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The Financial Stability Report of the Central Bank of Iceland: a review

Introduction

This review of the Central Bank of Iceland's Financial Stability Report was commissioned by the Central Bank in September 2006. It has focused on the 2006 issue, but in the context of the financial stability analyses published by the Central Bank since 2000. The review first considers in general the role of financial stability reports in central banks' work to promote financial stability and then, in the light of that discussion, examines the Icelandic Report. It concludes with an overall assessment and a summary of recommendations.

Financial Stability Reports and the Maintenance of Financial Stability

The objective of financial stability

The maintenance of financial stability has become a more prominent objective of policy-makers around the world over the past quarter century as it has become more evident that economic growth does not by itself guarantee the absence of financial crises. The incidence of banking crises has increased over time. One study, for example, covering 21 countries, identified just one banking crisis between 1945 and 1970, but 19 since then.² Such crises, by disrupting financial intermediation between lenders and borrowers, can be very harmful. In one study, the cumulative output losses incurred during crisis periods were found to be roughly 15%-20% of annual GDP, on average.³ Moreover, output losses during crisis periods in developed countries appeared to have been significantly larger – 10%-15% – than in neighbouring countries that did not at the time experience severe banking problems. The crises also entailed fiscal costs, complicating the conduct of economic policy generally. Developed market economies are not immune to such problems. Indeed, when a banking crisis has occurred, the costs in developed economies have been on average as high as or higher than in emerging-market economies.

The increasing salience of financial stability as a public policy issue has been reflected in the greater attention given to it by the IMF and World Bank, which jointly set up the Financial Sector Assessment Program in May 1999 to promote the soundness of financial systems in member countries. The recognition that increased financial integration of capital and banking markets across countries entailed an international dimension to this issue led to the setting up of the Financial Stability Forum, also in 1999, to promote international financial stabil-

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2. Bordo et al. (2001).

3. Hoggarth, Reis and Saporta (2001); Hoggarth and Saporta (2001).

ity through information exchange and international co-operation in financial supervision and surveillance. But perhaps one of the most telling signs of the growing importance of financial stability work has been the growth in the number of financial stability reports (FSRs) published by central banks. According to the IMF, which has encouraged such publications, almost 50 central banks were publishing FSRs by the end of 2005.

An FSR is a tool to support a central bank's efforts to maintain financial stability and make financial systems more robust. To be used effectively, the publishing central bank needs to be clear about what it is trying to achieve. Perhaps surprisingly, central banks' formal financial stability responsibilities have usually not been very explicit or precise. A survey of all central banks in the OECD area found that, as of 2003, the responsibility for financial stability was generally not explicitly formulated in law. There was considerable heterogeneity in the way central banks pursued the financial stability objective, and no common and unambiguous definition of financial stability or systemic risk.⁴ To a large extent, central bank staff have defined and elaborated their financial stability objective themselves. It is important to undertake this exercise to provide guidance to FSR authors about what they should be trying to achieve, as well as, more generally, to focus the central bank's financial stability work and provide a way of making it more accountable.

As the variety of current practice indicates, the financial stability objective can be defined in a range of ways. At one end of the spectrum, a narrow view is taken. The central bank focuses on ensuring that the underpinnings of a monetary economy – the payment and settlements system and the acceptability of bank deposits as money – are not disrupted. This is often seen as the natural role for a monetary policy institution. At the other end of the spectrum, the central bank concerns itself with financial intermediation more generally and seeks to ensure that its efficiency is not subject to significant adverse shocks. This entails a wider scope, encompassing non-bank saving institutions, insurers and other financial intermediaries, and the efficiency of capital markets. In many countries, these broader concerns are seen as the territory of supervisory and competition authorities outside the central bank. Definitions of financial stability also differ along another dimension, from the absence of crisis to the absence of fragility and hence even of the possibility of crisis. Whatever view is taken, 'microprudential' supervision – focusing on the soundness of individual institutions – is inadequate by itself. Financial stability is a public good, and 'macroprudential' policy must focus on the externalities of financial firms' behaviour.⁵

A number of authors have tried to encapsulate the complex macroprudential concerns of central banks in a short definition. Andrew Crockett, for example, argued that financial stability is a state in which "... the key institutions in the financial system are stable, in that there is a high degree of confidence that they continue to meet their

4. Oosterloo and de Haan (2004); their results also suggested that the democratic accountability of the financial stability function of central banks is often poorly arranged.

5. Schinasi (2006) discusses in depth the concept of financial stability.

contractual obligations without interruption or outside assistance; and... the key markets are stable, in that participants can confidently transact in them at prices that reflect the fundamental forces and do not vary substantially over short periods when there have been no changes in the fundamentals.”⁶ Frederick Mishkin focuses on the source of the economic problem by defining financial instability as that which occurs “when there is a disruption to financial markets in which asymmetric information and hence adverse selection and moral hazard problems become much worse, so that financial markets are unable to channel funds efficiently to those with the most productive investment opportunities.”⁷ Such definitions help to clarify in general terms what FSR authors should be analysing. However, there is (as yet) no analogue of the inflation target in monetary policy. Operational definitions of financial stability that enable one to tell where the financial system is on a scale of instability are rare. A review of existing FSRs found that, as of the end of 2005, none of them had such an operational definition.⁸

The benefits of publishing

FSRs are a useful tool in the armoury of central banks in two broad ways. First, they can reduce risks to financial stability directly. Second, they can improve the transparency of the central bank’s work, increasing its accountability and sharpening the incentives facing its staff.

The direct benefits include:

- (i) Improving the understanding of the economic environment: the central bank can add value to the analysis carried out by private agents by virtue of its macroeconomic expertise and the market intelligence it can glean as a participant in payment systems and financial markets
- (ii) Alerting financial institutions and financial market participants to the possible collective impact of their actions taken together: in a competitive environment, the central bank has a greater incentive than do private agents to identify possible harmful spill-overs from the actions of individual players in banking and financial markets. But once these are identified, private agents can sometimes club together to internalise the associated externalities (for example, through trade bodies setting standards)
- (iii) Promoting ways of mitigating risks to financial stability: given that externalities are involved, and given the desire to avoid fostering collusive private-sector behaviour too widely, central banks sometimes need to promote measures to change the incentives facing the private sector or otherwise constrain their behaviour. These measures may entail actions by the central bank, supervisory authority or other policy-makers, such as adopting appropriate legal arrangements, codes and standards.
- (iv) Building public support for the maintenance of financial stability: the legitimacy and efficacy of central banks’ actions to preserve

6. Crockett (1997).

7. Mishkin (1996).

8. Cihak (2006); the Bank of England took a step towards providing a qualitative scale in its May 2006 FSR.

financial stability ultimately depends on the public's understanding and acceptance of the central bank's objectives.

There are also several potential benefits with respect to the central bank's own performance:

- (i) It allows the analysis of the central bank to be scrutinised by a wide range of outsiders from different perspectives, thus sharpening up incentives for the staff producing the analysis;
- (ii) It provides a discipline for the central bank's financial stability work with respect to its internal organisation, frequency and timing;
- (iii) It provides a means for outsiders to judge whether the central bank is fulfilling its remit;⁹ and
- (iv) It can strengthen co-operation on financial stability work among the relevant authorities.

There is also one major potential disadvantage of publishing which needs to be borne in mind. At a time of financial fragility, publication could trigger precisely the behaviour that is likely to provoke a financial crisis. For example, drawing attention to heightened credit risk may provoke a cessation of new lending and precipitate solvency crises for otherwise sound borrowers. This is akin to shouting 'Fire!' in a crowded hall. A theoretical study of this issue showed that there is a danger of private agents over-reacting to public information disseminated by the central bank.¹⁰ Hence the central bank needs to ensure it is clear about its evidence base and about the risks and uncertainties around its analysis.

This suggests that publication on a regular schedule with broad and similar coverage from issue to issue is usually desirable, so that timing and content are not 'over-interpreted' by readers. It also suggests that it is very important for the central bank to have a strategy for mitigating the risks identified, and thus for altering private-sector behaviour where necessary. The danger is likely to be reduced if the central bank is able to establish a good track record in unbiased analysis before the risk of a financial crisis rises significantly. But the argument for transparency and comprehensiveness may have to be modified in some circumstances.

The coverage of an FSR

The discussion above points to the need for any FSR to survey and explain the risks to financial stability, defined in a clear, consistent and coherent way, and to propose ways in which these risks can be mitigated and by whom.¹¹ The risks have two dimensions: the probability of a shock from any particular quarter and the impact on the financial system if the shock materialises. The latter depends on the channel(s) through which the shock hits the financial system and the resilience of the system, given the channel. At any particular time, some shocks

9. Accountability might be enhanced further if that remit from the executive or legislature were less opaque than it is in most cases.

10. Gai and Shin (2003).

11. Surveillance and mitigation could be treated in different publications, but, as the arguments for specific mitigatory measures depend on the analysis carried out under the surveillance heading, it seems desirable for them to be brought together in the same place.

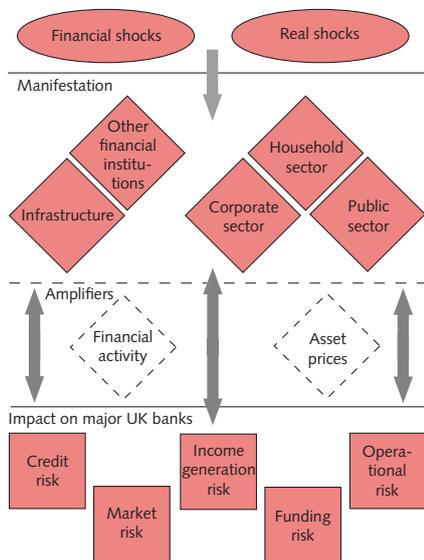
may be working their way through the economy while others are still on the horizon and not certain to arrive, so the FSR should be explicit about the temporal structure of its analysis.

In more specific terms, the discussion above leads to the view that FSRs should cover:

- (i) Past and prospective macroeconomic developments: empirically, macroeconomic developments have been central to the majority of past banking crises, so it is important to assess regularly the news from the macroeconomic environment about recent shocks and about the probabilities of future shocks. Indicators based on financial market prices are a potentially useful source of information about the expectations of financial market participants. The central bank's own macroeconomic forecasts should provide a cross-check. This may require interdepartmental work, especially as monetary policy and financial stability policy have overlapping but not coincident needs. Financial stability analysis has to focus more on the downside risks than the central outlook and more on the factors affecting financial intermediation of saving and investment. The shocks in which FSR authors should be particularly interested are those that surprise borrowers and lenders and alter their behaviour.
- (ii) Vulnerabilities of the financial system's major counterparties: it is important to be able to map the pattern of the financial system's exposures, in terms of their size and distribution across sectors and countries, the 'expected loss' they entail, and the expected volatility of losses. Thus economic analysis of corporate and household balance sheets, income and liquidity, and of the pricing of loans to firms and individuals, is useful, as it bears on both the ability of debtors to repay loans and the size of losses in the event of defaults. Other important classifications are wholesale versus retail, domestic counterparties versus foreign counterparties, domestic currency versus foreign currency, and on-balance-sheet versus off-balance-sheet. Capital market developments are relevant because, first, they can reveal information about the distribution of participants' expectations about market and credit risk and, second, they affect the credit, counterparty, liquidity and market risk faced by financial intermediaries using the markets.
- (iii) Risks to the financial system: given (i) and (ii), it is desirable to assess the likelihood of losses to financial institutions, the danger of liquidity problems, institutions' buffers of profits, capital and liquidity, and the scope for contagion (either through financial intermediaries' exposures to each other or through their exposures to financial system 'infrastructure'). It is therefore important to have some sense of the size and structure of intra-system exposures (e.g. via the interbank market) to assess the system's resilience.

Categories (i) and (ii) concern the assessment of the probability of a range of possible shocks to the financial system, and (iii) is relevant to the assessment of losses given the shock (i.e. 'probability of default' and 'loss given default'). In assessing the risk of externalities, the pat-

Figure 1



tern of interbank links and the role of central counterparties are likely to be among the key factors.

The coverage needs to be organised in a coherent way, reflecting the causal links believed to be at work. The Bank of England's latest FSR summarised one way of organising material in diagrammatic form (Figure 1).

The extent of coverage will depend in part on the definition of financial stability driving the central bank's work. If the roles of insurers, life insurers and pension funds are seen as within the ambit of financial stability work, for example, that requires analysis of a wider range of phenomena, such as variations in longevity risk.

The style of an FSR and its role in the broader communications strategy

Realising the potential benefits of an FSR depends upon reaching the appropriate audience. It is a challenge to design a product that is equally effective addressing financial market practitioners, academics, policy-makers in other institutions (nationally and internationally) and the general public. With a professional audience in mind, it is important to demonstrate technical competence and knowledge. With policy-makers in mind, it is helpful to write persuasively about how to mitigate financial stability risks, bearing in mind the political economy aspects. And with the general public, it is vital to write clearly, concisely and in plain language. These varied requirements need to be balanced against the resource constraints of the central bank.

This suggests that particular care needs to be taken to present the FSR in such a way that key messages are easy to locate and extract, and readers with different interests are able to choose how deeply to pursue particular issues. If a central bank has sufficient resources, it may be helpful to publish more than one document (e.g. a traditional FSR for a professional audience and a much shorter, simpler document for the press and public). The medium of the internet makes it easier, by means of embedded links, to keep the basic presentation uncluttered while allowing those interested to delve deeper. It also makes it easier to relate background work to the FSR.

The key requirement is to see the FSR as part of the central bank's broader communications strategy, which has to tackle several objectives, not just financial stability. The strategy has to take account of the fact that communications are the means by which the transparency, accountability and reputation of the central bank are established.

The Financial Stability Report of the Central Bank of Iceland

The Central Bank of Iceland has been publishing financial stability assessments since 2000, first as part of the Bank's *Monetary Bulletin* and, since 2005, in a free-standing annual Financial Stability Report. During that time, the Icelandic economy has been subject to a wide range of macroeconomic shocks,¹² rapid growth and institutional

12. Relative to the size of the economy, these shocks have been large by international standards. See Honjo and Hunt (2006).

reform, notably with respect to the role of the central bank (e.g. the adoption of inflation targeting). Icelandic banks have expanded very rapidly, both domestically and abroad, taking advantage of privatisation (completed by 2003) and changing their character in the process. This has helped to bring the issue of financial stability to the fore. As the IMF noted following its Article IV consultations in 2006,¹³ concerns have arisen that the macroeconomic imbalances and the rapid pace of banks' growth has generated vulnerabilities that could threaten financial stability should the imbalances unwind sharply. Hence this is a timely point at which to assess the contribution of the Financial Stability Report to assessing vulnerabilities and explaining how financial stability can be promoted.

This review does not attempt to assess the detailed analysis presented in past FSRs; that would be beyond the competence of the author. Rather, it considers the Central Bank of Iceland's publications in the light of the broad principles sketched in Section 2 above, under six headings:

- a. The statement of aims.
- b. The overall assessment of financial stability offered.
- c. The issues covered.
- d. The data, assumptions and tools used.
- e. How the FSRs relate to the communications strategy of the Central Bank.
- f. International comparisons.

In so doing, it adopts broadly the framework for assessment suggested recently in an IMF Working Paper¹⁴ that reviewed international experience with FSRs and proposed that an assessment of a FSR should focus on its clarity, consistency and coverage with respect to the first four of these headings.

The statement of aims

The Central Bank of Iceland's FSR does well under this heading. The Bank's definition of financial stability is presented concisely opposite the introduction to the Report, together with a statement of the purpose of publishing a Report. The definition takes a relatively broad interpretation of financial stability, focusing on the financial system (not just payment systems, for example) and its roles in mediating credit and payments and in redistributing risks appropriately. This is consistent with the coverage of the financial system in the FSR, encompassing internationally active banks, savings banks, domestic capital markets and financial infrastructure.

The definition is not operational, in the sense that it does not define what standard should be used to judge whether the system is "equipped to withstand shocks" or whether it is redistributing risks "appropriately." The former phrase suggests a concern with avoiding systemic crises (acknowledging the inevitability of shocks) whereas

13. IMF (2006a).

14. Cihak, *op. cit.*

the latter hints at a broader efficiency concern. However, it is a clear and pithy definition, consistent with what the FSR goes on to cover. And no central bank has ventured an operational definition or measurement of financial stability or fragility.

The Central Bank has shown that it is aware of the debate about definitions, with a perceptive discussion in its 2005 FSR under the heading “Financial stability and central bank tasks.” It acknowledged that changes in the definition may be necessary over time as the financial system and analysis evolves. This author agrees with the FSR’s quotation from Schinasi: “What is crucial is how the central bank formulates its policy in accordance with the role assigned to it, and how it works towards furthering it.”¹⁵ The current broad definition of financial stability may be consistent with the Central Bank’s perceived mandate, but staff may wish to revisit this issue, given that many central banks take a narrower view.

The statement of purpose covers most of the potential benefits of publishing a FSR reviewed above, including enhancing accountability, which Cihak suggested is not always borne in mind. The ‘campaigning’ aspect of central bank work is not mentioned, but the FSR itself does not balk at recommending institutional changes (e.g. in Box 6 of the 2006 FSR on the Housing Financing Fund). It is perhaps inappropriate to stress the benefits internal to the central bank in a public declaration of purpose, which should concentrate on the potential benefits to society at large; they are implied in the reference to accountability.

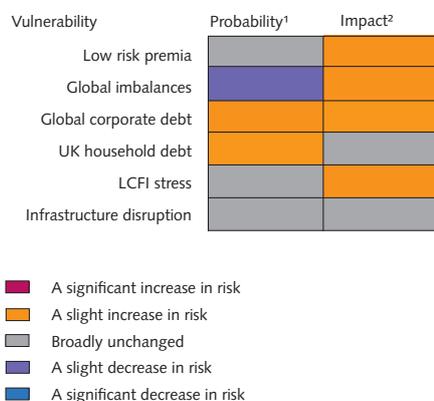
The overall assessment

The FSR gives a clear statement of its overall assessment in its Introduction. Not only is an overall assessment offered there, but the opening italicised statement gives a punchy summary. The use of summaries at the beginning of chapters and short sentences as sub-headings within chapters also helps to convey the overall assessment. The Introduction clearly draws on the more detailed analysis presented later. The 2006 FSR opens with a reference back to the 2005 FSR, thus emphasising the consistency of approach over time and beginning to establish a metric to judge whether fragility has increased or decreased. The main changes over the previous year are explained clearly at the beginning. It would be straightforward for the Central Bank of Iceland to emulate the innovation in the Bank of England’s most recent FSR, in which a short list of the key risks was drawn up, together with a staff assessment of how they had changed (Figure 2).

The combination of the definition of financial stability, statement of aims, and overall assessment at the beginning of each Report is a significant improvement over the financial stability discussions in the *Monetary Bulletin* prior to 2005, which were not so clear about the purpose of the material.

Cihak commented in his study that FSR assessments are overwhelmingly positive, tending to suggest that everything is “as good as it gets.” That may reflect to some extent the benign conditions faced

Figure 2



1. Assessed change in the probability of a vulnerability being triggered over the next three years. 2. Assessed change in the expected impact on major UK banks’ balance sheets if a vulnerability is triggered.
Source: Bank calculations.

15. Schinasi (2004).

by most countries in recent years, but it is also suggestive of a certain lack of candour. This is not an accusation that can fairly be levelled at Iceland's FSR, the most recent issue of which flags "more challenging waters... ahead," "growing pains", and the fact that "a slower pace of growth is long overdue."

Issues covered

The coverage of past FSRs has been comprehensive and well organised. The structure adopted in 2005 works well, leading the reader from a discussion of the broad macroeconomic environment and the condition of the main borrowers from the banking system to an analysis of the key elements of the Icelandic financial system, split into financial companies and payment and settlement systems. Some special topics are considered at the rear of the Reports (e.g. contingency planning in 2006). This broadly accords with the schematic representation in Figure 1, and ensures a comprehensive coverage of issues.

The analysis of the functioning of domestic financial markets goes beyond what is covered in most FSRs, and reflects the broad definition of financial stability used by the Central Bank of Iceland. If length is regarded as a constraint, this is one area where economies could be made, given the current amount of detail (for example, the relevance of the Box on the new takeover panel in the 2006 FSR was not immediately evident). Capital market developments are covered in the chapter on macroeconomic developments and financial markets. It might be helpful to distinguish between general developments in markets, which reveal something of the shocks to which the financial system has been subjected (e.g. the international 'search for yield'), and market assessments of the financial system itself, which might sit more comfortably in the chapter on financial companies as diagnostic measures (e.g. credit default swaps and bond prices for Icelandic issuers in the financial sector).

As far as the chapter on macroeconomic developments and financial markets is concerned, the text conveys a good sense of what staff believed were the key issues relevant to financial stability: in 2006, macroeconomic imbalances, the threat of a large exchange rate adjustment, the housing market, and the perils of managing rapid economic growth. The discussion of the Icelandic housing market was particularly thorough. The choice of topics for appendices – what kind of macroeconomic 'landing' and Iceland's external assets and debt – fitted in very well with the broader analysis. The former explored forward-looking macro stress tests; FSRs tend to spend too much time looking backward into history rather than trying to assess the risks in the future. The second explored a crucial issue for financial stability given the volatility of Iceland's floating exchange rate. Some more discussion of the risks entailed by mismatched balance sheets, by means of a simple stress test for example, and the extent of foreign currency mismatches given the aggregate balance sheet for Iceland would perhaps have been helpful. Financial hedges essentially move around exposures to foreign exchange movements rather than eliminating them.

There are a few extra topics that the Central Bank could consider reviewing, subject to the caveats that the data are available and that the overall length and complexity of the FSR need to be kept within bounds (see later sub-section on communications):

- (i) Financial analysts' and international institutions' views about prospects for the Icelandic economy and the outlook implicit in market indicators: how uncertain is the outlook and does the Central Bank differ from the external consensus in any important ways?
- (ii) Measures of market implied volatility to inform the discussion of the level of risk in the external environment (are there any traded derivatives that would provide useful information about prospective exchange rate risk, for example?)
- (iii) Determinants of the terms of trade: what is the broad mix of Iceland's exports and imports and does that have any implications in the current conjuncture? How are prices and quantities for fish and aluminium likely to evolve? What is the relative importance of different countries/regions in Icelandic trade? This would help the reader get a sense of the relative importance of some of the issues raised in the macroeconomic discussion. This raises a more general point, the desirability of putting more of the data reported in context by providing benchmarks from history and other countries (for example, to what extent are Iceland's exports more concentrated in certain commodities than other commodity exporters?). This was done in the appendix on external debt and assets, which was very helpful, particularly to the reader less familiar with the specifics of the Icelandic economy. The sub-section on misleading comparisons of the housing market in Reykjavik with that of other cities was similarly very helpful. Brief cross-references to other Central Bank of Iceland publications might help the interested reader to follow up some of the macroeconomic risks raised.
- (iv) Survey-based evidence on households' financial positions.
- (v) Measures of corporate liquidity and of the dispersion of corporate profits (and does Iceland have data available to model disaggregated default probabilities, as is done by Norges Bank?)
- (vi) 'Distance to default' calculations for quoted firms.
- (vii) Commercial property: lending to this sector has been a recurring source of financial stability concerns in a number of countries. This sector might warrant more coverage, if only to point out how Iceland is different.

Turning to the chapter on financial companies, this has also been thorough in its coverage, covering income, credit, market, liquidity and refinancing risks and the buffers available to the commercial banks; and also savings banks and other miscellaneous financial companies. There is scope for more comparisons of Icelandic banks with international norms (as with the chart on Nordic banks' funding in the 2006 FSR). The IMF made some such comparisons in their 'Selected Issues' paper in 2006, which also usefully calculated some 'distance to default' estimates.¹⁶ The discussions of stress testing by the Financial

16. IMF(2006b), Figure 2, p. 16, and pp. 17-18 respectively.

Supervisory Authority and the estimation of potential loan losses in the 2006 FSR were very useful additions to the main text. So was the review of the treatment of Icelandic banks by the rating agencies, particularly in the light of the way in which their decisions appear to have triggered reassessments of risks in the foreign exchange market; downgrades of banks could seriously prejudice their ability to refinance funding at reasonable cost.

The comprehensive analysis leaves little to suggest in the way of additional ideas for future work. The only areas where this reader thought that more analysis would be beneficial were connected lending and the interconnectedness of the commercial banks. The first was an issue raised by the IMF Financial Sector Assessment Program in 2001, when the IMF concluded that “measured indicators give an unduly optimistic assessment of the underlying health of the banking sector,” and flagged again in the 2006 Article IV review. Mishkin and Herbertsson also noted the lack of transparency due to cross-ownership (as well as to the growth of off-balance-sheet items) in their review of financial stability in Iceland.¹⁷ The 2006 FSR touched on aspects of this issue, for example, leveraged stock purchases, but the Central Bank’s overall view did not emerge clearly. On the second, there may be scope for empirical work on the co-movements of commercial banks’ stock prices, bond spreads and CDS premia to examine interlinkage empirically,¹⁸ and on the interlinkage of Iceland’s commercial banks with other banks overseas and each other, through interbank lending.¹⁹ In due course, it will be helpful to examine how the new capital adequacy rules affect the commercial banks’ capital buffers.

As far as payment and settlement systems are concerned, the FSR again is very thorough, laying out clearly the nature of the risks involved and the principles guiding the Central Bank’s oversight. In this chapter, some of the material does not pertain to financial stability as such, even on a broad definition (e.g. the box on measures to combat money laundering in the 2006 FSR). The Central Bank might wish to consider whether a separate regular report on the wider aspects of payment and settlement systems would be appropriate.

Data, assumptions and tools

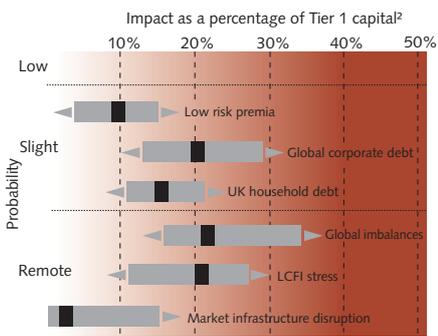
The FSRs use a wide range of data covering macroprudential indicators and the IMF’s financial soundness indicators. Data are presented on the liquidity and market risk of the commercial banks, topics for which, Cihak observed, few countries’ FSRs have much data. Market-based indicators are also deployed, but there may be scope to do more on this front (e.g. with respect to market measures of uncertainty). Economic modelling techniques are brought to bear in useful ways, such as the modelling of Iceland’s likely macroeconomic adjustment and of aggregate loan losses.

17. Mishkin and Herbertsson (2006).

18. See, for example, Hawkesby et al. (2005).

19. On the role of interbank exposures and the risks of contagion, see, for example, Elsinger et al. (2002) and Wells (2004).

Figure 3
Impact and likelihood of 'severe stress scenarios' affecting vulnerabilities.¹



1. Central band shows best current quantified estimate of scale of loss under each scenario; wider bands include allowances for some uncertainties around these calibrations. A number of potential channels are not included in the bands. 2. Total impact for major UK banks of individual scenarios over a three-year horizon, relative to base. The impact is expressed as a percentage of current Tier 1 capital but, given UK banks' current profits, does not necessarily imply a loss of capital.

Source: Bank of England calculations.

The 2006 FSR reports the results of stress testing by the Financial Supervisory Authority. The question arises as to whether the Central Bank can work with the FME to develop stress testing as a regular diagnostic instrument, and thus move towards an operational measure of financial fragility, at least for the three main commercial banks' credit risk. Macro stress tests can be used in two ways. First, standard shocks can be applied, so that the impact on financial stability of changes in the banks' mix of activities and in their various buffers can be assessed. Second, the shocks can be varied over time to reflect the changing macroeconomic and market context in which the banks operate. An example of how this can be done was presented in the Bank of England's Summer 2006 FSR, where scenarios linked to the key risks identified in the conjuncture were combined with modelling of impacts on banks' balance sheets (see Figure 3).

In his IMF Working Paper, Cihak suggests that it would be helpful for central banks to publish the data lying behind the graphs, to enable observers outside to carry out further analysis if they wish. Similarly, it is helpful for rating agencies, international banks and others to be able to compare countries' financial systems regularly according to a standard set of indicators. The Central Bank of Iceland might wish to consider making the charts in the FSR available on its website, together with Excel files of the data used, and also publishing the standard IMF Financial Soundness Indicators. Oosterloo et al.²⁰ note that the Icelandic FSR already publishes more of the FSIs than do most FSRs, and a cursory examination of their tables suggests that many of the omissions are balanced by a discussion of the relevant concept in the text. Nevertheless, filling in some of the gaps in publication of what the IMF call the 'encouraged' set of FSIs would make it easier for readers to make their own assessments and cross-country comparisons.

Communications strategy

The FSR communicates the Central Bank's analysis of financial stability in Iceland clearly and comprehensively. Its thoroughness is striking, especially given the resource constraints. The structure and physical layout of the FSR since 2005 have helped to make it accessible and easy to navigate. Charts, boxes and appendices are used well. The Central Bank's website allows interested parties to reach the FSRs quickly.

It appears that the main audience addressed by the Central Bank is a professional one. The FSR is lengthy – on the long side for the 'core' of an FSR by international standards – and the material presented is in some cases very detailed. This raises the question of whether a broader readership might be encouraged by offering a little more exposition of the basic economics and financial stability issues at stake, and by supplementing the FSR with summary material more accessible to journalists and the general public, perhaps by some repackaging of the introduction and opening paragraphs of the existing FSR.²¹ The

20. Oosterloo et al. (2007).

21. Mishkin and Herbertsson, op. cit., in some respects offered a more accessible discussion of some of the key economic issues, but were nowhere near as thorough as the FSRs in combining argument and evidence.

imaginative use of the website could help in this regard. That would probably entail a less detailed discussion of some of the data and a somewhat more rigorous prioritisation of material according to its relevance to the central bank's financial stability objective. There is also scope for separating some of the material on payment and settlement systems and other aspects of the financial infrastructure, as mentioned earlier.

International comparisons

The Icelandic FSR compares well with its peers. Cihak drew up a list of recommendations for developing FSRs, based on his assessment of their most frequent weaknesses:

- (i) having a more standardised 'core' of conjunctural assessment: the Central Bank of Iceland took this route in 2005
- (ii) making aims clearer and more specific, encompassing central bank accountability and provision of information to other participants in the financial system: also achieved by 2005
- (iii) adopting an operational definition of financial stability: not yet achieved by any central bank
- (iv) provision of more data tables, Excel files, FSI data: some scope for improvement
- (v) more discussion of financial institutions' exposures to the various sources of risk: largely achieved in the chapter on financial companies
- (vi) more use of disaggregated data: achieved, especially with respect to the three major commercial banks
- (vii) more use of prudential/risk-based data: much relevant data deployed, some scope to go further
- (viii) use of stress tests in the regular assessment, with a broader range of risks covered: initial steps taken, but room for further work.

Cihak does not publish his subjective ratings by country, but, using his criteria and summary statistics, this author would regard the Central Bank of Iceland's FSR as among the best.²²

Conclusions

The Central Bank of Iceland's Financial Stability Report attains a high standard, judging by its own objectives, by general criteria for FSRs, and by international comparisons. While there are a number of additional topics that could usefully be explored over time, the clarity of the overall assessment would not be helped by allowing the FSR to become longer, so the decision to aim for a shorter report in 2007 is sensible. Rather, the challenge is to combine comprehensive coverage with a clear ranking of risks according to the probability of their crystallising and their severity if they do, and to lay out in an accessible way the economic analysis of those risks.

22. The author's reading of the IMF and World Bank's 2005 assessment of past Financial Sector Assessment Programs confirms this view. The Central Bank may at some stage wish to revisit the conclusions of its FSAP and show how improvements have continued to be made in Iceland's financial stability policies.

This review has made a number of recommendations, and the main ones are summarised below:

- (i) Consider whether the current broad definition of financial stability employed is indeed consistent with the Central Bank's understanding of its mandate and the division of responsibilities among the Central Bank, Financial Supervisory Authority and government departments. That might require further discussion with the other authorities.
- (ii) Consider the development of a more operational definition of financial stability/fragility, capable of generating an ordinal or cardinal metric to judge the extent of risk to financial stability at any time.
- (iii) Be more selective about material on the institutional detail of Iceland's domestic markets and regulatory environment, by insisting on strict relevance to the financial stability objective.
- (iv) Rebalance the text a little towards explaining the economics behind the issues at stake in simple terms.
- (v) Separate material on financial markets as a source of potential shocks from the market diagnostics on the health of Icelandic financial institutions.
- (vi) Assess the specific suggestions of additional topics made in Section 3(c) of this report (e.g. the implications of dispersion of views about economic prospects)
- (vii) Introduce more 'benchmarking' by means of historical and cross-country comparisons.
- (viii) Develop the regular use of stress tests integrating prudential and macroeconomic aspects.
- (ix) Cover the issues of connected lending and the interconnectedness of Icelandic banks in more detail.
- (x) Publish regularly as large a fraction as possible of the IMF's 'core' and 'encouraged' Financial Soundness Indicators.
- (xi) Review the role of the FSR in the Central Bank's wider communications strategy and investigate ways of reaching out to a wider audience by imaginative repackaging and selection of material.

Several of these recommendations reflect aspirations for financial stability work generally rather than specific weaknesses of Iceland's FSR. Given its advanced starting position, the Central Bank of Iceland can make a significant contribution to improving international best practice. That should help the Central Bank sharpen its internal incentives to carry out high-quality work on financial stability issues, improve its communications strategy and, most important, continue to make Iceland's financial system more robust.

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