latin America, have actually become technically insolvent (using generally accepted accounting principles) as a result of losses incurred on loans in support of the domestic financial system. But such insolvency does not make much difference because what stands behind the liabilities of the CB is not the capital of the CB but the strength and taxing power of the State."[24]

Buiter states this view even more forcefully. "The concept of a financially independent central bank is therefore, in substance, vacuous, whatever the formal legal status of the central bank…. First the inflation target has to be financeable by the state, that is, the consolidated central bank and government. Second, when monetary policy is institutionally delegated to the central bank, the treasury has to 'stand behind' the central bank."[25]

However, for a number of countries, this is not a valid assumption and such a distinction between monetary regimes—there are those where the state explicitly or implicitly stands behind the central bank and those where it does not—is the essential starting point for the analysis in Sims (2003a). The following two sections of this paper discuss the international experience on this point from first a legal then empirical/historical perspective.

C. A Digression: Are Central Bank Finances of Macroeconomic Importance?

In discussing the financial situation of the Federal Reserve System, the Bank of Canada or the European Central Bank, the magnitudes would seem worthy of no more than a footnote to the general fiscal accounts. Fed profits average about ¼ of one percent of GDP and the profits/losses of the European Central Bank, during its brief existence, have remained less

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[24] Charles A. E. Goodhart, *Myths about the Lender of Last Resort*, International Finance 2:3, 1999, page 348).

[25] *How Robust is the New Conventional Wisdom in Monetary Policy?* Willem H. Buiter, paper presented at the 2006 Central Bank Governors' Symposium 'Challenges to Monetary Theory', (Bank of England) June 23.

than 0.03 percent of Euro-area GDP in absolute value. Threats to central bank financial independence could well seem extremely speculative in many countries. Within a "reasonable" range of observed situations in mature industrial country central banks, the disturbances to the local equilibrium wherein resides central bank financial strength are hardly enough to lead anyone to question whether they will impact policy objectives.

If the Federal Reserve or the European Central Bank were to experience minor perturbations in the strength of their balance sheets, fiat money could cover them either immediately or through the retention of future seignorage. But it is dangerous to extrapolate too far from the local equilibrium when experience is no guide.

Goodfriend (1994) has noted that Congress does have the power to reduce Fed surplus and that "If carried far enough, stripping the Fed of its liquid assets would obviously interfere with its ability to conduct monetary and credit policy. Equally important, however, it would undermine the Fed's financial independence by denying it enough interest income to finance its operations without having to ask Congress for appropriations or resorting to inflationary money creation."[26]

The financial status of the Bank of Japan has been the subject of rather intense debate in recent years particularly owing to the balance sheet risk it has undertaken as part of its quantitative easing policy associated with prolonged deflation. In Latin America, Asia, Africa, and in Eastern and Central Europe, central banks have found themselves in considerable financial distress, usually owing to the delayed impact of quasi-fiscal operations—often in direct relation to the provision of credit in situations of a systemic banking crisis.

The prolonged impact of such operations in certain countries can be seen in Table 1.

[26] *Journal of Money, Credit and Banking*, vol. 26, No. 3 (August 1994, part 2).

Table 1. Central Bank Results in a Group of Western Hemisphere Countries, 1987–2005

Country	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Argentina	-0.7	-0.5	-4.5	-0.7	-0.4	-0.1	0.4	0.2	0.2	0.3	0.3	0.3	0.2	0.3	-0.1	3.8	0.2	0.8	1.0
Bolivia 1/	...	-0.2	-0.4	-0.7	-0.7	-0.2	0.4	0.7	0.9	0.6	0.7	0.7	0.4	0.5	0.5	0.5	0.2	0.3	0.3
Chile	-3.1	-3.2	-1.8	-2.2	-1.1	-1.2	-1.0	-0.9	-0.6	-0.7	-1.1	-1.1	-1.1	-1.4	-1.0	-1.2	-0.7	-0.8	-0.5
Costa Rica 1/	-3.5	-3.3	-2.8	-2.0	-1.9	-2.0	-1.5	-1.4	-1.9	-2.1	-1.8	-1.6	-1.6	-1.8	-1.2	-1.4	-1.6	-1.3	-1.4
Dominican Republic	-1.0	-1.5	-0.8	-0.6	0.0	-0.6	-0.1	-0.6	-0.5	-0.6	-0.7	-0.5	-0.4	-0.3	-0.2	-0.3	-2.6	-4.0	-2.9
Ecuador	...	-2.2	-2.5	-2.9	-2.3	-1.0	0.1	0.6	0.0	0.2	0.1	0.3	-1.2	...0.6	...	...	...	...	...
Guatemala 2/	-1.6	-1.9	-1.5	-2.4	-1.6	-1.2	-1.1	-1.3	-1.0	-1.2	-0.8	-0.3	-0.3	-0.4	-0.8	-0.6	-0.5	-0.6	-0.5
Haiti	...	...	...	...	...	...	...	...	...	...	...	0.1	0.0	-0.2	-0.2	-0.3	-0.6	-1.0	...
Honduras 1/	...	...	...	-3.2	-2.5	-2.7	-0.5	-1.3	-1.9	-1.6	-1.6	-0.1	-0.2	0.0	-0.4	-0.9	-1.1	-1.1	-1.0
Jamaica 3/	-5.7	-5.4	-5.4	-5.0	-4.3	-5.6	-4.7	-1.8	-2.0	0.6	1.0	-0.3	0.0	0.3	-0.5	-1.7	-1.7	-1.0	-1.5
Nicaragua	-5.0	-8.0	-13.8	-2.8	-0.7	-1.1	-1.4	-0.6	0.1	-0.2	-0.6	-3.3	-1.7	-1.6	-1.3	-2.0	-1.6	-1.4	...
Paraguay 1/	0.2	0.2	0.1	0.6	0.8	0.5	0.1	0.0	-3.8	-1.5	-1.8	-0.6	-0.8	-0.4	-1.3	-1.4	-1.1	-0.8	-0.2
Peru 1/	-5.4	-3.2	-0.4	-1.1	-0.4	-0.2	-0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2	0.2	0.1	0.0	-0.1
Uruguay	-2.8	-3.1	-3.4	-3.6	-2.2	-1.6	-0.8	-0.6	-0.6	-0.5	-0.5	-0.5	-0.2	-0.4	-0.3	-0.3	0.0	-0.6	...
Venezuela	-1.4	-2.9	-1.8	-2.0	-1.7	0.0	-0.2	-2.0	-1.0	-0.7	-0.6	-0.8	-0.5	0.3	0.1	0.1	0.8	1.6	...
Mean	**-2.7**	**-2.7**	**-3.0**	**-2.0**	**-1.4**	**-1.2**	**-0.7**	**-0.6**	**-0.9**	**-0.5**	**-0.5**	**-0.5**	**-0.5**	**-0.3**	**-0.5**	**-0.7**	**-0.8**	**-0.8**	**-1.0**
Median	**-2.8**	**-2.9**	**-1.8**	**-2.1**	**-1.4**	**-1.1**	**-0.4**	**-0.6**	**-0.6**	**-0.6**	**-0.6**	**-0.3**	**-0.3**	**-0.2**	**-0.4**	**-0.6**	**-0.7**	**-0.8**	**-0.8**

Sources: Leone (1994); IMF staff reports; Central Bank of Argentina; Central Bank of Guatemala; Central Bank of Paraguay; Central Bank of Uruguay; and Central Bank of Venezuela.

1/ Numbers for 2005 are preliminary.
2/ Number for 2005 is IMF staff estimate.
3/ For years after 2002, only includes Bank of Jamaica cash losses, excluding Bank of Jamaica Special Issue Bond.

In Uruguay, central bank losses averaged 3 percent of GDP in the late 1980s. The central banks of Chile and Guatemala have made losses for close to two decades consecutively. Venezuela made losses for 12 out of 13 consecutive years, Uruguay made losses for 14 consecutive years, Jamaica 9.

Losses frequently arise when, to borrow from Buiter's terminology, in the midst of a banking crisis the central bank with its "*short-term deep pockets*" provides risk-laden credit and thereafter hopes to be recapitalized by "The treasury, the agency of the state with the capacity to tax [with] *long-term deep pockets.*"[27] This effect can be seen in a number of countries during the 1980s and subsequent spikes in the data more recently—for example, the Dominican Republic in 2003–05.[28]

From a theoretical perspective Sims (2003a) notes that in general equilibrium models—"..uniqueness and stability of the price level depends on beliefs of the public about how the system would react in the face of extreme circumstances like very high inflation, severe

[27] Buiter (2006) "How Robust is the New Conventional Wisdom in Monetary Policy?" Page 44.

[28] Unfortunately, obscure accounting treatments have often led to a delayed recognition of losses. See Stella (2002).

financial instability, or deflations in which the zero lower bound on nominal interest rates is approached."[29] That is, under stress, the expectations of the public as to how the central bank will respond to an extreme deterioration in its financial position will determine the effectiveness of macroeconomic stabilization efforts.[30]

In reality, many countries have found themselves in "extreme circumstances" and their experience suggests that neither the Fed nor the ECB situations are representative of the issues facing a number of developing or emerging market central banks on a daily basis.

In the Dominican Republic, following efforts to contain the liquidity expansion following the recent banking crisis, central bank domestic debt amounts to 22 times central government domestic debt. In Costa Rica, the central bank has made losses for over two decades consecutively as the structure of the balance sheet reveals a huge imbalance among interest bearing liabilities and interest earning assets.[31] Periodic partial recapitalizations have not been sufficient to reverse the overall trend.

The negative equity problem of the Central Bank of Chile can be traced back to the financial crisis of 1982 the cost of which has been estimated at 33 percent of GDP. Initially the cost was borne entirely by the central bank but in 1987 the government made a partial recapitalization. This issue was not faced again until 2006 when the Congress approved a transfer of up to 0.5 percent of GDP per annum for a period of 5 years. The central bank has estimated that this capital infusion would advance the date at which it would have positive equity from 2041 to 2026, that is, by fifteen years. The central bank received US$606 million as the first part of this partial recapitalization on December 27, 2006.

In Honduras and Nicaragua the ratios of central bank domestic debt to central government domestic debt are 2.4, and 1.4, respectively. During a one year period—August 2000 to

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[29] Sims (2003a) Fiscal Aspects of Central Bank Independence, page 3.

[30] See JPMorgan. *Japan Markets Outlook and Strategy,* January 24, 2002.

[31] See Ize (2005).

2001—the Central Bank of Nicaragua issued 20 percent of GDP in dollar-indexed domestic debt to resolve four bank failures. These bonds subsequently had to be restructured in an agreement with the private sector holders. Monetary stabilization bonds account for 57 percent of the liabilities of the Central Bank of Korea (end-2005); Bank Indonesia certificates 19 percent, and Bank of Jamaica certificates of deposit 61 percent.

In a number of countries it can safely be said that the central bank is both the manager and obligor of the sovereign's domestic debt. In those cases the conflict of interest that is usually present between the government and central bank—raising interest rates to influence inflation leads to higher sovereign debt service cost (at least in the short run)—is observed within a single institution.

The central bank as debt issuer also raises governance problems. In particular, while government debt issues are usually subject to legislative approval, debt issues by central banks may not be so constrained.[32] Here the implicit nature of government backing may allow the central bank to issue in its own name under the general securities law of the country. Operational links with banks—frequently the largest holder of domestic government debt—facilitate marketing and establishing the infrastructure (if no market already exists) as well as potentially compounds the governance issue. Furthermore, in many countries that have witnessed a sharp rise in domestic debt it has been precisely the provision of large amounts of central bank securities to an insolvent banking system which has enabled the rapid but often illusory "deepening" of the market. The banking system—which may also be regulated by the central bank—then becomes dependent for its survival on the full and timely service by the central bank of their largest single performing asset.

These are a few examples of central banks who have been constrained in their operations following what might be classified as a heavy engagement in quasi-fiscal operations. The fact that such operations usually take place in the context of government fiscal distress suggests

[32] Sims (1999) discusses the interesting case of Grover Cleveland's issuance of debt for essentially monetary policy purposes without consulting Congress.

why it is particularly innocent to assume that government will "stand behind" the central bank in a timely way to ensure that policy commitments are met. The power to tax, often cited as the ultimate guarantor of the currency, is unlikely to be employed precisely during those extreme circumstances when the central bank would require backing for its operations. Indeed, it is precisely during those circumstances that the inflation tax is seen as an efficient tool and price stability a dispensable luxury. Experiences worldwide suggest that Buiter's treasury's "deep long pockets" may be quite deep and in the end—or at least during a very material time frame—potentially empty.

IV. LEGAL PROVISIONS

A. Explicit Recognition of Responsibilities

The first issue to be considered here is whether in legislation pertaining to the central bank there are provisions noting whether the government is in some sense responsible for the central bank's financial liabilities and vice versa. We examine this in two ways. First, among the general provisions in the legislation treating relations with the fiscal authorities, second in those sections of the law that deal with the financial structure of the central bank and how capital deficiencies would be resolved. The findings, based on a review of 135 central bank laws, are summarized in Appendix 1 (Table 4) below.

Appendix 1 shows that there is a diversity of legal views world wide with, in particular, a diametrically opposed bi-model distribution. Examples supporting the views expressed by Greenspan, Lindsey, Goodhart and Buiter, which suggest that the treasury stands behind the central bank include El Salvador: "All the obligations of the Central Reserve Bank of El Salvador shall be assumed by the State through the Ministry of Finance, which may offset them against obligations existing in its favor."[33] Croatia is a second example, "obligations of the Croatian National Bank shall be guaranteed by the Republic of Croatia." The Act on the Central Bank of Iceland states that "All obligations of the Central Bank are guaranteed by the State Treasury."

[33] This provision dates from the era prior to the full dollarization of the Salvadorian economy and the elimination of the national currency.

A very different sentiment is expressed in a number of countries where the law explicitly states that, in general, the central bank is not responsible for the liabilities of the state and the state is not responsible for the liabilities of the central bank. One interesting commonality in this respect can be perceived in a number of the laws in the countries comprising Estonia, Latvia, Lithuania, Russia and other states of the former Soviet Union. This could be the result of the fact that most of the laws date from a similar era when this was deemed to be an important feature of central bank independence; the particular political and economic realities shared by those countries at the time; or a peculiarity of the distribution of state assets and liabilities following the dissolution of the Soviet Union.

If one takes, for example, the Law on the Bank of Lithuania, it stands in stark contrast with the notion that the government stands behind the central bank and vice versa. “The State of Lithuania shall not be liable for the obligations of the Bank of Lithuania, and the Bank of Lithuania shall not be liable for the obligations of the State of Lithuania.” Similarly, the law on the National Bank of Tajikistan: “The Republic of Tajikistan shall not be liable for the obligations of the National Bank of Tajikistan, except for those assumed with consent of the Madjlisi Oli of the Republic of Tajikistan or the President of the Republic of Tajikistan.”

Although most central bank laws are not explicit on this issue, the review summarized above and provided in Appendix 1 shows that it cannot be assumed that the state is legally responsible for the central bank’s obligations which suggests that the latter’s independent financial strength is a consideration when considering its ability to fulfill its mandate.

B. Coping with Central Bank Losses or Capital Insufficiency

Indirect responsibility for central bank liabilities can be inferred from provisions in the central bank law governing how central bank losses or capital insufficiency would be addressed. Many central bank laws have such provisions although the procedures are defined with different levels of specificity.

Some countries have general clauses, such as Kuwait “If the General Reserve Fund, in any years, is insufficient to meet the losses of the Bank, or if it can not be used to meet the losses, the Government shall cover the deficit.” A slightly more specific phrase can be found in the Bank of Korea Act: “Any loss incurred by the Bank of Korea during any fiscal year shall be offset from the reserves and, should these be insufficient, the deficiency shall be made-up by the Government in accordance with the Budget and Accounts Act.”

The Bank of Korea Act points to the potential issue of requiring further legislative approval for a recapitalization, for instance through the annual budgetary process. Some country laws specify that further approval is not necessary and hence appear to be closer to “automatic” recapitalization. Take the Central Bank of Kenya Act: “The amount of any net losses of the Bank in any financial year which is in excess of the sums standing to the credit of the general reserve fund of the Bank shall be charged upon and paid out of the Consolidated Fund without further appropriation than this Act.”

The Reserve Bank of New Zealand Act specifies particular losses that are to be covered by Government reflecting the particular agency arrangement the latter has with the former regarding the management of the country’s foreign exchange reserves: “The Minister shall, without further appropriation, pay to the Bank out of the Crown Bank Account the amount of any exchange losses (whether realized or unrealized) incurred by the Bank as a result of dealing in foreign exchange under sections 17 and 18 of this Act”.

How the losses are covered can be as important as when. Some central bank laws specify the type of transfer that is to be received. In Cape Verde: “If the Bank incurs a net loss...[it] shall be applied to the General Reserves, and if the latter should prove insufficient...the balance of the loss should be transferred to unappropriated earnings; After the submission, by the Bank, of a report...confirming the balance of the cumulative losses, the Government shall deliver to the Bank, within a maximum period of 60 days, funds, negotiable instruments that are dated and on market-determined terms and conditions and at market-determined exchange rates, in the amount or amounts necessary to make up the deficit.”

In other countries the law specifically calls for the provision of securities of a very different and/or more ambiguous nature. In Fiji "The Minister...shall cause to be transferred to the ownership of the Reserve Bank non-negotiable non-interest bearing securities issued by the Government ...for the purpose of preserving the paid-up capital from any impairment..." In Malawi, "...any devaluation losses shall be covered by promissory notes of the government on such terms and conditions as shall be agreed upon between the Minister and the Bank." The Bank of Namibia Act calls for revaluation losses to be covered by "...non-negotiable securities to the extent of the deficiency, on such terms and conditions as the Minister and the Board may agree upon." The Central Banking Act in Papua New Guinea states that the Minister may create and issue to the Central Bank "non-interest bearing non-negotiable notes for an amount not exceeding any payment made by the Minister to the Central Bank out of the Consolidated Revenue Fund."

In some cases the securities are to be serviced out of future central bank profits, such as United Arab Emirates "...the Government shall cover it [net debit balance] by issuing non-interest bearing, negotiable Treasury Bonds, which shall in turn be returned out of any net profits realized in subsequent years." In Rwanda "...the Government will issue Treasury Bills not negotiable and non interest-bearing, for an amount equivalent to the debit balance of revaluation account. These Treasury Bills will be refundable by deduction from the Government share of Bank profits according to a schedule agreed upon with the Minister having finances under their competency."

V. DO TREASURIES ACTUALLY STAND BEHIND CENTRAL BANKS?

The basic answer to this question is frequently no, at least not on a timely basis.

Examples of this phenomenon abound with the motivations/rationales falling into several different categories. One is that some states simply do not fulfill their legal obligations.

Jácome and Parrado (2007) note that "In practice, this legal mandate has not materialized in the Dominican Republic and Nicaragua..."[34]

A second reason is that although the law might provide in general terms for the necessity of a recapitalization, the actual transfer of resources from the treasury would usually require legislative approval. That is, as most countries require legislative approval to spend public funds, a general commitment to maintain the capital of a public enterprise cannot override a requirement that the legislature specifically authorize such an expenditure prior to its occurrence.

In some laws, this notion is recognized explicitly, e.g., in Guatemala the central bank law calls for the Minister of Finance to submit, within the subsequent year's budget request, the amount necessary to recapitalize the central bank.[35] It does not, and seemingly could not, mandate a future congress to authorize the requested expenditure whatever the amount, whenever it occurs and for whatever the reason. Foreseeing possible future fiscal problems, the Central Bank of Venezuela law (2001) states that if fiscal resources are not sufficient to provide a budget allocation to make up for losses, the National Assembly shall authorize a special issue of national public debt under market conditions to do so (see Table 4).

Third, as suggested by the review of law in Section IV, central banks have frequently been "recapitalized" with treasury obligations with virtually no value. The Central Bank of Honduras (BCH) has been "capitalized" three times with nonremunerated long-term debt.[36]

At its founding, in 1950 the BCH received a 50 year non-remunerated government bond to cover its newly mandated monetary liabilities to the extent that these exceeded the assets of

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[34] *The Quest for Price Stability in Central America and the Dominican Republic*, Luis I. Jácome and Eric Parrado, IMF Working Paper, WP/07/54, page 6.

[35] This replaced Article 83 of the old Central Bank of Guatemala law which stated that the State, through the Ministry of Finance, shall absorb the accumulated cost of monetary, exchange rate and credit policies through the emission of long term public debt with an interest rate of zero (author's translation).

[36] See Stella (2008a).

the monetary board that it replaced. Interestingly the government never used its own resources to redeem the bond. The 1996 amendments to the central bank law required the central bank to redeem the bond out of its own reserves. In 1997, the BCH received another 50 year non-remunerated bond to cover its accumulated losses as of end-1996. The nominal value was 5.4 billion lempira, equivalent to 1.1 percent of 1996 GDP. However, valuing a payment of 5.4 billion lempira to be received in 2047 at 1997 prices using as a discount rate the average return on Honduran government bonds during the period 1997–2003 yields a value of 0.0006 percent of GDP. In 2005, the BCH received a third non-remunerated 50-year bond, with 25 years grace, to cover losses accumulated during the years 1997–2003.

A not infrequent technique is to provide the central bank with a security the debt service on which is to be paid out of the central bank's own retained earnings. Taking this security at an arbitrary par value may allow the treasury to meet its obligation under the law but provides neither an asset under IFRS nor any positive cash flow in the immediate future.[37]

Central banks highly exposed to foreign exchange fluctuations are particularly prone to decapitalization from a mechanical asymmetric profit transfer rule. Profit transfers in years with significant revaluation gains are not balanced by years in which large revaluation losses are suffered since there often is no provision for treasury coverage in that eventuality. Considerations such as these recently led the Netherlands to amend the central bank dividend policy.

Legal provisions determining when and how profits are transferred to the treasury can be exceptionally important. In this respect most central banks pay a mechanical proportion of profit to the treasury on an annual basis. Many laws are silent as to how to treat losses, leaving the central bank prone to decapitalization. There are no recognized standards for central bank capital, nor is the Basel risk-weighted asset to capital ratio applied.[38]

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[37] There is an imbedded option value similar to that with tax losses carried forward.

[38] The Fed is extremely unusual in that it calculates and transfers to the U.S. Treasury profits on a weekly basis. Owing to revaluation losses on its admittedly small foreign reserve holdings, it has registered a loss (for a week) occasionally.

How can central banks run consistent losses but continue to show positive capital? It is quite common in central bank laws to have a mandated nominal capital for the central bank. In addition to this statutory capital it is also customary to have a reserve account(s). Equity would normally be considered to be the sum of capital and reserves. Most commonly, reserves are accumulated from retained earnings. If we presume that reserves cannot go below zero as a lower bound, there are three basic ways in which central banks can sustain losses in excess of equity yet continue to show positive capital.

The first point to recognize is that most central banks have not fully implemented IFRS, in particular, fair market valuation of assets. Thus the accounting system may allow the non recognition of losses through the use of historical cost of acquisition for valuation. This practice was widespread also in commercial banking before recent changes in worldwide accounting best practice. For central banks, the original motive was consistent with a desire not to distribute unrealized gains on assets to the government as that is akin to monetary financing. A number of central banks continue to account for gold at cost of acquisition.

The second method is the use of revaluation or adjustment accounts which do not impact equity. This accounting can either be mandated in law or be permitted by the accounting policies followed by the bank. A number of countries utilize such revaluation accounts which were originally conceived as protecting the central bank from being forced to distribute unrealized gains. This is a variant of the first principle—one recognizes the revaluation but does not take it into the profit and loss account. Hence large changes in real net worth are reflected in the asset or liability revaluation accounts but do not impact equity.

Sometimes the motivation for this treatment is out of a commitment to the law. If the law states that capital must be a certain nominal figure, it could be deemed illegal for the Board or chief accountant to adjust this figure. The only way to make the balance sheet balance is then to take the accumulated losses on to the asset side of the balance sheet. (Rather than lowering capital, a liability, below the legal minimum one creates instead an “asset” of rather

dubious value).[39] Sometimes this asset is noted on the balance sheet as a claim on government—regardless of whether the government recognizes it at such. Obviously the central bank is not in a position to dictate terms on such an asset and invariably it is not serviced on time and in full by government. In other cases, there may be a legal remedy for the central bank that establishes its claim on government for accumulated losses and eventually the bank is provided real assets as part of a recapitalization at some distant point in the future.

One example of the use of revaluation accounts was the National Bank of Hungary (NBH) before its recapitalization. Revaluation losses by end-1995 had reached 37 percent of central bank assets, far in excess of capital (see Table 2).[40] Despite these large revaluation losses the NBH continued to transfer profit to the Ministry of Finance.[41]

Table 2. Hungary: Central Bank Balance Sheet as of December 31, 1995

(In billions of forints)

ASSETS		LIABILITIES	
Foreign exchange	1,805	2,906	Non-resident deposits and other liabilities
Credit to government	1,130	1,466	Resident deposits
Credit to financial institutions, other credit and specific provisions	287	482	Banknotes and coins
Revaluation losses	2,033	182	IMF claims
Other assets	166	152	Blocked foreign exchange deposits of government
		177	Other liabilities
		55	Balance sheet profit, authorized capital and provisions
Total	5,421	5,421	

Source: National Bank of Hungary Annual Report 1995, Statistical Annex, pages 224–25.

[39] At the Central Bank of Ecuador such assets were known in the 1990s as “perdidas activadas” which translates roughly as “assetized losses.”

[40] In South Africa (2003) and Peru (1988), similar accounts reached 28 percent and 25 percent of total central bank assets, respectively.

[41] See NBH Annual Report 1995, Section V, “Resolutions by the General Meeting.”

VI. CAN CENTRAL BANK FINANCIAL INDEPENDENCE BE PRESERVED?

In many cases the exposure of the central bank to losses comes primarily from its role in putting its capital at risk by intervening in a systemic crisis to provide liquidity to financial institutions and/or their depositors and other creditors.[42] Whether central banks should do so is another matter and indeed there are good reasons for central banks to avoid this and other "quasi-fiscal" activities.[43] Given that government financial responsibility for such operations is often slow to be assumed, outright prohibition of them may be the best course of action to preserve independence. This has led some countries to restrict or limit the central bank's ability to be involved in such operations. For example, the central bank law enacted in Peru in 1992 expressly prohibited the activities that had been associated with the hyperinflation of the late 1980s.

In the case of Peru just described, and in others, changes in legal arrangements reflected broader political changes and those, of course, could be reversed. However, presuming an underlying consensus for independence, legislatures may enable central bank independence for a reasonable period of time, for example three to five years, under most reasonable circumstances. Broaddus and Goodfriend (1996)[44] discuss the U.S.: "Congress has long recognized, however, that the pressure of budgetary politics could tempt future Congresses to press the Fed at least implicitly to help finance federal expenditures through inflationary monetary policy. Consequently, the Fed has been made financially independent—its operations are funded from the interest payments on its portfolio of securities—and the Fed has wide discretion over the assets it holds."

The current financial structure of the Fed thus obviates the need to be overly concerned about its financial strength or with provisions to ensure it beyond the Treasury guarantee of Federal

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[42] Apart from explicit liquidity intervention in crisis situations, many central banks hold significant off-balance sheet contingent liabilities in the form of daylight overdrafts in the inter-bank payments system.

[43] MacKenzie and Stella (1996).

[44] J. Alfred Broaddus, Jr., and Marvin Goodfriend "Foreign Exchange Operations and the Federal Reserve," Federal Reserve Bank of Richmond Economic Quarterly Volume 82/1 Winter 1996.

Reserve Notes. The U.S. does, however, explicitly recognize contingent liabilities to other financial institutions. One example of this is the capital obligation of the U.S. to the International Bank for Reconstruction and Development, commonly known as the World Bank.

The World Bank has both paid in and callable capital but most lending is financed with funds borrowed in international capital markets. Should the Bank be unable to cover credit losses with its capital and retained earnings, members are committed to pay in further capital to avoid a default on outstanding Bank bonds. "Over and above the $2 billion in capital that the United States has already paid in, the country has agreed to pay in another $30 billion in callable capital should such an event materialize....The Congress has appropriated about $7.4 billion for that purpose, so the Treasury could provide up to that amount without additional Congressional action."[45]

While the prospect of the U.S. being required to provide more than $7.4 billion in callable capital to the World Bank is quite improbable, the U.S. approach bears a resemblance to that discussed above in the cases of the Reserve Bank of New Zealand and the Bank of Kenya—a legislatively delegated budgetary authorization for central bank recapitalization.

With these examples in mind we might posit three "stages" or "layers" of central bank financial independence (see Table 3). The first being capital on hand, that is, the current strength of the balance sheet represented by equity properly valued. The central bank could exhaust this equity without any outside involvement.

The second would be a legislatively pre-authorized transfer of liquid funds to cover specified losses or a general remedy for capital deficiency. To activate this stage would require a technical decision or judgment by the treasury, but not an act of the legislature.

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[45] *The Costs and Budgetary Treatment of Multilateral Financial Institutions' Activities*, statement of Douglas Holtz-Eakin, Director, Congressional Budget Office, before the Committee on Banking, Housing, and Urban Affairs, United States Senate, May 19, 2004.

A third stage would be a specific legislative commitment—without pre-authorized budgetary authority—to cover a larger capital deficiency. To activate this stage would require both treasury consent and budgetary approval by the legislature (in the form of a budgetary appropriation).

Table 3. Layers of Central Bank Capitalization

Stage 1	Balance sheet capital; adequate treasury/central bank fiscal relations established; restriction of quasi-fiscal operations
Stage 2	Legislated pre-authorization of recapitalization under certain circumstances
Stage 3	Legislative requirements that budgetary authority be sought for recapitalization under certain circumstances

The U.S. and Canada are cases where the strength of the central bank balance sheet eliminates the need for explicit consideration of stages 2 and 3. Many countries have a stage 3 solution in place, but, to the authors' knowledge, only Malawi, New Zealand and Kenyan legislation have elements of stage 2. What some countries do have, however, either formally or informally, is a mechanism to suspend profit transfers when the balance sheet is in some sense deemed inadequate, e.g., equity is negative. In others, the profit transfer is negotiated or agreed with the Ministry of Finance depending both on the central bank's and Ministry's financial need at the time.

The problem with implementing these solutions is that there is no agreed technical trigger indicating central bank capital inadequacy—nor can there be. As the real issue is not technical insolvency but policy solvency and its credibility, the appropriate degree of central bank financial strength is both policy-dependent and a political issue. However, once an appropriate level or range in a given country, at a given time, is determined, institutional design can play an important role in preserving it.

Appendix I. Is the Central Bank Responsible for the State's Obligations, and Vice Versa?

Table 4. Results of the Review of Central Bank Legislation			
Country	Title and Date	Reference in the Law	Text
(Note: In countries indicated by an asterisk, either the state is explicitly free from the obligation to cover central bank losses; or the state has the power to determine the terms of any compensation; or such compensation is explicitly restrictive in some way (e.g., instruments provided are unremunerated, non-tradable, or both).			
Argentina *	Law No. 24,144 Charter of the Reserve Bank of the Argentine Republic, amended as of March 2002	Article 38.	Profits not capitalized will be utilized for the general reserve fund and the special reserve funds until those funds reach 50 percent of the capital of the bank. Once that level is reached, profits not retained in capital will be freely transferred to the account of the national government. Losses made by the bank in a given year will be charged against reserves that were constituted in previous years and if they are insufficient they will be charged against capital. In those cases, the bank board will be able to direct following year profits to reconstitute the level of capital and reserves that existed prior to the loss.
Armenia *	The Republic of Armenia Law on the Central Bank of the Republic of Armenia, as of Dec. 28, 2005	Article 1. The Central Bank of the Republic of Armenia	6. The Central Bank and the Government of the Republic of Armenia shall bear no responsibilities for their respective obligations if not assumed such.
Belgium *	Constitution of Belgium of 1970	Section II - Share capital and rights attaching to shares. Article 10.	Shareholders shall be liable for losses only to the extent of their interest in the Bank.

Table 4. Results of the Review of Central Bank Legislation			
Country	Title and Date	Reference in the Law	Text
(Note: In countries indicated by an asterisk, either the state is explicitly free from the obligation to cover central bank losses; or the state has the power to determine the terms of any compensation; or such compensation is explicitly restrictive in some way (e.g., instruments provided are unremunerated, non-tradable, or both).			
Bosnia and Herzegovina	Law on the Central Bank of Bosnia and Herzegovina, amended as of March 7, 2003	Article 29. Coverage of shortfalls in capital of the Central Bank	Whenever: a. on a quarterly pro-forma (un-audited) balance sheet of the Central Bank prepared pursuant to Article 64 the value of its assets falls below the sum of its liabilities and its unimpaired authorized capital, or b. the net profit of the Central Bank for any financial year is insufficient to increase the authorized capital of the Central Bank to a level equivalent to five percent of the aggregate amount of monetary liabilities (as defined by Article 32) shown on the balance sheet of the Central Bank for the end of that financial year, the Ministry responsible for the budget of Bosnia and Herzegovina shall, within two months after submission of that balance sheet to the Presidency of Bosnia and Herzegovina, provide Convertible Marka in such amount or amounts as shall be necessary to remedy this deficit.
		Article 30. Restrictions on allocation of net profit	No transfer, redemption or payment pursuant to Article 27 or 28 shall be made if, as a result thereof, in the opinion of the Governing Board of the Central Bank, the assets of the Central Bank would be less than the sum of its liabilities and unimpaired capital and reserves.
Cape Verde	Organic Law of the Bank of Cape Verde of May 29, 2002	Article 57 - (Income for the Year)	8. If the Bank incurs a net loss during any financial year: (a) This loss shall be applied to the General Reserve, and if the latter should prove insufficient to cover the total amount of the loss, the balance of the loss should be transferred to unappropriated earnings; (b) After the submission, by the Bank, of a report or statement confirming the balance of the cumulative losses, the Government shall deliver to the Bank, within a maximum period of 60 days, funds, negotiable instruments that are dated and on market-determined terms and conditions and at market-determined exchange rates, in the amount or amounts necessary to make up the deficit.

Table 4. Results of the Review of Central Bank Legislation			
Country	Title and Date	Reference in the Law	Text
(Note: In countries indicated by an asterisk, either the state is explicitly free from the obligation to cover central bank losses; or the state has the power to determine the terms of any compensation; or such compensation is explicitly restrictive in some way (e.g., instruments provided are unremunerated, non-tradable, or both).			
China	Law of the People's Republic of China on the People's Bank of China (12/27/2003)	Article 38	The People's Bank of China shall have an independent budget arrangement. Its budget shall be reviewed by the fiscal authority and become part of the central government budget. Its execution is subject to the supervision of the fiscal authority under the State Council.
		Article 39	The People's Bank of China [shall] surrender to the central budget its net profit each accounting year after making general provisions at a level set by the fiscal authority. Losses of the People's Bank of China shall be covered by fiscal appropriation from the central budget.
Congo, Democratic Republic	Law 005/2002 of May 7, 2002 on the Establishment, Organization, and Operations of the Central Bank of the Congo	Article 52	The government shall be liable for net losses sustained by the Bank if, at any time, the general reserve account and the special reserve accounts are depleted.
Croatia	Law on the Croatian National Bank, new law enacted on April 5, 2001	Article 1. Subject Matter of the Law Article 53. Allocation of Surplus and Coverage of Losses	(2) Obligations of the Croatian National Bank shall be guaranteed by the Republic of Croatia. (5) Any shortfall between income and expenditures that cannot be covered from general reserves shall be covered by the government budget.

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Dominican Republic *	Dominican Republic - Monetary and Financial Law No. 183-2 of December 3, 2002	Article 16. Net Worth, Accounting, and Financial Statements System	When a deficit is generated [in a fiscal year], it shall be covered first by debiting the General Reserve Fund. If this is not sufficient to cover the deficit, the Government shall absorb the difference by a transfer of funds to the Central Bank or by issuing a Treasury Bill, whose maturity shall not exceed one (1) year, for the total amount of the difference, at an interest rate that may not be less than the market interest rate. This Treasury Bill may be broken up by the Central Bank in order to trade it on the secondary market. The Government shall include the payment of this Bill in its budget the year after it is issued.
		Article 82. Debts and operational deficit	The government will fully cover the cumulative deficit of the Central Bank, debts of the public sector with the Central Bank existing when this Law comes into force, and losses generated as a result of application of Article 84 of this Law, either by *issuing bonds in local currency with a maturity of at least fifty (50) years*, or by allocating funds obtained by the government through long-term international financing, or through a combination of the two. *In the case of bond issuance in local currency, the benchmark interest rate will be up to 2 percent, and interest will start to accrue ten (10) years after the date of issue.* The government will transfer such bonds to the Central Bank, within one year from the date on which the Law comes into effect. For these purposes, the Central Bank shall present a study to the government, within six months following promulgation of this Law, giving details of the items referred to in this Article. The government will issue the bonds through decree; their use will be restricted to the purposes indicated in this Article.

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El Salvador *	Charter of the Central Reserve Bank of El Salvador, Reforms of May 23, 1996, amended by the Monetary Integration Law of 2001	Chapter II-Assets. Article 7	In no case may transfers be made from the Bank's capital and reserves, nor from the special funds, nor from its net profits or undistributed profits, in favor of public or private institutions. Exceptions to the above shall be contributions to the Fund for the Protection of Bank Officials and Employees, and to the Superintendency of the Financial System, as well as contributions to the Fund for the Consolidation and Strengthening of Financial Institutions pursuant to the Law governing the Financial Consolidation and Strengthening of Commercial Banks and Savings and Loan Associations, and contributions relating to Article 6(c) above. [Article 6(c) states: any net end-of-year profits shall be assigned in the following order: ...(c) to the State, 10 percent of profits after deduction of the above]
		Chapter XV - Transitional Provisions. Article 100.	The State shall make up the Bank's losses on the operations established in the Law on the Financial Recovery and Strengthening of Commercial Banks and Savings and Loans Associations, in a manner to be prescribed by the Ministry of Finance.
Estonia *	Law on the Central Bank of the Republic of Estonia of 18 May 1993, last amendment - RT I 1999,16, 271	Article 3. Independence of Eesti Pank	(2) Eesti Pank shall not to be held liable for the financial obligations of the State, nor shall the State be held liable for the financial obligations of Eesti Pank.
European Central Bank	Protocol on the Statute of the European System of Central Banks and of the European Central Bank, amended as of June 1, 2004	Allocation of net profits and losses of the ECB - Article 33.2	In the event of a loss incurred by the ECB, the shortfall may be offset against the general reserve fund of the ECB and, if necessary, following a decision by the Governing Council, against the monetary income of the relevant financial year in proportion and up to the amounts allocated to the national central banks in accordance with Article 32.5.

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Fiji *	Chapter 210 - Reserve Bank of Fiji of 1973, amended as of 1998	6. Capital	(5) The Minister, notwithstanding any other provision of this Act, shall cause to be transferred to the ownership of the Reserve Bank *non-negotiable non-interest bearing securities* issued by the Government from time to time for such an amount as is necessary for the purpose of preserving the paid-up capital from any impairment whenever, in the opinion of the Board, the assets of the Reserve Bank are less than the sum of its liabilities and paid-up capital.
		34. Revaluation Reserve Account	(2) Any net loss arising from any such change referred to in subsection (1) shall be set off against any credit balance in the Revaluation Reserve Account and, notwithstanding any other provision of this Act, if such balance is insufficient to cover that loss, the Government shall cause to be transferred to the ownership of the Reserve Bank non-negotiable non-interest bearing securities issued by the Government to the extent of any deficiency.
Finland *	No. 214/1998 Act on the Bank of Finland-Issued on 27 March 1998	Section 8. Capital	The Bank of Finland shall have primary capital and a reserve fund. The reserve fund can be used for increasing the primary capital or for covering losses, as prescribed in section 21.
		Section 21. Monetary income and allocation of profits	The monetary income accruing within the European System of Central Banks in the performance of its monetary policy function shall be calculated and allocated between the national central banks in accordance with the provisions of the Statute and the decisions made by the Governing Council of the European Central Bank. Half of the profit, following allocation of the monetary income that has accrued within the European System of Central Banks, shall be transferred to the reserve fund. The remaining profit shall be made available for use in accordance with the needs of the state. The Parliamentary Supervisory Council may decide on use of the profit for other purposes if this is justifiable because of the Bank's financial condition or the size of the reserve fund.

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			Parliament shall decide on the disposal of the profit made available for use in accordance with the needs of the state. If the Bank's annual accounts show a loss, the loss must be covered out of the reserve fund.
			If the reserve fund is insufficient to cover part of the loss, the uncovered part of the loss may be left temporarily uncovered. Any profits in subsequent years shall be used first to cover such uncovered losses
Ghana	Bank of Ghana Act, 2002 Act 612	7. Revaluation Account	(4) Where the profits referred to under subsection (1) are insufficient to cover the losses of the Bank in a financial year, the Government shall cause to be issued to the Bank redeemable negotiable interest bearing securities to the extent of the deficiency. (5) A credit balance in the Revaluation Account at the end of a financial year of the Bank shall be applied to redeem the outstanding securities issued under subsection (4).
		40. Liabilities for issue	(1) The currency cover assets of the Bank shall be available to meet only the liabilities of the Bank as represented by the total of the amount of currency notes and coins issued by the Bank and are in circulation. (2) Where at any time the assets of the Bank including funds in the General Reserve Fund and the Revaluation Account are insufficient to meet demands for the redemption of notes and coins, that deficiency shall be a charge on the Consolidated Fund.
Georgia *	The Organic Law of Georgia on the National Bank, as amended - October 23, 2001	Article 3. Independence of the National Bank	2. The National Bank is economically independent and shall cover all expenses with its own revenue. The National Bank shall not be responsible for the liabilities of the Government of Georgia. Likewise, the Government shall not be responsible for the liabilities of the National Bank, except in cases when the National Bank and the Government have committed themselves to guarantee such liabilities.

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Germany	Bundesbank Act of 23 March 2002	Article 42. Issue of liquidity paper	(1) The Federal Republic of Germany shall supply the Deutsche Bundesbank on request with Treasury bills or Treasury discount paper in the denominations and on the terms of the Bank's choice (liquidity paper) up to the maximum amount of 25 billion euro. The liquidity paper is payable at the Bank. The Bank is liable to the Federal Republic of Germany for meeting all obligations arising from the liquidity paper. 2) The par value of the liquidity paper issued shall be entered in a special account by the Deutsche Bundesbank. The funds may be used only to redeem liquidity paper that has fallen due or been repurchased by the Bank prior to maturity.
Guatemala	Organic Law of the Bank of Guatemala, Decree 16/2002 of April 23, 2002	Article 9. Allocation of net deficits	If after covering its operating expenditure, the Bank of Guatemala has insufficient income to cover the cost of implementing the monetary, exchange, and credit policy determined by the Monetary Board, the resulting deficit shall be applied as follows: (a) Charged to the General Reserve account; and (b) If the balance of resources or special assets in the General Reserve account is not sufficient to fully or partially cover the net deficits, these shall be absorbed by the Government. Within a period not exceeding 30 days from the end of the fiscal year in question, the Monetary Board shall begin to make arrangements with the executive branch through the Ministry of Public Finance for the amount of the uncovered deficit to be included in the draft General Income and Expenditure Budget of the Government for the following fiscal year, in which case the Ministry of Public Finance shall make provision for covering said net deficits with Treasury bills or other financial instruments available to that Ministry, which shall yield interest at market rates and be negotiable by the Bank of Guatemala on the national or international secondary market.

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		Article 58. Limitation of liability.	When the Central Bank acts as fiscal agent of the government, it shall not assume liability for any financial or other obligations derived from the government's failure to pay the principal, interest, commissions, or any other commitment, financial or otherwise.
Iceland	Act on the Central Bank of Iceland [adopted on May 18, 2001]	Article 1.	The Central Bank of Iceland is an independent institution owned by the State. Its governance is subject to the provisions of this Act. All obligations of the Central Bank are guaranteed by the State Treasury.
Jordan	Law No. 23 of the year 1971 on the Central Bank of Jordan, amended as of 1992.	Article 9. Allocation of net deficits	(d) If the reserves are insufficient to cover any loss in the profit and loss statement for any financial year, an amount sufficient to cover the deficiency shall be paid by the Government within the first three months following the end of the financial year. Such payment shall be a first charge in favor of the Government on the profits which may subsequently be realized.
Kazakhstan *	Law No. 2155 of March 30, 1995 on the National Bank of Kazakhstan, amended as of July 10, 2003	Article 22. The government of the Republic of Kazakhstan and the National Bank of Kazakhstan.	The government shall not be liable for the obligations of the National Bank of Kazakhstan, just as the National Bank of Kazakhstan shall not be liable for the obligations of the government, with the exception of those cases in which it assumes such liability.
Kenya	The Central Bank of Kenya Act, amended as of January 1, 2001	9. General Reserve Fund.	(1) The Bank shall establish and maintain a fund designated as the General Reserve Fund, to which shall be transferred at the end of each financial year at least ten per centum or any other amount as the Board, in consultation with the Minister, may determine, of the net annual profits of the Bank after allowing for the expenses of operation and after provision has been made for bad and doubtful debts, depreciation in assets, contributions to staff benefit funds, and such other contingencies and accounting provisions as the Bank deems appropriate. (2) Subject to subsection (1) and section 51, the net annual profits of the Bank, calculated in

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			accordance with this section, shall be paid into the Consolidated Fund. *(3) The amount of any net losses of the Bank in any financial year which is in excess of the sums standing to the credit of the general reserve fund of the Bank shall be charged upon and paid out of the Consolidated Fund without further appropriation than this Act.*
Korea	The Bank of Korea Act, amended as of 1997	Article 100 (Recovery of Loss)	Any loss incurred by the Bank of Korea during any fiscal year shall be offset from the reserves and, should these be insufficient, the deficiency shall be made-up by the Government in accordance with the Budget and Accounts Act.
Kuwait	Law No. 32/1968 Concerning Currency, the Central Bank of Kuwait and the Organization of Banking Business	Article 17	(c) If the General Reserve Fund, in any year, is insufficient to meet the losses of the Bank, or if it can not be used to meet the losses, the Government shall cover the deficit.
		Article 48	The Central Bank shall enter in a Special Account the profits realized and the losses incurred as a result of altering the exchange rate of the Kuwaiti currency or any foreign currency, or altering the value of gold in terms of the Kuwaiti currency, as well as the profits resulting from the withdrawal of currency notes and coins under the provisions of Articles (10) and (11) of this Law. Credit balances on this account shall not be entered in the Profit and Loss Account of the Bank. Debit balances shall be met by the Government unless the Board of Directors decides otherwise.

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Kyrgyzstan *	Law of the Kyrgyz Republic on the National Bank of the Kyrgyz Republic of August 6, 1997	Article 1.The National Bank of the Kyrgyz Republic	5. The Kyrgyz Republic shall not bear responsibility for the obligations of the Bank of Kyrgyzstan. The Bank of Kyrgyzstan shall not bear responsibility for the obligations of the Kyrgyz Republic.
Lao PDR *	The Bank of The Lao PDR--Law No. 5 dated October 14, 1994, amended as of October 20 1999	Article 34: The methods of accounting the Special Reserve Account.	If the Bank of the Lao PDR has any net losses in any financial year arising from any such change as stipulated in Article 33 above such losses shall be set off against any credit balance in the Special Reserve Account. If such balance is insufficient to cover such losses, the Government shall issue to the Bank non-negotiable securities to the extent of the deficiency on such terms and conditions as the Bank of the Lao PDR may determine.
Lesotho	Central Bank of Lesotho Bill 2000	20. Paid-up capital of the Bank	(6) Notwithstanding this Act, where in the judgment of the Board, the assets of the Bank are less than the sum of its liabilities and minimum paid-up capital, the Board shall notify the Minister who shall authorize the transfer to the Bank of funds, negotiable securities bearing market-related terms and conditions or foreign exchange for the purpose of preserving the minimum paid-up capital of the Bank from impairment.
Lithuania *	Law on the Bank of Lithuania, Law No. I-678 of December 1, 1994, last amendment - March 13, 2001	Article 2. Legal Status of the Bank of Lithuania Article 23. Coverage of the Loss and Allocation of the Profit of the Bank of Lithuania	4. The State of Lithuania shall not be liable for the obligations of the Bank of Lithuania, and the Bank of Lithuania shall not be liable for the obligations of the State of Lithuania. 2. The loss for the financial year shall be covered from the reserve capital of the Bank of Lithuania.

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Malawi *	Reserve Bank of Malawi Act, Laws of Malawi Chapter 44:02 adopted in 1989	5.-	(1) The capital of the Bank shall be three million Kwacha. (2) The capital may, from time to time, be increased by such amount as the Board may resolve with the consent of the Minister, and the Government shall subscribe and pay up, at par, the amount of such increase; and the Government shall ensure that the Bank is kept solvent at all times. (3) The capital shall be exclusively held by the Government. (4) The Bank shall create and maintain reserves in accordance with section 54 of this Act.
		54.-	(2) The profit of the Bank shall be distributed in the following order- (b) in the event of a loss incurred by the Bank, such loss shall be deducted from the General Reserve Fund and if the General Reserve Fund is exhausted, the Government shall immediately cover the remaining loss without an appropriation Act being necessary. (5) Results from any devaluation or revaluation of the Malawi currency shall be posted directly into a special account without affecting the Bank's profit and loss account and any devaluation losses shall be covered by *promissory notes of the Government on such terms and conditions as shall be agreed upon between the Minister and the Bank.*
Mongolia	The Bank of Mongolia May 13, 2001	Article 35. Paid in Capital	2) If there is a deficit between the sum of the Bank of Mongolia's assets and the sum of its liabilities and paid in capital, the government shall, within two months of the announcement of such deficit by the Bank of Mongolia, take measures to cover the deficit by issuing obligations at market interest rates for the amount of the deficit and placing them in the Bank of Mongolia.

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Namibia *	Bank of Namibia Act, 1997 (Act No. 15 of 1997)	31. Revaluation Reserve Account	(2) (a) Where in any financial year the Bank incurs net losses arising from the change in value referred to in subsection (1), such losses shall be set off against any credit balance in the Revaluation Reserve Account. (b) If the balance in the Revaluation Reserve Account is insufficient to cover such losses, the Government shall issue to the Bank *non-negotiable securities to the extent of the deficiency, on such terms and conditions as the Minister and the Board may agree upon.*
Nepal	Nepal Rastra Bank Act of 2002	42. Allocation of Net Loss:	(2) The loss that cannot be adjusted after making allocation pursuant to sub-section (l), His Majesty's Government shall bear the loss.
New Zealand	Reserve Bank of New Zealand Act 1989, amended as of August 20, 2003	21. Foreign exchange gains and losses	(2) The Minister shall, without further appropriation, pay to the Bank out of the Crown Bank Account the amount of any exchange losses (whether realized or unrealized) incurred by the Bank as a result of dealing in foreign exchange under sections 17 and 18 of this Act.
Nicaragua	Organic Law of the Central Bank of Nicaragua, Law No. 317 of March 30, 2001	Article 10.	Losses that the Bank might incur in a particular fiscal year shall be applied to the reserves that have been formed in prior fiscal years and, should this be impossible, shall affect the capital of the institution. In this case, the Government of the Republic will transfer to it negotiable public securities, that will produce interest at a rate equal to the average deposits rate in the banks, for the amount necessary to cover the capital shortfall.
Oman	Central Bank of Oman - Royal Decree No. 114 /2000 Issuing The Banking Law	Article 35: Deficiencies in General Reserve Fund	If at the conclusion of any annual accounting period, the general reserve fund is insufficient to cover the losses of the Central Bank for the previous year, the deficiency shall be a liability of the Government of the Sultanate and shall be paid by the Government of the Sultanate within 90 days. Any deficiency shall continue to be a liability of the Government until such payment is made to cancel the liability.

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Papua New Guinea *	Independent State of Papua New Guinea – An Act Entitled: Central Banking Act 2000	Article 50. Determination of profits and losses.	(4) Notwithstanding anything contained in this Act or in the Loans Securities Act (Chapter 134) or in any other law the Minister may create and issue to the Central Bank *non-interest bearing non-negotiable notes* for an amount not exceeding any payment made by the Minister to the Central Bank out of the Consolidated Revenue Fund in accordance with Subsections (1) and (2).
Paraguay *	Law No. 489 - Organic Law of the Central bank of Paraguay, as of 1997	Article 39. Issuance of Banknotes and Coins	Banknotes and coins issued shall be Central Bank of Paraguay liabilities and shall be unconditionally guaranteed by the Government.
		Article 111. Losses	Any losses incurred by the Central Bank of Paraguay in a given fiscal year shall be imputed to the reserves funded in prior fiscal years and if they should be insufficient, they shall affect capital of the institution.
		Article 114. Restatement of the International Monetary Reserve	Earnings resulting from any change in the valuation of assets or the obligations of the Central Bank of Paraguay held or denominated in gold, Special Drawing Rights, foreign currencies, or in other internationally traded units of account and resulting from changes in the value of the Guarani shall be credited to a special account called “Restatement of International Monetary Reserves”. Losses or gains resulting from such changes shall not be included in the Central Bank of Paraguay profit and loss account. Losses resulting from prior changes shall be covered by any surpluses in the “Restatement of International Monetary Reserves” account. If these should be insufficient, they shall be offset by the transfer of a non-negotiable Government bond in the amount of the resulting deficit.

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Peru *	Central Reserve Bank of Peru Organic Law (Decree-Law No. 26123) Date of Law: January 1, 1993	Article 93.	In the case of a loss, the reserve fund referred to in subsection b) of the preceding article shall be applied. If the reserve is insufficient, within thirty days of the approval of the balance sheet, the Public Treasury shall issue and deliver to the Bank nonnegotiable and interest-bearing debt titles equivalent to the outstanding amount.
Qatar *	Law No. (33) of the year 2006 - Qatar Central Bank	Article (6)	If the accounts of the Bank show deficit of the capital, the State should issue untransferable bonds, without proceeds, to cover the deficit.
		Article (8)	The Bank shall have a general reserve account to which 10% of the annual net profits shall be transferable. The necessary amounts for redemption of the bonds issued in accordance to the second paragraph of Article (6) of this law shall be drawn from the remaining percentage.
Romania	Law on the Statute of the National Bank of Romania of May 26, 1998, amended as of June 28, 2004	Article 44. Loss coverage	In the event of a loss incurred by the National Bank of Romania during a financial year, the loss shall be covered from the available sources in the following priority order: a) special revaluation account; b) statutory reserves.
Russia *	Federal law No. 86-FZ of the Russian Federation of July 10, 2002, amended as of June 12, 2006	Article 2	The State shall not be liable for the obligations of the Bank of Russia, nor shall the Bank of Russia be liable for the obligations of the State, unless they have assumed such obligations or unless otherwise provided by federal laws.
		Article 30.	Banknotes and coinage of the Bank of Russia shall constitute unconditional obligations of the Bank of Russia and shall be guaranteed by all of its assets.

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Rwanda *	Law No. 11/97 OF 26/7/1997 - Regarding Statutes of the National Bank of Rwanda	Article 45.	Profits and losses resulting from fluctuations of exchange rates are charged to profit and loss account of the Bank. However, profits or losses resulting from revaluation of foreign exchange holdings and international commitments registered to the balance of the Bank due to a revision of foreign exchange system or a modification of the value of exchange rate of franc decided by the Government are accounted for in a special account entitled 'Revaluation Account", and are not considered in the final profit and loss account of the Bank. The Government guarantees the Bank against any loss that would result from such a revaluation. On Bank requirement, the *Government will issue Treasury Bills not negotiable and non interest-bearing*, for an amount equivalent to the debit balance of revaluation account. These Treasury Bills will be refundable by deduction from the Government share of *Bank profits* according to a schedule agreed upon with the Minister having Finances in his attributions.
Sierra Leone	The Bank of Sierra Leone Act, 2000	Article 11	(7) If the Bank incurs any net loss during any financial year such loss shall be charged to the General Reserve; and if the General Reserve is inadequate to cover the entire amount of the loss, the balance of loss shall be carried forward in an account for accumulated losses.
			(8) The balance of accumulated losses shall be replenished by Government by transferring to the Bank funds negotiable securities bearing market-related terms and conditions or foreign exchange on the lines indicated in subsection (6) of section 10.

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			(9) If in any financial year there are accumulated losses carried forward from previous years and which losses have not yet been replenished by Government in the manner provided in subsection (8), the final profit of that year shall be allocated in priority to the cancellation of such accumulated losses. The allocations stipulated in subsections (2), (3), (4) and (5) shall refer only to the balance of profits which remains after the cancellation of accumulated losses carried forward from previous years.
Serbia	Law on the National Bank of Serbia of 2004	Article 1. Article 77.	The Republic of Serbia shall guarantee for the obligations of the NBS. The excess of expenditures over revenues shall be covered out of the special reserves, and where these funds are insufficient, that excess shall be covered by the budget of the Republic of Serbia or by debt securities issued therefore by the Republic of Serbia and transferred to the NBS.
Singapore	The Monetary Authority of Singapore Act - Chapter 186, amended as of 2005	MISCELLANEOUS - 38. Guarantee by Government	(1) The Government shall be responsible for the payment of all moneys due by the Authority.
Tajikistan *	Law of the Republic of Tajikistan on the National Bank of the Republic of Tajikistan, amended as of December 14, 1996	Article 1.Legal Status of the National Bank of Tajikistan	The Republic of Tajikistan shall not be liable for the obligations of the National Bank of Tajikistan, except for those assumed with consent of the Madjlisi Oli of the Republic of Tajikistan or the President of the Republic of Tajikistan; and the National Bank of Tajikistan shall not be liable for the obligations assumed by the Republic of Tajikistan without consent of the National Bank of Tajikistan.

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United Arab Emirates *	Union Law No. (10) of 1980 Concerning the Central Bank, the Monetary System and Organization of Banking	Article (9) Article (52)	Should the General Reserve Account, at the end of any year be insufficient to cover the losses of the Bank occurred deficiency shall be met by the government. 3) Should the Account (a foreign exchange revaluation account) show a net credit balance at the end of the financial year, said balance shall not be included in the Bank's profit. Should the account show a net debit balance, the Government shall cover it by issuing *non-interest bearing, negotiable Treasury Bonds, which shall in turn be returned out of any net profits realized in subsequent years.*
Uzbekistan *	Law of the Republic of Uzbekistan On The Central Bank Of The Republic Of Uzbekistan No. 154-I dated 12/21/95, Amended as of December 15, 2000	Article 6. Independence of the Central Bank.	The state shall not be liable for obligations of the Central Bank, nor shall the Central Bank be liable for obligations of the state, unless they themselves have accepted such obligations, or unless foreseen otherwise by legislative acts.
Venezuela	Law on the Central Bank of Venezuela, amended as of September 4, 2001	Article 72	In the event that the balances in the accounts for undistributed earnings and capital reserves, as mentioned in the preceding article, should prove insufficient to cover financial imbalances during a fiscal year, the Republic shall be responsible for making the contributions required to replenish them. For the purposes of this Article, such contributions shall be made by allocating the corresponding credits in the budget for the fiscal year following that in which the amount required was determined. In the event that the fiscal accounts do not allow the budgetary allocation to be made, the National Assembly shall authorize a special issue of national public

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(Note: In countries indicated by an asterisk, either the state is explicitly free from the obligation to cover central bank losses; or the state has the power to determine the terms of any compensation; or such compensation is explicitly restrictive in some way (e.g., instruments provided are unremunerated, non-tradable, or both).			
			debt securities, under market conditions and with maturity not exceeding five (5) years.
Zambia	The Bank of Zambia Act, No. 43 of 1996	6. Capital	(5) Whenever the Board certifies that the assets of the Bank are less than the sum of its capital and other liabilities, the Minister notwithstanding the provisions of any other written law, shall, on behalf of the Government cause to be transferred to the ownership of the Bank negotiable and interest bearing securities issued by the Government for such amount as is necessary for the purposes of preserving the capital of the Bank from any impairment.

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