

## Part D Assessing the appropriate amount of financial resources – a framework

What is the right amount of capital? The question is asked both by central banks themselves and by other interested parties. In the United States, for example, the General Accounting Office in 2002 reviewed the Federal Reserve's Surplus Account (one of the two main components of Fed equity) with the idea in mind that less might be needed.<sup>103</sup> And in Sweden, a commission of inquiry was set up to recommend legislation for the Riksbank's financial independence with a view to buttressing the central bank's institutional independence. The commission had to grapple with the question of the appropriate amount of financial strength.<sup>104</sup>

Risk-adjusted capital adequacy ratios are sometimes computed for central banks, similar to those applied to commercial banks under Basel banking regulation guidelines.<sup>105</sup> And VaR-type analysis is also suggested as a way of understanding the financial exposures of the central bank, as a step in determining capital needs.<sup>106</sup> However, each of these approaches deals with only part of the question.

In this concluding section, we suggest a framework for assessing what level of capitalisation is appropriate, within the context of the equally important question of financial resource adequacy. As will be evident, a framework is required rather than a formula, given the diversity of situations faced by central banks. We take as given the very different economic and geopolitical contexts within which central banks operate. And for the most part we take as given their mandates, although ultimately we suggest that financial consequences ought to be a consideration in society's choice of the mandate. The suggested framework attempts to be comprehensive in all important dimensions.

### "Financial strength" revisited

First, we revisit the concept of financial strength as used in this paper, in case this section is read separately. As explained in Part A, we are concerned with *standalone* financial strength. Financial strength means the capacity to continue performing the functions for which the central bank is responsible. As there is usually no legal lower limit for equity, continuity of performance involves the ongoing ability to *fund* and *implement* operations without the central bank being obliged to do things that would prevent it from attaining its objectives.

<sup>103</sup> It concluded that "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." United States General Accounting Office (2002).

<sup>104</sup> The Commission was asked to consider the appropriate amount of "own capital", but it could not in the end determine whether the appropriate concept for financial independence (strength) ought instead to be a wider one that includes currency in circulation as a source of (nearly) cost-free income. Commission of Inquiry (2007).

<sup>105</sup> The Bank of Japan reports a capital adequacy ratio (which uses banknotes issued as the denominator) in its annual financial statements. However, unlike capital adequacy ratios under Basel banking regulation guidelines, the capital adequacy ratio reported by the BOJ is not risk-weighted.

<sup>106</sup> Blejer and Schumacher (1998), Nocetti (2006).

As discussed in Part A, these points have the following implications for our definition of financial strength:

- Future earnings capability is more important than current accounting equity, which is in turn more important than accounting capital.
- The ability to create new money and hence fund *current* operations is important to releasing the liquidity constraint. But, if this comes at the expense of achieving policy objectives, the power of creating money ceases to be a source of strength. Given the relevance of expectations, this applies also to future money creation implied by current operations.
- Placing emphasis on an ongoing capability to *fund* operations consistent with objectives expands the focus beyond equity as a cost-free base for income generation. Also to be considered are banknotes on permanent issue, and the permanent component of commercial bank deposits at the central bank.
- Placing emphasis on an ongoing ability to implement operations draws attention to political and market behaviours in response to the state of a central bank's finances. To insiders, the ongoing ability to fund operations may be assured, but political or market doubts about that may create insurmountable implementation difficulties. The eye of the beholder matters, though perhaps more for the required amount of financial strength than for its form.
- Placing emphasis on standalone financial strength draws attention to the central bank's mandate to *independently* formulate and/or implement policies and functions. We distinguish agency functions from independent ones, in accordance with the ideas that policy and functional independence is vitiated without independent access to the necessary resources – including financial resources – and that those who pay have (or feel they have) the right to say.

In short, financial strength refers to the ongoing ability of the central bank to fund and implement operations in line with the policy aims for which it has independent responsibility.<sup>107</sup> But because financial strength on this definition is usually difficult to observe, the amount of available and accessible financial resources becomes the key element of financial strength.

With these considerations in mind, we identify four steps in this framework.

## 1. Financial exposures arising from policies and functions

*What are the financial consequences of the policies and functions for which the central bank has independent responsibility?*

It is widely accepted that independent control over financial resources should be matched to the delegated responsibilities for policies and functions that require such resources. In normal times, it is relatively straightforward to estimate how large those financial resources should be.<sup>108</sup> The difficulties arise when estimating the

<sup>107</sup> This is similar to Stella's (2008) definition of financial strength as "the extent to which an entity is [not] constrained by its financial situation in pursuing its strategic goals or policies", but Stella crucially restricts this definition to consideration of those goals and policies for which the institution has independent responsibility.

<sup>108</sup> The central bank of the Netherlands, among others, has experience with using VaR and ALM techniques (Bakker et al (2011)).

scale of the financial resources that will be needed in abnormal times. We identify three major difficulties:

First, the central bank may have independent responsibility for the provision of **systemic insurance**. Last-resort functions – whether with respect to liquidity provision, capital support or market-making – can involve massive financial exposures. The potential scale of last-resort interventions, and the nature of the financial risks involved, may be without historical precedent, although data from other countries' experiences can probably be more actively used than they are at present.

A stumbling block is that the central bank's degree of responsibility for such systemic insurance functions is rarely well spelled out, in statute or elsewhere. Even where emergency liquidity provision (lender of last resort) has been assigned to the central bank, it is commonly constrained by a provision, or at least an understanding, that it be deployed only where credit risk is negligible.<sup>109</sup> Yet in systemic liquidity crises, credit risk is no longer negligible.<sup>110</sup>

To arrive at reasonable guesstimates, clearer statements of responsibilities for the independent implementation of systemic insurance functions may be required. This may seem like the tail wagging the dog – such statements ought to exist in any case, for the sake of good governance. But the decision to delegate such responsibilities for independent execution should also take account of the potential financial consequences. Legitimacy and sustainability could otherwise be undermined. Hence the tasks of spelling out independent responsibilities and of assessing their possible financial consequences cannot ultimately be separated.

Second, **crises alter the financial risk characteristics** of conventional policy functions, as when monetary policy is applied in pursuit of macroeconomic stability aims. For example, QE involves taking interest rate risk out of the market and onto the central bank's balance sheet, and may also involve the acquisition of credit risk. These have potential fiscal consequences.

Third, standard **risk management mechanisms can conflict with policy objectives** (as discussed in Part B). Collateral policies may need to be relaxed, to avoid choking off the supply of low-risk instruments, and to deflect the charge that the central bank is protecting itself at the expense of less able creditors. It may be impossible to withdraw credit lines; indeed, they may need to be expanded to avoid exacerbating an already difficult situation.

The point is that when an independent policy responsibility rests with the central bank, the potential financial consequences need to be considered in any assessment of its appropriate financial strength. Moreover, a growing record of crises makes it clear that exposures to tail events must be considered, since that is where the real action is with respect to central bank finances. If the central bank's independent responsibility extends to systemic insurance functions, these and the

<sup>109</sup> Few laws contain direct expressions of such restrictions (one of them being that of the central bank of Guatemala which can lend "only to resolve temporary deficiencies of liquidity, taking into account that for this the Superintendent of Banks must present a report on the equity situation and the portfolio of the requesting bank"), although several laws associate powers to undertake emergency lending with "temporary liquidity problems". In most cases, the restrictions are either contained in policy documents or are understood.

<sup>110</sup> As explained in, inter alia, the Ingves Report on "Central bank governance and financial stability" (May 2011), especially in the box on pages 38–9.

associated financial risks would need to be factored into the assessment of financial needs, to the greatest extent possible.

The situations of the Bank of England, the Eurosystem central banks and the Federal Reserve – discussed earlier in this paper – provide an illustration of these various factors, with particular reference to unconventional policy actions for unusual circumstances.

In the United Kingdom, the situation is quite clear-cut.<sup>111</sup> Decision-making for unconventional actions (ie those not provided for by regular facilities) occasioned by a financial crisis that may put public funds at risk remains with politicians and is not delegated; the financial consequences (positive and negative) likewise revert directly to the public purse. In these cases, the Bank of England has primary operational responsibility, acting as an agent of the government.

In the euro area, the ECB and the Eurosystem NCBs have taken on credit risk in their attempt to keep monetary transmission channels functioning throughout the eurozone. The ECB and the NCBs would bear the initial losses arising from their share of writedowns on Eurosystem holdings, and (for the NCBs) any additional losses from own-portfolio holdings not covered by loss-sharing arrangements. The NCBs could also bear additional losses if monetary income were to be surrendered to assist the ECB.<sup>112</sup> Other things equal, compared with the Bank of England's situation, more financial strength would be needed under such an arrangement than in the Bank of England's situation.<sup>113</sup>

In the United States, the use by the Fed of its Section 13(3) powers to lend to individual non-banks in the early phase of the subprime crisis raised questions in the minds of legislators about control over decisions involving financial risk and distributional effects. The Fed's powers were subsequently circumscribed by the Dodd-Frank Act: they now require the decision of the Treasury Secretary.

The FOMC, however, retains independent decision-making authority over QE. Financial risks are primarily associated with the interest rate exposure, but could also involve credit risk in some configurations (as when private paper is purchased).

The Fed has assessed the potential financial impact of the rapid interest rate rises that could conceivably be needed to control inflation during the exit from QE, and has concluded that losses in some scenarios could be large enough to swamp other earnings.<sup>114</sup> It believes, however, that its baseline earnings capacity, coupled with the ability to capture all of future surpluses when necessary, is sufficient to provide financial strength even in such circumstances. (The question of the impact

<sup>111</sup> For example, QE has mostly been conducted through the Bank's special purpose subsidiary (the BEAPFF). The maximum size of BEAPFF is subject to control by the Chancellor, making the size of QE also effectively subject to his control. In return, BEAPFF (and the Bank itself) are indemnified by the Treasury for related actions. Such a division of responsibilities is now fully elaborated in the Memorandum of Understanding on financial crisis management required by the 2012 Financial Services Act.

<sup>112</sup> As previously described, in the year of a loss, the ECB may be able to appropriate the monetary income that would otherwise remain with NCBs, subject to the agreement of the Governors of those NCBs in the Governing Council. But that transfers most of the equity-rebuilding task to the NCBs.

<sup>113</sup> The ECB's financial strength was increased following a 2010 decision to increase its capital, expressly in response to greater market volatility and hence market risk. However, the increase lifted the ECB's capital to the maximum allowed under its statutes, and credit risk may have been given comparatively low probability weight in simulations, given its absence in the historical record.

<sup>114</sup> Bernanke (2011).

on equity has been rendered moot by the change in accounting arrangements previously discussed, whereby accounting equity would not be affected by a temporary dip in economic net worth.)

## 2. Risk transfer

*To what extent has the government agreed unconditionally to bear the financial risks of potentially costly policies and functions for which the central bank has independent decision authority?*

The organising principle of the framework being outlined is that control over financial resources should be aligned with independent responsibility for resource-using functions. This is to ensure legitimacy and sustainability. Consider unconditional puts to the taxpayer.

It is possible to construct arrangements that impose the costs of specific actions directly on the taxpayer while leaving full decision authority in the hands of the central bank. Here we are talking about the government taking direct responsibility for paying the bill (or receiving the income), rather than making good after the fact.

An example noted earlier in this paper may be the South African Reserve Bank's ability to route gains and losses from exchange rate translations on the FX reserves (which dominate the balance sheet) to a government account.<sup>115</sup> Other examples are the power of the Reserve Banks of India and New Zealand to create (within limits and rules) treasury bills for sale in open market operations. Being debt instruments of the state rather than the central bank, the government pays the interest.

The inherent asymmetry of risk-shedding may at first sight seem inconsistent with the principle of the alignment of independent financial resources and independent policy responsibility. However, this principle is not bi-directional – reflecting the asymmetry in power between the central bank and government. It is legitimate for legislatures to contract to pay the costs of actions decided by others, and sustainable if those costs fall within expected bounds. On the other hand, giving an agent the formal authority to take decisions but withholding the resources that might be needed constitutes an incomplete arrangement.

## 3. Choices on accounting policies and distribution schemes

*What are the consequences for equity (and hence earnings capacity) of the interaction of accounting policies and the distribution scheme? Can the distribution scheme be modified to prevent an erosion of equity?*

Part C extensively discussed the issue of distribution asymmetries and their potential toxicity for financial strength. Exposure to distribution asymmetries

<sup>115</sup> The qualifier refers to two points. Such gains and losses are initially registered as a claim on (or obligation to, depending on the sign of the balance in the special GFECRA accounts) and need subsequently to be settled with external resources (or claims thereon) in order for the central bank's financial position to be genuinely insulated. That settlement takes place later conflicts with the idea of avoiding the uncertainties inevitably involved in making good after the fact. And in the SARB case, although there is an agreement with the government to settle the part of the flows that might affect monetary policy, it is not hard-wired as a legislative provision. Accordingly the arrangement may fall short of being an "unconditional" put.

depends on the earnings structure – mean and variance – of the balance sheet in accounting terms; the role of accounting income in the distribution system; and the conditionality (with respect to financial strength) of distributions.

The discussion in Part C pointed to a complex trade-off in decisions on appropriate financial disclosure. On the one hand, disclosure can cement trust and effective accountability for financial resources; on the other, it has the potential to misdirect attention towards short-term and financial objectives rather than long-term and public welfare aims. The hope was held out that the trade-off can be alleviated, to a greater or lesser extent, by a high-quality discussion of the relationships between policy and financial objectives in the presentation of financial results.

Preferences with respect to this trade-off may have implications for the distribution asymmetry, and hence the need for financial strength. The greater the variance of distributable income relative to normal income, the more likely it is that a distribution asymmetry is encountered, eroding financial strength. Taking policy and operational mandates as given, the options for dealing with such a threat were set out as:

- (i) do not revalue;
- (ii) do not recognise unrealised revaluations as income (with asymmetric treatment being an option);
- (iii) use general risk buffers to hold back risk income;
- (iv) adjust accounting income to remove potentially dangerous elements (such as unrealised revaluations) from the distribution stream; and
- (v) make distributions conditional on the state of the central bank's finances before determining the share to be distributed.

Arguments were rehearsed as to why some combination of the last two options might be preferred to the second and third, which are in turn preferred to the first. But it was recognised that the preferred choices may not be available in many cases (legislation may have predetermined the choices, and reopening legislation may not be an option), and that preferences will vary with the widely varying circumstances of central banks.

The net result, however, is a greater or lesser exposure to a distribution asymmetry. Other things being equal, the greater the exposure, the greater the need for financial strength in the shape of formal, visible financial buffers.

#### 4. Prepositioning financial strength in the form of capital

*In view of the foregoing, and likely political and market reactions to (imperfect signals from) financial outcomes, to what extent should financial strength be prepositioned in the form of capital?*

The final step in this framework is to bring together the considerations laid out above. This allows the assessment of the amount of capital that may need to be prepositioned at the central bank to avoid harm. The harm to be avoided is the constraint that might be placed on actions in pursuit of policy and operational objectives; and the source of such constraints is adverse stakeholder reactions to

financial weakness.<sup>116</sup> The stakeholder reactions that are of concern are market reactions that could damage the transmission mechanism for policy, and political reactions that could undermine independence. Such reactions may feed off negative financial results which would otherwise pose no threat to the central bank's operational capacity, but that are either (i) misunderstood, for instance, as a result of wrongly applying commercial norms to a policy institution, or (ii) misinterpreted noisy signals of circumstances where financial results could matter.

Key to the potential for misinterpretation is, first and foremost, the central bank's credibility among stakeholders, as well as (again) its ability to explain the relevance of its financial results to policy and operational objectives. Important to credibility are the quality of institutional arrangements, and the track record. Four cases of policy success despite long periods of negative equity were discussed – the central banks of Chile, the Czech Republic, Israel and Mexico. These central banks all have good recent track records with respect to macroeconomic and financial stability, even though these track records are short. They also share modern institutional designs that clarify responsibilities, objectives and accountabilities, helped in each case by the adoption of inflation targeting frameworks. Their credibility may also be helped by a higher than average willingness (among central banks) to use fair value accounting, the greater transparency of which may promote trust.

Thus:

- The potential for harmful stakeholder reactions to weak finances depends on the ability of the central bank to convincingly explain the policy relevance (or otherwise) of its financial results.
- The potential for weak finances depends on underlying economic exposures, as intermediated via accounting policies through the distribution system, which has the potential to create or reinforce financial weakness via a distribution asymmetry.
- The need for financial strength increases as credibility falls and economic exposures rise. More financial strength is needed where unrealised changes in value are treated as distributable income, and less if the distribution system responds to shortfalls in financial buffers relative to the levels that are appropriate for the independent discharge of policies and functions.
- Credibility may in turn be aided by the transparency of fair value accounting for the parts of the central bank's balance sheet that may involve notable fiscal consequences, at the potential cost increasing the variability of distributable income and encountering the distribution asymmetry. The key to ameliorating that risk is in the design of the distribution system, as noted in the preceding bullet point.

The wisdom of prepositioning financial strength in the form of subscribed capital or retained earnings – as opposed to plugging holes afterwards through recapitalisation – depends on some of the same factors. Where exposure to the distribution asymmetry is high and the distribution system does not provide a

<sup>116</sup> In focusing on stakeholder reactions, we do not dismiss the possibility of a direct impediment to policy capacity from monetary injections due to losses that are sufficiently large to conflict with monetary control. Such situations have been observed. But they are sufficiently rare for us to leave them to one side in order to focus on the issues most likely to be relevant to the largest number of central banks.

powerful compensating state-contingent mechanism, more financial strength needs to be prepositioned. In contrast, when future income streams are large relative to their variance, and the distribution system provides for capturing a large proportion or all of that income until buffers are rebuilt to appropriate levels, less prepositioning is required.

Prepositioning financial strength in the form of subscribed capital need not necessarily be costly for the government. Capital is commonly provided by way of gifting government securities to the central bank. To qualify as providing strength, such securities need to bear interest at market rates, and to be saleable (ie transferable without restriction). From the government's perspective, the net impact of the new securities is zero (absent a change in the behaviour of the central bank), since the government acquires an equal increase in its investment (actual or beneficial) in the central bank, and increased debt service outlays are offset by the increased revenue from higher transfers of surpluses.

The key difficulties would appear to be where gross (rather than net) government debt matters for perceptions of a country's financial health; where the increased equity releases a desired constraint on the central bank's freedom for independent action; and where the size of apparently unused capital reserves suggests to future politicians the existence of a source of funds.<sup>117</sup> All three potential problems grow in magnitude when a central bank's tail financial needs have been used as the scalar for the appropriate amount of prepositioned capital. This is because such an amount is likely to be orders of magnitude larger than the income variance encountered in normal times, and in normal times it is hard to imagine that such sums could be needed to support the central bank's independent operations.

## A final word on timing

To conclude this discussion, it has to be acknowledged that the timing can rarely be right for discussing, deciding and implementing such a framework. If changes are needed to existing arrangements in order to assure financial independence even during a crisis, they are likely to be needed in the distribution mechanism and capitalisation, two politically sensitive areas.

The framework may still be useful, however, either in case an opportunity arises to tackle otherwise politically too difficult hurdles, or to create a benchmark against which possible initiatives can be assessed.

<sup>117</sup> Attempts at capital extraction are not uncommon. Politicians frequently suggest that a central bank's hidden reserves, such as gold holdings valued at low historic values, be realised through transactions or revaluations and transferred to the government for expenditure on worthy projects. This was done in Lebanon in 2002 and 2007, and in many countries during the 1930s. In 2003, Finland's government actively considered extracting capital from the central bank, and in 2006-07 a Commission of Inquiry was established in Sweden to investigate how much capital was needed by the Riksbank and whether some could be given back, although the purpose of the enquiry was to recommend arrangements for safeguarding the Riksbank's independent finances. Earlier, in 2001 and 2002 the Riksbank had been required by Parliament to pay extraordinary dividends. The Fed had also been required by Congress to provide extraordinary transfers in 1997, 1998 and 2000, and when the Federal Deposit Insurance Corporation was established in the 1930s the reserves of Federal Reserve Banks were used, at the direction of Congress, to provide the FDIC's initial subscription. Other examples of direct or indirect capital extraction include Argentina during the period 2005–2011; Peru over many years prior to a new central bank law in 1993; and Venezuela in 2005.