# Part C What level of financial resources do central banks need?

In Part B, we described the nature and range of the financial resources held by a sample of central banks, against the background of their highly heterogeneous economic exposures, as viewed through the lens of their accounting policies. The point was made that these components need to be integrated, when considering a central bank's need for financial resources. Why it is necessary to work within an integrated frame of reference was illustrated in a discussion of the evolving financial situation of five central banks. The entire discussion was descriptive, saying little about the considerations that would enter into a choice of the various components, in terms of their combined impact. In this part, we identify the main factors that would bear on such choices. In the course of doing so, we identify the chief ingredients of a central bank's requirement for standalone financial resources.

The main factors include the economic exposures resulting from the policy and operational functions assigned to the central bank; its economic environment; how exposures are manifested through accounting policies; the interaction of accounting income with the profit and loss distribution scheme; the nature of the problems associated with weak finances; and the political environment. Although these factors interact dynamically and ultimately must be considered as a package, for clarity of exposition we treat them one at a time.

## 1. Economic exposures

This section addresses the financial exposures of central banks in terms of their impact on a central bank's underlying or economic net worth, rather than in terms of their impact on accounting equity. Hence the terminology: "economic exposures". Economic exposures and accounting exposures may differ considerably. This is discussed in Section 3.

As was shown in Part B, economic exposures vary considerably between central banks – for one thing because they do not all do the same jobs; for another, because some are operating in the tails of their respective policy-operational-financial distributions, whereas others are not.[54] Some have quasi-fiscal obligations, others do not. Even normal monetary control is discharged in very different ways, reflecting the great variety of external environments and policy assignments.

These differences in function translate into wide variations in economic exposures. This is a vital point, since the adequacy of a central bank's standalone financial strength needs to be assessed against the financial shocks it is likely to experience.

One of the bigger sources of variation in central bank balance sheet exposures is currency exposure. Remarkably, net FX exposure, measured as the share in total assets of those denominated in foreign currency minus the share in total liabilities of those denominated in foreign currency, varies from near zero (eg Bank of Canada, Bank of Japan, US Federal Reserve) to near 100% (eg Czech National Bank, Saudi Arabian Monetary Agency, Sveriges Riksbank, Swiss National Bank). These

[54] (BIS (2009)) discusses the range of functions discharged by a representative sample of central banks.

large differences in FX exposure reflect the multiple and complex reasons why a central bank might hold significant foreign currency assets in proportion to its balance sheet:

- Some central banks pursue their macroeconomic stability objectives through a fixed exchange rate, which may entail large foreign currency reserves.
- Some also acquire FX assets as the inescapable counterpart of banknote issuance and other monetary liabilities. This is because underdeveloped or thin financial markets at home mean that there are no safe or non-distorting local investment opportunities.[55]
- Some central banks acquire FX while trying to support exporters by depreciating the exchange rate. As this is partially at the expense of others (importers, businesses in the non-tradables sector, and consumers) and could alternatively have been provided by budgetary actions, these central banks can be seen as undertaking quasi-fiscal policies.
- Some central banks hold foreign currency assets as insurance for possible disruptions to financial stability, including with respect to continuity of exchange market functioning. To a more limited extent, responsibility for discharging such an insurance function could also be allocated to the ministry of finance.

Exchange rate risk is not the only exposure that varies widely among central banks. Figure 3 (page 26) depicted remarkable variation in all types of exposure presented.

The scale and nature of recent changes in exposures is also instructive. Figure 3 shows three central banks that saw exposures grow fourfold or more between 2005 and 2010. These large changes in economic exposure highlight a non-linear connection between a central bank's core functions and its financial position. Even for monetary policy's pursuit of macroeconomic stability, strong non-linearities are relevant. In normal states of the world, central banks can induce wide variations in short-term interest rates essentially without changing their balance sheets.[56] When policy operates near the zero lower bound for interest rates, large variations in balance sheet size may be needed in order to exert a significant influence on interest rates. The purchase of risky assets may in turn be an unavoidable, or even a deliberate, part of quantitative easing.

Consider as well the protection of the financial system – arguably also a core role of central banks.[57] Given a fear-induced, system-wide increase in demand for central bank money, the central bank is the only public policy actor that can prevent the shock's negative effects multiplying via a collapse in core interbank intermediation channels. Supplying sufficient additional central bank money will expand the balance sheet – potentially very substantially – in ways that may involve the central bank taking on financial risks. These risks may include credit exposures, where full collateralisation would be inconsistent with the policy purpose; interest

[55] Government debt might not be established in a deep and liquid market with effective price discovery, and direct lending to the government might expose the central bank to high political risk. Investing in or lending to private sector entities may both entail significant credit risk and create distortions in the pricing of local credits.

[56] For a good discussion of this point, see Disyatat (2008). Theoretical foundations can be found in Woodford (2000) and Bindseil (2004), among others.

[57] See Goodhart (2010) on the debatability of this proposition.

rate exposures, where a re-booting of financial intermediation requires below-normal interest rates; and possibly also exchange rate exposures, where the foreign currency business of local financial intermediaries is similarly important to economic functioning and similarly affected by fear.

In short, the recent period has dramatically illustrated that a central bank's policy responsibilities may involve taking on large-scale contingent financial risks. The assessment of an individual central bank's need for financial strength must thus consider financial exposures in the tails of its particular risk distribution, over and above the financial exposures incurred in normal times.

It is therefore a difficult task to extract messages about the relationship between economic exposures and preferred or desired financial strength from central bank data. Consider the lower panel of Figure 6 (page 34), where we compare observed economic exposures (from Figure 3) with the equity-plus-banknotes measure of financial resources. A casual look suggests that large economic exposures and ample financial resources do not normally go together. That might seem counterintuitive, as large exposures might be expected to motivate the holding of large buffers, and large buffers might facilitate large exposures.

One reason for not basing conclusions on such casual looks is that the measured exposures do not include the contingent financial risks that we have just noted are potentially very large. We could make guesses as to the size of those contingent risks. But any guesses we might have made five years ago about the probability of encountering financial risks associated with the tails of central bank operations, and about the likely scale of their financial impact, would probably have been revealed by subsequent events to have been way off the mark. A second reason for not inferring revealed preference is that part of our measure of financial resources is equity, which is depleted by large exposures that have turned into large losses. We may be observing unwanted outcomes, rather than revealed preferences. And a third reason is that there are other important and yet-to-be-discussed determinants of appropriate financial strength for a central bank. These may affect, perhaps greatly, the level of standalone financial resources sought by central banks. We turn to these additional factors now.

## 2. Conventional financial risk management options are limited

Numerous financial risk management devices that are routinely used in commercial banking (eg setting credit and market risk limits, reducing credit risk by taking collateral, reducing exposures as their riskiness increases) are applicable to central banks. Given the large scale of financial exposures present in many central banks' balance sheets, one might in fact expect central banks to be leaders in the use of such devices. Indeed, central banks commonly use financial risk management systems to manage certain parts of the balance sheet, such as foreign exchange reserves. But no central bank risk manages its entire balance sheet, because to do so would incur a high risk of conflicting with policy interests. Even where risk management systems are in active use, they are almost always focused on assessing and controlling the smaller contributor to financial risk: active risk-taking (usually assessed *relative to* the structurally and policy-determined strategic benchmarks in which one finds the dominant exposures).[58] And, as is well known to enterprise risk managers and the boards of commercial banks, close control over risks in any one

[58] Borio, Heath and Galati (2008).

area may not even reduce overall financial risk, since risks in one area may offset those in another.

The limited use of active financial risk management thus reflects the dominance of policy objectives over financial ones. The exposure itself may be intentional – eg the Fed has been lengthening its asset duration at a time when interest rate risk is high in order to drive long yields down. Or, more commonly, acting to reduce the exposure would work against policy interests. Consider the following illustrations:

- In the ongoing financial crises, central banks have in many cases relaxed pre-existing collateral standards. To have enforced standards could have further harmed intermediation by reducing the available supply of good collateral used in such intermediation.
- When credit risks rise, central banks generally do not enforce the credit limits that they may have applied to domestic counterparties, let alone tighten such limits. To do so would risk precipitating a run on such counterparties.
- Central banks may incur exchange rate risk when they make FX interventions to influence the exchange rate. No immediate attempt is made to offset or hedge that risk, as to do so would involve creating equivalent new orders on the other side of the market, neutralising the desired impact on exchange rates.[59]
- In a similar vein, hedging (whether in the cash or derivatives markets) the interest rate risk acquired in the course of liquefying private portfolios by lengthening the central bank's assets would work against the policy objective.
- The rule that the central bank will never lend to a financial institution that may be insolvent breaks down when systemic shortages of liquidity are likely to provoke asset fire sales that could further threaten solvency. Lending into possible insolvency may be a necessary part of a solution that assures solvency.

## 3. Accounting policies and the role of distribution schemes[60]

Part B established that central banks use a variety of accounting policies, both for valuation and income recognition. A variety of approaches is also seen on financial buffers and provisioning. There are no common standards for central banks. Does this matter?

Accounting policies should not in principle change economic reality. This is true especially for central banks, as their accounting equity is usually not bound at zero (or a higher amount set by regulatory minima), and costly actions are thus not triggered by accounting measurements. However, accounting policies can affect

[59] This is not to say that FX risk cannot eventually be hedged by a central bank without undermining policy objectives. Holding a foreign currency reserve does not per se involve having a target for the exchange rate: the purpose may simply be to have the option to intervene when international capital markets are effectively closed. In New Zealand and Sweden, FX reserves held by the respective central banks are at least partially hedged (around three quarters hedged in the case of the RBNZ). And in the Netherlands, the FX risks associated with reserves on the central bank's balance sheet are totally hedged.

[60] This discussion proceeds as if central banks have a choice over their accounting policies and surplus distribution schemes. That is not always the case. Nor is it the case that choices once made can easily be changed, out of concern that (for example) stakeholders assume that the numbers are being massaged for convenience. Still, considering the selection of accounting policies and distribution arrangements highlights the considerations that would come to bear on those rare occasions that choices can be made.

reality through their effect on incentives and behaviour, and through their impact on distributions.

## a. Accounting policies and behaviour

How things are measured can change behaviour as follows:

### *Influencing the behaviour of central bankers*

In general, accounting should help provide incentives for decision-makers to pursue an entity's fundamental objectives, or at least not provide distracting incentives. But for central banks, fundamental objectives are long-term policy aims, not short-term financial ones. That might suggest, for example, valuing financial instruments according to their full-term income streams, so as to "look through" and not be distracted by their current market value. As an example, hold-to-maturity accounting could reduce potential pressures to protect the financial position at the expense of policy objectives.

Yet short-term financial outcomes may provide useful signals about public welfare, *in certain circumstances*. Central bank actions can transfer wealth from some citizens to others. Subsidising troubled banks may hurt some taxpayers and benefit others. Intervention to slow an exchange rate appreciation that reflects improving relative productivity means transferring wealth from consumers and non-tradable producers to exporters and foreigners. In both cases, overall welfare gains may more than offset the financial costs, but hiding such transfers (by not revealing them in published financial statements) could lead to errors of judgment about the evolving balance between costs and benefits. As the same time, financial results are more tangible and easily measured than society's welfare, creating a risk of over-emphasising the thing that is more apparent.

Accounting policies may disclose financial variability that, while large by some metrics, may be inconsequential for national welfare. In this case, in order to align central bankers' incentives with society's interests, profits should not be seen as an objective or losses as an indicator of failure. It may be easy enough to avoid setting profits as an objective, but it is surely more difficult to educate stakeholders to distinguish between losses that provide a useful signal of performance and losses that provide a neutral or conflicting signal. Here, the quality of the central bank's financial reporting is crucial. The explanatory material included in the financial report is increasingly recognised as an aid to managing the tension between full disclosure of financial variability and maintaining the incentives for policymakers to think long term.[61]

This discussion of incentives and behaviour is essentially about accountability. Central bankers are primarily accountable for their policy actions, but financial outcomes also need to be part of the cost/benefit analysis. Moreover, the stewardship of taxpayers' resources generally involves a fiduciary duty. This is true even where financial outcomes are dominated by other considerations. For example, when price stability is preferred to higher seigniorage revenues, a trade-off with tax revenues exists, even if it is rarely mentioned. Domination does not imply irrelevance.

[61] Bank of Canada (2011) and Darbyshire (2009). For a wider discussion of central bank financial reporting and accountability, see Sullivan (2002, 2005a).

The design problem for the accountability process is how to allow useful signals to come through – in order to shape appropriate incentives, and create the trust that is needed for effective delegation – without distorting incentives by making decision-makers accountable *both* for policy outcomes and *conflicting* second-order financial ones. Again, the quality of the explanatory material accompanying policy and financial reporting may be crucial to balancing these often competing considerations.

### *Influencing the behaviour of markets*

As discussed earlier, central banks' short-term financial outcomes rarely carry useful information about central banks' *capacity* to pursue their policy objectives. But rarely does not mean never.[62] And, more generally, financial markets may not understand that central banks are not financially constrained in the same way as commercial banks. Either way, if the financial market through which the central bank is transmitting its policy actions reacts as if the central bank was financially constrained, the transmission of those actions will be impeded.

Consider two examples where policy effectiveness could have been compromised by perceptions of weakness in a central bank's financial resources or its willingness to deploy them. In the early 1990s, market commentators in Japan started to question whether the Bank of Japan would follow through on quantitative easing, because of a supposed aversion to capital losses and the possible effects on the Bank's newly gained independence from the Ministry of Finance.[63] Similarly, current headlines such as "Fears grow of ECB balance sheet stress" and "Now let us stress-test the central banks" reflect attempts by commentators to make inferences from the state of central bank finances in the context of today's extraordinary policy actions.[64]

Financial disclosures may also come into conflict with policy signalling. For example, a central bank that wishes to express confidence that its crisis-wracked financial system is fundamentally sound might find it awkward to reveal writedowns of claims that it holds on financial institutions.[65]

In short, in the contexts just discussed, markets may erroneously draw conclusions from published financial information that make it harder for the central bank to achieve its policy objectives. Again, the quality of explanatory material is important if the central bank is to avoid suppressing information

[62] Although the context is not identical, there are notable occasions where financial constraints do matter for policy capacity, such as defending a depreciating exchange rate through FX market intervention. Such defences require the availability of foreign currency, which a central bank cannot create. Failed exchange rate defences may linger in the consciousness of markets, creating a sensitivity to the notion of financial constraints on policy that goes beyond the specific circumstances.

[63] JP Morgan (2002) and *Bloomberg BusinessWeek Magazine Online* (2003). See also the discussion in Cargill (2005).

[64] *Financial News* (4 June 2012) and Terrence Keeley in the *Financial Times* FT Alphaville blog (26 July 2010) respectively.

[65] This example suggests that marking such claims to market may be preferred to taking writedowns from impairments of assets held at amortised historical costs, since the former approach usually involves the mechanical application of market prices whereas the latter often involves the application of judgment. The judgment may be soundly based and backed by audit review, or the writedown may actually be required auditor's reactions to large changes in market prices and not be reflective of central bank judgment, but observers may find it difficult to distinguish.

Finally, for many countries, the standards used by the responsible authorities serve as a guide to acceptable behaviour by the community that they oversee. Such a leadership motivation may have influenced some central banks towards adopting full fair value accounting.

### b. Accounting policy choices and distributions

Surplus (or dividend[66]) distribution schemes typically use accounting measures of income, and distributions are usually asymmetric: surpluses are paid out in cash[67] but in almost all cases losses remain on the balance sheet, depleting equity. A striking illustration of asymmetric distribution comes from Israel. In 1998 the Bank of Israel experienced substantial exchange rate translation gains as the exchange rate fell. Given its accounting policies and distribution rules, the Bank was required to pay NIS 9 billion (most of recorded profits, and nearly 10% of the Bank's assets) to the government in February of the following year, notwithstanding that those unrealised gains had already been reversed. The loss in 1999 took equity negative, by almost the same NIS 9 billion.

Asymmetric distributions can have two types of effect, each potentially very important:[68]

- Where the scheme results in cash distributions to governments for unrealised gains, monetary financing of government expenditures is implied. Paying the government for the unrealised gain on foreign currency assets, or on a revaluation of gold holdings, has the same effect as creating an interest-free overdraft for the government.
- Equity may be depleted even where losses in one period are fully compensated by gains in another, as financial market prices fluctuate around a flat medium-term path. Unless there is some compensating mechanism, income variability that occasionally results in a loss can introduce a negative trend into equity, since losses are rarely automatically offset by new capital resources.[69]

For a distribution asymmetry to have a material effect, variations in income have to be big relative to trend income. By contrast, if normal income is large relative to variations, losses may be rare. Further, when losses deplete equity, a large normal stream of income can provide the wherewithal for rapid equity rebuilding (the distribution scheme permitting).

Such large variations in income can arise from large exposures that are realised, or where changes in fair value are recognised even if unrealised. Clearly, accounting

[66] To allow for those cases where surpluses are distributed to the government even when the government is not a shareholder, we will use the more general terminology of "surplus distribution".

[67] Or, more precisely, in current transfers of central bank money to the government by way of credits to the government's account at the central bank.

[68] Sullivan (2005b).

[69] For unrealised losses, revaluation accounts in equity, above or below the line, may be charged. Alternatively, if unrealised losses pass through the P&L account and into the distribution scheme, they would deplete equity unless there is other net income to be offset against, or unless the central bank is one of those rare cases where external resources can be called on in the event of losses. When the unrealised loss results from quasi-fiscal actions, the depletion of equity has the same effect as the central bank giving an interest-free loan to the government to enable it to fund the losing investments.

policies matter for this part of the equation. Normal income, on the other hand, is mostly independent of accounting policies.

The relationship between the variability of regular income and the variability of declared profits and losses

Figure 8


Bars reflect one standard deviation, centred around the mean; lines reflect minimum and maximum; in 2006-10.

Figure 8 presents the relevant data for a group of central banks. Normal income (see top panel) is measured by net operating income (essentially net interest and fee income, less operating expenses). The data suggests that many have low or even negative levels of normal income. Some sense of the variability of normal income is provided, using the standard deviation as the measure, albeit over a rather short period (six years). The bottom panel of Figure 8 adds in income from recognised revaluations and realisations, by focusing on declared profits. For five central banks, the variability of total net income (profits) is much higher than that of normal income. Average declared profit rises relative to normal income in just one of the five cases, but the more salient point for the distribution asymmetry is that in each of these cases notable losses are incurred in some years. Recalling that exposure to a distribution asymmetry involves a high variability of income relative to the level of

normal income, these data also raise the possibility that some of these central banks may potentially be exposed to a distribution asymmetry.[70]

## 4. Countering the effects of asymmetric distributions

Equity erosion via the action of a distribution asymmetry can be countered in four main ways:[71] by not recognising unrealised changes in value as income; by adjusting the distribution scheme so that some or all of the unrealised changes in fair value are excluded from the distribution; by smoothing or capping distributions; and by making distributions contingent on financial soundness. These approaches are described in turn, followed by a summary of some of the factors relevant to an assessment of their relative strengths.

### a. Using accounting policies to avoid the distribution asymmetry

As the distribution asymmetry is only encountered when income variance is high relative to normal income, two standard options are to not revalue assets and liabilities as their fair or market values change, or the relevant exchange rate changes, or to not recognise as income such revaluations and FX retranslations.

Valuing assets and liabilities on an amortised historic cost basis (hold-to-maturity accounting) is, as shown in Part B, commonly used by central banks. Some of that outcome is explained by the nature of the assets and liabilities held. Some is also (in principle) a matter of accounting policy choice. Against the background of the central bank's long-term policy orientation, and given the problems that can be caused by the distribution asymmetry, the factors that might motivate a choice to revalue financial instruments (and retranslate, for those denominated in FX) during their holding periods are as follows:

- Incentive and accountability issues involved in suppressing (often but not always distracting) signals, which have already been discussed.[72]
- The potential for losses to become trapped in the balance sheet, when not revealed by active revaluation. Hidden reserves may be built, but equally unobserved holes may develop.[73]

[70] Note that an exposure to the distribution asymmetry does not necessarily finally result in equity erosion. A high variability of income may generate frequent losses, even if compensated by an equal amount of profits in other years. But the final impact on trend equity also depends on whether there are compensating mechanisms that serve to offset the asymmetry. In the cases of the Central Bank of Chile and the Swiss National Bank, shown in Figure 8, there are such compensating mechanisms. The nature of such mechanisms is taken up in the next Section.

[71] This treats the economic exposures that give rise to the potential for such income variations as largely exogenous – in the sense of them being mostly a product of the policy functions that the central bank is tasked with, and the economic environment over which it has but a marginal, short-term influence.

[72] A hold-to-maturity accounting approach still allows changes in the values recorded in the notes to the accounts, even if they are not registered on the face of the financial statements. This is a commonly used approach – the Federal Reserve is one example – that allows disclosure (if not full transparency) while reducing exposure to the distribution asymmetry. In terms of the question of the effect of measurement and disclosure on incentives, there is presumably a difference between recording developments in the notes as opposed to on the face of the financial statements. Otherwise, why would the most visible course – the face – not routinely be chosen?

[73] See Stella (2011) for examples from Hungary, Jamaica, Nicaragua, Peru and Uruguay; and IMF (1998) for the Philippines.

- The potential to distribute income that is either illusory, or the counterpart of risk. Distributing income that does not exist, or that is needed as an offset to risk, is similar to encountering a distribution asymmetry – "surpluses" are distributed but shortfalls are not compensated.[74]

For those that revalue financial instruments, there is also the choice as to when to recognise changes in value as income in the P&L account. The use of revaluation accounts to shield unrealised changes in value from P&L leaves equity subject to the volatility inherent in the institution's economic exposures, but avoids passing that volatility to distributable income.

Standard revaluation accounts do not provide catch-all protection, however.

First, when losses dominate profits, the distribution asymmetry is largely irrelevant, and so too is any protection via a choice not to recognise revaluation income. The central banks of Chile and the Czech Republic have both experienced a run of losses over recent years. Both hold substantial foreign currency assets and are thus heavily exposed to exchange rate variations. Both take exchange rate translation gains and losses to P&L. But whereas the Central Bank of Chile takes unrealised changes in the domestic currency values of foreign currency instruments to the P&L statement, the Czech National Bank registers such changes in revaluation accounts. And both have experienced extended periods of negative equity from which recovery is expected to take a long time.[75]

Second, as illustrated by the Bank of Canada, the ECB (likewise the national central banks of the Eurosystem, which for the most part follow the same accounting approach) and the Bank of Israel, further protection can be obtained by asymmetric recognition of income from revaluations. For the Bank of Canada, unrealised revaluation income is routed to separate revaluation accounts (by income class), accounts which are not allowed to be negative. Losses that would otherwise take these accounts negative flow instead into the distribution system, offsetting other income and reducing the distribution. The non-negativity constraint thus creates an asymmetry in income recognition. However, in the Bank of Canada's case, the effect is temporary. When (unrealised) revaluation gains subsequently occur, the first priority is to recompense the government for forgone dividends, ahead of rebuilding the revaluation account buffers. Still, a partial offset to the distribution asymmetry is achieved.

In the Eurosystem accounting case, unrealised revaluation gains are also taken to revaluation accounts and, to the extent that previous revaluation gains have occurred, unrealised revaluation losses are charged against these accounts. Unrealised losses that cannot be offset against previous unrealised gains – as for the Bank of Canada, revaluation accounts are not permitted to be negative – are instead recognised as (negative) income in the P&L account. But whereas the Bank of Canada registers gains and subsequent losses separately only by instrument class,

[74] Those familiar with recent debates about appropriate compensation practices for risk-takers in banking will recognise the problem. Salary or bonus payments related to risky income earned, without adjustment for unrealised risks, may distort perspectives and lead to inappropriate behaviour.

[75] According to Cinibuch et al (2009), around 15 years for the Czech case. And according to Restrepo et al (2009), around 25 years for the Chilean case. In both cases, trend exchange rate appreciation is the main cause of losses and negative equity, although in both cases financial system restructuring costs contributed initially. Such appreciations lead to exchange rate translation losses that in both cases flow directly to the P&L. Were such losses to flow instead to a revaluation account in equity, the point would remain – negative equity would result.

the ESCB approach does so separately for each security (by ISIN). The non-negativity constraint thus applies at a much more granular level.[76]

And in the case of the Bank of Israel, following the experience of 1998-99 cited earlier, accounting policies were revised such that unrealised gains that result in an increase in foreign currency reserves (measured in shekels) are not counted as income but are instead routed to a revaluation account, whereas unrealised losses that diminish reserves are counted as expenses.

These approaches prevent unrealised gains from being distributed. And to the extent that the share of unrealised losses that passes through the P&L account and into the distribution scheme reduces total profits more than it causes overall losses, an opposing asymmetry is introduced into the equity path. At the same time, by virtue of non-negativity conditions for revaluation buffers, revaluation losses cannot be "trapped" in the balance sheet.

Third, a common feature of revaluation accounts is that clear rules govern what is to be held back, and when the accumulated buffer is to be released. In the Eurosystem case, these rules are unusually detailed, inter alia preventing revaluation gains and losses being netted off. And under IFRS, revaluation account balances cannot be used to offset other losses, such write downs of impaired assets. A potentially less rule-bound way of holding back income is the use of general risk (or "rainy day") provisions – the setting aside (before P&L is declared[77]) of income, in an equity account, to provide for the possibility of future losses being incurred.

Partly because unspecified future obligations are not "current liabilities", and partly because of the risk of abuse (hiding true income volatility), the use of general risk provisions is tightly constrained by generally accepted commercial accounting standards. But for reasons already stated, for central banks such general provisions can be a natural complement to risks that are not yet well identified. At the same time, the beneficial owners of central banks also have a strong preference for smoothed distributions, and in most cases there are no potential buyers whose interests need attending to (ie central banks are by design not subject to capital market discipline).

For these reasons, one would expect a fairly common use of general risk provisions by central banks. In the Eurosystem, for example, the ECB's accounting framework and those of several national central banks allow general provisions to be made for foreign currency, interest rate, gold price and credit risk (ECB (2012)). Such provisions are allowed or about to be allowed in Belgium, Cyprus, Finland, France, Germany, Greece, Italy, Luxembourg, Portugal, Slovenia and Spain (although they are not utilised in all cases). However, there are often constraints on such general provisions. For example, at the ECB they are limited in size to the amount of

[76] The separate treatment of each security line amplifies the income recognition asymmetry, by increasing the probability that there will not be previously registered gains against which to offset the losses. Indeed, in many years unbuffered unrealised losses will be charged against the P&L account at the same time as revaluation account balances are increasing due to unrealised revaluation gains.

[77] This qualifier refers to and highlights a distinction between general risk provisions, which are decided by an entity's management within whatever rules have been set down, and general reserves used to retain rather than distribute earnings. The latter may also be decided by the entity's management, although they may also be subject to negotiation with owner(s). However, risk provisions shelter income from declared profit, whereas general reserves do not. For those who only observe final P&L numbers and do not read financial statements in detail, that makes for a difference in transparency.

paid-up capital and at other central banks they are subject to tests such as being a provision "such as are normally provided" by financial institutions. In contrast, local legislation prohibits general provisioning by central banks in Austria, Estonia, Ireland, the Netherlands and Slovakia. A similar prohibition also appears to be the case for central banks that have chosen to adopt IFRS in full.

Upcoming changes in IFRS are likely to allow limited use of forward-looking provisioning in the future, although only with respect to credit risk and still controlled by tight standards on establishing expected losses.[78] For central banks that use IFRS, or where IFRS adoption is contemplated, this leaves in place the main problems with respect to general provisioning, since highly uncertain exchange rate and interest rate risks are also material for many central banks. More fundamentally, for central banks more than other institutions, the main need for buffers derives from actions in, and the consequences of, tail events. Tail events are inherently unpredictable as to timing and character. In short, effective general provisions for central banks are unlikely to be compatible with commercial accounting standards any time soon.

### b. Avoiding a distribution asymmetry by separating accounting and distributable income

The second approach to protecting against the distribution asymmetry is to break the one-to-one link between accounting net income and distributable net income. Although such a link is common and embedded in many central banks' laws, it is not a requirement of internationally accepted accounting norms such as IFRS.[79]

The Reserve Bank of Australia provides an illustration of the point. Unrealised income is included in declared P&L, but excluded from income available for distribution. Rules and judgment about what to distribute or retain in reserves are applied to distributable income.

The Bank of Canada achieves a similar outcome. The Bank, which uses IFRS, calculates a "net income" that does not include changes in the value of held instruments, and a "comprehensive income" that does include some such changes.[80] By agreement with the government, the distribution is keyed off net income. A possible loss in transparency, relative to the Reserve Bank of Australia case, arises from there being not one but two focal points for the declaration of income. That said, having more than one income construct, each serving a different purpose, may sometimes better convey the economic reality, especially where the different constructs are meant to illuminate rather than obfuscate.

### c. Distribution smoothing and capping

The distributable income of the Sveriges Riksbank – Sweden's central bank – is based on the five-year moving average of accounting income, after certain

[78] Recent draft proposals from both the IASB and FASB describe forward-looking approaches based on "expected losses", to replace the current more restrictive "incurred loss" model.

[79] The relationship between accounting net income and distributable net income in the UK is comprehensively covered in ICAEW (2010).

[80] Treasury bills (and the equity position in the BIS – other foreign currency assets are immaterial) are treated as available for sale, and are accordingly revalued to equity; government bonds are treated as hold-to-maturity, and are accordingly not revalued. The bulk of other assets is repos, and hence is treated as loans.

adjustments, rather than being keyed off the year's declared P&L.[81] To the extent that unrealised income volatility offsets within the smoothing period (ie the moving average of unrealised income tends towards zero), the distribution asymmetry is avoided.

The central bank of the Netherlands has another smoothing approach. There, losses can be offset – and hence equity rebuilt – by retaining subsequent surpluses for up to six years.

A different approach is to use a distribution cap that prevents pay-outs of exceptionally large surpluses, such as those caused by revaluation gains. The Swiss National Bank's distribution scheme caps profit transfers at an amount periodically agreed with the government, with surpluses that exceed the cap being retained in a distribution reserve.

### d. Offsetting the effects of asymmetric distributions via contingent distribution schemes

As discussed in Section 7 of Part B, distributions can be contingent on the state of the central bank's finances. If they are fully contingent, the distribution asymmetry is nullified by future retentions of surpluses (if they are sufficient), thereby allowing equity to be rebuilt to target.

In some cases, distributions of surpluses are mildly contingent on the state of the finances; in some cases, fully so. Relatively few central banks have schemes that make distributions contingent on having large equity buffers, with the Swiss National Bank being a notable exception. Should the SNB's special distribution reserve go negative, distributions are halted. Future surpluses go first to satisfy the target for general reserves (known as the currency reserves provision), then to rebuild the distribution reserve, and only then to fund (still capped) distributions.[82]

Even fewer central banks have direct access to external resources to compensate for losses. Direct access to external resources would provide a mechanism that could offset a distribution asymmetry, and protect equity in case of realised and lasting losses (such as those that the Central Bank of Chile experienced in the 1980s when it was obliged to finance failing banks). Two cases provide partial illustrations – partial in the sense that external resources can only be used to offset a single year's loss, and not to make up a continuing equity shortfall. In the case of the Bank of Korea, the law provides that the government budget will cover losses that exceed reserves, such that reserves do not go negative. In principle, this is hard-wired and non-discretionary. In the ECB's case, losses can be covered by appropriating the monetary income that would otherwise remain with the

[81] Accounting income in the Riksbank's case is calculated according to Eurosystem rules, with asymmetric treatment of unrealised revaluation income. However, among the adjustments made to determine distributable income are some that add back unrealised gains and losses that have been withheld from the P&L through the application of ESCB accounting.

[82] Ironically, the SNB also provides a striking example of non-contingent distribution arrangements. In order to provide a degree of predictability in annual profit transfersto the federal and cantonal governments, the SNB periodically agrees with the Department of Finance the annual distribution for five years ahead. This can result in a distribution even when annual profit is negative, as occurred in 2008 and 2010 (losses of CHF 4.7 billion and CHF 20.8 billion were recorded, inclusive of and indeed caused by unrealised revaluation losses, yet distributions of CHF 2.5 billion were made each year). Nonetheless, the continued payment of the agreed amount is ultimately subject to the mechanism described in the text, making the overall scheme contingent – unlike the Sveriges Riksbank case, where the smoothing mechanism continues to determine annual dividends irrespective of both annual profits and the level of equity.

Eurosystem's national central banks. This requires a decision of the Governing Council. To date, whenever confronted with such a choice, the Governing Council has always decided to cover the ECB's losses with the monetary income of the NCBs, even when in some of these years the NCBs have also suffered losses.

Another interesting example is the Federal Reserve. Here, the relevant "distribution" is not a dividend, but instead a voluntary transfer of surpluses to the Treasury.[83] Being voluntary, transfers could in principle be fully contingent on the Board's independent assessment of the need to retain surpluses in order to build buffers, although politics and history may constrain its freedom in that regard.[84] However the point of interest is not so much the determination of transfers and their ultimate degree of contingency, but instead how the Fed accounts for losses that would lead to lower future transfers to the Treasury. The Fed has recently clarified that losses that lead to shortfalls in the reserves (the "surplus") relative to their required level (see footnote 83) would be registered as an asset that represents the amount of the reduction in future transfers to the Treasury that is needed to rebuild reserves. With this practice, which is allowed by US GAAP (on the presumption that future earnings are sufficiently certain that the claimed value of the asset will be realised), accounting equity would not fall in the face of a temporary negative shock to earnings.[85]

There are three ways to conceptualise this accounting treatment. One is to consider it as equivalent to the treatment of deferred tax liabilities as assets. Such a treatment is allowed under most accounting standards when there are tax losses that can be carried forward into future years *and* when taxable income in those future years is sufficiently certain. The equivalence is not exact, since the Fed's transfers are voluntary and to the beneficial (though not formal) owner, rather than being externally mandated. A second conceptualisation is to consider the "deferred transfer" asset as a partial and temporary recognition of the unrecorded asset that is the franchise value represented by the net present value of future seigniorage (see Part A). Both conceptualisations highlight the key role played by the presumptions that the future income stream will be sufficient – neither conceptualisation would be valid were losses to be ongoing or normal income small – and that future surpluses can be retained. As such, the approach would not be available to many central

[83] The Treasury is not a shareholder; the Federal Reserve System comprises regional Reserve Banks, which are owned by private commercial banks ("member banks"), and the Board of Governors, which does not have a corporate structure. That the Treasury would receive the entirety of any surplus, after (as implied by law) the payment of small dividends to member banks and retention of a sufficient amount to equate a reserve (the "surplus") to the amount of capital paid in by members, was decided by the Federal Reserve Board in the 1950s. This decision has effectively been endorsed by successive governments and the legislature (by way of an absence of challenge), although on two occasions in the 1990s, Congress passed laws requiring special transfers, additional to the normal amounts.

[84] The political deal referred to in the preceding footnote implies constraints, but to a degree that is unknown, since to date the Fed has not made a loss and consequently has never been forced to stop transfers. In connection with the Fed's emergency actions to support the financial system, the then Secretary to the Treasury, Henry Paulson, acknowledged on 17 March 2008 (see Cecchetti (2009)) that if the Federal Reserve suffered losses, that would reduce transfers. Fed Chairman Ben Bernanke has subsequently signalled that under some scenarios, losses could be large enough that transfers would cease for a period (Bernanke (2011)).

[85] Other central banks have also used this treatment, eg the Deutsche Bundesbank in the 1970s. See also the following footnote.

banks, even if permissible under their accounting rules.[86] The third conceptualisation is to consider equity to be partly constituted by a target that is not yet reached, with the deferred transfer asset registering how far paid-in capital and retentions are short of the target. Netting the two would provide the equity number more familiar to most observers.

One reason for having dwelled on this accounting policy choice is to highlight the importance that some central banks place on maintaining positive equity – at least in accounting terms. Possible explanations for this sensitivity are explored in the section 5 below.

### e. Factors relevant to assessing the options

The options for avoiding a distribution asymmetry described above involve alternative arrangements for accounting policies and for distribution schemes. Such alternatives may not be available, or attempts to modify existing arrangements might carry too much risk, especially where conditions are adverse. Having said that, given a blank sheet of paper, various factors suggest that focusing on the design of the distribution system itself might be preferable to adopting accounting policies specifically designed to prevent large economic exposures from flowing through into high P&L variance. There are four main factors.

First, each of the accounting policy options for avoiding P&L variance work well in some circumstances but not others (eg accounting at amortised cost can allow distributions to continue while the underlying economic situation deteriorates). Second, accounting tends to be rule-driven, and the general usability of financial buffers may be constrained by the rules used to create them. By comparison, distribution schemes can be designed to provide more all-purpose protection. Third, the accuracy of the presentation of financial outcomes may be reduced when accounting policies are designed to smooth profit variance. This may erode trust, especially in circumstances where abnormal policy measures are required. And fourth, the distribution system is relatively simple and serves a single purpose (to transfer resources), while the accounting system is complex and has multiple objectives (which suggests the possibility of trade-offs between objectives).

## 5. The consequences of financial weakness

The theory covered in Part A suggested some reasons for believing that central bank financial strength – low or high – may empirically be a non-issue for advanced economy central banks with apparently narrow mandates. Yet central banks tend to display a strong aversion to financial weakness. Three examples are:

- the Fed's adoption of an accounting policy that rules out posting negative accounting equity even in the context of unusual losses;

[86] Examples of cases where losses were recorded as assets or negative liabilities rather than as reductions in equity are Costa Rica in the early 1980s, Peru in the 1980s, Thailand after the 1997 crisis, and Hungary in the 1990s. In each of these cases, future income was not assured. These special assets often grew to be very large components of the balance sheet (over 50% in the Costa Rican case, 25% in the Peruvian case; in Hungary, the unserviced notional claim on the government ended up by swamping accounting capital by a factor of 20). In these cases, such treatments confused analysis of the underlying economic situation, and contributed directly to a worsening of the central banks' finances by allowing continued distributions to the government despite significant and growing financial weakness.

- the Bank of Canada's agreement with the government that unrealised losses would be covered by the government if large enough to result in components of equity that are negative (Bank of Canada (2011)); and
- the ECB's Convergence Report 2012 which asserts that "… financial independence also implies that an NCB should always be sufficiently capitalised. In particular, any situation should be avoided whereby for a prolonged period of time an NCB's net equity is below the level of its statutory capital or is even negative, including where losses beyond the level of capital and the reserves are carried over."

Moreover, some central banks have acknowledged that their finances have played a role in their decision-making – or were at least a consideration in policy analysis. Bank of England Governor Mervyn King recently dismissed suggestions that government debt held by the Bank could be cancelled (as a way of more permanently financing government spending through money creation), partly on the grounds of the impact on the Bank's finances. Such an approach would leave the Bank with "no income, in the form of coupon payments on gilts, to cover the [higher] payments of interest on reserves" when interest rates eventually return to a more normal level. "The Bank would become insolvent unless it created even more money to finance those interest payments, and that would lead ultimately to uncontrolled inflation."[87]

As will be illustrated in this section, it seems that good policies, and good policy institutions, tend to push the question of the central bank's finances into the background. The reason for a continuing aversion to displaying weak financial positions even among central banks with strong reputations therefore seems to have three prongs:

1. Key central bank constituencies, including politicians and markets, may misunderstand apparently weak finances as implying past mistakes or imminent failure. Their misunderstanding may affect their behaviour in self-fulfilling, harmful ways.
2. Sometimes, weak finances may actually imply past mistakes or imminent failure, and it is difficult for politicians and markets to interpret accurately such noisy signals.
3. For some jurisdictions, the effect of policy actions on finances may contribute to creating a boundary line between decisions for the central bank alone and those that should at a minimum involve the fiscal authorities. If taxpayers (or some of them) are to be put at risk, the matter may prima facie be quasi-fiscal in nature. In such jurisdictions, the political authorities – and hence the central bank itself – may by design be sensitive to financial outcomes.

We consider these elements in more detail below.

[87] King (2012). Other examples include: the Central Bank of Chile announced in 2012 that it would cease adding to its portfolio of FX assets, in part because of the financial risks involved. The Reserve Bank of New Zealand in 2004 sought a capital injection from the government to allow it to absorb short-term mark-to-market losses from a new (more active) FX intervention policy "without appearing to jeopardise its solvency" (www.rbnz.govt.nz/finmarkets/foreignreserves /intervention/ 0147138.html).

### a. Harmful self-fulfilling prophecies

Credibility has also long been recognised as important for the effectiveness of monetary policy, in terms of the costs of attaining the objective.[88] In recent years, the roles of expectations and credibility have been central to explanations of both pre-crisis macroeconomic stability (under the so-called "Great Moderation") and the emergence of liquidity traps in Japan (in the 1990s and 2000s) and perhaps elsewhere.[89] Governor King ascribed in 2005 much of central banks' influence over interest rates to the power of market expectations, illustrating the point by reference to Argentine footballer Diego Maradona's ability to beat opponents by inducing them to react to what they expected him to do.[90]

If politicians misinterpret financial weakness as meaning that the central bank is now dependent on them for a bailout if policymaking is to continue, the power relationship is likely to be affected. Seeking a recapitalisation from the government would then be a double-edged sword. The mere act of seeking one might give up to elected politicians an authority that had been purposefully delegated to the central bank.

### b. Noisy signals

As Part A showed, history seems to provide examples where a central bank's financial problems have caused its policy problems or at least contributed to them. Yet the historical record is not clear; there are important counterexamples; and more careful empirical research suggests that strong conclusions are difficult to draw. The signal about potential policy problems that is provided by the existence of financial difficulties is noisy at best.

However there are clear instances where the signal of problems matches with self-assessment. In Costa Rica, by the end of 2002, interest-bearing liabilities were almost double interest-bearing assets. Given such a loss-making structure, the central bank was reluctant to lower its target rate of inflation, in view of the further reduction in seigniorage that would be involved, as well as of the costs of implementing the monetary contraction needed. The central bank's governor stated, "We, the central bank, have a negative net worth … and this remains our greatest challenge."[91]

And there are instances where the costs of policy actions being registered in the central bank's financial statements are consistent with an evaluation of the net benefits of policy actions. For instance, the holding of FX reserves often entails financing and opportunity costs.[92] These costs may be viewed as an insurance premium, paid against an expected but uncertain gain from the assured availability of FX assets when needed. Additional to the sterilisation cost, perhaps, may be a

[88] Ball (1993); Hutchinson and Judd (1989).

[89] Ahearne et al (2002); Mishkin (2011).

[90] King (2005).

[91] Francisco de Paula Gutiérrez, quoted in Stella (2008).

[92] Financing costs may be proxied by the spread between domestic and foreign interest rates, and thought of as equivalent to the sterilisation cost (Garcia and Soto (2004), Kletzer and Spiegel (2004) and Mohanty and Turner (2005)). Opportunity costs may be proxied by the difference between earnings on reserve assets and either the cost of maintaining external liabilities that could otherwise be repaid by the public sector (Edwards (1985)) or the private sector (Rodrik (2006)) or the forgone returns on domestic investments (Hauner (2005)). These costs should be related in equilibrium.

revaluation loss in the case of the domestic currency's trend appreciation, and a cost associated with the higher variance of the value of the central bank's balance sheet. While these costs might be viewed as offsetting corresponding gains in the private sector, [93] and perhaps also in the rest of the public sector, the existence of large losses at the central bank might provide a useful trigger for a policy reassessment.

To reinforce the point that few conclusions can be drawn when a central bank takes a financial hit as to whether policy will turn out well or otherwise, consider four recent examples of clear policy success, notwithstanding weak central bank finances: Chile, the Czech Republic, Israel and Mexico. At the end of 2010, these central banks had equity levels (relative to total assets) of –23%, –17%, –5% and –6% respectively, and these were not one-off instances of negative equity. Each had experienced negative equity over most of the preceding nine years, as a result of FX losses (and, in the case of Chile and the Czech Republic, significant costs from restructuring their weak financial sectors in earlier years). But in each case, macroeconomic stability has been progressively attained alongside a noticeable improvement in trend growth rates (the recent period of global slowdown somewhat excepted). The resulting real exchange rate appreciations have hit these central banks' finances, but as a reflection of upturns in their economies.

These benign cases are distinguished from others by the existence of successful institutions (governance arrangements) focused on macroeconomic stability (with inflation targeting featuring in all four cases), and by the fact that the source of recent losses was either politically acceptable (FX losses caused by exchange rate appreciation) or regarded as necessary (eg financial sector bailouts and restructuring costs in turnaround episodes). Moreover, there is a widespread understanding that these long-term financial positions are structurally sound (including those of the corresponding governments).

Still, given the mixed record, one might expect observers of a central bank with apparent financial difficulties to accord a low but non-zero probability to the existence of current or future problems in executing policy.

### c. Quasi-fiscal boundaries

The third prong mentioned concerned the financial position of the central bank being sensitive because it was meant to be, explicitly or implicitly. Illustrating the latter, in 2010 Governor Shirakawa of the Bank of Japan noted that asset purchases for quantitative easing involved financial risk that was quasi-fiscal in character. In his view, the central bank needed to take seriously the question of its authority to take such decisions independently.[94]

In this construction, the level of the central bank's financial strength reflects a social decision to provide the financial resources needed to implement autonomously those functions assigned to the central bank for independent execution, and no more. The limits can take several forms. One form is provisions within the central bank law that authorise particular types of financial risk-taking under defined conditions, with the implication that risk-taking outside such conditions is forbidden. Two examples might suffice.

- Up until the passage of the Dodd-Frank Act in 2010, Section 13(3) of the Federal Reserve Act provided the Federal Reserve with the authority to lend to

[93] See, for example, Holub (2004).

[94] In the case of asset purchases for QE, his answer was yes, as explained in Shirakawa (2010).

individual non-depository financial institutions (such as AIG, but more generally also to individuals, partnerships and corporations) in "unusual and exigent circumstances", subject to a qualified majority of Board members voting to do so. With the passage of the Dodd-Frank Act, that independent authority has been curtailed. Such lending is now restricted to those participating in a programme or facility with broad-based eligibility. More saliently for our purpose, such lending is also now required to be in a manner "consistent with sound management practices" that protects taxpayers from losses, and subject to the authorisation of the Treasury Secretary. According to records of the Congressional debate, the motivation for the restriction was to limit the ability of the Federal Reserve to put taxpayer money at risk through emergency lending.

- Following a protracted financial crisis in Japan, the statute governing the Bank of Japan was amended in 1998 to carefully define responsibilities for the Bank's risk-taking. There is now a formal structure for consultation with political and other authorities whenever unconventional lender-of-last-resort operations (ie those involving credit risk to the Bank of Japan or involving non-standard counterparties) are contemplated (BIS (2009)).

A second form is illustrated by examples where the central bank explicitly acts as an agent for the government, with the government owning the financial risks and rewards. The situation of several advanced economy central banks with respect to foreign exchange market intervention is illustrative. In Canada, Japan, the United Kingdom and the United States, the central bank holds few if any of the nation's official foreign exchange reserves on its balance sheet, yet the central bank is a prominent or the main agency involved in deploying these reserves in market interventions. Crucially, these central banks do not have unfettered independence in decisions to intervene. The location of the financial resources and associated financial gains and losses is substantially aligned with the location of decision-making authority.[95]

In this regard, the example of the Reserve Bank of New Zealand is also worth mentioning. As noted before, the central bank's governing law makes a distinction between government and central bank decisions on FX intervention. Where the government directs the central bank to intervene (or to implement a policy that requires intervention), gains and losses are for the government's account. Where the central bank decides to intervene, gains and losses are for its own account.[96] When in 2004 the central bank proposed to the government a policy change in favour of more active intervention, it was seeking (and did receive) both additional authority and additional financial resources in the way of more capital.[97]

[95] The South African Reserve Bank illustrates a variation on the same theme. In that case, the FX reserves are on the SARB's balance sheet, but FX gains and losses (including those arising from FX translations) are charged to an account of the government. By agreement, the government settles up for amounts that generate domestic cash flows, thereby sterilising such flows, leaving unrealised components effectively as a valuation item on SARB's balance sheet. In South Africa, decisions on FX intervention (including the amount of reserves held) are formally the responsibility of the government (or the Minister to be more specific) but the SARB is responsible for the day-to-day administration of the exchange rate controls.

[96] At least initially. Ultimately, as the government owns the central bank's equity and receives its dividends, all gains and losses flow to the treasury.

[97] See footnote 87.

These examples suggest a conceptual and political/constitutional framework that recognises exchange rate policy and associated interventions as quasi-fiscal in nature, and draws a connection between the authority to act in the foreign exchange market and the financial capacity to do so. In fact, exchange rate policy (ie regime and strategy choice) is usually a matter reserved for governments, for that reason – even if the central bank has been delegated the authority to implement exchange rate policy involving interventions (though subject to the policy objectives or targets established by governments).[98] In this context, the financial capacity to bear the risks of implementing policy can serve both as a signal about the degree of delegated authority, and a check on its use. In the examples discussed, both these strands are evident.

The idea that financial capacity can be used as a signal and constraint on quasi-fiscal actions by central banks has a more general application in some jurisdictions, notably in the United Kingdom. The Bank of England is thinly capitalised, consistent with an understanding that decisions that would put capital at risk are effectively decisions to put public funds at risk, and such decisions are properly for the government to take: "… the decision on whether to use taxpayers' money, no matter whether it is £60 billion or £6, always has to be for the Chancellor. There is no question about that."[99]

Several illustrations of the United Kingdom's perspective on the dividing line between matters for political versus central bank decisions are available.[100]

- New crisis management arrangements will provide for special support operations to be conducted by the Bank of England at the direction of the Chancellor – with a special purpose subsidiary being used to ring-fence the operation from the Bank's balance sheet – and under indemnities provided by the Treasury.[101]
- The principle of political responsibility for public money has also long been evident in the Bank's lender-of-last-resort arrangements. Unlike in many other jurisdictions where decisions on exceptional liquidity support operations are in the sole purview of the central bank, in the United Kingdom the Chancellor decides on operations that go beyond the Bank's published framework for operations in the money market.[102] This reflects an awareness that exceptional

98 Moser-Boehm (2005).

99 From Governor Mervyn King's testimony to the Treasury Committee of the House of Commons, 17 January 2012.

100 In view of the UK's approach to dividing responsibilities between elected representatives and the relevant administrative organs of state, the Bank of England has often been described as an "agency central bank". The Bank frequently refers to its role as an agent of the government, with respect to various functions. Those functions extend to the monetary policy sphere: in relation to the choice of policy target, it is for the Chancellor annually to determine, and the central bank to pursue. Nonetheless a recent controversy in the UK with respect to the disposition of cash surpluses arising from actions by the Bank of England that were indemnified by the Treasury suggests that not everyone is au fait with the dividing line under discussion.

101 UK Treasury (2012). Annex E contains a draft Memorandum of Understanding between the Treasury and the Bank of England (jointly with its subsidiary, the Prudential Regulation Authority) that spells out the arrangements for Bank advice to the Chancellor on risks to public funds; use of the Chancellor's powers to direct the bank; and financial arrangements that transfer risk to the public account.

102 Memorandum of Understanding between HM Treasury, the Bank of England and the Financial Services Authority, March 2006.

liquidity support operations can involve credit risk, even if there is no intention of supporting an insolvent institution.

- The principle has also been evident in the Chancellor's specific authorisation of each stage of the Bank's recent asset purchase programme. Quantitative easing has been implemented through the Asset Purchase Facility, under Monetary Policy Committee decisions, but subject to limits provided in stepwise authorisations by the Chancellor. Again, in other jurisdictions, QE decisions are typically for the central bank alone (even if, as in the Bank of Japan's case mentioned at the beginning of this section, the central bank is especially careful in taking such decisions because of their quasi-fiscal aspects).
- The aforementioned reaction of the Governor to the idea that the Bank create money to finance, directly and irreversibly, government spending (see the introduction to this Section) – a reaction that was partly based on the quasi-fiscal nature of the proposed action (King (2012)).

The clear thread through these UK examples is that it is the responsibility of politicians to take decisions involving the expenditure of public money (or the risk thereof), and that the Bank of England's lack of a deep capital backing provided by Parliament reflects and reinforces this view. Accordingly, notwithstanding the absence of a legal requirement for positive equity, losses that drove equity into negative territory would raise questions of the legitimacy of decision-taking.

In summary, central bank financial weakness might not be an issue in its own right, but rather it could be an issue because it *may* signal something about the central bank having stepped into quasi-fiscal territory, which *may* raise questions of legitimacy. Whether financial outcomes are valid signals of such issues depends very much on the jurisdiction and its norms with respect to the delegation of state powers and responsibilities – as well as, obviously, on the particulars of each case.