



WP/06/163

IMF Working Paper

How Do Central Banks Write on Financial Stability?

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IMF Working Paper

Monetary and Financial Systems Department

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June 2006

Abstract

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To showcase their increasing focus on financial stability, many central banks and other institutions have started publishing regular reports on financial stability. The paper presents a survey of the available financial stability reports, and proposes a framework for assessing such documents. It illustrates how the framework can be implemented, and uses the findings to identify prevalent practices, recent trends, and areas for improvement.

JEL Classification Numbers: G10, G20, E58

Keywords: Financial Stability, Central Banking

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¹ I have benefited from previous efforts in this area by a number of IMF staff, in particular Andrea Maechler, Srobona Mitra, and Sean Craig. The paper reflects useful discussions with Michal Hlaváček, Tomáš Holub, Arild Lund, Mark O'Brien, and Mark Swinburne, and comments by Marta Castello-Branco, Alexander Tieman, Klaus Schaeck, and participants in seminars at the IMF Institute, Monetary and Financial Systems Department, Central Bank of Russia, and Central Bank of Trinidad and Tobago. All errors are my own.

Contents	Page
I. Introduction	4
II. What is An FSR and Who Publishes It?	5
A. What is an FSR?.....	5
B. How Do FSRs Define Financial Stability?	7
C. Who Publishes FSRs?	10
III. Assessing the FSRs.....	13
A. Reasons, Aims, Objectives.....	14
B. Assessments	19
C. Coverage of Issues in FSRs.....	20
D. Data, Assumptions, and Tools Used by FSRs	22
E. Structure and Other Features of FSRs	33
IV. How Do Existing FSRs Compare to the Proposed Criteria?	39
A. Overview of the Results.....	39
B. Factors Explaining Differences in Quality of FSRs.....	41
C. FSRs and Financial Sector Stability.....	41
D. Frequent Weaknesses in FSRs.....	43
V. Conclusions.....	45
References.....	53
Tables	
1. General Structure of Financial Sector Regulation and Supervision	7
2. Definitions of Financial Stability: Overview.....	8
3. Examples of Definitions of Financial Stability in FSRs.....	9
4. Correlations between FSR Publication and Other Characteristics	12
5. Proposed Questions to Ask When Assessing Financial Stability Reports.....	14
6. Examples of Aims in FSRs.....	18
7. Stress Testing in FSRs: Overview, End of 2005.....	25
8. Examples of Stress Tests in Recent Financial Stability Reports	27
9. Examples of Market-Based Indicators and Other Tools.....	30
10. Examples of Structure of FSRs.....	35
11. FSRs: Length and Frequency, 2005.....	36
Figures	
1. The Number of Countries Publishing FSRs, 1995–2005.....	11
2. Countries Publishing FSRs, by Income Level	11
3. Share of FSRs Presenting Stress Test Results	23
4. How Do Existing FSRs Compare to the Proposed Criteria?	40

Appendices

I. Financial Stability Reports Included in This Survey	46
II. Proposed Framework for Assessing Financial Stability Reports	48
III. Practical Issues in Publishing Financial Stability Reports.....	49
IV. Possible Lessons for Financial Sector Work in the IMF	51

I. INTRODUCTION

In the last three decades, financial stability has emerged as an important public policy objective. Many country authorities, especially in high- and medium-income countries,² have proclaimed their increased focus on the financial sector and its soundness. The main reasons for the increased interest in financial stability included high costs of financial crises and their increased frequency, the explosive growth in the volume of financial transactions, and the increased complexity of new instruments.³

One of the most visible signs of this increased focus on financial stability has been the number of financial stability reports (FSRs) published by central banks in the last decade. Production of these reports is a rapidly growing “industry.” As of end-2005, almost fifty central banks were publishing FSRs, and many others were considering publication.

FSRs offer useful insights into how central banks conduct financial sector surveillance. The range of studies and debates on financial stability in central banks is wider. Nonetheless, the FSRs are the most visible product of the central banks’ work program in financial stability. As such, they give a rough indication of the objectives that central banks seek to achieve through the publication of FSRs; the way they define financial stability; the data, assumptions, and tools central banks use to assess the soundness of their financial system; and the way in which they communicate their findings to the public.

No comprehensive survey of the available FSRs has been undertaken so far. The aim of this paper is to fill this gap by surveying the various FSRs published by central banks. The paper proposes a framework for assessing such documents. It illustrates how the framework could be implemented, and uses the findings to identify the prevalent practices and the recent trends. The inspiration for this survey came from a survey on of central banks’ inflation reports by Fracasso, Genberg, and Wyplosz (2003) and from external reviews of two Nordic FSRs (Allen, Francke, and Swinburne, 2004, and Bowen, O'Brien, and Steigum, 2003), in both cases with participation by IMF staff.

The paper is based on a survey of the available FSRs. This involved reviewing about 160 FSRs published in 47 countries over a period of more than 10 years (altogether, more than 10,000 pages of text, graphs, and tables).⁴ The project took place in a period of more than two years. The survey is based on publicly available information contained in the FSRs published by the central banks, which has the advantage that the information can be easily

² Throughout this paper, the term “country” includes also some territorial entities, which are not countries, but for which separate economic statistics are produced.

³ See, for example, Crockett (1997). As regards the costs, Hoggarth, Reis, and Saporta, (2001), for instance, suggest that average output losses during banking crises amount to 15–20 percent of annual GDP. As regards the frequency, Bordo and others (2001) find there was only 1 banking crisis in 1945–70, but 19 in 1971–2000. The frequency of financial crises appears to have declined in the 2000s, however.

⁴ Appendix I contains a list of the FSRs surveyed in this paper. The survey also involved publications by more than 100 other central banks to find out whether these documents or their parts satisfy the criteria for an FSR (reviewed were 157 central bank websites listed at <http://www.bis.org/cbanks.htm> as of December 31, 2005).

verified. The disadvantage is that it may under-represent the work done in this area by central banks. Many central banks carry out financial stability work without publishing an FSR, and even banks that publish FSRs may do other work that does not get published in the FSR.

The structure of the paper is organized as follows. Section II asks basic descriptive questions, such as what are the main elements of an FSR, who publishes it, and why. Section III asks how to assess the quality of FSRs and tries to distill examples of good practices. It discusses the aims of the FSRs, the assessments presented in the FSRs, the issues covered, the data, assumptions, and tools used, and the structure and other features of FSRs. Section IV illustrates how the existing FSRs compare to the proposed assessment criteria. Section V concludes the main text. Appendix I lists the FSRs included in this survey. Appendix II summarizes the proposed framework for assessing FSRs. Appendix III discusses practical issues to consider when deciding on publishing an FSR, such as who should be drafting the reports or how to publicize the report. Appendix IV discusses the possible implications of the FSRs for the work of the IMF.

II. WHAT IS AN FSR AND WHO PUBLISHES IT?

A. What is an FSR?

Defining an FSR is far from straightforward. Central banks and other institutions have been producing a number of outputs covering the financial sector, but varying widely in a number of respects. Virtually every central bank publishes an annual report or another report with some coverage of the financial sector. However, what is typically understood by an FSR is a more specific product.

For the purpose of this paper, an FSR is defined as a regular, self-contained central bank publication that focuses on risks and exposures in the financial system. The key elements of this definition are as follows:

- ***Focus on risks and exposures.*** General interest publications, such as an annual report with a section describing the performance of the banking sector, do not qualify as FSRs if they only discuss performance without covering risks and exposures. Also, central banks in some countries publish separate reports on financial system structure or related development issues (e.g., the European Central Bank publishes a regular report on banking structures in the European Union). These reports have an important function, but are not considered an FSR for the purposes of this study.
- ***Systemic coverage.*** Some rating agencies publish reports on soundness of individual institutions or even groups of institutions. The focus of these reports is on individual institutions. By contrast, FSRs cover financial systems. Even though some calculations in FSRs are based on individual institutions' data, most results are presented in aggregate form and the focus of the report is on systemic issues rather than on soundness of individual institutions.⁵ The systemic focus of the FSR reflects

⁵ Some central banks issue two publications on the risks and exposures in the financial sector: for example, the European Central Bank publishes a Financial Stability Review and a more narrowly focused report on banking (continued...)

its role in the framework of financial sector regulation and supervision. In particular, FSR is part of central banks' macroprudential surveillance function (Table 1).

- **Publisher.** Most FSRs are published by central banks. In several countries, a report on risks in the financial system is also published by a separate regulatory agency. At a global level, stability reports are also published by international organizations, in particular the IMF (Global Financial Stability Report), with a more general take on financial stability than the country-specific stability reports. There have also been several reports on financial stability published by private sector participants. Those reports, while very interesting, tended to be one-off endeavors rather than regular documents.⁶ This survey focuses on regular reports published by central banks.
- **Self-contained nature.** FSRs are generally stand-alone documents, even though in some cases they are a part of another publication (e.g., an annual report or a bulletin). To qualify as an FSR, a text has to be relatively self-contained and have analytical depth. For example, a short section or several paragraphs describing banking sector developments in an annual report would generally not qualify as an FSR. A table of macroprudential indicators with a short commentary would also not qualify. By contrast, Deutsche Bundesbank's roughly 80-page *Report on the stability of the German financial system* in 2004 clearly qualified, even though it was "only" a chapter in the central bank's monthly report.⁷
- **Regularity of publication.** FSRs are regular (typically annual or semi-annual) publications. A one-off report on the financial sector is not considered an FSR.

FSRs also have other, secondary features that vary from country to country. For example, they use different titles, such as *Financial Stability Review* (e.g., Bank of England or Bank Indonesia), *Financial System Review* (e.g., Bank of Canada), *Monetary and Financial Stability Report* (Hong Kong Monetary Authority), or *Macroprudential Analysis* (Croatian National Bank). Structure, length, and format also vary substantially, and are discussed in more detail in Section III.A.

sector stability in the European Union; the National Bank of Poland publishes an end-year Financial Stability Report, and a more narrowly focused mid-year Financial Stability Review. For the purpose of this paper, we focus on the more broadly designed publication as the FSR.

⁶ See, for example, Counterparty Risk Management Policy Group (2005). The authors of the report include private sector practitioners from leading Wall Street houses. The report contains numerous recommended actions in three categories: (i) those that individual institutions can and should take on their own initiative; (ii) those that can be taken only by institutions collectively in collaboration with industry trade groups; and (iii) those that require complementary or co-operative actions by the official sector.

⁷ In 2005, the Bundesbank moved to stand-alone FSRs.

Table 1. General Structure of Financial Sector Regulation and Supervision

Type of Market Failure		Systemic Instability	Asymmetric Information	Market Misconduct	Anticompetitive Behavior
Regulatory/supervisory area		Macroprudential surveillance (financial stability)	Microprudential supervision (individual institutions)	Business supervision (consumer protection)	Competition
Sub-sectors	Banks	Central bank, monetary authority	One	One	Separate agency responsible for competition in general
	Insurance companies		or	or	
	Capital market firms		more	more	
	Other financial firms		agencies	agencies	

Source: author, adapted from Čihák and Podpiera (2006).

B. How Do FSRs Define Financial Stability?

A basic (and arguably the most difficult) question faced by a reader trying to understand an FSR is what the central bank means by the term financial stability. Some FSRs attempt to define the term, recognizing that financial stability is a complex concept. The FSRs often make clear that they are not focused on problems in individual institutions, but rather on system-wide issues. Furthermore, there is a general understanding that financial stability refers to smooth functioning of the components of the financial system (financial institutions, markets, and payments, settlement, and clearing systems). The prevailing view seems to be that the analysis of financial stability covers phenomena that (i) impair the functions of the financial system; (ii) create vulnerabilities in the financial system; and (iii) lead to a negative impact on the financial system and thereby on the economy as a whole. However, the exact definitions vary across the FSRs.

The survey of FSRs suggests that financial stability can be defined narrowly or broadly.⁸ At one end of the spectrum, some FSRs define financial stability as the antithesis of financial crises: system-wide episodes in which the financial system fails to function and the institutional underpinnings of a monetary economy—payments and settlements systems, the acceptability of bank deposits as money—are disrupted. Such episodes can be very costly, so policy-makers need to assess the (usually low) risks of their occurrence. Financial crises of this sort are of particular concern to central banks because they disrupt the transmission mechanism of monetary policy (see Table 1). Table 2 illustrates this definition: financial crises are results of significant shocks in a situation when the system has apparent large exposures (bottom right cell in the table); all other situations are identified with financial stability.

⁸ See Schinasi (2006) for a theoretical discussion of the concept of financial stability.

The definition of financial stability has obvious impacts on the scope of the financial stability reports. The broader the definition of instability, the more attention is paid in general to the potential threats to stability (and the longer generally the report).⁹

Table 2. Definitions of Financial Stability: Overview

Significant shocks?	Significant Exposures?	
	Not apparent	Apparent
	No	Financial stability
	Not now, but plausible	Financial fragility
	Yes	Volatility (turbulences, bubbles)
		Financial crisis

Source: author, based on a survey of the literature.

Note: The table covers only definitions based purely on risks and exposures. It does not cover some of the broader definitions mentioned in the text, in particular those incorporating efficiency.

Many FSRs use broader definitions of financial instability. In particular, most include also situations when the system—even though not in a state of crisis—is fragile, i.e., has significant exposures to plausible risks. Using such a broader definition of instability calls for the use of addition instruments. In particular, stress tests are used to distinguish whether the system has significant exposures to the plausible risks. If the stress tests suggest the existence of such exposures, the system is deemed fragile; otherwise, it is considered stable (robust).

Some FSRs also include under the heading of instability those situations when a system is subject to significant shocks, even though it does not seem to have major exposures. These include situations of major volatility in financial markets (asset price bubbles), with uncertain impacts on financial institutions. Including these situations under the heading of instability is potentially more controversial than including the situations of fragility, because the system does not have apparent exposures. However, some FSRs do this, partly in recognition of the limitations of the available tools to uncover “hidden” exposures, e.g., those relating to institution-to-institution contagion or correlations of exposures across a range of portfolios. These FSRs, while noting the absence of apparent exposures, maintain that it is prudent to watch closely the sources of risk.

Some FSRs define financial stability even more broadly, as the situation when the *efficiency* of financial intermediation between ultimate borrowers and ultimate lenders is not subject to significant adverse shocks. If this definition is adopted, the remit of policy-makers is correspondingly broader, and their analysis more encompassing. The assignment of responsibility to the central bank for safeguarding financial stability is less clear-cut if this

⁹ The fact that a broader definition of instability is correlated with longer stability reports may seem paradoxical at first, but becomes obvious on a closer observation. It is mostly because the FSRs, despite their name, are really reports about potential risks to stability rather than about stability itself.

definition is chosen. Supervisory and competition authorities, for example, would naturally have a close interest (see Table 1).

Table 3. Examples of Definitions of Financial Stability in FSRs

	Definition	Where?
Canada	Explicit definition not provided, but a box on the inside cover lists components of the financial system and notes that serious disruptions to one or more of these components “can create substantial problems for the entire financial system and, ultimately, for the economy as a whole.” It also notes that “inefficiencies in the financial system may lead to significant economic costs over time and contribute to a system that is less able to successfully cope with periods of financial stress.”	Box on the inside cover.
Denmark	Explicit definition not provided, but the FSR contains it implicitly in a description of its purpose, namely “to assess whether the financial system is so robust that any problems in the financial sector do not spread and impede the functioning of the financial markets as efficient providers of capital for companies and households.” It also notes that “The approach is to consider the general risks to the financial system rather than the situation of the individual financial institutions.”	Introduction
Euro Area	“A condition where the financial system is capable of performing well at all of its normal tasks and where it is expected to do so for the foreseeable future.”	Preface
Iceland	The FSRs made several references to Andrew Crockett’s (1997) definition that financial stability broadly hinges upon the stability of the key institutions and markets that make up the financial system. “This requires (1) that the key institutions in the financial system are stable, in that there is a high degree of confidence that they continue to meet their contractual obligations without interruption or outside assistance; and (2) that 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.”	Various places in the FSR
Norway	“Financial stability means that the financial system is robust to disturbances in the economy and is able to mediate financing, carry out payments and redistribute risk in a satisfactory manner. Experience shows that the foundation for financial instability is laid during periods of strong growth in debt and asset prices. Banks play a central part in extending credit and mediating payments and are therefore important to financial stability.”	Box on the inside cover.
Sweden	“The analysis of financial stability concerns the ability to withstand unforeseen shocks to financial companies as well as to the financial infrastructure, that is, the systems that are required for making payments and for trading and delivering financial products. The analysis of financial companies concentrates on the four major Swedish banking groups because it is these that are of crucial importance for the payment system’s stability.”	Foreword
United Kingdom	Explicit definition not provided, even though implicitly the overview section reviews the elements that the Bank of England assesses (e.g., the major institutions’ profitability, capitalization, resilience to shocks).	...

Source: author, based on individual country FSRs.

None of the FSRs surveyed includes an operational definition of stability, i.e., a more concrete definition that would narrow down the range of possible indicators monitored by the central bank to assess the stability of the financial system. This issue is particularly relevant for those FSRs using the broader definition of financial instability that includes resilience to shocks, because the distinction of stable and unstable systems is likely to depend on the degree of plausibility of the potential shocks to which a system is subjected. The absence of an operational definition contrasts sharply with monetary policy/inflation targeting, where an operational definition of price stability plays a key role in the framework. Haldane, Hoggarth, and Saporta (2004) suggest that the Bank of England, even though it does not include such an

operational definition in the FSR, is in fact going this route. A range of potential early warning signals of crisis are assessed relative to some (explicit or more usually implicit) threshold values. If any of these indicators breaches a threshold, this sets an amber light flashing. This serves not as a signal of impending crisis, but instead as a prompt for a detailed assessment of that particular risk. The authors noted that there was (at least as of 2004) “still considerable work to be done in refining and extending the list of indicators the Bank of England routinely monitors, in particular micro-level indicators of bank and financial sector resilience and health, domestically and internationally.”

C. Who Publishes FSRs?

The first FSRs were published in the mid-1990s in the United Kingdom and several Nordic countries. The number of central banks publishing FSRs increased rapidly, from 2 in 1995 to almost 50 at the end of 2005 (Figure 1).¹⁰ In addition, several central banks produce FSRs internally and are considering their publication in the future.¹¹

The characteristics of FSR-publishing central banks can be summarized as follows (Table 4):

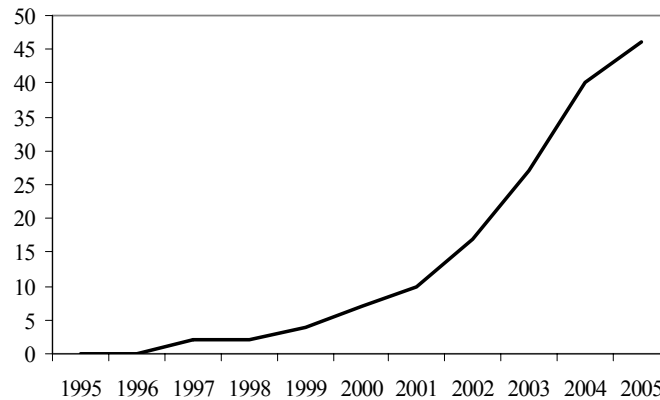
- ***Income level.*** The FSRs are published by central banks in high-income countries and emerging markets (Figure 2). Low-income country central banks do not generally publish FSRs, even though many cover financial sector issues to some extent in annual reports or other publications. Also, some countries publish more general reports on financial sector performance, while others publish separate reports on financial sector structure/development.
- ***Geography of FSRs.*** Geographically, Europe accounts for a majority of the published FSRs. In the euro area, FSRs are published both by the ECB and by the individual central banks. Of the 30 OECD countries, 25 publish FSRs.
- ***Institutional basis for financial stability analysis.*** Despite the growing interest in financial stability in central banks, a direct reference to financial stability as a central banks’ objective is rare to find in the basic central bank legislation. If financial stability is included, it is more likely to be found among “tasks” than among “objectives.” Financial stability is often bundled together with other “standard” tasks, such as the support for smooth functioning of the payment system, regulation and supervision of the banking system, or lender-of-the-last resort functions.¹² Financial stability and the central bank’s role in it is more commonly specified in other documents, such as mission statements or memoranda of understanding (if there is an integrated financial supervisory agency outside the central bank). Central banks

¹⁰ See the list of the identified FSRs in Appendix I. In some countries, e.g., in Norway and the United Kingdom, a report similar to an FSR is published also by a supervisory agency. In the Euro area, FSRs are published both by the European Central Bank and many of the member central banks.

¹¹ Given the lack of consistent information on internal FSRs, this survey focuses on the publicly available ones.

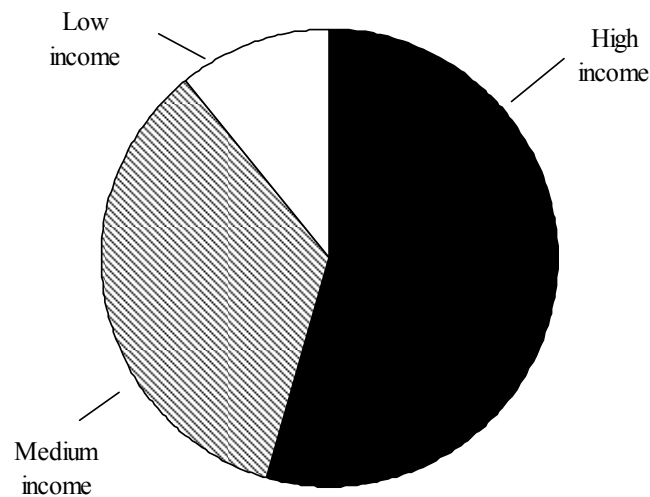
¹² See Healey (2001) and Oosterloo and de Haan (2003) for an overview of institutional frameworks for financial stability analysis in a number of countries.

Figure 1. Number of Countries Publishing FSRs, 1995–2005



Source: author's calculations, based on information available from individual central banks.

Figure 2. Countries Publishing FSRs, by Income Level



Source: author's calculations based on individual FSRs.

- typically explain their interest in the stability and general health of the financial system by their lender of last resort role and their monetary policy objectives (e.g., Healey, 2001). The correlation between the publication of FSR and the explicit inclusion of financial stability among objectives in central bank legislation is therefore positive, but relatively weak (Table 4).
- **Organizational structure.** The emphasis on financial stability is often reflected also in the organizational structure of the central bank. Banks publishing FSRs are more likely to have a separate organizational unit covering financial stability, but the relationship is not one-to-one (some central banks publish FSRs while covering the

issue within bank supervision, research, or another organizational unit; and there are central banks that have a separate organizational unit, but do not publish an FSR).

Financial Sector Assessment Program. In 1999, the IMF and the World Bank launched the Financial Sector Assessment Program (FSAP), providing countries with independent assessments of their financial sector and its regulatory framework. Participation in the program is voluntary. Interestingly, most FSRs published in the early years of the program (up to 2004) were by central banks that have participated or volunteered to participate (Table 4). This indicates that the reasons for publishing FSRs were similar to those prompting countries to volunteer early for the FSAP.¹³

Table 4. Correlations between FSR Publication and other Characteristics 1/

	FSR published	FS in a separate organizational unit	FS among official objectives	Independent monetary policy	Banking supervision in the central bank	Advanced economy	FSAP took place or requested by authorities 2/
FSR published	1.00	0.91	0.13	-0.31	-0.26	0.55	0.37
FS in a separate organizational unit	0.91	1.00	0.14	-0.25	-0.29	0.54	0.33
FS among official objectives	0.13	0.14	1.00	0.02	0.01	0.17	0.08
Independent monetary policy	-0.31	-0.25	0.02	1.00	0.24	-0.61	-0.26
Bank supervision in central bank	-0.26	-0.29	0.01	0.24	1.00	-0.24	-0.16
Advanced economy	0.55	0.54	0.17	-0.61	-0.24	1.00	0.27
FSAP took place or requested 2/	0.37	0.33	0.08	-0.26	-0.16	0.27	1.00

Source: author's calculations based on individual FSRs.

1/ Each row and column corresponds to a dummy variable indicating whether the respective feature is present (1) or not (0). The values in the table are pairwise correlation coefficients for these dummy variables. FS refers to financial stability.

2/ Only FSAPs up to end-2004.

¹³ This correlation declines if we include also later observations, as the FSAP currently covers more than 2/3 of the IMF member countries.

III. ASSESSING THE FSRs

How should one assess FSRs? The existing generally accepted international standards and codes have not focused on this issue and as a result provide limited guidance in this respect.¹⁴ A possible inspiration can be taken from Fracasso, Genberg, and Wyplosz (2003), who surveyed inflation reports issued by 19 inflation-targeting central banks. Their study assessed the quality of the inflation reports by using the following criteria: clarity, consistency, and coverage of key issues (policy objectives, decision-making, analytical framework, input data, presentation of forecasts, evaluation of past forecast and policy). The study found positive link between report quality and policy predictability.

This paper attempts to illustrate that it is possible to assess the FSRs in a consistent fashion. Using the Fracasso, Genberg, and Wyplosz (2003) approach to inflation reports as a broad inspiration, the focus of their survey is on three characteristics of good reports: clarity, consistency, and coverage. To make the assessment more structured, each FSR is decomposed into five main elements: the report's aims, the overall assessment presented in the report, the issues that are covered, the data, assumptions, and tools that are being used, and other features such as the reports' structure. For each of the five elements, one can assess the three characteristics: clarity, consistency, and coverage (it may be useful calling this CCC framework).¹⁵

Table 5 presents the “CCC” framework in a matrix format, summarizing for each element and each characteristic some key questions that need to be asked by a person analyzing or assessing an FSR. The following parts of this section discuss the five key elements in more detail and for each of them propose principles of good practices. Appendix II summarizes the principles in a matrix format similar to Table 5, but with the specific principles instead of the questions. Section IV illustrates that this system can be actually be used in practice.

¹⁴ The issue of central bank publications is mentioned in the IMF's Code of Good Practices on Transparency in Monetary and Financial Policies. However, its only requirement with respect to central bank publications is that “the central bank should have a publications program, including an Annual Report” (IMF, 2000).

¹⁵ Fracasso, Genberg, and Wyplosz (2003) do not use the CCC terminology or the matrix. The framework presented here is not the same as the one employed by Fracasso, Genberg and Wyplosz (2003). Rather, it is inspired by their work. It is also inspired by a similar approach taken by the Independent Evaluation Office (IEO) of the International Monetary Fund in their evaluation of the Financial Sector Assessment Program (FSAP), which among other things assessed the quality of Financial System Stability Assessment reports produced by the IMF in the FSAP (see IEO, 2006).

Table 5. Proposed Questions to Ask When Assessing Financial Stability Reports

	Clarity	Consistency	Coverage
A. Aims	<ul style="list-style-type: none"> • Are the aims of the report clearly defined? • Does the report use a clear definition of financial stability? 	<ul style="list-style-type: none"> • Are the aims of the report presented consistently across reports? • Is the definition of financial stability presented consistently across reports? 	<ul style="list-style-type: none"> • Does the report cover the right aims? • Does the definition of financial stability cover both the absence of crisis and resilience to crises?
B. Overall assessment	<ul style="list-style-type: none"> • Is the overall assessment presented clearly and in candid terms? 	<ul style="list-style-type: none"> • Are the overall assessments consistent across time? 	<ul style="list-style-type: none"> • Does the overall assessment cover the key topics?
C. Issues	<ul style="list-style-type: none"> • Does the report clearly identify the main macro-relevant stability issues? 	<ul style="list-style-type: none"> • Is the coverage of issues consistent across the reports? 	<ul style="list-style-type: none"> • Is the coverage of the issues comprehensive?
D. Data, Assumptions, and Tools	<ul style="list-style-type: none"> • Is it clear what tools are used to arrive at the results presented in the report? What are the underlying assumptions? What are the data used for the methods? 	<ul style="list-style-type: none"> • Are the tools used in a consistent manner across the reports? Are results presented in a consistent manner that allows comparisons? 	<ul style="list-style-type: none"> • Does the report use the available data? • Does the report use available tools?
E. Structure and other features	<ul style="list-style-type: none"> • Is the structure of the report easy to follow? • Are other features of the report—such as its length, frequency, timing, or public availability—designed in a way that supports its clarity? 	<ul style="list-style-type: none"> • Is the structure of the report consistent across time to make it easier to follow for repeat users? • Are other features of the report designed in a way that supports its consistency? 	<ul style="list-style-type: none"> • Does the structure of the report allow to cover the key topics? • Are other features of the report designed in a way that supports its coverage?

Source: author, based loosely on Fracasso, Genberg, and Wyplosz (2003) and a survey of FSRs.

A. Reasons, Aims, Objectives

Before discussing reasons for publishing FSRs, it is useful to start by asking what are the *main reasons against* publishing an FSR. This is not an academic question; despite the rapid growth in the number of FSR-publishing central banks, some central banks have been cautious before embarking on publishing an FSRs. Based on a survey of the literature and on informal discussions with staff of central banks that do not publish FSRs, it seems that the main reasons against publishing an FSR can be grouped into the following three categories:

- ***Financial sector issues are too sensitive to be discussed openly in the public.*** It is possible to conceive of circumstances in which publication of a central bank analysis at a time of increasing risk to financial stability might precipitate the very shocks or crisis that the central bank was trying to avoid, by inducing liquidity problems in particular markets or financial institutions. That danger is reduced if the central bank has established a track record of unbiased analysis during a period of low risks to financial stability. In those circumstances, risk-reducing actions taken by private agents in response to the central bank's analysis are less likely to increase liquidity risks. This argument against publication is valid only if policy-makers do not think that they have adequate contingency plans in place to deal with the consequences of private sector actions triggered by the publication of their analysis. If they are confident about contingency arrangements, publication can actually help, by reassuring private agents that measures to prevent a systemic crisis (e.g., lender of last resort facilities or government guarantees, appropriately calibrated and timed to avoid increasing moral hazard excessively) are ready to be deployed. The experience of FSR-publishing central banks so far does not provide an example of an FSR that triggered liquidity problems in the system.
- ***Central banks have an incomplete degree of control over policy outcomes in the area of financial stability.*** One of the basic rules of good inflation reports is "say what you do—do what you say." The same rule applies to the FSRs; however, what the central bank can do has arguably a much more limited impact on overall financial stability than it can have on achieving an inflation target, partly because achieving financial stability requires actions from other involved parties, in particular other agencies and market players. The limited control over the outcomes in the area of financial stability is seen as a limit on the usefulness of FSRs. This argument works also the other way round: precisely because the desired outcome depends on a number of parties, not the least including the market players, putting out a report that presents the central bank's view may be a tool to trigger a desired action on part of the market players. In this sense, the relatively low effectiveness of central bank tools (other than the FSR) means that the relative importance of FSRs in the framework for financial stability can be even higher than the relative importance of inflation reports in the framework for price stability.
- ***Preparing and publishing FSRs requires resources.*** The resource intensity of the exercise may be an important argument, particularly in smaller central banks with very limited resources. It would be unwise to launch an FSR when its quality could not be sustained or the report could not be produced regularly. However, three mitigating factors should be taken into consideration. First, as noted in Appendix III, the drafting team of FSRs in most central banks is relatively small, often in the range of 4–10 people. Second, in small central banks with more limited resources, it may be useful to choose a relatively narrower operating definition of financial stability—as recommended by Bowen, O'Brien, and Steigum (2003) in the case of Norges Bank—which means that the scope of the report can be relatively smaller and require less staff. Third, for most central banks the choice is not really whether to produce such a report or not. Given the importance of financial sector stability for their overall objectives, most central banks have to monitor financial sector stability and typically

produce regular reports on the subject for internal purposes. The real question in most cases therefore is what are the costs of turning such reports into publications.

None of the above reasons against publishing FSRs appears very strong on a closer inspection. What are then the *main reasons for* publishing FSRs? Based on the survey of FSRs, it seems that for most central banks **the ultimate objective is contribution to financial stability**. Some FSRs explicitly recognize reduction of financial instability as their ultimate objective. For example, the Bank of Canada flags in a cover box of its FSR that it is “one avenue through which it seeks to contribute to the longer-term robustness of the domestic financial system.”

How can FSRs contribute to financial stability? They can do so by (i) improving the understanding of (and contributing to dialogue on) risks to financial intermediaries in the economic environment; (ii) alerting financial institutions and market participants to the possible collective impact of their individual actions; and (iii) building a consensus for financial stability and the improvement of the financial infrastructure. An FSR can add value to work undertaken by private agents in the financial sector itself, because a central bank can draw on its macroeconomic expertise and its role in payments and settlements. Also, private agents do not have as strong an incentive to assess the systemic risks in the economic environment, as they are less interested in spillovers of their actions on to other agents. Private agents also lack sufficiently strong incentives fully to address systemic risks when such risks have been identified, because they will not expect to capture all the benefits themselves. So publication has to be combined with the promotion of measures to change those incentives or otherwise to constrain private sector behavior. Those measures may need to be taken by the government, regulators, or the central bank itself. Finally, there is a need to educate the public about the costs of infrequent but catastrophic episodes of instability (analogous to the need on the monetary policy side to build a constituency for low inflation).

Some FSRs list a range of general aims, which relate to the above mechanism of contributing to financial stability, and can be seen as subordinate to the “ultimate objective.” FSRs particularly often stress the objective of monitoring and presenting to the public the central bank’s appraisal of developments relevant for the financial sector and of their impact financial sector stability (see examples in Table 6). Other often stated objectives include encouraging an informed debate on financial stability issues, disseminating information for transparency purposes, and influencing market participants. Some central banks see their FSRs as a tool to encourage greater cooperation between supervisory and regulatory authorities, and others intend the FSR to help clarify the central bank’s role in protecting the stability of their financial system. Some also present their views on developmental issues, but the focus of FSRs is on risks and vulnerabilities. Some see their stability reports as a way of building trust in the financial services industry, based on permanent monitoring of risks and pointing of dangers to participants.

Publication of FSRs is of course only one of a number of tools that public authorities have to affect financial stability. The authorities can help achieve financial stability by (i) ensuring integrity of payment systems; (ii) regulating and supervising financial intermediaries to limit risk exposures and ensure that there are appropriate buffers; (iii) working on crisis

management, mitigating effects of international spillovers, and minimizing risk of asset price collapses; and (iv) monitoring new risks.¹⁶ The FSR should play a key role in the last element, i.e., in monitoring of new risks.

An additional reason for publishing an FSR is the positive impact that such a regular publication may have on the central bank itself. FSRs typically do not mention this as an explicit aim, but it is certainly important in the consideration on whether to start publishing an FSR (see Appendix III). Bowen, O'Brien, and Steigum (2003) argue that publication subjects the central bank's analysis to scrutiny by a wide range of possible critics; it therefore provides a discipline for surveillance work as to its quality, frequency, and timing; and it demonstrates that the central bank is fulfilling its remit. Hence publication can fulfill an important role in improving the accountability and transparency of the central bank.

Some central banks also support the statement on aims by a description of the target audience for the FSR. For example, the Bank of England notes on its website that its Financial Stability Review is “intended to be read by those who are responsible for, or have an interest in, maintaining and promoting financial stability at a national or international level” and that it should be of special interest to “policy makers in the UK and abroad; international financial institutions; academics; journalists; market infrastructure providers; and financial market participants.”

Closely related to the aims is the definition of financial stability in the FSRs, discussed earlier. Most FSRs include a general definition of stability (some of them in a conspicuous place, such as the inside cover page or the introduction), typically referring to smooth functioning of the components of the financial system and resilience to shocks, and making the point that they focus on general risks to the financial system rather than the situation of the individual financial institutions. None of the FSRs surveyed, as mentioned in Section II.B, includes an operational definition of stability, a more concrete definition that would narrow down the range of possible indicators that the central bank assesses when measuring the degree of stability of the financial system. This contrasts sharply with the monetary policy/inflation targeting framework, where an operational definition of price stability (an inflation target) plays a key role. Financial stability is of course a much more complex concept than price stability, and expecting that it can be boiled down to a single indicator and a single target range would not be realistic. Nonetheless, clarifying a set of basic indicators that need to be looked at and a set of “thresholds” that are a source of concern would be a useful way of clarifying the framework underlying the assessment of financial stability. Having such a basic set of indicators does not mean that there is no role for other, non-quantitative factors, such as an assessment of the quality of the regulatory framework or the deposit insurance system. Indeed, those can and should be used to complement the initial quantitative assessment.

¹⁶ This list is based loosely on Allen, Francke, and Swinburne (2004).

Table 6. Examples of Aims in FSRs

Country/Central Bank	Stated Aim(s)	Where Stated?
European Central Bank	“Promote awareness in the financial industry and among the public at large of issues that are relevant for safeguarding the stability of the financial system.” Also, “by providing an overview of sources of risk and vulnerability to financial stability, the review also seeks to help preventing financial tensions.”	Preface to the FSR.
Canada	“[T] the FSR aims to: (i) improve the understanding of current developments and trends in the Canadian and international financial systems and of the factors affecting them; (ii) summarize recent work by Bank of Canada staff on specific financial sector policies and on aspects of the financial system’s structure and functioning; (iii) promote informed public discussion on all aspects of the financial system, together with increased interaction on these issues between public and private sector entities.”	Box on the inside cover. The box also notes that the FSR is an avenue through which the Bank of Canada “seeks to contribute to the longer-term robustness of the Canadian financial system” and explains why it is important to analyze the financial system.
Denmark	Defined implicitly by mentioning references to “efficiency and stability in the payment systems and in the financial markets” in central bank act.	Introduction
Sweden/Review of the Swedish FSR by Allen, Francke, and Swinburne (2004).	Allen, Francke, and Swinburne (2004) suggested to choose the following aims: (i) inform stakeholders of potential financial stability risks and ways to mitigate them; (ii) encourage informed debate on financial stability issues; (iii) serve as an accountability instrument; and (iv) help provide information that major participants in the financial industry may use as part of the input into their own risk assessment procedures.”	...
Turkey	The report aims to inform the public.	Inside cover page
United Kingdom/Bank of England	The FSR has three aims: (i) encourage informed debate on financial stability issues, domestically and internationally; (ii) survey potential risks to financial stability; and (iii) analyze ways of promoting and maintaining a stable financial system.	Inside cover page. Highlighted on the website.

Proposed good practices

- A1. *The definition of financial stability should be clearly indicated.* Clarifying the definition of financial stability helps the reader, and in particular a first-time reader, to understand the FSR’s statements on financial stability.
- A2. *The aims of the report should be clearly indicated.* Clarifying the aims helps the reader, and in particular a first-time reader, to understand why certain topics are covered or omitted in the FSR.
- A3. *The definition of financial stability should be a standard part of the report, presented consistently across reports.* Ideally, the definition should be placed in a conspicuous place, where it can be easily found, such as a box on the inside cover or in the introduction.

- A4. *The statement of aims should be a standard part of the report, presented consistently across reports.* Ideally, the statement of aims should be placed in a conspicuous place, where it can be easily found, such as a box on the inside cover or in the introduction.
- A5. *The definition of financial stability should cover both the absence of crisis and resilience to crises.* Defining financial stability only in terms of financial crises leads to FSRs that are too narrowly focused and may overlook important vulnerabilities. The definition may cover also other issues (such as the absence of asset price bubbles) if it does not hamper the clarity of the definition.
- A6. *Financial stability should be defined both in general terms and in operational terms.* The general definition of financial stability should be accompanied an “operational definition of financial stability” highlighting the key indicators (and other information) that are followed. Coming up with such an operational definition is challenging, and it is a process that may need to be repeated as the system evolves. However, having such an operational definition is very important internally, to help determine the scope of financial stability analysis and hence resource allocation, to facilitate analytical modeling, to motivate the FSRs, and to guide the reports’ authors. It would also be important externally, to be better able to communicate the key findings to the reader.
- A7. *The aims of the report should be comprehensive.* Ideally, the aims should include (i) informing stakeholders of potential financial stability risks and ways to mitigate them; (ii) encouraging informed debate on financial stability issues; (iii) serving as an accountability instrument; and (iv) helping to provide information that major participants in the financial industry may use as part of the input into their own risk assessment procedures.

B. Assessments

Most of the overall assessments in recent FSRs have been positive. In a survey of the latest issues of the FSRs, virtually all (96 percent) have started off with a positive overall assessment of soundness of the domestic system (characterizing the health of the financial system as being, e.g., “in good shape,” “solid,” or at least “improving”).

Why are the positive assessments so prevalent? The main possible explanations are the following:

- *As good as it gets.* The global financial system has been characterized by a period of relative calm. There was no major financial crisis in recent years, and there has been abundant liquidity globally. It could be therefore argued that the FSRs have not yet been put to a real test.
- *Selection bias.* Countries with robust financial systems and well-designed frameworks are more likely to start publishing FSRs than those with weaker financial systems and frameworks. Therefore, the prevalence positive overall assessments in FSRs may simply reflect the fact that the systems reviewed in FSRs are in general in a better shape than those for which FSRs are not available.

- *Presentation bias.* Some central banks may prefer to present the financial system in a positive light, partly because problems may be interpreted as results of problems in central bank policy, and partly because of the fear—discussed in previous subsection—that a negative assessment might trigger a decline in confidence in the system. The drawback of this approach is that (i) if problems get unreported for a while, they may accumulate and become more difficult to address than if they were addressed earlier; and (ii) central bank’s credibility may get impaired if the reports are perceived as biased. Central banks therefore typically hedge their assessments by noting various possible warning signals and external and other risks faced by the system. Some FSRs include these warning signals only as “small print” in later parts of the report, while others have clear “red flags” in the overall assessment. As an example, Bowen, O'Brien, and Steigum (2003) in their generally positive survey of the Norwegian FSR note that the discussion of weaknesses in the financial system is sometime limited, and illustrate it by a moderate tone used when commenting on unfavorable developments in the insurance sector, which culminated in a government intervention in the fall of 2001. Only in 2002 did the FSR recognize that the sector has gone through a “turbulent” period.

Proposed good practices

- B1. *The overall assessment should be presented clearly and in candid terms.* The whole report, and especially the assessment, should be clearly written. The main findings should be highlighted. The reader should not be required to “read between the lines.”
- B2. *The overall assessment should be linked to the remainder of the FSR.* The overall assessment should put together the various pieces of analysis presented in the report, and present an overall picture of the main exposures and risks. The picture should be comprehensive, i.e., if the underlying analysis, such as stress tests, indicates an increase in an important source of risk, this should be recognized in the main conclusions.
- B3. *There should be a clear link between the assessments over time, making it clear where the main changes took place.* The FSR should indicate how the main risks and exposures evolved since the last FSR (typically six months or a year). This can be facilitated by having a summary statement in each section (e.g., in a small box at the end of each section) highlighting the main changes.
- B4. *The overall assessment should cover the key topics.* All significant risks and exposures should be reflected in the assessment. No major potential risk should be omitted. The report should not dodge complex but important issues. This may be a challenging principle in relation to politically sensitive risks, such as those relating to government defaults. However, the political sensitivity can be at least partly addressed by using standardized approaches, e.g., stress testing every time for a downgrade in the sovereign rating by a notch.

C. Coverage of Issues in FSRs

The coverage of issues in FSRs has been increasing over time, reflecting both the growing sophistication of the financial systems as well as the increasing capacity of the central banks

to compile and analyze the relevant data. Most FSRs started as very narrowly focused, typically on the banking sector, and over time evolved into more general reports, covering also nonbank financial institutions, financial soundness counterparties (households, corporates), the payment and securities settlements systems, and regulatory framework. More specifically:

- *Non-financial sector.* There is clearly an increased attention to non-financial sectors as potential sources of risk. The FSRs have been paying increasing attention to non-financial sectors as potential sources of risk.
- *Nonbank financial institutions.* Many central banks started their FSRs by preparing “banking stability reports,” and renamed them to FSRs after including other sub-sectors and issues. More recent FSRs tend to have more comprehensive coverage, including not only banks, but also other important segments of the financial systems, such as insurance companies, pension funds, and securities intermediaries. More recently, several FSRs also included analysis of hedge funds and real estate investment trusts. The inclusion of nonbank financial institutions has been a sensitive issue in some countries, particularly where the central bank is not carrying out nonbank financial institutions’ supervision. In most cases, the argument prevailed that the macroprudential surveillance contained in FSRs serves a different purpose (addresses a different type of market failure) than microprudential supervision. Namely, macroprudential surveillance is aimed at systemic instability, while microprudential supervision is aimed at issues related to asymmetric information and market misconduct. The central bank should—and typically has—a role in addressing systemic instability; this does not necessarily require it to carry out microprudential supervision.¹⁷
- *Risk factors.* In terms of risk factors, credit risk was covered in all FSRs, and many explicitly noted that credit risk is the most significant source of risk. A majority of central banks also analyzed exchange rate risk and payment and settlement risk. Interest rate risk and liquidity risk were explicitly presented in half of the FSRs. Country risk was reported in a third of FSRs surveyed. Contagion risk was analyzed in several recent FSRs. Many FSRs also include sections dealing with payment system stability.

Proposed good practices

- C1. *The report should clearly identify the main macro-relevant stability issues.* The report should distinguish issues that have a wider systemic impact. Those issues should be covered in the overall assessment and analyzed in some depth. In most financial system, banking system is the sub-sector that is the most systemically relevant, and therefore is covered in more depth than other components of the financial sector.

¹⁷ For an overview of the regulatory framework and role of the central bank in them, see Table 1 and also Čihák and Podpiera (2006) and Healey (2001).

- C2. *The coverage of issues should be consistent across the reports.* When an issue is identified in one report, the next report should follow-up on the issue, or at least indicate why the issue is not covered this time.
- C3. *The coverage of the financial system should be sufficiently comprehensive.* FSRs typically cover the banking system in the greatest depth, but nonbank financial system and payment infrastructure issues are typically also covered. When some issues are not covered, the lack of coverage should be indicated and justified.

D. Data, Assumptions, and Tools Used by FSRs

The FSRs use a range of analytical tools, which can generally be subsumed under the heading of macroprudential analysis.¹⁸ The analytical tools used in FSRs have a number of linkages to the macroeconomic analysis and to the microprudential analysis. Compared to the traditional macroeconomic analysis (presented in inflation reports or other central bank publications reporting on general macroeconomic developments) it is more focused on balance sheet analysis, and extreme scenarios that can include breakdowns in transmission mechanisms or multiple equilibria. Compared to the microprudential analysis, the focus of macroprudential analysis (and FSRs) is on systemic risks, not on individual institutions.

The range of techniques used by FSRs has been growing over time. All FSRs cover some form of analysis of macroprudential indicators, which often overlap with the financial soundness indicators (FSIs) (IMF, 2004). There is increasing use of more sophisticated market-based indicators. In addition to the indicator analysis, the proportion of FSRs reporting results of more sophisticated tools has been increasing. More FSRs use market-based indicators, such as credit-default swaps, relative stock market indices, and distance-to-default indicators. The share of FSRs using stress testing has grown from zero to more than a half of the published FSRs. More generally, the number of calculations based on disaggregated data—such as supervisory early warning systems—has been on the rise. There are also attempts to integrate FSRs better with other efforts by central banks, such as monetary policy studies and models. Recent FSRs are also more likely to include a discussion of the regulatory framework or a (self-) assessment of compliance with the regulatory standards.

Macroprudential Indicators

FSRs use a wide range of macroprudential indicators, many of which overlap with the FSIs. For example, the December 2004 ECB Financial Stability Review stated that “Most of the indicators identified by the IMF match the macro-prudential indicators set up by the ESCB.”

The reports also include a number of useful indicators that are not FSIs (e.g., market-based); however, the coverage of FSIs is uneven. Consistency with the FSI Compilation Guide is not always clear and sometimes clearly not present. Many FSRs rely on graphs, which are eye-

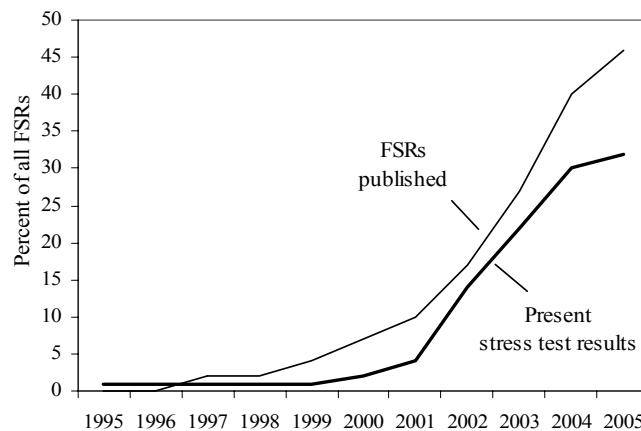
¹⁸ For a broad overview of the macroprudential analysis and its tools, see World Bank and International Monetary Fund (2005).

catching, but do not provide the reader with the underlying data in a statistical appendix or an attached spreadsheet. Also, the coverage of indicators is text-driven. Only some FSRs are accompanied by comprehensive statistical appendices or Excel files. Capital adequacy and profitability indicators are presented in virtually all FSRs. Asset quality indicators are also relatively frequent. Indicators on liquidity are less commonly presented, and those on sensitivity to market risk even less so.

Stress Testing

Stress testing has become a widely used analytical tool in the analysis of financial stability. The share of FSRs that included summaries of stress tests was about 75 percent as of the end of 2005 (Figure 3). A common pattern is that in early reports, stress tests are not used; they are included only in subsequent reports after the central bank becomes more comfortable with the basic presentation. This indicates that stress testing has increasingly become an important analytical tool in financial stability work.¹⁹

Figure 3. Share of FSRs Presenting Stress Test Results



Source: author's calculations based on individual FSRs.

Table 7 overviews stress tests in FSRs in general, and Table 8 provides concrete country examples. Stress tests presented in most FSRs are relatively rudimentary, as central banks are still only at the beginning of their work in this area. As an important caveat, it should be recognized that a vulnerability can be analyzed in some cases even without conducting a formal stress test. For example, even when an FSR does not contain an explicit stress test for exchange rate risk, the report would typically include a discussion of the open positions in foreign currency. Similarly, when a central bank does not publish an FSR or does not include stress tests in its FSR, it may still carry out stress tests for internal purposes, without publishing the results.

¹⁹ The ratio of FSRs publishing results of stress tests has declined in 2004–2005. This may be only a temporary reflection of the rapid growth in new FSRs: some central banks start publishing FSRs without stress tests and only after a while, when they become more comfortable with the results and with the publication, they start including stress test results.

There is substantial cross-country variation in the sizes and range of shocks covered, and in the methodologies applied. This reflects the differences in the financial systems, the risks that they face, as well as differences in the quality and structure of the available data.

Nonetheless, the stress tests in FSRs show several common features:

- *Stress tests in FSRs tend to have a wide coverage of the banking sector*, including either all banks or virtually all in terms of the market share. Other parts of the financial sector are covered much less, even though there are exceptions (for example, the German FSR includes stress tests for insurance sector).
- *A majority of presented stress tests are based on bank-by-bank data*. This can be understood as a recognition that stress tests done on aggregate data risk can miss some potentially important risks arising from concentration of risks in weaker institutions. Central banks that are not involved in microprudential supervision (e.g., Bank of England or Bank of Norway) and do not have access to supervisory data are more likely to rely on top-down approaches or calculations based on non-supervisory data.
- *Credit risk is covered in almost all stress tests*. Interest rate risk is covered in most stress tests. Exchange rate risk is covered in some, but in many cases it is analyzed only in terms of open positions, without an explicit stress test.
- *Most stress tests are simple sensitivity analysis calculations*. Some include scenario analysis, based on historical or hypothetical scenarios. Only a few stress tests are based on an econometric model. When models are used, they tend to be relatively rudimentary compared to those used in other central bank work, such as inflation forecasting. Inclusion of indirect exchange rate effects, and contagion is rare. When the latter is done, it is a basic exercise based on net interbank market exposures.
- *Virtually all the surveyed stress tests in FSRs have been positive in the overall assessment of the financial sector, suggesting that it is stable*. This has mirrored the fact that FSRs in general tend to have overall positive findings (see Section III.B). Stress tests in FSRs tend to confirm the overall positive conclusions by finding that the system is robust, capable to withstand substantial shocks.
- *In many cases, the interest in stress tests was spurred by a recent FSAP mission*. In some cases, recent stability report(s) included a summary of the FSAP stress tests (e.g., Austria and Netherlands), and it is likely that the central bank will continue with its own stress testing program, broadly along the FSAP lines. In other cases (e.g., Denmark and Norway), the FSR included “FSAP-style” stress tests even before the country has undergone an FSAP.

Table 7. Stress Testing in FSRs: Overview, End of 2005

Topic	Percent of FSRs
Stress testing included	55
Stress testing follows a recent FSAP	38
Credit risk stress testing included	55
Interest rate risk stress testing included	45
Exchange rate risk stress testing included	33
Other risks included	33
Scenario analysis included	38
Contagion analysis included	10
Credit risk based on an econometric model	8

Source: author's calculations based on individual FSRs.

Even though a majority of FSRs now includes stress tests, there is still a number that do not, and most of those that do could give them more prominence and present them on a comparable basis over time. As regards the coverage of the stress tests, most of them would benefit from a broader scope that would cover the credit risk, its interplay with market risk, and interbank contagion. Stress tests could be linked to a broader macroeconomic scenario. If such a set of tests were run regularly with the same assumptions, it would allow the reader to see changes over time in the overall pool of risks and in the structure of risks faced by the financial system. Presenting results as a single point is interesting, but does not allow the reader to appreciate the developments in the overall pool of risks or changes in the structure of risks. It would therefore be particularly useful to compare current stress test results with those shown in the past. The specific improvements in stress testing that can be recommended in many FSRs include the following:

- *Scenarios.* More use can be made of scenarios. Most FSRs that include stress tests define them only very narrowly, and typically comprise only a set of single factor shocks. In those FSRs that include scenarios testing, the scenarios are not well justified; it is not clear how the design of the scenarios relates to the recent history or the future risks.
- *Integrating the impacts and the buffers.* Results of the stress tests are often presented in terms of specific loan loss provisions. This does not take into account how well the risks and exposures are matched by buffers (profits and capital). This may result in biased results, depending on whether risks and exposures are concentrated in weakly capitalized institutions or in well capitalized institutions. Presenting impacts in terms of capital (or capital adequacy or profitability) allows to better assess concentration of risks. To carry out this type analysis, it is important to have data for individual institutions.
- *Greater focus on liquidity tests.* The stress tests presented in FSRs typically focus on testing for the impact on banks' solvency. It is almost as important to test for liquidity; however, explicit liquidity tests are quite rare in FSRs.

- *Contagion analysis.* In most FSRs that present stress test results, the analysis can be further improved by analyzing contagion among banks and also between nonbanks and banks. To carry out this type analysis, it is important to have data for individual institutions. The interbank contagion calculation can include two broad approaches. The first one focuses on the risk of insolvency through interbank market. An important requirement for these calculations is a matrix of net uncollateralized interbank exposures. The calculations can be implemented in two basic ways: (i) assume a failure in one institution (e.g., because of mismanagement); or (ii) run a macro-related contagion test, where the first round of failures (“fundamental failures”) is triggered by a macroeconomic stress test scenario and then a contagion is run through the system to see whether this leads to another round (and perhaps even more rounds) of failures. The second broad approach focuses on the risk of liquidity runs. An important requirement for this approach are detailed data on withdrawals in past episodes of bank runs.
- *Stressfulness of scenarios.* Bowen, O'Brien, and Steigum (2003) noted, in an otherwise very positive review of the Norges Bank's FSR, that the report tended to rely on a relatively narrow and mild set of assumptions (e.g., by assuming that banks would be able to earn a satisfactory level of earnings even in periods of stress). Also, a more general review of FSRs suggests that for those countries that had an FSAP and publish FSRs, the scenarios presented in the FSRs tend to be generally less stressful than those presented in FSAPs. Assessing the plausibility of a scenario is a complex task; as a minimum, one can recommend that the assumptions are kept consistent across the FSRs (to allow for comparability and to avoid using more optimistic assumptions in periods of weakness) and that FSRs include also an approach to defining the scenarios, one that does not start from plausibility of a scenario.
- *Threshold approach.* The prevalent approach to stress testing starts by presenting scenarios with probability that is unknown (at least to the reader) and not easy to calculate. In some FSRs, it may be useful to employ also a “threshold approach,” which instead starts by asking what shock would it take to make the system reach a certain threshold (e.g., reaching system's capital adequacy of 8 percent or making a certain percentage of institutions insolvent). This approach was used in several FSAPs and FSRs (e.g., the National Bank of Poland's Financial Stability Review).

Table 8. Examples of Stress Tests in Financial Stability Reports 1/

Country	Coverage	Main conclusion	Credit shock	Interest rate shock	Exchange rate/shock	Other shock	Scenario	Indirect FX risk	Contagion
<i>Austria 2/</i>	All banks	Stress testing supported positive assessment of banks' risk-bearing capacity.	Incr. in loan loss provisions to loans by 30 percent.	Upward shifts in EUR, USD, CHF curves; downward shift in YEN curve.	Appreciation/depreciation of EUR by 10 percent. Worst case estimation.	Equity price risk	Yes	Yes	Yes
<i>Czech Republic</i>	All banks	System basically stable. Recent shift from credit risk to interest rate risk.	Increase in NPLs by 30 percent or in the NPL/TL ratio by 3 percentage points.	Increase by 1 pct point/2pct points. Combination of weighted gap and duration methods.	Domestic currency depreciates by 15 or by 20 percent.		Yes, two scenarios	Yes	Yes
<i>Denmark</i>	6 Nordic groups and 46 (out of 99) Danish institutions.	The banking and institutions increased their resilience considerably.	An increase in losses on loans to non-public sector by 1 or 2.25 percentage points.	An increase in interest rates by 1 or by 3 pct points. Decrease in the average lending rate by 1 pct point.		Decrease in stock prices by 30 %. Decrease in net fee of the shocks and commission income by 40%.	Yes, several combinations listed here.	No	No
<i>Germany</i>	A sample of banks; insurance companies	No risk to financial stability at present.	Credit risk estimated by an econometric model.	Twists of the yield curve at the short end, parallel shifts across all maturities, and fluctuations in the medium-term range.	EUR appreciates or depreciates by 15%.	30 % decline in stock prices in all markets.	Yes, "oil price scenario," int. rate scenario." Credit risk scenario using an economic model.	No	No
<i>Hungary 3/</i>	All active banks	Results indicate an improvement in the sectors' resilience.	4 shocks to NPLs (e.g., doubling, increase by 2 st. dev.)	Domestic rates: +500 bp, -300 bp Foreign: +/-200 bp	+/- 40 %	No	No	No	No
<i>Latvia</i>	All banks	Vulnerability to overall credit risk decreased in 2004; household lending the biggest risk.	Increase in NPL ratio by 3 percentage points. A number of the sectoral shocks, assuming that a percentage of loans to some sectors become NPLs.	No explicit stress test included, the report notes that most loans are floating rate.	USD depreciating by 10 % against EUR.		No.	No	No

Country	Coverage	Main conclusion	Credit shock	Interest rate shock	Exchange rate shock	Other shock	Scenario	Indirect FX risk	Contagion
<i>Poland</i>	All banks	The system exhibits high stability.	Three shocks: (i) satisfactory and special mention loans migrate to doubtful; (ii) substandard and doubtful migrate to loss; and (iii) bankruptcy of three largest borrowers.	Not a stress test, but an analysis of gains/losses on interest-sensitive instruments, and the maturity of debt securities.	Not a stress test, but an analysis of VaR and open positions.	Equity price risk and property market risks analyzed (but without a stress test)		No	No
<i>Netherlands</i>	Major fin. institutions (84% banks, 54 % insur. c., 50 % pens.f.)	Banks are sufficiently shock-resistant.	+/-50 bps change in credit spreads (larger for insurance and pensions)	+/-100 bps parallel move; 50 bps flattening/steepening of yield curves (larger for ins&pen)	+/-10 % change in the exchange rate of EUR vs. other currencies	+/-15 % change in all relevant stock indices; 25 % increase in market volatilities	Yes, “domestic crisis of confidence, “dollar crisis”	No	Yes
<i>Norway</i>	All banks / seven largest conglomerate-rates.	Short-term stability outlook satisfactory. However, increased vulnerability of household sector.	Decline in economic growth, increased unemployment.	Interest rates unchanged, but interest burden of real sector increased appreciably.		A fall in property prices reduces mortgage values, causing a rise in loss given default.	Yes, all tied to No credit risk.	No	No
<i>Sweden</i>	Four major banks	The major banks improved their potential for coping with shocks.	Failure of the largest counterparty, assumed recovery ratio of 25 percent.	Increase in interest rates by 1 pct points, and a 30 percent fall in the stock market.			No	No	Yes

1/ Abbreviations: NPL ... nonperforming loans, TL ... total loans, pct... percentage, bp ... basis points, st. dev. ... standard deviation, int. rate ... interest rate, EUR ... Euro, USD ... U.S. dollar, CHF ... Swiss Frank, and YEN ... Japanese yen.

2/ The latest FSR contained the stress tests carried out by (or in collaboration with) an FSAP mission.

3/ Based on the FSR at the end 2003. The subsequent two FSRs presented only the “stress CAR,” which shows a bank’s financial position in a situation where all NPLs are written off.

Source: author, based on central banks’ recent financial stability reports. Austrian National Bank: Financial Stability Report 7, June 2004. Danmarks Nationalbank: Financial Stability 2003. Deutsche Bundesbank: Report on the Stability of the German Financial System, Monthly Report, October 2004. De Nederlandsche Bank: Overview of Financial Stability in the Netherlands, December 2004, Issue No. 1. Hungarian National Bank: Report on Financial Stability, June 2003. National Bank of Poland: Financial Stability Review, First Half of 2004. Norges Bank: Financial Stability, 2004:1, June 2004. Sveriges Riksbank: Financial Stability Report, 2004:2

Market-Based Indicators

The purpose of market-based risk indicators is to take advantage of the information dispersed among market participants. The underlying notion is that prices of publicly traded instruments—such as bonds, shares, and options—carry important information about the market participants' expectations for the future. This information may supplement the analysis of financial institutions based on supervisory data.

The use of market-based indicators in FSRs has been increasing. The most frequently used market-based indicators were relative stock market prices of financial institutions, indicators of volatility in share prices, distance to default, probability of default, and distance to insolvency, changes in government or corporate bond spreads, credit default swap premia for banks and nonbank companies, and implied volatility based on option prices (see Table 9 for recent examples of market-based indicators used in FSRs). Also, a number of working papers or special studies have been issued by the FSR-publishing central banks to investigate the links between various market-based indicators and financial stability; some of these are mentioned in the list of references (Gropp, Vesala, and Vulpes, 2002, at the ECB; and Persson and Blåvarg, 2003, at the Sveriges Riksbank; or Danmarks Nationalbank, 2004).

The advantages of market-based indicators, on the methodological level, include the promise that these indicators may be more forward-looking than some of the supervisory-based data and the fact that they aggregate the dispersed information that is available from market participants. On a practical level, the main advantage of these indicators is that they are generally available with higher frequency and smaller lags than most supervisory data. Finally, these data are typically publicly available, which makes them easier to use for central banks that do not have direct access to supervisory data; it is also easier to share the underlying data with outsiders, which enables cooperation in research and the ability to double-check or re-test research results by external researchers.

Disadvantages of market-based indicators include some of the assumptions on which they are based. In particular, they are founded on a number of assumptions as to the efficiency of the financial markets and as to whether the assets are sufficiently liquid for the price development to reflect information about the level of risk. In addition, market-based indicators are influenced by general trends in the financial markets. If some of the assumptions are not valid (e.g., the underlying market is illiquid) or if there are major general trends in the financial markets, the market-based indicators may be less useful. Finally, the levels of some of the market-based indicators (e.g., the distance to default) are difficult to interpret; nonetheless, useful information can be obtained from trends in these variables, rather than their absolute levels.

Table 9. Examples of Market-Based Indicators and Other Tools

Indicator/Tool	Recent examples of FSRs 1/
Relative stock market prices of financial institutions	Australia, ECB, Denmark, France, Norway, Sweden
Volatility in share prices	Australia, Denmark, France, Ireland, Norway, Sweden
Distance to default, probability of default, and distance to insolvency	Denmark, United Kingdom
Changes in bond spreads (government or corporate)	Denmark, France, Iceland
Credit default swap premia for banks and nonbank companies	France, United Kingdom
Implied volatility based on option prices	United Kingdom
Ratings	ECB, Ireland
Default frequencies (past, expected)	Germany, Canada, Norway, Sweden,
Results of off-site monitoring tools, e.g., value-at-risk models for the main risk factors	Germany, France
Results of bank lending surveys	Germany, Poland

1/ These are only examples, i.e., the listing is not comprehensive. ECB stands for the European Central Bank.

Other indicators and tools

FSRs also use a number of other tools in addition to soundness indicators, stress tests, and market-based indicators. Those include quantitative indicators (in particular financial institutions' ratings, summaries of opinion surveys, results from supervisory early warning systems, and risk-based measures such as value-at-risk results) and qualitative tools (in particular assessments of quality of the regulatory and other infrastructure).²⁰

Some FSRs present recent ratings of financial institutions (and changes in those ratings) by major rating agencies, such as Moody's, Standards and Poor's, or Fitch Ratings. The motivation for using this information is similar to the market-based indicators: the ratings should in principle provide an independent assessment of the stability of the rated institutions. The limits of this approach include the fact that the ratings typically cover only a part of the financial system, are based mostly on publicly available data, and are focused on individual institutions rather than on the systemic risk.

Some FSRs present results of opinion surveys relating to the financial sector. The surveys can ask for example on financial market participants' views on major risks faced by them or

²⁰ Some authors include ratings or opinion surveys among the market-based indicators. In this paper, we consider market-based those indicators that use price information from the markets.

by the system in general. Perhaps the most common surveys focus on senior loan officers in banks, asking about their assessment of past and future developments of demand and supply in the loan market. The surveys can provide useful information about the lending standards in the banking industry. The quality of this tool depends on a number of factors, in particular on the motivation of the loan officers to provide truthful answers. Also, these surveys typically provide only a relative information (e.g., lending standards have increased), but not absolute information (e.g., lending standards are still lower than would be prudent).

Some FSRs present results from supervisory early warning systems. A large and growing literature exists that identifies and evaluates potential leading indicators of financial instability (see, e.g., Demirguc-Kunt and Detragiache, 2005). Also, supervisors have used supervisory early warning systems as part of their regular monitoring process for banks since the late 1970s. The most rudimentary and the most widespread are systems based on the CAMELS indicators, but a number of central banks or supervisory agencies have in place more sophisticated early warning systems, based on econometric techniques, and enabling estimates of probabilities of failure.²¹ Deutsche Bundesbank's FSR contains an interesting example of the use of a supervisory early warning system (and of presenting institution-by-institution data), showing the results over time of Deutsche Bundesbank's estimates of probabilities of default of German savings banks and credit cooperatives.²²

An increasing number of FSRs present risk-based prudential measures, such as results of financial institutions value-at-risk (VaR) calculations. These measures are used in particular in the area of market risk, where VaR models have been extensively used by financial institutions and can provide more precise information than basic FSIs. The VaR calculations can be also seen as a complement to the stress testing calculations: while the VaR models focus on risk under normal business conditions, stress tests focus on extreme scenarios.

Increasingly, and often in response to an FSAP assessment, FSRs include (self-)assessments of quality of the regulatory and other infrastructure. Typically, these assessments are carried out in reference to the internationally accepted standards and codes. For example, the 2005 FSR for Iceland contained an article on ongoing reduction of operational risk in payments and settlements systems, making reference to an assessment of compliance with the relevant standards (the Core Principles for Systemically Important Payment Systems and the CPSS/IOSCO recommendations for securities settlement systems) carried out earlier by the IMF.

²¹ CAMELS stands for capital adequacy, asset quality, management, earnings, liquidity, and sensitivity to market risk. For a review of supervisory early warning systems, see Sahajwala and Van den Bergh (2000). Supervisory early warning systems need to be distinguished from those used to detect macroeconomic imbalances (e.g., Goldstein, Kaminsky, and Reinhart, 2000), which are typically not covered in FSRs.

²² See, e.g., Deutsche Bundesbank, *Financial Stability Review*, November 2005, page 78.

Availability of underlying data

An important part of the FSR's clarity is the availability of the underlying data. Historically, most country authorities did not provide any data on financial sector soundness. Publication of an FSR typically increases the amount of information available on the financial system in a country. However, most FSRs rely only on charts or streamlined tables linked to the text, which may or may not be presented consistently across the FSRs. That makes it difficult using the FSR data for an independent analysis of the financial sector.

Central banks willing to share (some of) the underlying data face a trade-off. On one hand, including more numerical information in an FSR would make it more useful to an analytically-minded user. On the other hand, it would make the report too long and cluttered with too much information, risking that the key messages may get lost.

A solution adopted by some FSR publishing countries is to provide the key underlying data separately, either in a statistical appendix or in a spreadsheet, for example in Excel format. Posting the data increases substantially the usefulness of the FSR to its users, especially if it is clear what data and how are used in the FSR. Presenting the data separately limits the risk that the main message of the FSR would get drowned in the volume of information. Unfortunately, such statistical appendices or spreadsheets have so far been used only by a minority of the FSR-publishing central banks. Examples deserving a special mention in this context are the FSRs for New Zealand, Norway, and Sweden, which are all accompanied by extensive Excel files with underlying data, downloadable from the central bank's website.

Proposed good practices

- D1. *It should be clear what data are used to arrive at the results presented in the report.* A cut-off date for the report should be mentioned, ideally on the inside cover page. The underlying data should be made available (with the possible exception of the individual institution data that are subject to confidentiality restrictions), ideally in a supplementary electronic file. When the report presents data in charts and tables, there should be a clear link between the text on one hand and the charts and tables on the other hand.
- D2. *It should be clear what assumptions are being used to arrive at the results presented in the report.* Presenting the assumptions is an important part of the report's transparency and credibility. The assumptions should be justified.
- D3. *It should be clear what methodological tools are used to arrive at the results presented in the report.* In particular, findings based on a full-fledged analysis of detailed information should be distinguished from those based on anecdotal or partial evidence; results based on data for individual institutions should be distinguished from those based only on aggregate data.
- D4. *The results should be presented in a consistent manner across reports.* Presenting results in a consistent fashion will facilitate comparisons across time. In particular, assumptions of stress tests should be consistent in time. Also, the time horizon over which the report carries out the analysis should be standardized.

- D5. *The report should use available data, including those on individual institutions.* Omitting data from analysis can result in serious shortcomings. For example, analyzing only data on solvency and disregarding liquidity information can lead to overlooking important risks. Also, using only aggregate data can result in biased results: if exposures are concentrated in weak institutions or borrowers, the results are going to be much worse than if the same exposures are concentrated in strong institutions or borrowers.
- D6. *The report should use the available tools.* The report should combine available quantitative tools (e.g., soundness indicators, stress tests, market-based indicators, early warning system results) and qualitative tools (e.g., information on the regulatory framework, qualitative supervisory information, reviews of market participants). For example, stress tests should be used to assess resilience of systems to shocks. If market-based indicators provide useful information that is not contained in supervisory data, they should be analyzed. If a supervisory early warning system provides useful information that is not contained in stress tests and market-based indicators, its results should be presented, subject to confidentiality restrictions.

E. Structure and Other Features of FSRs

Structure

The structure of FSRs varies substantially across countries (Table 10). FSRs typically start with an overall assessment of financial stability. The text starts with a discussion of risks in the international environment and in the domestic economy, followed by a discussion of risks and exposures to the risks. These two elements are then used to substantiate the overall assessment of vulnerabilities.

One question that is particularly relevant in smaller financial systems and smaller central banks is to what depth to cover international developments. In a situation with very limited resources, it may be more useful to cover the global and regional developments in a streamlined fashion, referring to other reports of the central bank or by foreign or international institutions, and focus on the impact of the developments for the particular country. This should free up some resources to spend more time on domestic sources of risk, where the potential value added of the FSR's analysis is greater.

There is an increasing differentiation between the “core” part of an FSR (the sections that are repeated in every issue) and its “non-core” part (called for instance Selected Issues, Special Issues, or Articles). The core accounts for 73 percent of the reports on average (Table 11), but the cross-country variation is rather high: there are some FSRs that consist only of the core, while others contain only about 30 percent of the core (the French FSR being an example of the latter). The differentiation allows for more variety, while maintaining consistency of presentation in the “core.” The special issues section can facilitate contributions from outside experts. However, for some small central banks, it may be quite challenging, given staffing constraints, to maintain quality and consistency of special issues sections. In such cases, it may be easier to produce just the core product. In Norway, these special issues articles are not included in the FSR; instead, the FSR includes references to “other published material on financial stability at Norges Bank” and brief summaries of

results of those studies. This approach allows the Norges Bank to indicate more clearly that the conclusions and views expressed in those articles are the author's own and not necessarily those of the central bank. In the United Kingdom, Bank of England publishes papers on financial stability themes on its website periodically; they are subsequently published in whole or part in the next FSR.

Table 10. Examples of Structure of FSRs

Austria (ANB)	Brazil (BCB)	Czech Republic (CNB)	Euro-Area (ECB)
<ul style="list-style-type: none"> • Executive Summary • Reports <ul style="list-style-type: none"> ◦ International environment (focused on CEE countries) ◦ Domestic financial intermediaries ◦ Domestic real economy and financial markets • Special topics • Annex (tables) • Notes 	<ul style="list-style-type: none"> • Summary • Financial Markets • Fin. System Supervision • Payments System • Fin. System Organization • Fin. System Regulation • Selected Issues 	<ul style="list-style-type: none"> • Summary • Macroeconomic Environment • Corporate and household sectors • Financial sector • Financial infrastructure • Annexes 	<ul style="list-style-type: none"> • Overview of risks to financial stability • Macro-financial environment • Financial system • Special features • Statistical annex
Finland (BoF)	France (BdEF)	Germany (BuBa)	UK (Bank of England)
<ul style="list-style-type: none"> • Summary, conclusions • International operating environment • Domestic operating environment • The banking and insurance sector • Infrastructure 	<ul style="list-style-type: none"> • Editorial • Overview <ul style="list-style-type: none"> ◦ Summary ◦ International environment and markets ◦ Financial sector • Articles 	<ul style="list-style-type: none"> • Overview • Macroeconomic outlook and risk factors • International financial system • Domestic financial intermediaries • Legal framework and financial infrastructure • Annexes <ul style="list-style-type: none"> ◦ Indicators of international investors risk aversion ◦ Stress tests 	<ul style="list-style-type: none"> • Overview • Credit risk <ul style="list-style-type: none"> ◦ By regions • Risks in international financial system <ul style="list-style-type: none"> ◦ Markets, institutions • Domestic financial sector resilience • Selected issues

Source: author based on recent issues of the reviewed FSRs.

Frequency, length, and timing

As regards frequency, 29 central banks (62 percent) issue semi-annual FSRs, while 17 central banks (36 percent) issue annual FSRs; one (Ghana) issues an FSR 5 times per year. There is a wide variation in the length of the reports, from about 10 pages in the case of Ghana to about 220 pages in the case some of the annually published FSRs. Generally, the semi-annual reports are shorter than the annual reports, by about 36 pages on average (Table 11).²³

For central banks that publish both inflation reports and FSRs, it is interesting to compare the length of the two reports. The FSRs are on average 36 percent (20 pages) longer than the inflation reports published by the same institutions, perhaps reflecting the complexity of the subject and the lower frequency of the FSRs.

Table 11. FSRs: Length and Frequency, 2005

	FSRs (by frequency) 1/		
	All	Annual	Semi-annual
Number of countries	46	17	29
Number of pages/report			
Average	92	115	79
Minimum	14	32	14
Maximum	221	221	168
Standard deviation	52	63	42
Core (as % of all pages)			
Average	73	73	74
Minimum	30	33	30
Maximum	100	100	100
Standard deviation	21	21	21

1/ Excludes Ghana, which publishes FSRs 5 times per year.

Source: author's calculations based on the FSRs listed in Appendix I.

When deciding on frequency, the issuing institutions typically try to balance two main factors. On one hand, FSR should be issued often enough to be able to capture in a timely manner emerging risks to financial stability. On the other hand, it should be published seldom enough to have news so that readers (financial market participants, journalists, international observers) remain interested in the report.

As regards timing, the key consideration is to find suitable time soon after the most important statistics (typically banking sector balance sheets) become available. The timing should also

²³ Table 10 analyzes variation in report length across countries, using country averages. For countries with longer time series of FSRs, it is also possible to analyze variation across time in individual countries. Such an analysis was carried out too, for 11 countries that publish FSRs at least from 2001. One might expect more volatility in countries publishing semi-annual reports than in countries publishing annual reports, given that the availability of data may differ in mid-year and at end-year. Interestingly, however, the variability across time is about the same for countries with annual reports and for those with semi-annual reports.

be coordinated with other central bank's publications. In particular, it may be useful for the FSR to be issued soon after the central bank's macroeconomic assessment and inflation analysis becomes available. Also, it is useful to keep adequate distance from other central bank events to ensure enough visibility for the product.

Links to other reports

FSRs are part of a broader communications strategy of the central bank. The strategy comprises a number of other reports, with different aims and audiences. Virtually all central banks publish an Annual Report and a general publication focused on macroeconomic developments (e.g., Inflation Report in inflation targeting countries).

In the financial sector, there may also be several central bank publications. For example, the European Central Bank supplements its *Financial Stability Review* by reports on *EU Banking Sector Stability* and *EU Banking Structures*. In the United Kingdom, the Bank of England publishes a separate Payment Systems Oversight Report, which is featured prominently alongside its Financial Stability Review. In Brazil, the central bank's FSR is accompanied by a set of reports on the composition and evolution of the national financial system and on the payments system. In

Croatia, in addition to the FSR (*Macroprudential Analysis*) the central bank also publishes a more descriptive report focusing on changes in the structure and functioning of the banking system and its supervisory and regulatory mechanism (*Banks Bulletin*). In Poland, in addition to its *Financial Stability Reviews* and *Financial Stability Reports*, the central bank also publishes *Financial System Development Reports*, which focus on the structure of the system. A number of FSR-publishing central banks that carry out supervision also have separate reports on supervisory developments. Several FSR-publishing central banks also issue separate brochures on financial stability that are less technical and addressed to a more general audience than an FSR.

Public availability and accountability

In most cases, FSRs are prominently displayed on the central bank's website, typically in a special section entitled "Financial Stability." FSRs are also made available in hard copies.

As mentioned earlier, in central banks that have financial stability among their objectives (or are able to derive it from their objectives), it is useful to think about the FSRs as one of their accountability instruments. As noted for example in Allen, Francke, and Swinburne (2004), the FSR could serve as a vehicle to allow stakeholders to form a view about how effectively the central bank is undertaking its broader financial stability responsibilities, which in the case of the Sveriges Riksbank are derived from its statutory responsibility to "promote a safe and efficient payment system." The concept of stakeholders is viewed in a broad sense, including the industry and the general public. In some cases, there may be a specific accountability with respect to a relevant overseeing body. For example, in Norway, the FSR is submitted first for a discussion at a meeting of Norges Bank's Executive Board, and the main conclusions of the FSR are then summarized in a submission to the Ministry of

Finance. In most countries, a launch of the FSR is typically accompanied by presentations to the media, market analysts, and in some cases academics.

Central banks typically follow a gradual approach to launching FSRs. This can be illustrated on the example of the Norwegian central bank, Norges Bank. The bank's staff started preparing internal reports from 1995. Since 1997, the bank started publishing semiannual external reports. The reports first appeared in the central bank journal, as extracts from a fuller report. Since 2000, they have been published in a special publication.

Proposed good practices

- E1. *The structure of the report should be easy to follow.* The underlying logic (or the “theme” that links the sections) should be explained to the reader and should provide evidence of an integrated approach to financial sector stability. In some cases, the publishers may find a need for another publication that is less technical than FSR (more “populist”) and better able to explain the central bank’s financial stability role to the general public.
- E2. *Other features of the report—such as its length, frequency, timing, public availability, and links to other central bank reports—should be designed to support its clarity.* The report and the underlying data should be prominently displayed on the central bank’s website, and be easy to find and download. The links and demarcation lines between the report and other central bank’s publications (e.g., an inflation report or a payment system report) should be clear, providing an evidence of an integrated central bank approach; overlaps should be kept to minimum. There should be a comprehensive communications strategy underlying the FSR, including the links to other publications by the central bank and other public bodies (e.g., a separate supervisory agency).
- E3. *The structure of the report should be consistent across time to make it easier to follow for repeat users.* In particular, if the report includes ad-hoc articles varying from issue to issue (e.g., under the heading of “Special Reports” or “Selected Issues), it should clearly distinguish the “core analysis,” which is consistent across the reports. To make the “core” accessible and consistent, the editors may have to be ruthless in excluding discussion of interesting but peripheral issues from the core.
- E4. *The other features of the report should be designed to support its consistency.* In particular, the report should have a well-known, regular, and predictable timetable. The past reports should be available on the website for comparison.
- E5. *The structure of the report should allow covering the key topics.* In particular, the FSR should be able to pull together the key messages emerging from the various sub-sectors (e.g., banking, insurance and pensions, and securities markets). The report should not be written using a “silo approach” covering each sub-sector separately; if there are cross-cutting topics, those should be identified.
- E6. *The other features of the report should be designed to support its coverage.* For example, to be credible, the FSR needs to be up to date, which has implications for the report’s timing.

IV. HOW DO EXISTING FSRs COMPARE TO THE PROPOSED CRITERIA?

How do the existing FSRs compare to the ideal described in the previous section? Ideally, a full assessment should be done by independent experts, such as done in Sweden and Norway (Allen, Francke, and Swinburne (2004) and Bowen, O'Brien, and Steigum, (2003)).

In the absence of such a panel of experts, a preliminary assessment was carried out by the author of this paper, using the proposed CCC framework. As described in Section III and summarized in Appendix II, the framework comprises 26 principles, organized into 5 key elements (aims, overall assessment, issues, tools, structure and other features) and 3 characteristics (clarity, consistency, and coverage). Each FSR was assessed against each of the criteria, on a 4-point scale: 4 (fully compliant), 3 (largely compliant), 2 (partly compliant), and 1 (not compliant).²⁴ Simple (unweighted) averages were used to arrive at the aggregate gradings.²⁵

Carrying out full-fledged assessments under the CCC framework requires, among other things, good knowledge of the financial systems being covered in the financial stability. Given this author's lack (in most cases) of country-specific expertise, the assessment presented here focused on clarity and consistency of the FSRs, and did not examine in detail the principles relating to coverage that would require detailed underlying analysis of the financial system (in particular, principles B4 and C3, requiring FSR to cover the key topics in a sufficiently comprehensive way) and of the available data (principle D5).

The lack of detailed country-specific knowledge was to some extent compensated by the sheer volume of FSRs being reviewed. As part of this project, about 160 documents from 47 countries have been reviewed, comprising more than 10,000 pages.²⁶

A. Overview of the Results

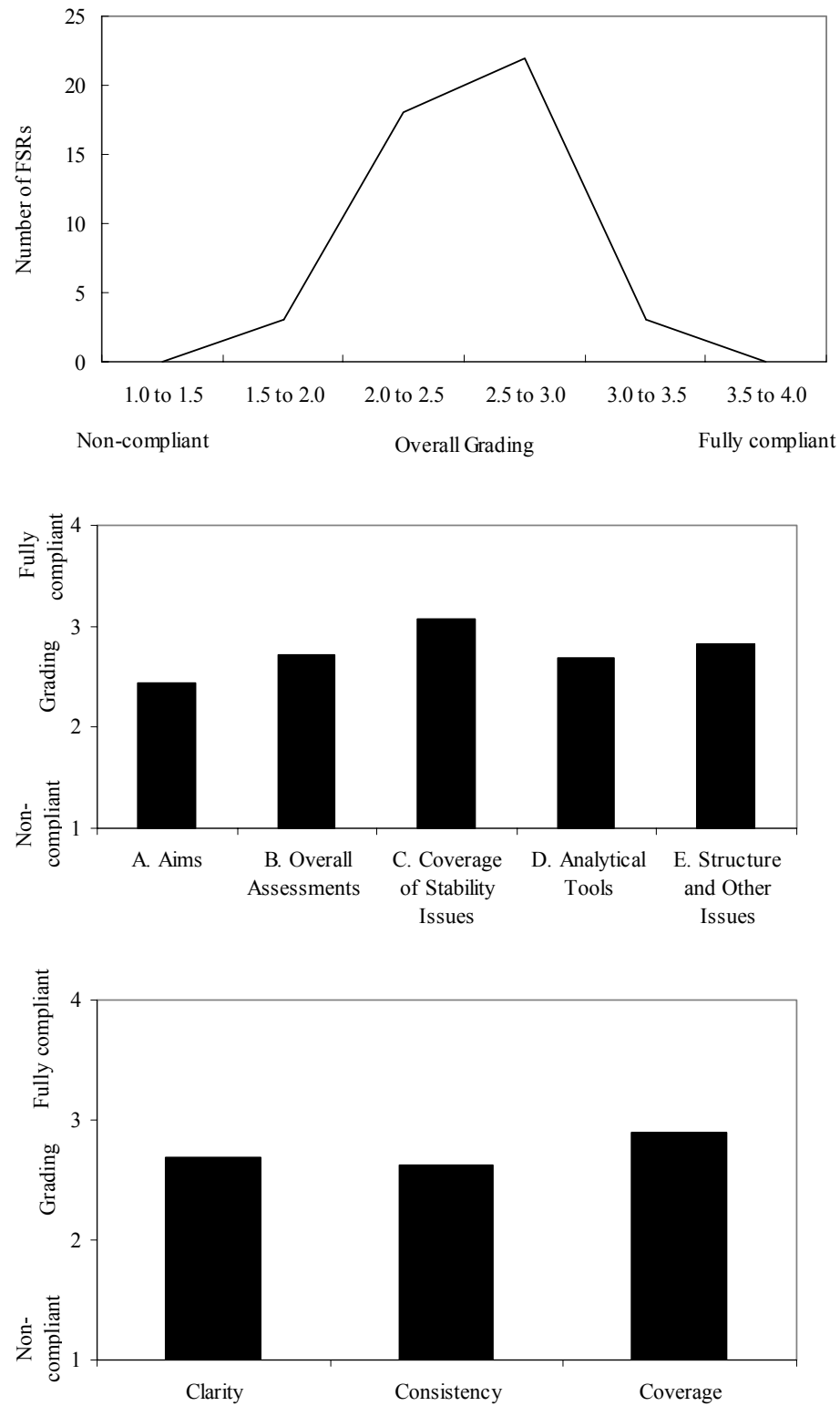
Most FSRs have an overall grading in the 2–3 range, and only three are in the 3–4 range, suggesting that there are areas for improvement in most existing FSRs (Figure 4). Areas for particular improvements include the specification and clarity of aims of the reports, and the clarity of the overall assessment. Also, for those reports that have been published for a longer period of time, consistency across the reports remains an issue.

²⁴ The principles relating to consistency across reports were assessed only for those central banks where three or more FSR are available.

²⁵ Not all the principles are likely to carry the same weight in practice. However, it is difficult to attribute *a priori* weights in a transparent manner. As more data become available, it might be possible to “back-test” the assumption of equal weights and see if better results (e.g., in terms of a correlation between the aggregate grading and a measure of financial sector stability) can be achieved for different combinations of weights.

²⁶ In cases where the central bank publishes two different publications on financial stability, the one that is more comprehensive was included in the assessment.

Figure 4. How Do Existing FSRs Compare to the Proposed Criteria? 1/



1/ FSRs published in 2005. Each of the principles in Appendix II was given the same weight for simplicity.

B. Factors Explaining Differences in Quality of FSRs

What factors can explain differences in the quality of FSRs, measured by compliance with the CCC framework? A panel data regression was estimated for the available FSRs. The dependent variable was the overall grading of an FSR and the dependent variables were: (i) the length of time a central bank publishes an FSR; (ii) level of economic development, approximated by GDP per capita; (iii) the importance of the financial system in the economy, approximated by financial sector assets to GDP; and (iv) a dummy variable taking on a value of one if the publishing central bank carries out banking supervision and zero otherwise.

The calculations suggest that gradings improve with time, as the coverage of the FSR increases, more sophisticated tools are being used, and the central gets more experience with analyzing financial stability and presenting the results in a public document. Gradings are also positively correlated with the economic development, approximated by GDP, which may be a proxy for factors such as relative amount of resources available for the analysis of financial stability or the availability of market-based information. The sign for the size of the financial system is positive, but the estimate is not statistically significant. Interestingly, gradings are on average slightly higher for central banks that are not directly involved in day-to-day supervision, which partly reflects that these reports have been more candid in their overall assessments.²⁷

C. FSRs and Financial Sector Stability

FSRs are one of the avenues through which the central bank seeks to contribute to the long-term robustness of the financial system.²⁸ Do FSRs, and in particular good-quality FSRs, contribute to the ultimate objective, i.e., a more stable (robust) financial system? A short answer to this question is that it is too early to tell.

As mentioned earlier, the survey of inflation reports by Fracasso, Genberg, and Wyplosz (2003) can be used for inspiration. There are, however, important differences between the analysis of inflation reports and the analysis of FSRs, in particular:

- ***More difficult measurement.*** Financial stability is much more difficult to measure than inflation. There is no agreed definition of financial stability in the literature. There is not even a generally agreed definition of financial crisis.²⁹ It is much more challenging to distinguish the impact of policies on financial stability than it is for

²⁷ The underlying results are available from the author upon request. Ideally, one would also like to know whether the quality of an FSRs is related to the inputs into the financial sector work (in terms of resources). However, good data on the inputs are unavailable. Partial data on some of the FSR-publishing central banks suggest that the combination of GDP per capita and the relative size of the financial sector (which are both included in the regression) might be used to approximate the inputs going into the financial stability report.

²⁸ As mentioned earlier, some central banks, such as the Bank of Canada, state this objective explicitly in the FSR, while in others it is implicit.

²⁹ For a review of definitions of financial stability, see e.g., Schinasi (2006). For various definitions of banking crises, see e.g., Caprio and Klingebiel (2003), Demircuc-Kunt and Detragiache (2005).

price stability. To what extent can the authorities actually influence financial stability? Compared to inflation reports, it is more difficult to map into policies, and the responsibility for outcomes is less clear.

- ***Less specific objectives.*** For inflation reports, it is possible to reduce the general goal of contributing to price stability (which would be almost as difficult to measure as FSR's contribution to financial stability) into a more specific goal of increasing monetary policy predictability. This was done by Fracasso, Genberg, and Wyplosz (2003), who found a negative correlation between market participants' forecast errors and the quality of an inflation report. Unfortunately, FSR's objectives are broader and substantially less specific. None of the objectives typically listed by FSR-publishing central banks, such as informing about developments or encouraging public debate (see Section III.A) lends itself to such a reduction.³⁰ The only approach to assessing whether the FSRs meet their objectives therefore seems to analyze directly their contribution to financial stability.

In principle, one can use the gradings from the previous subsections, and combine them with a measure of financial stability. For example, employing the commonly used cross-country databases on banking sector crises (Caprio and Klingebiel, 2003; and Demirguc-Kunt and Detragiache, 2005), one can arrive at a preliminary conclusion that the frequency of crises in FSR-publishing countries is lower than in other countries. More specifically, no crisis identified in the above databases erupted in an FSR-publishing country (even though several countries started publishing FSRs in an aftermath of a crisis). However, it is just too early to tell whether the FSRs really contribute to a lower frequency of crises, or whether this preliminary finding simply reflects the fact that FSRs started to be published in countries that first put their house in order, and therefore it is too early to tell whether FSRs really contribute to financial stability.

The findings are similar if one analyzes the average credit ratings of financial institutions or the basic financial soundness indicators (FSIs), such as the ratio of nonperforming loans to total loans (NPL ratio) in a sample of FSR-publishing and other countries. The analysis suggests that the NPL ratio is lower in countries publishing FSRs than in a comparable countries not publishing FSRs (by about 2 percentage points), and there is a negative correlation between the grading of an FSRs and the NPL ratio in the system. Also, there is a positive correlation between the average credit rating of financial institutions in a country and the grading of its FSR. However interesting, such comparisons do not address the question of causality, i.e., do these indicator suggest more financial stability because of the publication of the FSR (and its higher quality) or is it that countries with lower values of this indicator are more likely to publish FSRs (or have better FSRs)? This is a topic for further research, which could be addressed only when a much fuller set of data is available.

³⁰ FSRs are more backward-looking than inflation reports. They usually do not contain forecasts that could be later on compared with actual developments. To some extent, the lack of forward-looking focus compared with inflation reports may reflect the fact that the aims of financial stability reports tend to be defined more broadly, e.g., contributing to the public debate, rather than more specifically in terms of providing forecasts.

D. Frequent Weaknesses in FSRs

A number of gaps can be identified in the existing FSRs with respect to the proposed standards. The following list highlights the most common areas for possible improvement:

- *More standardized “core.”* Many central banks could consider making the core section of their FSR more standardized across reports. In each main subsection, changes relative to the assessment in the previous FSR could be highlighted.
- *Aims.* Most FSRs contain at least a very broad definition of aims. Those that do not, should consider doing so. Of those that do, many could give consideration to making the aims more specific. For example, the review of Sveriges Riksbank’s FSR by Allen, Francke, and Swinburne (2004) suggests the following four aims: (i) to inform stakeholders of the central bank’s analysis of potential financial stability risks and ways to mitigate them; (ii) to encourage informed debate on financial stability issues; (iii) to serve as an accountability instrument; and (iv) to help provide information that major participants in the domestic financial industry and elsewhere may use as part of the input into their own risk assessment procedures. Central banks’ FSRs typically cover (i) and (ii), but it is less clear to what extent (iii) and (iv) are covered. Central banks may therefore consider explicitly mentioning that the FSR is a part of its accountability framework, and that one of the aims is to help provide information to be used as one of inputs into market participants’ risk assessment procedures.
- *Operational definition of financial stability.* Central banks often include a definition of financial stability (and sometimes also describe the process used to assessing it); however, they do so in very general terms. Providing an operational definition of financial stability is much more complex than, for example, deriving an operational definition of price stability. Nonetheless, it would make the FSR much more useful to readers if they specified more clearly what are the key variables and results that one should look at when assessing financial stability of the financial system in question.
- *Tables.* FSRs use mostly charts to illustrate the points made in the text. While these are typically eye-catching, it would make the FSR much more useful to users if tables with the key underlying data were also made available. These could be included as a separate attachment, ideally an electronic file posted on the website. Such attachments are being posted, for example, by the central banks in Sweden and New Zealand. As a minimum, it would be useful to include in these tables the core Financial Soundness Indicators, to provide internationally-comparable data.
- *Discussion on exposures.* The FSRs could contain an explicit discussion of financial institutions’ exposures to the various sources of risk. Many FSRs focus much more on sources of risk than on the related exposures in the financial system. For example, many do not seem to contain an explicit discussion of financial institutions’ asset structure and quality (e.g., there is no reference to nonperforming loans or assets or changes therein), their liquidity, duration gaps, and open positions.

- *Disaggregated data.* Some FSRs, in particular those by central banks without access to supervisory data, rely on broad-based aggregate indicators. Presenting aggregate data is important, but if exposures are concentrated in weak institutions (or if there is a possibility of contagion), a simple aggregation may easily conceal the resulting vulnerabilities. It is therefore important to illustrate the dispersion of results across institutions or across peer groups. Some central banks worry that publishing disaggregated data may reveal confidential information. If confidentiality is an issue, a central bank may prefer to present the results on a peer group basis. Nonetheless, presenting institution-by-institution results without showing identities of individual institutions and revealing confidential information is possible. The Sveriges Riksbank's FSR includes useful examples to this effect.³¹
- *Prudential/risk-based data.* The analysis of financial sector soundness in most FSRs could make more use of prudential and risk-based data. Many FSRs concentrate on past performance indicators, such as profits and returns on equity (ROEs), and not on forward-looking risk-based indicators. For example, it is useful to present the distribution of capital adequacy ratios in banks before stress tests and after stress tests (again, the Sveriges Riksbank's FSR can be quoted as an example) or the distribution of probabilities of default in the sector over time (as shown, e.g., on page 78 of Deutsche Bundesbank's 2005 *Financial Stability Review*), and changes in banks' value-at-risk calculations over time (as done in several stability reports).
- *Stress tests—general issues.* Even though a majority of FSRs now includes stress tests, there is still a number that do not, and most of those that do could give them much more prominence and present them on a comparable basis over time. Most FSRs do not clearly include the full set of stress tests in the “core” section. As regards the coverage of the stress tests, most of them would benefit from a broader scope that would cover the credit risk, its interplay with market risk, and interbank contagion. Stress tests could be linked to a broader macroeconomic scenario. If such a set of tests were run regularly with the same assumptions, it would allow the reader to see changes over time in the overall pool of risks and in the structure of risks faced by the financial system. Presenting results as a single point is interesting, but does not allow the reader to appreciate the developments in the overall pool of risks or changes in the structure of risks. It is therefore useful to present stress test results over time.
- *Stress tests—specific issues.* In addition to the general comments, there is a range of other, more specific improvements, relating to the implementation of stress tests. Those relate to (i) a need to make greater use of scenarios; (ii) better integrating the estimated impacts and institution-by-institution buffers; (iii) including contagion analysis; (iv) giving more prominence to liquidity tests; and (v) using a threshold approach, which approaches stress testing from a somewhat different angle. Section III.D provides a more detailed discussion of these weaknesses.

³¹ See, for example, Sveriges Riksbank, *Financial Stability Report*, 2/2005, p. 46.

V. CONCLUSIONS

The paper surveyed the stability reports published by various central banks. It noted that there is a growing trend to publish such reports, and that the reports' sophistication—especially in terms of the issues covered and tools used—has been on the rise.

The paper provides a number of suggestions relating to FSRs. For institutions that publish the reports, the paper proposed a benchmark against which their publication can be compared. It also listed a number of areas that are typically in the need of an improvement. For institutions that do not publish an FSR, but are considering doing so, the paper provided some practical suggestions on what to do and what to avoid. For the IMF and other users of FSRs, it provides some suggestions on what elements of the FSR to look at.

Based on a survey of the available FSRs and a comparison with the proposed benchmarks, it seems that FSRs provide useful insights into how central banks analyze financial stability, but there are areas for improvement. These include clarifying the aims of the reports, providing an “operational definition” of financial sector soundness, clarifying the “core analysis” that is presented in FSRs consistently across time, making available the underlying data, discussing more openly risks and exposures in the financial system, making greater use of disaggregated data, focusing more on forward-looking measures rather than backward-looking description of indicators, and presenting stress tests that are comparable across time, and among other things include scenarios, liquidity risks, and contagion.

The CCC framework proposed in this paper is not cast in stone. The framework was designed in very general terms, so that it can be applied relatively universally. Nonetheless, as the financial systems and the methods for their analysis develop, the assessment framework may be adjusted accordingly.

Going forward, as more data become available, it would be useful to analyze in more depth whether there is a link between the quality of an FSR and the performance of the financial system in question. Such an analysis would require much more data and would need to carefully distinguish the direction of causality.

FINANCIAL STABILITY REPORTS INCLUDED IN THIS SURVEY 1/

Country	Publishing Institution	Frequency	Starting Year	Website Address (short)
Argentina	Banco Central de la República Argentina	Semi-annual	2004	www.bcra.gov.ar
Australia	Reserve Bank of Australia	Semi-annual	1999	www.rba.gov.au
Austria	Österreichische Nationalbank	Semi-annual	2001	www.oenb.at
Belgium	National Bank of Belgium	Annual	2002	www.nbb.be
Brazil	Banco Central do Brasil	Semi-annual	2002	www.bcb.gov.br
Canada	Bank of Canada	Semi-annual	2002	www.bankofcanada.ca/en/
Chile	Banco Central de Chile	Semi-annual	2004	www.bcentral.cl
China	People's Bank of China	Annual	2005	www.pbc.gov.cn/english/
Colombia	Banco de la República Colombia	Semi-annual	2002	www.banrep.gov.co
Croatia	Croatian National Bank	Semi-annual	2005	www.hnb.hr
Czech Rep.	Czech National Bank	Annual	2004	www.cnb.cz
Denmark	Denmarks Nationalbank	Annual	2002	www.nationalbanken.dk
Euro Area	European Central Bank	Annual	2004	www.ecb.int
Estonia	Eesti Pank	Semi-annual	2003	www.eestipank.info
Finland	Suomen Pankki	Annual	2003	www.bof.fi
France	Banque de France	Semi-annual	2002	www.banque-france.fr
Germany	Deutsche Bundesbank	Annual	2004	www.bundesbank.de
Ghana	Bank of Ghana	5x per year 2/	2005	www.bog.gov.gh
Greece	Bank of Greece	Annual 3/	2004	www.bankofgreece.gr
Hungary	National Bank of Hungary	Semi-annual	2000	english.mnb.hu
Hong Kong SAR	Hong Kong Monetary Authority	Semi-annual	2003	www.info.gov/hkma
Iceland	Central Bank of Iceland	Semi-annual	2000	www.sedlabanki.is
Indonesia	Bank Indonesia	Semi-annual	2003	www.bi.go.id
Ireland	Central Bank and Financial Services Authority of Ireland	Annual	2000	www.centralbank.ie
Israel	Bank of Israel	Annual	2003	www.bankisrael.gov.il
Japan	Bank of Japan	Annual	2005	www.boj.or.jp
Kenya	Central Bank of Kenya	Annual	2004	www.centralbank.go.ke
Korea	Bank of Korea	Semi-annual	2003	www.bok.or.kr
Latvia	Bank of Latvia	Semi-annual	2003	www.bank.lv
Macao	Monetary Authority of Macao	Semi-annual	2005	www.amcm.gov.mo
Netherlands	De Nederlandsche Bank	Semi-annual	2004	www.dnb.nl/dnb/homepage.jsp
New Zealand	Reserve Bank of New Zealand	Semi-annual	2004	www.rbnz.govt.nz
Norway	Norges Bank	Semi-annual	1997	www.norges-bank.no
Philippines	Bangko Sentral ng Pilipinas	Semi-annual	1999	http://www.bsp.gov.ph/
Poland	National Bank of Poland	Semi-annual	2001	www.nbp.pl
Portugal	Banco de Portugal	Semi-annual	2004	www.bportugal.pt/default_e.htm
Russia	Bank of Russia	Annual	2001	www.cbr.ru
Singapore	Monetary Authority of Singapore	Semi-annual	2003	www.mas.gov.sg
Slovak Republic	National Bank of Slovakia	Annual	2003	www.nbs.sk
Slovenia	Bank of Slovenia	Annual	2004	www.bsi.si
South Africa	Reserve Bank of South Africa	Semi-annual	2004	www.reservebank.co.za
Spain	Banco de España	Semi-annual	2002	www.bde.es
Sri Lanka	Central Bank of Sri Lanka	Annual	2004	www.lanka.net

Country	Publishing Institution	Frequency	Starting Year	Website Address (short)
Sweden	Sveriges Riksbank	Semi-annual	1997	www.riksbank.com
Switzerland	Schweizerische Nationalbank	Annual	2003	www.snb.ch
Turkey	Türkiye Cumhuriyet Merkez Bankası	Semi-annual	2005	www.tcmb.gov.tr
United Kingdom	Bank of England	Semi-annual	1996	www.bankofengland.co.uk

Notes:

1/ Additionally, in Norway and the United Kingdom, there are also FSR-like reports published by the unified supervisory agencies. In Russia, two central bank reports qualify as stability reports.

2/ Available on the website since 2005 as “Volume 5.” Earlier volumes not available to the author.

3/ A chapter on banking sector and its supervision included in the annual report. Given the extent of the chapter and its relatively self-contained nature, it is classified as an FSR since 2004 for the purpose of this paper.

PROPOSED FRAMEWORK FOR ASSESSING FINANCIAL STABILITY REPORTS 1/

	Clarity	Consistency	Coverage/Contents
A. Aims	A1. The definition of financial stability should be clearly indicated. A2. The aims of the report should be clearly indicated.	A3. The definition of financial stability should be a standard part of the report, presented consistently across reports. A4. The statement of aims should be a standard part of the report, presented consistently across reports.	A5. The definition of financial stability should cover both the absence of crisis and resilience to crises. A6. Financial stability should be defined both in general terms and in operational terms. A7. The aims of the report should be comprehensive.
B. Overall assessment	B1. The overall assessment should be presented clearly and in candid terms.	B2. The overall assessment should be linked to the remainder of the FSR. B3. There should be a clear link between the overall assessments over time, making it clear where the main changes took place.	B4. The overall assessment should cover the key topics.
C. Issues	C1. The report should clearly identify the main macro-relevant stability issues.	C2. The coverage of issues should be consistent across the reports.	C3. The coverage of the financial system should be sufficiently comprehensive.
D. Data, Assumptions, and Tools	D1. It should be clear what data are used to arrive at the results presented in the report. D2. It should be clear what assumptions are being used to arrive at the results presented in the report. D3. It should be clear what methodological tools are being used to arrive at the results presented in the report.	D4. The results should be presented in a consistent manner across the reports.	D5. The report should use available data, including those on individual institutions. D6. The report should use the available tools.
E. Structure and other features	E1. The structure of the report should be easy to follow. E2. Other features of the report—such as its length, frequency, timing, public availability, and links to other central bank reports—should be designed to support its clarity.	E3. The structure of the report should be consistent across time to make it easier to follow for repeat users. E4. The other features of the report should be designed to support its consistency.	E5. The structure of the report should allow covering the key topics. E6. The other features of the report should be designed to support its coverage.

Note:

1/ All principles are to be assessed on a 4-point scale: 4 (fully compliant), 3 (largely compliant), 2 (partly compliant), and 1 (not compliant).

PRACTICAL ISSUES IN PUBLISHING FINANCIAL STABILITY REPORTS

There is a number of issues that a central bank considering the publication of an FSR needs to address. These are overviewed in the following paragraphs. The list of issues is based on the review of FSRs and other publicly available information, as well as on discussions with staff of various central banks involved in publishing FSRs. The list is not complete by any means, but hopefully may provide a useful overview of the main challenges.

Defining the goal(s) of the project. These would include the aims of the report (see Section III.A), but may be broader. For example, the central bank may see the FSR as a way to enhance its analytical capacity in the area of financial stability. This would not be highlighted as an aim of the report in a publication, but it may be an important consideration nonetheless. Decisions on priorities and timing reflect the basic decision on the goal of the project.

Deciding on whether and when to make the report public. Most central banks publishing FSRs have prepared one or more issues internally before starting with publication. This allowed the central banks to find out more precisely what should be the scope of the report, how many people need to be involved, how much time is needed, and what are the key areas to be focused on. For example, in Norway, Norges Bank has produced reports on financial stability since 1995; since 1997, edited versions of these analyses have started to be published. The choice whether to publish an FSR or not may be particularly important in small central banks with limited resources.

Deciding on coverage. Coverage tends to expand over time. Some central banks started by publishing narrower reports. For example, the Czech National Bank initiated its financial stability publications by issuing a Banking Sector Stability Report for 2003, focusing on banks. It was followed a year later by a Financial Stability Report 2004, with a substantially wider coverage, including nonbank financial institutions.

Stand-alone or part of another publication? Several FSR-publishing countries started with an FSR that was a part of another publication; later on, they switched to a stand-alone publication. Examples include Germany (FSR published since 2004, stand-alone from 2005), Ireland (FSR published since 2000, stand-alone since 2004), and Norway (FSR published from 1997, stand-alone from 2000).

Defining presentation and publication. If the FSR is a public document, it is important to define a comprehensive strategy of communicating its main findings to the public. The strategy would usually include press releases, posting on the central bank website, distribution of hard copies, briefings for media and market analysts, and presentations in other forums. Most FSR-publishing central banks include financial stability as a special topic highlighted on their website.

Deciding on periodicity. Most available FSRs are either annual or semi-annual. The lower, annual periodicity may be easier to maintain, which may be an important consideration especially in smaller central banks with more limited resources. The semi-annual frequency allows to report on financial sector developments with a shorter lag. It is possible to ease the

burden of writing semi-annual reports by differentiate the mid-year and full-year reports. Overall it does not seem to be the case, as the variability in report length across time is about the same for countries with annual reports and for those with semi-annual reports. However, there are central banks that differentiate the mid-year and end-year reports. For example, the National Bank of Poland distinguishes the different nature of the two documents, including by using different names: *Financial Stability Reports* for the full-length end-year reports and *Financial Stability Reviews* for shorter, mid-year reports.

Project management and resources. For the success of the project, it is important to have a good core team of drafters. For the purpose of this appendix, this team of core authors will be called a “financial stability unit,” even though it may not necessarily be a unit in an organizational sense, as the team may, or may not, include members from various organizational units. For most countries, the size of the financial stability unit is relatively small (4-10 people). Most frequently, the unit is located in a separate financial stability department, which can also covers some other tasks, such as payments system. However, other arrangements are also possible and used. In particular, the financial stability unit can be located in a research department, a research and statistics department, or in a supervision department. None of the organizational arrangements for the financial stability unit is clearly superior. How well the arrangement works depends on a number of factors, including:

- ***Resources and skills available.*** The financial stability unit needs to combine good quantitative skills and solid knowledge of macroeconomics with background in banking.
- ***Ability to share data, models, and other information both internally and externally.*** The internal collaborators typically include the central bank’s statistics department, monetary policy department, banking supervision department, research department. The external collaborators may include a financial supervision authority (compilation and processing of data, analytical work), statistics office (compilation of data), ministry of finance (compilation data, analytical work), and members of academia (collaboration on research topics, developing new tools).
- ***Clear ownership.*** It is important to have a clear project “owner,” responsible for having the report produced on time and in adequate quality. Possibilities include the director of the financial stability unit (if there is one), the central bank governor, or the board of governors.
- ***Frankness.*** Ability of the drafters to form and maintain frank assessment. This ability reflects some other factors, such as the independence of the financial stability unit within the institution, but also some “X-factors,” such as the quality and independence of the staff.

POSSIBLE IMPLICATIONS FOR FINANCIAL SECTOR WORK IN THE IMF

Source of information. Wider availability of FSRs and in some cases the underlying data means that more information becomes available for financial sector stability work by IMF staff and others.

Subject of assessment. An FSR is part of the country authorities' efforts to improve the financial system's soundness (in some countries, such as in Canada, this ultimate objective is explicitly stated in the FSR; in others, it is only implicitly contained in the other objectives). It is only one of a number of elements of the financial sector framework, which also includes elements such as prudential supervision or lender of last resort functions. To the extent that the authorities see FSRs as an important element, the FSRs should be assessed as part of assessing the quality of the overall framework for the financial system. The "CCC framework" proposed in this paper can be used for such assessments.

Complementarity between authorities' financial stability work and IMF work. The stability analysis carried out by the IMF complements the financial stability analysis carried out by country authorities, just as the Article IV process complements authorities' policy analysis (e.g., contained in an inflation report, if the central bank issues one). Even for countries publishing FSRs, the IMF's financial sector work can have value by providing an independent check-up on the health of the financial system and advice on the regulatory framework.³² IMF teams make an effort to build on the work contained in FSRs, and carry out independent assessments. IMF's financial sector work can complement the financial sector analysis done by the authorities in several respects, including:

- An important element that is often not covered in FSRs are *assessments of compliance with international standards and codes*. Even though many FSRs include descriptions of the regulatory framework, and some include or refer to authorities' self-assessments of compliance with international financial sector standards and codes, the ability to provide an assessment that is independent and consistent across countries is IMF's important comparative advantage.
- *Financial soundness indicators* used in the stability analysis by the IMF provide for a quantification of the financial sector's soundness that is standardized across countries.
- *System-focused stress testing* is a standard part of the analytical toolkit in the FSAP. Its use in the FSRs has been on the rise recently, in some cases after a country has undergone an FSAP assessment.
- IMF missions, such as FSAPs, may have an advantage in covering *issues that involve several institutions and agencies*, such as systemic liquidity or crisis management framework.

³² This is confirmed by authorities' responses to surveys (see, e.g., Independent Evaluation Office of the International Monetary Fund, 2006).

Quality benchmark. As the scope and quality of financial stability work by country authorities increases, the quality of IMF financial sector analysis will be judged against a higher standard. This may require more staff training, research and other analytical work at headquarters and in the field, and focusing on the IMF's strengths and comparative advantages.

Cross-country transfer of knowledge. Despite the growing number of FSRs being published, the FSRs have so far been published mostly in high-income countries and some emerging market countries, and a majority of the FSR-publishing countries are in Europe. IMF can play a role in promoting financial sector analysis in a wider range countries, subject to the countries' implementation capacity. In low-income countries, financial sector diagnostics needs to cover a broader set of topics than typically covered in FSRs, and in particular focus more on developmental issues.

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