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Sander Oosterloo* and Jakob de Haan**

Abstract

The aim of this study is to get a better understanding of which financial stability responsibilities have been delegated to central banks (CBs), how these responsibilities are executed, and whether accountability arrangements are in place. For this purpose, a questionnaire was sent to all CBs in the OECD area. We find that there is no unambiguous definition of financial stability or systemic risk, and that, generally, the responsibility for financial stability is not explicitly formulated in laws. However, there seems to be a gradual trend towards clarifying the powers and functions of the CB. Moreover, there is considerable heterogeneity in the way CBs pursue the financial stability objective. Our results suggest that the accountability of the financial stability function of central banks is often poorly arranged.

Key words: financial stability, accountability
JEL code: G28

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This report is based on the master thesis that Oosterloo wrote at the University of Groningen under the supervision of De Haan. The views expressed in the report are those of the authors only.
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1 Introduction

Modern central banks (CBs) have two core functions: (i) maintaining monetary stability, and (ii) maintaining financial stability. There is a broad consensus that CBs should be independent of government in pursuing monetary stability (Lastra, 2001). Indeed, since the beginning of the 1980s many countries have made their CB more independent and gave them an explicit mandate for price stability. This, in turn, has raised questions concerning the accountability of central banks.

The objective of financial stability has gained importance over the last decades. There is considerable heterogeneity in the way authorities pursue this objective and the role CBs play in this regard. The aim of this study is to get a better understanding of which financial stability responsibilities have been delegated to CBs, how these responsibilities are executed, and whether accountability measures are in place. For this purpose, a questionnaire (see appendix 1) was mailed to all CBs in the OECD. countries (see appendix 2).[1]

We distinguish five different elements that make up a framework for the financial stability function:

(i) the *objective* of maintaining financial stability,
(ii) the *assessment* of risk to financial stability,
(iii) the *instruments* that can be used in case of a misalignment between the assessment and the objective,
(iv) the *decision-making process*, and
(v) the *accountability* of the institution that is responsible for maintaining financial stability.

The design of our questionnaire and the set-up of this paper are based on this framework. Where financial stability arrangements are formalised, individual CBs are identified in this paper, otherwise references are general. Wherever possible, the results of the survey are compared with existing literature, which is generally briefly discussed before the results of our survey will be presented.

The remainder of the paper is organised as follows. Section 2 discusses the difference between prudential supervision and maintaining financial stability and provides an overview of the institutional structures for maintaining financial stability. Section 3 reviews how the concepts of financial stability and systemic risk have been defined, both in the academic literature and by the CBs. In addition, the legal basis for the financial stability function of the CB is outlined. Section 4 deals with the assessment by CBs of financial stability risks, focusing on the question of whether the assessment is publicly available and on any possible information-sharing arrangements between different authorities. Section 5 discusses the instruments available to maintain financial stability, while section 6 addresses the decision-making process between the different authorities involved in safeguarding financial stability. The accountability of the CB for its financial stability function is discussed in section 7. Finally, section 8 offers our conclusions.

2 Institutional structure

As safeguarding financial stability involves a number of institutions that share responsibilities, this section takes a closer look at the role of each institution. Although there are many similarities among countries concerning the financial stability responsibilities of public authorities, the way in which they are assigned to particular public institutions differs considerably (Healey, 2001). But before we take a look at these responsibilities, both the concepts of prudential supervision and the function of maintaining financial stability are discussed.

2.1 Prudential supervision

Prudential supervision is concerned with ensuring the adherence of individual financial institutions, like banks and insurance companies, with prudential regulatory standards. For example, *bank supervision* can be defined as the 'concern of financial regulators with the safety and soundness of individual banks, involving the general and continuous oversight of the activities of this industry to ensure that banks are operated prudently and in accordance with applicable statutes and regulations.'[2] Mishkin (2001, p. 9) argues that 'because all governments provide some form of a safety net for the banking system, whether it is explicit or implicit, they need to take steps to limit the moral hazard and adverse selection that the safety net creates. Otherwise, banks will have a strong incentive to take on excessive risks so that the safety net may promote banking crises rather than prevent them.' Prudential supervision is thus needed to ensure the safety and soundness of the banking system.

To get to know more about the relation between prudential supervision and maintaining financial stability, we asked CBs in our survey how they perceive the difference between both concepts. Most CBs point out that the objective of maintaining financial stability is more exhaustive than that of prudential supervision. Generally, the CBs indicate that the most important difference between both concepts is that prudential supervision is aimed at the proper management of individual financial institutions (*micro-prudential approach*), while maintaining or overseeing financial stability is primarily concerned with systemic risks, i.e. threats to the financial system as a whole or threats to individual institutions that may be contagious to other parts of the financial system (*macro-prudential approach*). According to one CB 'prudential supervision is the supervision of individual institutions, to ensure that they adhere to regulations on an individual basis. Maintaining financial stability means monitoring risks to the financial system as a whole and taking the necessary steps to ensure that systemic risk is kept at a low level. In addition to implementing such preventative measures if necessary, maintaining financial stability also means taking steps to restore financial stability when instability has broken out. Prudential and systemic concerns may overlap when there are problems in large institutions'.

Moreover, it is often stressed that prudential supervision is one, but only one, of the policy instruments available to try to ensure stability of the financial system as a whole. For example, one CB argues that 'financial stability can be thought of as being built on four main foundations: (i) a stable macroeconomic environment; (ii) efficient and smoothly functioning financial markets; (iii) a safe and robust payments system, and (iv) well-managed financial institutions, within a sound framework of prudential supervision.'

Another CB indicates that 'we believe that prudential supervision is just one of the activities that can contribute to the maintenance of financial stability. A number of other activities also contribute to financial stability:

- the creation of legislation and regulations governing the activities of financial system participants. These 'rules of the game' can contribute to financial stability by creating incentives for financial system participants to behave in ways that are compatible with financial stability and by limiting or prohibiting activities that may create financial instability.
- Central bank activities, including the oversight of major clearing and settlement systems for appropriate risk identification and containment practices, the provision of liquidity in normal and extraordinary circumstances, and the provision of services to clearing and settlement systems. The central bank takes a system-wide or macro perspective with regard to financial stability.
- Financial system participants, responding to incentives in legislation or regulation, or responding to market discipline, avoiding activities that unduly jeopardise the financial system.'

Moreover, another CB argues that 'among the most important goals of prudential supervision and regulation is the reduction of systemic risk – keeping the probability and expected severity of systemic financial crisis low – and identifying and managing the crises when they occur.' Furthermore, 'prudential supervision has other goals as well, including reducing the moral hazard incentives of insured financial institutions to take excessive risks with insured deposits.'

2.2 Institutional responsibilities

According to Healey (2001, p. 22), 'the involvement of CBs in their lender of last resort role and monetary policy objectives has led CBs to be intrinsically interested in the stability and general health of the financial system. Concerns over the moral hazard that might result from emergency assistance and the potential cost of finan-

Table 1 Tasks of the Central Bank

Country	Central Bank responsible for maintaining financial stability?	Banking Supervisor
Australia	Yes	Australian Prudential Regulation Authority (apra)
Austria	Yes	Financial Market Authority (fma)
Belgium	Yes	Banking and Finance Commission (bfc)
Canada	Yes	Office of the Superintendent of Financial Institutions (osfi)
Czech Republic	Yes	Czech National Bank
Denmark	Yes	Danish Financial Supervisory Authority
Finland	Yes	Financial Supervisory Authority
France	Yes	Banque de France/ Commission Banqaire
Germany	Yes	Bundesanstalt fur Finanzdienst-leistungsaufsicht (Findag)
Greece	Yes	Bank of Greece
Hungary	Yes	Hungarian Financial Supervisory Authority (hfsa)
Ireland	Yes	Central Bank of Ireland
Italy	Yes	Banca d'Italia
Japan	Yes	Financial Services Agency (fsa)
Luxembourg	Yes	Commission de Surveillance du Secteur Finance (cssf)
Mexico	Yes	National Banking and Securities Commission (cnbv)
Netherlands	Yes	De Nederlandsche Bank
Norway	Yes	Kredittilsynet (The Banking, Insurance and Securities Commission of Norway)
New Zealand	Yes	Reserve Bank of New Zealand
Poland	Yes	Commission for Banking Supervision (cbs)
Portugal	Yes	Banco de Portugal
Slovakia	Yes	Slovak National Bank
Spain	Yes	Banco de España
Sweden	Yes	Financial Supervisory Authority (fsa)

Table 1 Tasks of the Central Bank (continued)

Country	Central Bank responsible for maintaining financial stability?	Banking Supervisor
Switzerland	Yes	Federal Banking Commission (fbc)
Turkey	Yes	Banking Regulation and Supervision Agency (brsa)
United Kingdom	Yes	Financial Services Authority (fsa)
United States	Yes	Federal Reserve Bank, the Federal Deposit Insurance Corporation (fdic), the Office of the Comptroller of the Currency (occ), as well as the commercial bank supervisors from individual states.

Source: Update and extension of Goodhart and Schoenmaker (1995)

cial instability in turn led CBs to take a closer interest in the behaviour of individual banks. Often, but not always, this resulted in the CB supervising and, if necessary, regulating the banking system.' For example, supervision issues in the Netherlands can rapidly take on systemic dimensions because of a high degree of concentration in banking and insurance and the presence of large and complex financial institutions. Against this background, the Dutch CB argues that it is important that the CB is responsible for both banking supervision and financial stability. The CB believes that the advantages of this model are an easier and timelier exchange of information, especially necessary in crisis situations, and a closer co-ordination and co-operation of monetary and prudential instruments.

In other countries, a noticeable change in the institutional structure of maintaining financial stability in the last decade has been the move to consolidate financial supervision in a separate agency – Norway (1986), Canada (1987), Denmark (1988), Sweden (1991) and Hungary (2000) – and in some cases this involved a transfer of responsibilities out of the CB, e.g. Australia (1998), uk (1998), Japan (1999), Korea (1998), Iceland (1999), and, more recently, Austria (2002) and Germany (2002). Others are in the process of implementing such changes (Healey, 2001). As a consequence, in several countries there is a clear institutional difference between prudential supervision and maintaining financial stability. While the CB focuses primarily on the systemic risk aspects of financial markets and systems, supervisory authorities responsible for prudential supervision focus more on supervising individual institutions' risks and the legal aspects of operations. Table 1 summarizes the role of the

CB and/or the bank supervisory authority in promoting financial stability in the countries that participated in this survey.

On the basis of whether or not the CB performs specific financial stability functions and whether or not the CB carries out prudential supervision tasks, Healey (2001) makes a distinction between three basic models of central banking. First, the narrow model in which the CB focuses on the overall stability of the financial system, including core financial stability functions such as payment system oversight, some payments processing and occasional emergency liquidity assistance. Under this model the remaining financial stability functions – deposit insurance, for example, – are carried out by other government entities or some private entities. Second, an intermediate model in which the CB has the core functions plus some role in crisis resolution, but is not responsible for the supervision and regulation of individual financial institutions. Third, a broad model in which the tasks of the CB include the core functions plus various safety net/crisis resolution functions as well as some role, if not the sole responsibility, for the regulation and supervision of banks and non-bank financial institutions.

All three models are represented among the industrial countries. According to Healey (2001), countries like Australia, Canada, Finland, Norway, Sweden and the UK belong to the first group, while South Korea follows the intermediate model and Ireland and the Netherlands the broad model.

In addition to the CB and the supervisory authority, the third party involved in the process of promoting financial stability is the government, which is in most cases represented by the Ministry of Finance (MoF). Generally, the MoF has two responsibilities. The MoF is (politically) responsible for the functioning of the financial system, which comes down to the responsibility for the overall structure of supervision and regulation and the underlying legislation. Furthermore, the MoF is the guardian of the public purse, and the Finance Minister will normally take decisions on the use of public money in crisis resolution.

3 Financial stability objective

3.1 Definition of financial stability and systemic risk

The literature does not provide an unambiguous definition of financial stability. To quote Duisenberg (2001, p. 38): 'monetary stability is defined as stability in the general level of prices, or as an absence of inflation or deflation. Financial stability does not have as easy or universally accepted a definition. Nevertheless, there seems to be a broad consensus that financial stability refers to the smooth functioning of the key elements that make up the financial system.'

Similarly, Crockett (1997) defines financial stability as 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 can 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 that do not vary substantially over short periods when there have been no changes in fundamentals.

But what does Crockett (1997) mean exactly by stable institutions and markets? He defines stability of financial institutions as the absence of stresses that have the potential to cause measurable economic harm beyond a strictly limited group of customers and counterparties. Occasional failures of smaller institutions and occasional substantial losses at larger institutions are part of the normal functioning of the financial system. They serve a positive function by reminding market participants of their obligation to exercise discipline over the activities of the intermediaries with whom they do business. Furthermore, by stability in financial markets Crockett (1997) means the absence of price movements that cause wider economic damage. Prices can and should move to reflect changes in economic fundamentals. And the prices of assets can often move quite abruptly when something happens to cause a reassessment of the future stream of income associated with the asset, or the price at which this income stream should be discounted. When prices in financial markets move by amounts that are much greater than can be accounted for by fundamentals, and do so in a way that has damaging economic consequences, the situation can be referred to as 'instability' or'crisis' in the financial system.

Another definition is provided by Mishkin (1997, p. 62), who focuses more on information problems when defining financial instability, which 'occurs when shocks to the financial system interfere with information flows so that the financial system can no longer do its job of channelling funds to those with productive investment opportunities.'

It appears that a fundamental underlying concept for the study of financial (in)stability is the concept of 'systemic risk'. Like financial stability, the literature does not provide a clear view on the concept of systemic risk. Summer (2002, p. 7) mentions that 'despite of the fact that systemic risk is one of the most popular catchwords in the debate about banking regulation, it is fair to say that there does not exist a precise definition of this notion except of a vague understanding that there are special problems in the banking industry arising from the linkages of different banks.' His view is supported by the essays in Kaufmann (1995), which show that all contributions by experts in this field stress the fact that it is unclear what systemic risk actually means and give definitions that differ substantially. Barholomev and Whalen (1995, p.7) define systemic risk as 'the likelihood of a sudden, usually unexpected, collapse of confidence in a significant portion of the banking or financial system with potentially large real economic effects.' Mishkin (1995, p. 32) suggests the definition: 'Systemic risk is the likelihood of a sudden, usually unexpected, event that disrupts information in financial markets, making them unable to effectively channel funds to those parties with the most productive investment opportunities.' Kaufmann (1995, p. 47) writes: 'To me systemic or contagion risk is the probability that cumulative losses will occur from an event that sets in motion a series of successive losses along a chain of institutions of markets compromising a system.' Finally, Schwartz (1995, p. 20) regards the term as useless: 'the term systemic risk could be dispensed with, with no loss to the analysis of putative disruptions of the payments and settlements system, the essence of a financial crisis.'

In a report of the Group of Ten (2001), systemic (financial) risk is defined as the risk that an event will trigger a loss of economic value or confidence in, and attendant increases in uncertainty about, a substantial portion of the financial system that is serious enough to quite probably have significant adverse effects on the real economy. Systemic risk events can be sudden and unexpected, or the likelihood of their occurrence can build up through time in the absence of appropriate policy responses. The adverse real economic effects from systemic problems are generally seen as arising from disruptions to the payment system, to credit flows, and from the destruction of asset values.

Two related assumptions underlie this definition. First, economic shocks may become systemic because of the existence of negative externalities associated with severe disruptions in the financial system. If there were no spill-over effects, or negative externalities, there would be, arguably, no role for public policy. In all but the most highly concentrated financial systems, systemic risk is normally associated with a contagious loss of value or confidence that spreads to parts of the financial system well beyond the original location of the precipitating shock. However, in a very highly concentrated financial system the collapse of a single firm or market may be sufficient to qualify as a systemic event. Second, systemic financial events must be very likely to induce undesirable real effects, such as substantial reductions in output and employment, in the absence of appropriate policy responses. In addition, a financial disruption that does not have a high probability of causing a significant disruption of real economic activity is not a systemic event.

De Bandt and Hartmann (2000) provide a framework for the economic analysis of systemic risk. It is interesting to observe that these authors consider the mechanism through which shocks propagate from one financial institution or market to another (*contagion*) to be the very core of the systemic risk concept. They distinguish two main channels in banking markets through which contagion can spread problems from one institution or market to others: the *real* or *exposure channel,* which refers to '*domino effects*' resulting from real exposures in the inter-bank markets and/or in payment systems, and the *information channel,* which relates to the contagious withdrawals (*bank run*) when depositors are imperfectly informed about the type of shocks hitting banks and about their physical exposure to each other (*asymmetric information*).

We asked CBs whether they have an official definition of financial stability and/or systemic risk, and if so, what definition. Only the Canadian CB has an official definition of systemic risk, which is, however, confined to certain elements of the financial system.

Table 2 Number of CBs with official definitions (as stated in law)

Number of CBs with an official definition of financial stability or systemic risk	Number of CBs without an official definition of financial stability or systemic risk
1	27

In addition, a number of CBs provided un-official working definitions, via their publications (The Netherlands Bank published its definition of financial stability, for instance, in its Quarterly Bulletin), or in speeches of governors/directors, etc. Examples of these definitions are:

– A stable financial system is one in which the expected macroeconomic losses from disturbances to the process of financial intermediation are small. The same CB states in its annual report that: 'The Bank's objective is to ensure that financial disturbances in any part of the financial system do not ultimately threaten the health of the economy.'

– Another CB views financial stability as the smooth functioning of the financial system as a whole both in normal conditions and in periods of stress. In normal conditions, the financial system can be seen as stable provided that it does not encompass any type of imbalances. In periods of stress, financial instability depends on the ability of financial markets (in terms of infrastructure and organisation) and participants on these markets (intermediaries, investors, financial providers) not only to absorb but also to work properly (i.e. without major/ lasting disruptions) when confronted with an unexpected shock of any nature (burst, bubble, terrorist attacks…). There are two dimensions in this approach of financial stability: ex ante, i.e. preventing the building up of imbalances on financial markets, and ex post, i.e. ensuring the ability of financial markets to accommodate the correction of these imbalances.

– A third CB refers to financial stability as the absence of financial instability, being defined as conditions in the financial system that harm, or threaten to harm an economy's performance through their impact on the workings of the financial system. Financial instability can arise from shocks originating within the financial system being transmitted throughout that system, or from shocks originating elsewhere in the economy that are transmitted, and possibly amplified, by the financial system.

– Similarly, according to a fourth CB 'financial stability is often defined as the absence of financial crises. The (positive) terms often used in our documents are 'robust and stable' financial institutions, markets and payment systems, with emphasis on a framework which prevents contagion from one institution in distress to other institutions and other parts of the system'.

– The Netherlands Bank states in its Quarterly Bulletin of December 2000 that 'one speaks of financial stability when a financial system is capable of efficiently allocating resources and absorbing shocks, preventing these from exercising a disruptive effect on the real economy or on other financial systems. Thus, in a situation of financial stability, money can properly carry out its function as a means of payment and hoarding and as a unit of account whilst, at the same time, the financial system can properly perform its role of mobilising savings, diversifying risks and allocating resources.'

In response to our finding that most central banks do not have an official definition of financial stability, one CB argued that this may be attributed to the fact that various countries in our sample are members of the European Economic and Monetary Union (emu) and the statutes of the respective national CBs are adapted to conform to the legal provisions of the Statute of the European System of Central Banks (escb). In this respect, article 3, paragraph 3, of the Statute of the escb states that 'In accordance with Article 105(5) of this Treaty, the escb shall contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system'. However, we feel that this is not a sufficient explanation for the lack of a clear and explicit definition of financial stability.

Only the Bank of Canada could provide an official definition of systemic risk. However, this definition is limited to clearing and settlement systems. The Payment Clearing and Settlement Act (pcsa) defines systemic risk as the 'risk that the inability of a participant to meet its obligations in a clearing and settlement system as they become due or a disruption to a clearing and settlement system could, through the transmittal of financial problems through the system, cause:

- other participants in the clearing and settlement system to be unable to meet their obligations as they become due,
- financial institutions in other parts of the Canadian financial system to be unable to meet their obligations as they become due, or
- the clearing and settlement system's clearing house or the clearing house of another clearing and settlement system within the Canadian financial system to be unable to meet its obligations as they become due.'

An extensive (un-official) description of the concept of systemic risk was given by another CB. According to this Bank[3] '*a systemic crisis is usually thought of as a situation in which significant portions of financial markets break down, causing widespread and substantial losses both in financial markets and, critically, the real economy. A financial disruption, no matter how large absolutely, without measurable effects on the real economy is not a systemic financial crisis. Systemic risk usually refers to the ex ante probability and expected severity of a systemic financial crisis.*

A systemic financial crisis may arise as a result of a contagion effect in which credit or liquidity problems of one or more financial market participants create widespread and substantial credit or liquidity problems for participants elsewhere in the financial system. This could occur, for example, if creditors run on many financial institutions in response to an exoge-

nous shock because they are unsure whether the shock significantly damaged the institution to which they are exposed. Markets may break down because institutions being run upon hold assets that cannot be easily liquidated to meet the demand of those participating in the run.

An alternative scenario involves payment and settlement systems. If one or more market participants fails to settle their obligations in good funds (i.e., claims on the CB) because of their own credit or liquidity problems or because of a problem with the payment/settlement mechanism itself, this may spill over to many others in a domino-like fashion through subsequent failures to settle payments at a series of counter parties. That is, there may be a contagion effect in which a payee that did not receive good funds is, in turn, unable to settle as a payer on other transactions because it does not have sufficient good funds or is insufficiently liquid to settle using other assets when its own payments are due. Such a process could lead to disruptions at, or even the collapse of, many otherwise solvent firms or significantly impede the ability of otherwise liquid firms to trade.

A third systemic financial crisis scenario involves the special role of banks as liquidity providers in the financial system. The failure or financial distress of some key large banks could result in a credit crunch in which market participants were temporarily unable to obtain sufficient working capital or back-up lines of credit to trade in public equity, debt, commodities, currency, or derivatives markets.

It is important to underline again for each of these three scenarios that the financial disruption must cause a measurable effect in the real economy for a systemic financial crises to result. A financial disruption itself is not a crisis. Indeed, disruptions in financial markets may or may not lead to substantial and widespread real economic losses. Such losses may occur in a number of ways, including through reductions of credit available for real investment and consumption spending due to a credit crunch. In addition, some systemic financial crises may have real effects through the inability of economic agents to settle payments for real purchases. These agents may alternatively be constrained by reductions in the prices or the illiquidity of financial assets that might otherwise be used as collateral or be sold to make real investment and consumption purchases. The desired real spending of economic agents may fall as well due to the loss of wealth, reduced confidence, or increased uncertainty associated with a systemic financial crisis.

Returning to the concepts of financial stability and the risk of financial instability, it seems likely that virtually any systemic financial crisis could also be labelled as an episode of financial instability, but the converse would not necessarily hold. Some episodes of financial instability would not necessarily be thought of as systemic financial crisis because they neither involve market breakdowns nor impose substantial costs on the real economy. For example, if the prices of publicly traded equity, debt, commodities, or currencies were to become highly variable, going up and down by large percentages, this might be thought of as financial instability. Even the failure of a large firm could cause financial instability through changes in asset prices. However, neither event would necessarily be a systemic financial crisis because market participants may be able to continue trading with markets clearing at all times. That is, prices may gyrate, but there may be no market breakdown or inability for participants to trade.'

Another example of an unofficial definition referring to systemic risk is: 'the Bank generally considers that financial stability is maintained when there is no systemic risk that could result in the contagion of bank failures.' This CB defines systemic risk as 'the risk that a disruption (at a firm, in a market segment, to a settlement system, etc) causes widespread difficulties at other firms, in other market segments or the financial system as a whole.' This definition does not correspond to the preceding explanation of the difference between the concepts of financial stability and systemic risk, and shows that the precise definition of these concepts is still unclear. A third unofficial, working definition that is used by another CB is simply 'the non-occurrence of a systemic crisis in the banking sector.'

3.2 Legal Basis

Eijffinger and De Haan (2000) argue that it is widely believed that only elected representatives should decide on economic policies. In their view, it is therefore questionable whether it is legitimate in a democratic system to leave decisions on the objectives of monetary policy in the hands of an independent institution, which is not subject to elections or ministerial responsibility. Because financial stability is generally considered to be a public good, and because financial crisis management can involve the spending of public money, the preceding reasoning suggests that in a democratic system decisions on the objective(s) of the financial stability function should be taken by the government and by parliament. Furthermore, if maintaining financial stability has been delegated to the CB by parliament, the objective(s) of the financial stability function should be clearly defined and explicitly stated in law or in some other form. As Quintyn and Taylor (2002) argue, in order to create a balance between independence and accountability, a CB needs to have a clear legal basis describing its powers and functions. The more clearly a mandate is defined, the easier it will be to monitor the performance of the CB. The way in which the powers and functions of the CB are executed will be discussed in the subsequent sections.

The results of our survey show that regarding financial stability most CBs do not have a clear legal basis describing its powers and functions as regards its core task in the field of financial stability (see Appendix 3). Although a great number of CBs have a reference to financial stability stated in their Banking Act or in some other document, in most cases this refers to the function of the CB in promoting or contributing to financial stability.

Two CBs indicate that their responsibility for overall financial stability has been stated explicitly in law or in some other document. Article 12 of the Organic Law of the Central Bank of Portugal lists, among other things, the following function: 'Provide for the stability of the national financial system, performing for the purpose, in particular, the function of lender of last resort.' According to the Bank of England, it was formally charged with the responsibility for the 'overall stability of the financial system as a whole' by the Chancellor in a letter to the Governor on 20 May 1997 and subsequently in the Memorandum of Understanding (MoU) [4] between HM Treasury, the Bank of England and the Financial Services Authority, published on 27 October 1997. But even if the objective is clearly stated, the preceding section has shown that there is a need for a more specific definition of financial stability. Therefore, the Annual Report of the Bank of England (2002, p. 16) states that, in practice, the responsibility for 'the overall stability of the financial system as a whole' translates into three main headings:

1. analysing, and promoting initiatives to strengthen, the financial system's capacity to withstand shocks;
2. surveillance, that is monitoring developments in the financial system to try to identify potential threats to financial stability at an early stage, and
3. reinforcing arrangements for handling financial crisis should they occur.

Even though a formal objective is often lacking, most CBs indicated that, in one way or another, it is implicitly included in law or in some other official document. For example, the responsibility of the Reserve Bank of Australia (rba) for maintaining the stability of the financial system is a long-standing one. Despite this, it is not explicitly spelt out in the Reserve Bank Act, but rather implicit in the rba's general responsibilities. However, the responsibility was acknowledged by the Government in its response to the recommendations of the 1997 Financial System Inquiry ('Wallis Inquiry'); the Ministerial Statement by the Treasurer, 2 September, 1997 states that the role of the rba would be '… focused on the objectives of monetary policy, overall financial stability and the regulation of the payment system.' In Sweden the objective of financial stability is derived from the bank's mission to promote a safe and efficient payment system. This mission has been broadly interpreted as a mandate to maintain financial stability. But an implicit objective makes it less easy to monitor and to evaluate the performance of the CB in executing its financial stability function. It is not clear which tasks of the CB have to be monitored, and there is no criterion to assess the performance of the CB.

On the basis of these results we divide the CBs into two groups (see table 3). For the first group the responsibility for overall financial stability is stated explicitly in the law or in some other document. The second group of CBs derive their respon-

Table 3 Legal basis for the responsibility for overall financial stability

Number of CBs where the responsibility for overall financial stability has been stated explicitly in law or some other document	Number of CBs where the responsibility for overall financial stability has been derived from other objectives or tasks referring to financial stability
2	25

Note: the Federal Reserve has not been included in this table, since the appropriate information was not available.

sibility for overall financial stability either from the objective to *contribute to* or *enhance* the stability of the financial system, or from certain financial stability tasks like promoting safe and efficient payment systems.

4 Assessment of financial stability

4.1 The Financial Stability Review

Although all CBs that participated in the survey indicate that they make a regular, systemic assessment of (changes in) financial stability, there are important differences in what is ultimately done with this information. Apart from the fact that the assessment of the financial stability and its evolution are used in internal reports, a relevant question is whether (parts of) the results are also publicly available in, for example, a Financial Stability Review (FRS).

The CBs of Austria, Belgium, Canada, Denmark, France, Hungary, Norway, Spain, Sweden and the United Kingdom currently publish an annual or semi-annual FRS (see table 4). Moreover, the Norwegian CB stated that the Ministry of Finance produces an annual report to Parliament with an overview of financial sector developments, including the activities of Kredittilsynet (the supervisory authority) and Norges Bank. Starting from 2003, Kredittilsynet will also publish its assessment of financial stability.

What is the purpose of publishing a FRS? Several CBs agree that publishing a FRS can contribute to the overall stability of the system. As one CB argued 'the publishing of the Financial Stability Review can be seen as an example of moral suasion. The CB's assessment of potential threats to the financial system and its views on how to deal with them can serve to influence risk taking. For example, moral suasion can be used to influence the granting of credit in banks. If the banks concur with the CB's assessment that growth in lending involves excessively high-risk positions, and if this idea becomes widely accepted in society at large, banks may choose to change their credit policies and respond more restrictively to credit enquiries.' Another CB endorses this view: '[…] measures to influence financial markets to prevent financial instability could include […] special statements and reports on the basis of financial stability assessments.' However, a third CB points out that 'while greater transparency with regard to the activities of public sector agencies is generally a good thing, one must consider the timing with which information regarding current or possible future financial instability is made public.'

We conclude that there are three main reasons for publishing the assessment of financial stability:

(i) *contribute to the overall stability of the financial system*;

By informing the public on both the state of the financial system and the judgement of the CB regarding the systems' stability, publishing a FRS can promote better-informed decision-making and can contribute to the stability of the financial system. As the Austrian Nationalbank (2001, pp. 5-6) puts it: 'The OeNB has decided to regularly publish a Financial Stability Report to make all players on financial markets and the general public aware of the problems that could arise if developments on financial markets go awry. The regular analysis of financial market developments and the identification of risks to financial stability may contribute to the early detection of potential threats and may help head off these threats by taking appropriate action quickly. With this purpose in mind, the Financial Stability Report is an instrument designed to safeguard financial stability, which in turn is crucial to secure price stability and to promote economic growth.'

(ii) *strengthen co-operation on financial stability issues between the various relevant authorities*. As the National Bank of Belgium (2002, p. 7) puts it: 'This FRS should serve to stimulate not only the discussion but also co-operation in Belgium between authorities in charge of macro- and micro-prudential supervision and financial market operators. It should also allow the Bank and other institutions to contribute to future issues of this Review to make their voice heard in the various discussions held in international forums.' Moreover, the Banque de France (2002, p. 6) argues that 'in a globalised and increasingly complex financial environment, assessing and fostering financial stability require strengthened co-operation between the various relevant authorities, governments, central banks, market regulators and supervisors. They also presuppose that a close dialogue be maintained with all financial sector professionals. It is in this spirit that the Banque de France, like several other central banks, has decided to publish a periodic Financial Stability Review.'

(iii) *increase the transparency (and accountability) of the financial stability function.*

According to Lastra (2001, p. 70), 'accountability is an obligation to give account of, explain, and justify one's action, while transparency is the degree to which information on such actions is available.' The provision of information on the financial stability function is an element of accountability. As is argued by Lastra (2001, p. 72) 'the provision of information in the context of accountability, whether in an *ex ante* investigation or an *ex post* requirement of disclosure, facilitates transparency. On the other hand, a transparent economic and political environment enhances the effectiveness of accountability. The two concepts are therefore mutually enforcing, and they both share the provision of information as a common requirement.'

Table 4 Publishing a Financial Stability Review (FRS)

Number of CBs that publish a Financial Stability Review (FSR)	Number of CBs that do not publish a Financial Stability Review (FSR)
10	18

Some CBs are considering publishing a (stand alone) frs on a regular basis in the near future, as can be distilled from the following answers we received:

– 'The Bank publishes an annual assessment of financial stability in its Annual Report. It is intended to increase the frequency of this assessment to twice a year, with shorter interim assessment being published between annual reports.'

– 'The outcome of the assessment is not published yet. However, it is planned to be published on a regular basis after completing the ongoing works on the financial stability analysis project.'

– Another CB that is considering the issue of a frs argues that several issues need to be considered before publishing the review. It argues that 'the central bank will have to be careful that it is not seen to be taking sole responsibility for financial stability, or passing judgement on other agencies that contribute to financial stability.'

Most CBs do not publish a stand alone periodic frs (according to one CB 'the assessment is not published, since a lot of very confidential information is included'), but they include a general analysis of the financial system in their Annual Report (Bank of Greece, for instance). In some cases financial stability is a recurring topic in other periodicals, like the CB's Bulletin. In Finland, the essential outcome of each semi-annual financial stability assessment is published in a review article on financial stability appearing in the Monthly Bulletin of Suomen Pankki (the June and December issues contain two regular articles titled The Bank of Finland's macroeconomic outlook and Financial stability in Finland). The review article on financial stability contains Suomen Pankki's official assessment of the stability of financial markets. As from December 2002 the Dutch CB publishes a comparable chapter on financial stability in its Quarterly Report. Another example is New Zealand, where the annual assessment is now publicly available in the RBNZ Bulletin.

4.2 **Internal organisation**

There are substantial differences concerning the organisation of the monitoring and control of financial stability within CBs. This is not very surprising. On the one hand, it can be argued that financial stability is an important objective for central banks, and that therefore one department should be primarily responsible for this task.[5] On the other hand, it has become clear that financial stability is related to many other aspects of supervision and regulation of financial institutions, which could imply that various departments share the responsibility for financial stability. In that case some coordinating body is probably needed.

Within some central banks there is one department that is primarily responsible for financial stability. For instance, at the Federal Reserve Board headquarters, for instance, the Supervision and Regulation division takes primary charge of the enforcement of supervision and regulation and is supported by analysis within the three research divisions. The National Bank of Belgium created a new department

International Cooperation and Financial Stability in 2001, while there is prudential task force that is used as a forum of exchange of information between departments interested in financial stability. Within the Reserve Bank of Australia the System Stability Department conducts analysis and research on financial stability issues and is responsible for preparing the financial stability assessment. At the moment, the Nederlandsche Bank is setting up a separate financial stability department that will be ready for operation in the first half of 2004.

However, in most cases there are various departments involved in financial stability, in which case there is generally some information sharing and coordinating mechanism in place. For instance, in Canada a number of departments are involved in financial stability. A Deputy Governor has overall responsibility for the financial stability function. In addition, there is a Financial Stability Review Committee that is used as a forum to discuss a wide range of financial stability issues and to formulate policies. Work on financial stability at the Central Bank of Ireland is coordinated by the Financial Stability Co-ordination Committee (fscc), assisted by a Financial Stability Working Group in which various departments from within the Supervision Division, Economic Services, and Payments Systems are involved.

Sometimes, the departments (or sections, or units) involved with financial stability are within one broader sector or wing of the bank. For instance, in the uk the financial stability area consists of 6 divisions. In Austria the Financial Markets Analysis and Surveillance Division is in charge of the stability of financial markets. However, there is a close cooperation with the Banking Analysis and Inspections Division. Both divisions are within the same section of the OeNB (Financial Institutions and Markets).

4.3 Information-sharing arrangements

In our survey we also asked what information-sharing arrangements exist between the CB, the supervisor and the MoF regarding financial stability issues. For example, when the assessment of financial stability is only used for internal reports, does the CB share this information with (other) supervisor(s) and the MoF? This is a relevant question, because, as we will see in one of the next sections, crisis management involves co-operation of various authorities. Therefore, all parties involved should keep each other informed on the relevant issues concerning financial stability. Or, as it is stated in the British Memorandum of Understanding (MoU, 1997, p.48) between hm Treasury, the Bank of England and the Financial Services Authority (fsa), 'regular information exchange… will help each institution to discharge its responsibilities as efficiently and effectively as possible.'

A few countries indicate that they have established some sort of formal platform to provide for the exchange of information between the institutions jointly responsible for financial stability. Art. 31 (1) of the Austrian Financial Market Authority (fma) Law 2002 envisaged that 'A Financial Market Committee shall be established at the Federal MoF in order to promote the co-operation and exchange of options as a platform by the institutions jointly responsible for the stability of the financial markets. This Committee shall consist of one representative each of the fma, of the Oesterreichische Nationalbank and of the Federal Minister of Finance who is engaged in legislative drafting in the area of supervision of financial markets. For each representative of the mentioned institutions, a deputy shall also be appointed.' The chairman of the Financial Market Committee is appointed by the Federal Minister of Finance.

In Canada, the law that established the Office of the Superintendent of Financial Institutions in 1987 also created the Financial Institutions Supervisory Committee (fisc). Membership in the fisc consists of the Superintendent of Financial Institutions (who also acts as chairman), the Chairman of the Canada Deposit Insurance Corporation, the Governor of the Bank of Canada, the Deputy Minister of Finance and the Head of the Financial Consumer Agency of Canada. This interagency committee provides for consultation and information exchange on supervisory matters that have implications for financial institution solvency, last-resort lending and the risk of deposit insurance payout. Other arrangements include the Senior Advisory Committee (sac) and the Payment Advisory Committee (pac).

In Finland the exchange of information on developments in financial stability is supported through a High Level Working Group consisting of the representatives of all relevant authorities: the Bank of Finland, the MoF, the Ministry of Social Affairs and Health (responsible for insurance regulation), the Insurance Supervision Authority (supervision of insurance companies), and the Financial Supervision Authority. Among other things, this group produces a joint annual assessment of the financial market developments and stability.

In Germany, section 3 of FinDag specifies that beside the Bundesanstalt a forum for Financial Market Supervision will be set up, in which the Bundesanstalt and the Deutsche Bundesbank are represented, while the Ministry of Finance can take part in these meetings. This forum is the main body for exchanging information on financial stability.

In Norway, the Norges Bank and Kredittilsynet are not subject to the duty of confidentiality vis-à-vis one another as regards information on financial institutions. Moreover, Norges Bank has one observer on the executive board of Kredittilsynet. The top management of Norges Bank and the Ministry of Finance have regular meetings where a wide range of issues is discussed. Also Kredittilsynet has regular meetings with the Ministry and reports to it on a regular basis.

In order to enhance co-operation and to share information on developments in financial stability in Turkey, a MoU was signed between the CB, the Bank Regulation and Supervisory Authority and the Treasury.

In the United Kingdom there is a tripartite Standing Committee, whose formal membership comprises the Chancellor of the Exchequer, Governor of the Bank of England, and Chairman of the fsa, which meets at least monthly at Deputies level, chaired by the hmt representative (and which can be convened rapidly in special circumstances, e.g., in the wake of the terrorist attacks of 11 September). These meetings are supplemented by informal contacts at all levels. Information exchange is addressed in paragraphs 8 and 9 of the MoU, which requires that the Bank and fsa 'ensure that all information which is or may be relevant to the discharge of their respective responsibilities will be shared fully and freely' within the legal framework established by European Directives.

In Italy, the obligation of the Bank of Italy to co-operate with the MoF and other supervisory authorities is institutionalised in law. According to Article 7 of the 1993 Banking Law, the Bank of Italy and other supervisory authorities shall co-operate – by exchanging information and otherwise – to facilitate the performance of their respective functions. These authorities may not invoke professional secrecy in their dealings with each other. The law leaves it to the authorities involved to decide the practical manner of co-operation. No formal co-operation agreements between these authorities have been established: it has been decided to avoid a too prescriptive approach to co-operation, which may limit flexibility especially in time of crises.

In other cases, either the banking supervisory authority consists (among other members) of representatives of both the CB and the MoF (for example, France, Mexico and Poland), or they have separate supervisory responsibilities (for example, the Czech Republic and the United States) and work together towards a common goal. As a result of these supervisory tasks, information-sharing arrangements between the CB and the MoF are established.

Both the Commission Bancaire (France) and the Commission for Banking Supervision (Poland) include representatives of the CB and the MoF. Furthermore, the French CB is also a member of the 'college' of the Commission des Opérations de Bourse (securities exchange commission). In addition, top officials of the Banque de France, the Commission Bancaire, the Commission de Contrôle de Assurances (insurance supervisor) and the Commission des Opérations de Bourse meet on a case by case basis within the College of Financial Authorities to address cross-sectoral issues.

In Mexico, representatives of the MoF and the CB are also members of the boards of the Supervisory Commissions (Banking and Securities, Insurance and Pension Funds) and the Deposit Insurance Institute.

In Poland, the Banking Act sets out the principles for exchange of information between the Commission for Banking Supervision and the other supervisory agencies, domestic and foreign. Likewise, in the Czech Republic an official agreement on co-operation between the financial sector regulatory institutions – the Central Bank (regulation of the banking sector), the Ministry of Finance (regulation of insurance companies and pension funds), and the Securities Commission (regulation of investment companies, investment funds, mutual funds and brokerage houses) – was signed in 1998.

Prudential supervision and regulation of commercial banks in the United States is handled by the three primary federal supervisors – the Federal Reserve, Federal Deposit Insurance Corporation (fdic), and the Office of the Comptroller of the

Currency (occ) – as well as the commercial bank supervisors in the individual states. The Federal Reserve and fdic are independent federal agencies, whereas the occ is part of the us Treasury Department. The Federal Reserve and the other supervisory agencies regularly share information among themselves and with Congress and the executive branch. But it is not clear whether the exchange of information has been formalised.

In Australia and Switzerland the information-sharing arrangements between the CB and the supervisor(s) have been formalised (in Australia through MoUs), while the arrangements between the CB and the MoF (or Treasury) tend to be more ad hoc. However, under the Australian Reserve Bank Act, the Governor and the Secretary to the Treasury are to establish a 'close liaison with each other and keep each other fully informed on all matters which jointly concern the Bank and the Department of Treasury.' Moreover, in order to strengthen the information-sharing arrangements the Secretary of Treasury is a member of the rba Board, while the Reserve Bank has two representatives on the Board of the Australian Prudential Regulation Authority (apra). In Switzerland a draft law requires the Swiss National Bank and the federal government to meet regularly to discuss issues of economic development including financial stability.

Most other CBs indicate that the information-sharing arrangements between the CB and the supervisory authority have been formalised, while the relationship with the MoF is currently informal. A recently passed law in Belgium requests the banking and security supervisor (bfc), the insurance supervisor (oca) and the National Bank of Belgium (nbb) to closely collaborate with each other in order to develop synergies and to pool resources. Besides a joint Board membership (2 directors of the nbb being members of the Board of the bfc and another director being member of the Board of the oca), the law establishes a Committee for Financial Stability, made up of the Board members of the three institutions.

According to the Dutch CB, having banking supervision, oversight over the payment system and monetary tasks under 'one roof', eases the exchange of information, co-ordination and co-operation between the monetary and financial stability functions on the one hand and the supervisory functions on the other. This process is embodied in the weekly meetings of directors, in which the Pension and Insurance supervisor (pvk) also participates. In this framework, the Bank and the pvk exchange information more consistently and more frequently. Moreover, information is exchanged between the Bank, the pvk and the Financial Market Authority (AuFM) within the Council of Financial Supervisors. The exchange of information with the MoF is informal, for example through ad hoc working groups of representatives of the Bank, other Supervisors and the MoF.

In Portugal a cross-sector Board was established in 2000 (the National Council of Financial Supervisors) consisting of the Governor of the Banco de Portugal (chairman), the member of the Board of Banco de Portugal responsible for the supervision of credit institutions and financial companies, the Chairman of the Insurance Institute, and the Chairman of the Securities Commission. This Council has the

Table 5 Formalisation of the exchange of information on financial stability issues

Number of CBs that have formalised the exchange of information with (other) supervisor(s)	Number of CBs that have formalised the exchange of information with the MoF
21	13

Note: The central banks of Greece and Slovakia have not been included in this table, since the appropriate information was not available.

responsibility, among others, of promoting the co-ordination of the supervisory authorities and to facilitate and co-ordinate the exchange of information between them. While the exchange of information among supervisory authorities is envisaged in the Portuguese legislation, the contact with the Minister of Finance is ensured mainly through informal consultations and discussions.

The CBs of Denmark, Luxembourg and Sweden indicate that at present there are no formal arrangements between the CB, the supervisor and the MoF about the exchange of information on financial stability. Table 5 gives an overview of the number of CBs that have formalised the exchange of information with the supervisor and/or with the MoF.

5 Instruments

In general two broad sets of instruments for safeguarding financial stability can be distinguished: i) preventative instruments which make it less likely that costly financial disturbances will occur; and ii) reactive instruments (private sector solutions and public policy measures) that can be used to reduce the cost of disturbances after they have occurred.[6] We will also examine whether these instruments have been formulated in law or in some other document.

5.1 Preventative instruments

The results of our survey correspond with the framework outlined by the EFC (2001, p. 10), which indicates that the preventative instruments can be subdivided into micro- and macro-prudential measures. As one CB argued 'the main instrument for preventing financial instability is – besides the bank's own risk management responsibilities – a sound regulatory framework and an effective enforcement of banking supervisory measures. Besides this, more and more macro-prudential measures, including the development of early warning systems, gain importance.'[7] Regarding micro-prudential instruments one CB argues that 'the micro-prudential instruments available are essentially those based on the on-going risk assessment system, involving a regular comparative analysis of the evolution of the financial positions and capital adequacy, supplemented with the monitoring of the liquidity profile and risks, the surveillance of internal control systems and, in more general terms, the analysis of the sensitiveness to global trends and exogenous determinants of banking activities. This system allows the early detection of emerging problems, which may justify extra on-site examinations and/or corrective actions.'

Another activity to promote financial stability includes the oversight of clearing and settlement systems. The CB may even be responsible for (part of) the payments system (like target in the euro area), which may not only contribute to an efficient payment system, but also to financial stability.

One CB indicates that its preventative tasks consist (among other things) of 'contributing to limiting the risks associated with clearing and settlement systems through the Bank's role as the authoriser of clearing and settlement systems and through contributions to improving regulation and other elements of the payments infrastructure. According to another CB 'the objective of this oversight is for the Bank to be satisfied that risks within these systems are identified and appropriately controlled. The Bank requires annual examination and the Governor has directive powers to deal with any urgent situation where there is a systemic risk potential.'

Another CB pays attention to macro-prudential analysis in order to identify systemic indicators and trends that usually provide an early warning of banking fragility. The analysis carried out by this bank consists of three primary elements:

i) monitoring of macroeconomic data, such as credit growth, sectoral indebtedness, incremental capital output ratios, asset prices etc.,

ii) monitoring aggregate and cross-sectoral micro prudential data, such as arrears, loan provisions, solvency ratios etc., and

iii) assessment of credit institutions' behaviour, for example, the analysis of changes in lending policies both across institutions and over time, allied with examination of actual practice versus stated policy.

Assessing the influence of monetary policy and general economic policy on the stability of the financial sector and vice versa can also be an important preventative task of the CB. Furthermore, the CB (or Prudential Supervisor) can, prior to the emergence of financial instability, take informal action through correspondence and discussion with the affected institutions(s) to seek proposals to rectify any matters of concern. It could also resort to moral suasion through public statements on matters of financial stability. If this fails, formal action can be taken to use statutory measures to resolve the situation. The statutory (micro-prudential) measures available can include: the imposition of conditions in relation to a license, direction to a license holder in relation to advertising for deposits, appointment of an examiner, direction to suspend business, revocation of license and petition to wind up.

Several other CBs indicate that one of the most important, but often overlooked, preventative instruments is moral suasion. Moral suasion can be defined as 'benevolent compulsion, or making others conform without enforcing rules directly. The Reserve Bank of Australia has shown a preference for influencing banks through moral suasion even where direct controls might have been used. Often termed simply 'suasion' (in Japan it is known as 'window guidance'), it has been used to persuade banks and other financial institutions to keep to official guidelines. The 'moral' aspect stems from pressing on the targets of the suasion their 'moral responsibility' to operate in a way that is consistent with furthering the national good. In the us it is known as 'jawboning' – exercising the persuasive power of talk rather than legislation.'[8] Moral suasion can be carried out through bilateral or multilateral discussions or, for example, by publishing a Financial Stability Report. According to one CB it might exert moral suasion in two different situations. The first is when it wants to influence expectations through public statements or speeches by Board Members. The second when it attempts to persuade, on certain special occasions, financial intermediaries to modify their behaviour when it is deemed to be prejudicial to the sound development of markets. A second CB argues that 'there are not many formal tools that can be used. One of the most important means of influence at a CB's disposal is the ability to publicly acknowledge and openly discuss certain developments in the financial sector. CBs can exercise some informal pressure through dialogue and public debate – rather than employing forcible means – to influence the behaviour of financial players.' Another CB endorses the fact that public commentary (or 'open mouth policy') can influence market players ('the calming words of a CB as much as any policy actions may assuage the market in times of instability'), but it remarks that it is difficult to assess the impact of such comments.

Furthermore, various CBs indicate that contributing to international policy-making (via, e.g., the International Monetary Fund, the Bank for International Settlements, the Group of Ten, the Financial Stability Forum) can be seen as an instrument safeguarding financial stability.

Another preventative instrument is multilateral surveillance like the Financial Sector Assessment Program (fsap) carried out by the imf. Financial sector issues were added to imf surveillance in the 1990s following a series of banking crises in both industrial and developing countries. In 1999, the imf and the World Bank decided to create a joint fsap specifically designed to assess the strengths and weaknesses of countries' financial sectors.[9]

5.2 Reactive instruments

Experience suggests that no two crises are exactly alike and opinions differ as to which particular approach is 'best' for resolving them (oecd, 2002). Or as one CB argued 'financial stability is obviously a multi layers concept that encompasses prudential regulation and financial regulation, the design of financial markets infrastructures (including payment systems and security settlement systems), participants' behaviour… Hence, one cannot pinpoint a single set of instruments that can be used in case of misalignments. In addition, the CB does not necessarily have authority on all the elements that contribute to promoting financial stability. By essence, preserving/restoring financial stability is a joint task for various authorities, as the events of September 11, 2001 have shown. Financial stability is therefore a constant preoccupation for any type of decision taken by financial authorities in the various ways they discharge their responsibilities.'

Although it appears that one size does not fit all, at least as regards the sort of instruments used to resolve financially impaired institutions, generally four important reactive instruments can be distinguished (see efc, 2001): (i) private sector solutions, (ii) liquidity support measures, (iii) public intervention tools, and, (iv) winding down.[10]

5.2.1 **Private sector solutions**

If a financial crisis does occur, the private sector should, according to the efc, be involved as much as possible in its resolution (efc, 2002). Private sector solutions may be defined as those solutions implemented by private firms without claiming public or CB money (efc, 2001). Two types of private sector solutions are distinguished:

- ad hoc mechanisms, such as a merger or acquisition (capital infusion) or rescue operations, which may be considered when an emergency surfaces. These solutions can be promoted by the authorities acting as honest broker, especially given the time constraints under which most crises have to be solved and the potential information asymmetries that then exist.
- predetermined mechanisms aimed at preventing spill-over effects of financial crises.

Several CBs indicate that in case of a crisis situation the first action of a CB will be to call for other market participants to provide a private sector solution. Under the aegis of supervisory/CB co-ordination, one or more financial institutions might be convened to solve an upcoming crisis. Especially in cases of pure liquidity crisis, a private initiative, probably with the help of supervisors/the CB acting as honest broker, is the most straightforward solution.

An example of the second type of private sector solutions is the German Liquidity Consortium Bank (liko-bank), a semi-private institution that was founded in 1974 after the failure of the Herstatt Bank in order to bridge possible liquidity shortages of individual banks which are basically sound. However, as a 'lender of penultimate resort ' the liko-bank may not lend money to insolvent institutions. In Norway the banks' own guarantee fund – funded by the banks – serves as a second line of defence in case of difficulties; a bank's earnings and capital serving as the first line of defence. The main element of the guarantee scheme is the deposit guarantee. However, the guarantee funds may also be used to provide support to ensure that a member bank is able to honour its obligations and continue operations, and – if necessary – to arrange a merger with or a take-over by another bank. The Government Bank Insurance Fund (gbif) was established in 1991 as a third line of defence. The gbif injected equity capital directly into some banks and granted loans to support the banks' guarantee fund.

5.2.2 Liquidity support measures

According to Frydl and Quintyn (2000), liquidity support from the CB to troubled financial institutions starts long before the systemic nature of a banking crisis has been recognised. When a bank, or several banks, start experiencing withdrawals from depositors and creditors (both domestic and foreign), and they cannot borrow directly, or only at high rates, from the inter-bank market, the CB becomes their lender of last resort. Moreover, Frydl and Quintyn (2000) point to the fact that, in principle, CBs should only support illiquid but still solvent banks. Yet, these authors argue that during the early stages of an unfolding crisis, it is often very difficult to distinguish illiquidity from insolvency. Very often, it turns out that banks resorting to the CB for liquidity support have been insolvent for a while, without this being known. This is emphasised by Goodhart (1999) who argues that in a crisis situation it is generally not possible to distinguish between illiquidity and insolvency. So, the lender of last resort interventions by the CB mostly involve high-risk loans, which eventually may impose huge risks and costs for the taxpayer.

In addition, the oecd (2002, p. 124) states that 'international experience suggest that CB credit and other forms of immediate financial support to financial institutions entail an element of risk, namely that good money will be thrown after bad.' It is argued that 'when problems are widespread, there is a real difficulty distinguishing between illiquid and insolvent institutions, especially given that various actors may have an incentive to distort the facts. Consequently decisions are often guided by imperfect information, particularly in the very near term while the crisis is still unfolding. When confronted with the rapidly escalating problem, CBs may face the risk of stepping in to provide liquidity to avert a collapse in credit flows, while the crisis might actually be generated by widespread insolvency, which would call for a different solution.' (oecd, 2002, p. 117).

Apart from liquidity support to individual financial institutions, liquidity support can also be given to the market as a whole. According to the efc (2001, p.20), emergency liquidity assistance to the market can be distinguished from easing monetary policy. It is argued that emergency assistance to the market is provided temporarily to relieve market pressure following an adverse exogenous shock (like a terrorist attack), whereas changes in monetary policy are directed at maintaining longer-term price stability.

Almost all CBs in our survey indicate that their primary reactive instrument is the ability to use its balance sheet to provide liquidity to the financial system. These include providing targeted liquidity through discount window loans to solvent institutions, making announcements that sufficient liquidity will be forthcoming on request at the discount window or providing general market liquidity through temporary easing of monetary policy. Most CBs explicitly state that these liquidity support measures are provided against sufficient collateral, or as one CB argued, 'in our view it is not the task of a CB to bail out insolvent institutions.' As it is very hard to distinguish illiquid from insolvent institutions during a crisis, liquidity support can easily turn into the bailing out of insolvent institutions (with potential cost for the taxpayer). This raises the question of who should ultimately take the decision on liquidity support actions, a question that will be dealt with in the next section.

An exception is Japan where, according to Article 37 of the Bank of Japan law, the CB 'may provide uncollateralized loans to financial institutions […] when they unexpectedly experience a temporary shortage of funds for payments due to accidental causes […] provided that the advance is necessary to secure the smooth settlement of funds among financial institutions'. Furthermore Article 38 indicates that the government can intervene in lender of last resort interventions: 'The Prime Minister and the Minister of Finance may request that the Bank of Japan conduct the business necessary to maintain an orderly financial system, including provision of loans, when it believed to be especially necessary for the maintenance of an orderly financial system including the case where it is judged […] that a serious problem in an orderly financial system may arise.'

In Norway the general rule is that banks have to post collateral for their loans from the Bank. However, section 19 of the Norges Bank Law states that 'when warranted by special circumstances, the Bank may grant credit on special terms'. This means that the collateral requirements can be waived and banks' lending quotas can be increased in case of emergency.

5.2.3 Public intervention tools

Once the true nature of the crisis has been identified and bank insolvency has been revealed as widespread, measures like deposit insurance funds are needed to stabilise the system (Frydl and Quintyn, 2000). Two rationales for deposit insurance can be distinguished (MacDonald, 1996):

– consumer protection: deposit insurance protects depositors against the negative consequences associated with the failure of a bank. Moreover, it is difficult for (potential) depositors to assess the financial condition of banks. Only a limited amount of the information necessary to make an effective assessment of a bank is publicly available and, even then, the general public may have difficulties in interpreting such information. This market imperfection is partly redressed by both banking supervision and deposit insurance.

– reducing the risk of a systemic crisis: without deposit insurance, the possibility exists that uninformed depositors might remove their deposits from sound banks in reaction to problems at a single bank (bank run). In order to meet these withdrawals banks have to liquidate their asset portfolio at a loss, and eventually might fail. If depositors know their money is safe because of the insurance, they will have little reason to withdraw it from banks. Deposit insurance can thus be seen as a preventative instrument as well.

Although deposit insurance funds were originally aimed at preventing bank runs, in a number of countries these schemes can also be involved in the restructuring of ailing banks, sometimes even the provisioning of liquidity support (efc, 2001).[11]

Frydl and Quintyn (2000) argue that, quite often, countries have established limited deposit insurance funds, but experience has proven that, when faced with a systemic crisis, limited deposit insurance schemes become inadequate to restore confidence. What is needed in such cases is the announcement of full protection for depositors and (most) creditors. Such a guarantee aims to stabilise the banks' funding and prevent, or stop, bank runs. But by announcing a guarantee the government acquires a very sizeable contingent liability against assets of uncertain value.

Furthermore, when the failure of a financial institution has the potential to create systemic problems, the government may decide to recapitalise the institution or nationalise the institution. Initially, the fiscal impact of nationalisation will be relatively high. But as owner of the firm, the government can try to resell it at a later date at an acceptable price (efc, 2001). According to Enoch, Garcia and Sundararajan (2001), no government will give full independence to a so-called Bank Restructuring Agency[12] (bra) where large a percentage of gdp is devoted to recapitalising financial institutions (see table 6). Because accountability to parliament in most countries is achieved through a ministry, it is argued that the MoF, as guardian of the public purse, is a typical choice among government agencies to manage restructuring. However, Enoch, Garcia, and Sundararajan (2001, p. 61) point out that government agencies are not usually involved in the day-to-day business of running banks and attempts to do so have frequently not been effective because of governance problems. So while the agency's organisational structure will be placed under the MoF, these authors argue that in order to protect the bra (which also includes representatives of other agencies, including the CB and the supervisory agency) from political interference the agency should be functionally independent and publicly accountable.

Our survey shows that in most countries the safety net consists, next to liquidity support instruments, of deposit insurance. But the way in which deposit insurance funds are organised differs considerably. For example, in the Netherlands the deposit insurance system is arranged for in the Act on the Supervision of the Credit System 1992, which leaves the CB to carry out this task. The insurance scheme is financed by the commercial banks. In Turkey, the Savings Deposits Insurance Fund (sdif) is administered by the Banking Regulation and Supervisory Agency (brsa). In the United States deposit insurance is executed by an independent agency of the federal government, the Federal Deposit Insurance Company.

The reduction of systemic risks and the identification and management of systemic crises involves a specific role for the government. For example, in Mexico the Ministry of Finance, the Banks and Securities Supervisory Commission and the Deposit Insurance Institute have extensive powers to prevent and address financial stability. Of particular importance are: the amendment of the Credit Institutions Law introducing a framework for the application of Prompt Corrective Actions and a recent law for the Deposit Insurance Institute, which empowers the Institute to intervene and resolve troubled banks. In the United States, the Federal Deposit Insurance Corporation (under the Federal Deposit Insurance Corporation Act of 1991) generally must resolve failing banks in a manner that imposes the least cost on the deposit insurance funds. However, there is a 'systemic risk exception', under which the Secretary of the Treasury (in consultation with the President and upon the recommendation of two-thirds of both the fdic and the Federal Reserve Board) can waive the least-cost requirement in a specific case if the least cost resolution 'would have serious adverse effects on economic conditions or financial stability' and the use of a non-least-cost resolution method 'would avoid or mitigate such adverse effects.' Thus, a number of other parts of the government may become involved in determining when a systemic crisis may occur or has occurred, and in managing the potential or actual crisis. A second CB argues that 'in the case of a systemically relevant problem the CB, the supervisor and the MoF, which are jointly responsible for the stability of the financial markets, will try to solve the problem in a case-by-case approach which allows enough flexibility for a good solution. Here the MoF is in the driving seat.' According to another CB 'if the bankruptcy of a bank is relevant for systemic stability, it is up to the government to decide whether tax revenue is used to prevent a systemic crisis. But this could happen only when private initiatives have failed.'

Moreover, systemic bank restructuring which aims to improve bank performance, that is, restore solvency and profitability, to improve the banking system's capacity to provide financial intermediation between savers and borrowers, and to restore public confidence (Dziobeck and Pazarbaşioğlu, 1998), is not mentioned by the CBs as a reactive instrument under their responsibility. As recapitalising financial institutions comes at high fiscal costs, this will be a task for the government, in co-operation with the CB and the supervisor.

5.2.4 **Winding-down**

When systemic risks are negligible, or when the costs of intervention are higher then the potential benefits, the authorities will opt for the winding-down of the troubled institution. The firm will be liquidated under relevant (insolvency) laws by the authorities, if private counterparties have not already done so. However, the closure of a financial institution creates potential for disruption, especially to market functioning and liquidity. Therefore, the authorities should ensure that the winding-down, or the significant restructuring of a major financial organisation, is managed in an orderly manner. One way to contain the negative effects is by liquidity support to other firms or the market generally. But as argued by the oecd (2002, p. 131), 'when financial distress has been broad-based or has involved systemically important institutions, liquidation has rarely been the preferred option.' This creates the expectation that large financial institutions are 'too big to fail', which gives rise to moral hazard incentives for both the financial institution and its depositors.

In our survey, only one CB referred to the winding down of financial institutions as a reactive instrument. This can probably be explained by the fact that the winding down of a financial institution is in most cases seen as an instrument that is in the hands of the supervisory authority.

5.3 Legal basis of financial stability instruments

Most CBs indicate that to a certain extent the above-mentioned instruments have been formulated in law or in some other form. Formalisation of instruments especially applies to the preventive instruments (regulatory and supervisory measures). However, reactive instruments (instruments for crisis management) have generally been formalised to a lesser extent. As one bank indicates 'the Bank's powers and duties are specified in the Bank Act. While these are not specifically cast in terms of systemic stability, they provide the Bank with adequate legal backing for its actions.' According to a second CB, 'some of these 'instruments' are underpinned by statute, but some have no formal backing. The last group especially depends on argument and persuasion and on the reputation and moral authority of the authorities.' Another CB points out that 'the approach taken in the legal framework is to distinguish between the functions and the objectives, which are fixed by the law, and the operations that are necessary to fulfil these functions and objectives. For the latter, it has been chosen not to limit the flexibility of the authority entrusted with certain tasks by listing in detail the number and types of operations that can be performed, but to legitimise the performance of all actions instrumental to the achievement of the objectives established in law.' A fourth CB announces that '… further instruments or measures taken to prevent and to address financial stability have to be discussed and agreed upon between the CB, the supervisory authority and the MoF.'

Moreover, several CBs question the formalisation of crisis management instruments. As can be illustrated by the following answers:

– 'Most of these instruments have not been formulated in law. As regards the oversight of payment and settlement systems, the use of moral suasion has been considered to be more appropriate than formal supervisory powers. The role in crisis management has not been publicly formulated in order to avoid moral hazard (philosophy of constructive ambiguity).'

– 'The Bank relies largely on informal means. So far, this has been sufficient. Should the Bank find a need for stricter codification, it has the right to present legislative proposals directly to parliament.'

– ‘There is no need to base such instruments on laws. In fact, it might turn out to be counterproductive, since methodologies to assess financial stability evolve constantly and the monitoring process should take this into account.’
– ‘A formalisation of these instruments (without speaking of formulating them in law) might not make much sense, as financial systems are rapidly moving. As a result there is no definite ‘tool kit’ available to prevent or cure episodes of financial instability. Moreover, when an approach is too clearly formalised for observers, it could also give rise to moral hazard considerations.’

Because CBs generally act as lender of last resort, this task has been formalised in a substantial number of countries. For example, article 8 of the Dutch Banking Act states ‘The Bank is authorized to effect transactions in the financial markets, including receiving current-account deposits from account-holders, accepting securities and other documents of value for safe custody, and effecting credit transactions insofar as these are covered by adequate collateral.’ Likewise, article 14 of the Hungarian Banking Act states that ‘in the event that circumstances arise which jeopardise the stability of the financial system due to the operation of a credit institution, the nbb may extend an emergency loan to the credit institution.’ Similar arrangements exist in a great number of other countries.

Because of the fact that several reactive instruments have not been formulated extensively in law, it is often unclear who will decide on the use of these instruments during an unfolding crisis. Therefore, the next section will discuss the way in which decisions on the use of instruments for financial stability are taken.

6 Decision-making process

As has been made clear, safeguarding financial stability can involve a number of different institutions that share responsibilities. When it comes to resolving a financial crisis it is interesting to know how the CB, (other) regulatory and supervisory bodies and the government will decide on what instruments to use. According to Goodhart (2000, pp. 37-38), ‘the CB never had the capital base, or the resources, necessary to undertake any large rescues on their own. So, the CB used to turn to the remaining private sector banking system for financial support and other assistance in crisis management. Because of the cartelised, oligopolistic, protected nature of national financial systems, the domestic banks had both the ability and the incentive to comply with such request. But nowadays the CB’s ability to call on the private banking sector for (financial) assistance has become more difficult, almost impossible, with the advent of the more competitive, multinational system. The multinational banks will claim that home-country forces, whether shareholders, regulators, or their own domestic law, prevent them from risking their own capital in any coordinated rescue exercise in another country. If the multinationals will not play, then competition will prevent the domestically headquartered banks from doing so either.’ He also argues that this has forced, and will continue to force, CBs to turn to their own Ministries of Finance for (taxpayers') funds in order to handle all but the smallest of failures and crises within the banking system (for empirical underpinning, see Goodhart and Schoenmaker, 1995).

So, crisis management, at least in most countries, has already gone beyond the capacity of the CB to handle on its own. Goodhart (2000) therefore claims that the days when the Governor could subsequently inform the Minister of how the CB had sought to resolve the crisis are history. As a result, crisis management should involve joint cooperation, assessment and agreement between CBs, Supervisors and Ministries of Finance.

A crisis in the banking system can lead to considerable risks and costs for the taxpayer. Table 6 reproduces some estimates of these costs by Hoggarth and Saporta (2001).[13] However, there is some dispute about these estimates. According to the Bank of Spain, the correct figure for the fiscal cost of the 1978-1983 banking crisis in Spain is around 5%. The Norges Bank argues that the present value of gross costs as a percentage of gdp of the crisis in Norway was 3.1% per 1995 and 3.4% per 2001. The present value of net costs as a percentage of gdp was 0.9% in 1995 and -0.4% in 2001 (negative cost imply that the public sector made a net profit after re-privatisation).

How are decisions actually taken in practice? The first question on the decision-making process in our survey deals with the way in which the CB, the supervisor and the MoF take decisions about managing the available instruments (both preventive and reactive). The results show that for preventive instruments, the decision about managing the instruments would be in the first place made by the authority with the responsibility on the basis of relevant legislation, which in most, if not all, cases would be either the CB or the supervisory authority. As we have seen in the previous section, preventive instruments have generally been specified in law.

Table 6 Fiscal cost of banking crises

Crisis Country	Years	(Quasi-) Fiscal cost/gdp
Finland	1991-1993	11.0
Japan	1992-1998	8.0 (17.0)*
Korea	1997-	34.0
Norway	1988-1992	8.0
Spain	1977-1985	16.8
Sweden	1991	4.0
United States	1984-1991	3.2

* Resolution costs in Japan were estimated at 3 percent of gdp by 1996. The current financial stabilisation package introduced in 1998 allows for a further ¥ 70 trillion (14 percent of gdp) to be spend on loan losses, recapitalisation of banks and depositor protection. But by end-March 2001 only an estimated ¥ 27 trillion (5 percent of gdp) of this had been spent.
Source: Hoggarth and Saporta (2001).

As for crisis management, the decision-making process is less clear. In some countries the decision-making process between the different parties involved in safeguarding financial stability has been formalised. For example, in Austria the OeNB, the Financial Market Authority and the Federal MoF are jointly responsible for the stability of financial markets. All three parties are represented in the Financial Market Committee, which in case of a financial crisis will decide on necessary measures on a case-by-case basis. Furthermore, in Poland there are two forums where representatives of the monetary authority, banking supervision, deposit guarantee system and MoF meet, exchange information on the financial system (mainly banks) and negotiate plans when needed: the Committee for Banking Supervision and the Board of the Bank Guarantee Fund. To the extent that membership of these bodies is regulated by law, so is the decision-making process. In Turkey the principles of co-ordination and exchange of information are provided in the MoU signed by the CB, the BRSA and the Treasury. Moreover, in the United Kingdom decisions are taken by the lead authority, or, where necessary, collectively through the Standing Committee of representatives of the Treasury, Bank and the Financial Services Authority. This Committee normally meets on a monthly basis to discuss individual cases of significance and other developments relevant to financial stability. But meetings can be called at other times by one of the participating institutions if it considers there to be an issue that needs to be addressed urgently. Each institution has nominated representatives who can be contacted, and meet, at short notice (MoU, 1997). Moreover, section 5.2.3 showed that the management of systemic crises in the US involves several different authorities who are also involved in the decision-making process (the 'systemic risk exception').

Most CBs indicate that the ultimate decision is taken by the authority with the responsibility on the basis of relevant legislation. As one CB argues, 'the CB is responsible for measures such as liquidity assistance, while the supervisory authority is the main issuer of financial regulations, and the MoF prepares financial legislation.' A second CB takes the view that 'in the light of its prime responsibility for the stability of the banking and payment system, the Bank makes the decisions about managing the related instruments, though it is likely that in specific circumstances the MoF will be consulted. The Bank is authorised to take decisions related to the lender of last resort function. It is likely that the MoF will be consulted in these decisions.' In another case 'the instruments are under the Bank's responsibility by law, but some extreme measures require MoF approval'. A fourth CB points out 'such decisions are taken within the (statutory) responsibilities and powers of the relevant agency, but within a broad framework of co-ordination and consultative arrangements (formal and informal).' Another CB argues, 'as to crisis management, a joint crisis management organisation would probably be established on the basis of joint preparations. Co-operation in managing the available instruments would then take place within a framework of joint organisation. However, final decisions about managing a certain instrument would be made by the authority that is responsible for managing that instrument.' Although a number of CBs indicate that each institu-

Table 7 Decisions on the use of instruments to prevent and address financial instability

Decisions on crisis management are	Number of CBs
a joint responsibility (CB, Supervisor(s) and MoF)	6
taken by the relevant authority	16
there is no rulebook	4

Note: the central banks of Greece and Slovakia have not been included in this table, since the appropriate information was not available.

tion decides on the management of its own instruments, the mandates of several institutions have only partly been formulated in law.

Moreover, there are some CBs that indicate that the way financial authorities would take decisions, and the nature of those decisions, would depend on the very nature of the crisis. As one bank argued 'with regard to instruments for addressing financial instability after crisis prevention has failed, it is on purpose that there is no rulebook for dealing with such situations, since all crises are unique in nature and should be treated accordingly.'

Table 7 summarises the results of the question in what way the central bank, the supervisor and the Ministry of Finance take decisions about managing the available instruments.

The questionnaire also dealt with the issue of which institution co-ordinates the decision-making process. Overall, the answers show mixed results. While several CBs consider it their responsibility to co-ordinate the decision making process, others argue that the government is responsible. Or, depending on the nature of the crisis and the instruments to be used, the department with the relevant jurisdiction will co-ordinate the process. If the parties that are jointly responsible for maintaining financial stability are represented in some formal body, this could also be used for allowing co-ordination among competent national authorities. For example, to the extent that co-ordination is required in the United Kingdom, the Standing Committee framework is used (e.g., in current work on contingency planning in the wake of 11 September). Other CBs indicate that the co-ordinating role has not been specified.

On the question of who takes the final decision about actions that involve the use of public money, the CBs indicate that the government and/or parliament is/are responsible for making the final decision about the use of tax revenue to prevent a systemic crisis from happening. But it is less clear who takes the decision on liquidity support interventions during a crisis situation (see table 8). An exception is Japan, where the Bank of Japan Law (Article 12, Section 2) explicitly states that '... the

Table 8 Use of public money

Who takes the final decision about actions that involves the use of public money?	Number of CBs
Government (through the Ministry of Finance) or Parliament	12
Government, subject to the possibility for the Bank to provide emergency assistance against (sufficient) collateral	8
The CB decides on the use of its reserves, the Government on 'other' public money	2
Other arrangements	3

Note: The central banks of the Czech Republic, Greece and Slovakia have not been included in this table, since the appropriate information was not available.

following matters shall also be decided by the Board: (1) making loans prescribed by Article 37, Paragraph 1, and executing business prescribed by Article 38, Paragraph 2 ...' This means that the Policy Board of the boj can take the final decision on the use of public money as the lender of last resort. However, nearly all other CBs argue that, in principle, the government is responsible for making decisions on the use of public money, subject to the possibility for the Bank to provide emergency assistance against (sufficient) collateral. For example:

– 'The CB can provide liquidity assistance to the market against collateral. The government makes decisions on providing liquidity if there is no collateral.'

– 'Most of the available instruments are in the hands of the Central Bank, which is also the supervisor. The instruments are set out in law and, aside from a small number of exceptions, the Bank is free to make the decisions its sees fit. Other instruments, such as the use of public money in the resolution of banking crises, are primarily in the hands of the MoF. It would be expected, however, that the Minister would consult the Bank or that it would act as his agent. This latter arrangement is not directly set out in law.'

– 'With regard to liquidity injections, the Bank is authorised to take final decisions in its capacity as lender of last resort, though consultation of the ecb is required in the light of potential monetary consequences, while consultation with the MoF is likely.'

– 'The ultimate responsibility for the decision-making process will – in principle – vary, depending on the nature of the crisis. Namely, in liquidity crises, it would be the CB as lender of last resort. In solvency crises, the political decision to use public money (from the Budget) – if warranted – will be taken by the Government (through the MoF).'

– ‘The Bank decides on the use of its reserves, while the government rules over national fiscal budget means.’

Generally, CBs believe that the government is responsible for making decisions on the use of public money, often subject to the possibility for the CB to provide emergency assistance against (sufficient) collateral. However, during a crisis situation it is generally not possible to distinguish between illiquidity and insolvency (Goodhart, 1999). So, the lender of last resort interventions mostly involve high-risk loans, which may impose huge risks and costs for the taxpayer. Moreover, Goodhart (1999, pp. 18-19) points out that, CBs ‘in some countries have actually become technically insolvent, as a result of losses incurred on loans in support of the domestic financial system. But such insolvency does not make much difference because what stands behind the liabilities of the CB is not the capital of the CB but the strength and taxing power of the state.’ What does this tell us about the handling of systemic problems within a country? Unless such problems involve only a small potential for loss, so that the CB can handle it on its own, such systemic problems will nowadays require joint management and resolution by the supervisory body, the CB and the government. As emphasized by Goodhart and Schoenmaker (1995), he who pays the piper calls the tunes. In large-scale, systemic domestic cases the government pays the piper, so it will be the government that ultimately will decide how the crisis is handled and who bears the losses.

An example of a framework in which the decision-making process has been laid down explicitly is the British MoU between HM Treasury, the Bank of England and the FSA. The MoU states that the Bank will be responsible for the overall stability of the financial system as a whole, which (among other things) will involve being able in exceptional circumstances to undertake official financial operations, in accordance with the arrangements in paragraph 11 and 13 of the Memorandum, in order to limit the risk of problems in or affecting particular institutions spreading to other parts of the financial system. First, paragraph 11 states that ‘in exceptional circumstances there may be a need for an operation which goes beyond the Bank’s routine activity in the money market to implement its interest rate objectives. Such a support operation is expected to happen very rarely and would normally only be undertaken in the case of a genuine threat to the stability of the financial system to avoid a serious disturbance in the UK economy. If the Bank or the FSA identified a problem where such a support operation might be necessary, they would immediately inform and consult with each other.’ Second, paragraph 13 lays down that ‘in all cases the Bank and the FSA would need to work together very closely and they would immediately inform the Treasury, in order to give the Chancellor of the Exchequer the option of refusing support action. Thereafter they would keep it informed about the developing situation, as far as circumstances allow’.

In Norway, the Norges Bank is responsible for the role of lender of last resort. So the Norges Bank will evaluate whether lender of last resort support is necessary and the conditions for such support. However, before the Bank makes any decision of special importance, the matter is submitted to the MoF (as required by law).

7 Democratic Accountability

According to Lastra (2001, p. 70) the concept of accountability can be defined as 'an obligation owed by one person (the accountable) to another (the accountee) according to which the former must give account of, explain and justify his actions or decisions against criteria of some kind, and take responsibility for any fault or damage.' As pointed out by Lastra (2001), authority is not given away, but is 'delegated'. A clearly specified mandate is given by parliament, and the agency to which the mandate is given, be it the CB or another agency, is supposedly carrying it out. So a clear mandate with an explicit and measurable objective is crucial (see also De Haan and Eijffinger, 2000, and Amtenbrink, 1999).

Quintyn and Taylor (2002) underline the importance of accountability measures for the function of maintaining financial stability. These authors argue that bank regulators and supervisors need a substantial degree of regulatory and supervisory independence (rsi) – both from the government and the industry – in order to fulfil their mandate and contribute to the achievement and preservation of financial stability. Empirical work suggests that regulatory independence – accompanied by solid accountability – in general leads to better results in terms of effective regulation, market behaviour and competition than when leaving the regulatory and supervisory process to the political arena. Quintyn and Taylor (2002) also recognise that the key to effective regulation and supervision is not absolute independence; adequate accountability arrangements need to complement independence. Unbalanced independence can otherwise lead to industry capture or self-interest; the creation of new institutional rigidities; over-regulation, leading to additional cost for the industry; a slowdown in structural adjustment in the sector; and a lack of communication with other layers of the government. Quintyn and Taylor (2002, p. 14) define regulatory independence as 'the ability of the agency to have an appropriate degree of autonomy in setting rules and regulations for the sector under its supervision, within the confines of the law.' As for supervisory independence, the supervisory function is divided into four areas: licensing, supervision, sanctioning and crisis management (Quintyn and Taylor, 2002).

The first question on accountability in our survey is whether the CBs are accountable with respect to the financial stability function. Although most CBs argue that they are accountable, this often just deals with monetary policy, and the CBs are not specifically accountable with respect to its financial stability function. This lack of accountability can result from the fact that in most cases the financial stability function has not been explicitly stated as one of the main tasks of the CB (see table 9). As one CB indicated 'since maintaining financial stability is only indirectly set as one of the central bank's tasks, it implies only moral accountability in this respect.'

An exception is the Bank of England, which has three core purposes, of which one is 'maintaining the stability of the financial system, both domestic and abroad.' In the annual report, the Bank explicitly reviews the performance of its financial stability function against these objectives and the strategy. Generally, the answers to this question show that there is a lack of democratic accountability regarding the financial stability function of CBs.

Furthermore, a number of CBs indicate that, because of their independence from government and the industry, they are not accountable to another party. For example, section 12 of the Bundesbank Act (Germany) stipulates: 'In exercising the powers conferred on it by this Act, the Bundesbank is independent of instructions from the Federal Cabinet (Government). As far as is possible without prejudice to its tasks as part of the ESCB, it shall support the general economic policy of the Federal Government.' These legal requirements imply that there is no specific or concrete accountability with respect to the Bundesbank's financial stability function to the government.

Other CBs indicate they have some sort of Board of Auditors (or Supervisory Board) that oversees the Management of the Bank. For example, according to the Constitution of Finland, Suomen Pankki operates under the supervision of the Parliament. For the purpose of supervising the operations of Suomen Pankki, the Parliament elects the members of the Parliamentary Supervisory Council (PSC). In association with its general task of supervising the operations of Suomen Pankki, the PSC supervises the financial stability function. Suomen Pankki reports on the financial stability function to the PSC on an ad hoc basis to the Council. In turn, the PSC is required to report in its annual report to the Parliament on Suomen Pankki's activities including the financial stability function. In the Netherlands a Supervisory Board supervises the management of the Bank's affairs and adopts the annual accounts. One member of the Supervisory Board is appointed by the Government. This member is also a member of the Bank Council, an advisory body of the Bank. The President of the Bank reports to the Bank Council on the general economic and financial situation and discusses the policy conducted by the Bank, of course within the boundaries set by the EC Treaty.[14]

Table 9 Accountability with respect to the financial stability function

Number of CBs that are generally accountable to their shareholders, the government and the public (but generally there are no specific requirements with respect to the financial stability function)	Number of CBs that argue that (because of their independence) they are not accountable with respect to the financial stability function
23	5

The same 23 CBs that indicate they are accountable argue that they need to report to the accountee through the annual report. However, because the financial stability objective has not been stated explicitly in law, there are generally no specific reporting requirements with respect to the financial stability function (an exception is the Bank of England).

The same applies to the question of whether or not the CB has to appear before an accountee (for example the Minister of Finance or Parliament); see table 10. Although most CBs indicate that they appear before their accountee at least once every year, in most cases there is no specific reference to financial stability. The governor of the CB appears before parliament to present the annual report, but usually these hearings focus on monetary policy topics rather than on the financial stability function. The Spanish CB seems to be an exception: the Governor of the Banco de España informs Parliament twice a year about issues related to the supervision of credit institutions. However, prudential supervision (of banks) is only one of the instruments available to try to insure the stability of the financial system as a whole.

A number of CBs point out that the Governor may be required to testify before relevant parliamentary committees on an ad hoc basis. For example, under Norwegian constitutional custom the Minister is the responsible official to Parliament, not the heads of public bodies under a minister's domain. In June 2001, however, Parliament established, as a permanent procedure, public hearings for inquiry as well as for general purposes. If Parliament would decide to scrutiny any actions by the central bank, the Parliament's Standing Committee on Finance and Economic Affairs could ask the Governor of the CB to appear before the committee.

Because generally there are no proper accountability measures for the financial stability function, most CBs indicate that there are no consequences attached to the performance of the CB in executing this function. To cite one CB 'there is no formal, separate from monetary policy issues, evaluation of financial stability' or 'there is no explicit performance appraisal system linked to specific consequences.' Nevertheless, some CBs indicate that there is some sort of (indirect) reaction to the performance of the CB regarding the financial stability function. One central bank

Table 10 Does the CB have to appear before the accountee?

Number of CBs that have to appear before an accountee	No requirements regarding the financial stability function
21	5

Note: The central banks of Canada and Slovakia not been included in this table, since the appropriate information was not available.

replied, for example, that 'Adverse evaluations could lead to proposals for changes in legislation.' Another one stated that 'Public exposure of any inadequacies in performance should lead to sufficient pressure for change.' Likewise: 'Public confidence in the Bank might be undermined if the public is not satisfied with the Bank's performance.' One CB put it like this: 'Formally there are no consequences, but the Parliament can take any measure deemed necessary depending on the results of the evaluation of the performance.'

Even though most CBs indicate that the accountability process has been formulated in law or in some other form, this legislative demand for accountability refers generally to monetary policy, and there is no direct reference to the financial stability function. Again, this can be explained by the fact that in most cases the responsibility for overall financial stability has not been stated explicitly in law or in some other document.

8 **Conclusion**

Although maintaining financial stability is one of the main functions of a CB, our survey has shown that there is a considerable heterogeneity in the way CBs execute this function. One of the main reasons for this heterogeneity is the fact that there are substantial differences in the way in which the role of the CB is set out in law or in some other form (for example, a MoU). Furthermore, the formalisation of the co-operation process, which explains how the CB, the supervisory authority and the MoF will work together to maintain financial stability, varies considerably between different countries.

First of all, this paper shows that, both in theory and in practice, there seems to be no unambiguous definition of financial stability and/or systemic risk. Since the issue of the stability of financial markets can be examined from many different perspectives, delivering a strict definition of financial stability has proven to be difficult.

According to the literature on accountability – which focuses primarily on the accountability of central banks in their role as monetary policy-makers – a CB should have clearly defined objectives that describe its basic functions. The less a CB is bound to specific objectives, the more difficult it becomes to evaluate the bank's performance, since a suitable yardstick is missing. Although maintaining financial stability is generally seen as one of the main functions of a CB, the survey shows that most CBs lack a clear legal basis that describes their powers and functions. Although many CBs have an explicit reference to financial stability stated in their Banking Act or in some other document (for example the requirements of the European Central Bank), in most of these cases this refers to promoting or contributing to the stability of the financial system, which does not correspond to the demand of a clear legal basis. Concepts like 'promoting' or 'contributing to' financial stability are rather vague. Does this mean that the CB is responsible for the overall stability of the financial system, or does this refer to the CB contributing to financial stability by, for example, ensuring safe and efficient payment and settlement systems? In other cases the mission to promote smooth operation of payment systems is interpreted as a mandate to maintain financial stability. However, the responsibility for the overall stability of the financial system cannot be derived from the bank's mission to promote a safe and efficient payment system, because this is just one of many tasks that relates to the overall financial stability function.

By publishing an extensive Financial Stability Review (frs), CBs can enhance the transparency of its financial stability function and strengthen the co-operation on financial stability issues between the various relevant authorities. Furthermore, the review can be used as an instrument to contribute to the overall stability of the financial system. Still, most CBs do not publish a standard (stand alone) periodic review of financial stability. Generally the information on the stability of the financial system is a part of a broader publication, for example of the CB's Bulletin or the Annual Report. A major disadvantage of this approach is that the information on financial stability is concealed amidst all other CB information. Moreover, these publications are less extensive and the approach less structured.

Crisis management involves the CB, the supervisory authority and the MoF. A key point for safeguarding financial stability effectively is the cooperation and exchange of information between the various institutions involved in financial stability functions on different stages and levels. Therefore all parties involved should keep each other (fully) informed on the relevant issues concerning financial stability. However, the results of the survey show that there are substantial differences in information-sharing arrangements. Overall, the results indicate that arrangements between CBs and the supervisory authorities have been formalised to a larger extent than is the case for the interchange of information between the CB and the MoF. Only a relatively small group of countries have established some sort of formal platform to provide for the exchange of information between the institutions jointly responsible for financial stability.

As for the financial stability instruments, a distinction can be made between preventative and reactive instruments. Formalisation of these instruments especially applies to preventative instruments, with the exception of moral suasion, which according to several CBs is an important, but often-overlooked, preventative instrument. However, despite the fact that informal pressure through dialogue and public commentary can influence market players, it is difficult to assess the impact of such comments. For reactive instruments the formalisation seems to be less extensive. This could be explained by the fact that experience suggests that no two crises are exactly alike and opinions differ as to what particular approach is 'best' for resolving them (oecd, 2002). Therefore, to obtain a certain degree of flexibility in achieving the objective of financial stability, the instruments have not been laid down in law explicitly. Moreover, when an approach is too clearly formalised, it could also give rise to moral hazard.

Because most CBs lack a clear legal basis that describes their powers and functions, it is sometimes unclear which authority is authorised to take decisions on the use of the financial stability instruments. Generally, decisions about managing preventive instruments would in the first place be made by the authority with the responsibility on the basis of relevant legislation, which in most, if not all, cases would be either the CB or the supervisory authority. The results of the survey show that the decision-making process for reactive instruments (instruments for crisis management) is generally less clear. The CBs indicate that it is the government that will take decisions on the use of public money. But what about decisions on liquidity support interventions? While most CBs argue that they take decisions on lender of last resort operations, it seems that in large-scale, systemic cases the government (because of potential budgetary effects) will ultimately decide how the crisis is handled and who bears the losses (Goodhart, 1999). It has to be noticed that because of moral hazard problems the authorities will be extremely reserved regarding their external communication on the potential use of this instrument; authorities strive for a certain extent of constructive ambiguity.

The results of the survey show that, by and large, there are hardly any accountability measures regarding the objective of financial stability. Accountability mostly refers to monetary policy, and there is no direct reference to financial stability.

Ultimately the need for accountability depends on the freedom or discretion that is granted to the CB with regard to its financial stability function. If considerable freedom is granted to the CB, would it then be possible to create a framework that resembles the accountability process of monetary policy? There seem to be some differences. First, to be accountable for the way the CB exercises its powers it needs to have a clear legal basis, describing its powers and functions. Moreover, the CB needs to have clear objectives that describe its basic purposes. However, this paper shows that delivering a strict definition of financial stability has proven to be difficult. Even if there is an explicit definition of financial stability, it is generally less easy to quantify than, for instance, an objective of price stability. As a result, the CB is not bound to (very) specific financial stability objectives and therefore it becomes more difficult to evaluate its performance. Second, because of the multilateral nature of financial stability (with different aspects like prudential supervision, monetary policy, financial markets and payment- and settlement systems) the objective of maintaining financial stability is more difficult to measure than is the case for monetary stability. Third, the instruments used by the CB predominantly have an indirect (rather than direct) influence on financial stability. The impact of these instruments is difficult to measure and makes the accountability process even more difficult. Moreover, instruments can have different purposes (for example, on the one hand an instrument can have micro-prudential or monetary purposes, and on the other hand it can have financial stability purposes). Fourth, an important aspect of the supervision of financial institutions is confidentiality of information about individual institutions. The fact that confidentiality is an inherent aspect of financial sector supervision makes straightforward accountability and transparency arrangements difficult.

Appendix 1

Questionnaire

Objective:

1. Do you have an official definition of financial stability? If so, what definition?
2. Is the objective of maintaining financial stability documented in law or in some other form?
3. How do you perceive the difference between prudential supervision and maintaining financial stability?

Assessment:

4. Do you make a regular assessment of (changes in) financial stability? If so, how frequent?
5. Is the outcome of the assessment published? If so, what information is published, and how frequent? If there is no report published, please explain why.
6. What arrangements exist between the central bank, the supervisor and the ministry of finance about the exchange of information on developments in financial stability (for instance: informal discussions or formal consultations)? How is the exchange of information arranged for (in law, or in a memorandum of understanding, or otherwise)?

Instruments:

7. Which instruments (both to prevent and to address financial stability) can be used in case of a possible misalignment between the assessment and the objective of financial stability?
8. Have these instruments been formulated in law or in some other form? If they have not been formulated in law, why not?

Decision-making process:

9. How is the task of financial stability arranged for within the central bank? Is one department responsible, or are there various departments involved, and if so, how are responsibilities allocated across these departments?
10. In what way do the central bank, the supervisor and the ministry of finance take decisions about managing the available instruments (see answer to question 7)? Has this process been formulated in law or in some other form?

11. Which institution co-ordinates the decision-making process?
12. Who takes the final decision about actions that involve the use of public money?

Accountability with respect to the financial stability function

13. Are you accountable to another party (the accountee)? If so, to whom?
14. Do you have to report to the accountee? If so, on a periodic or ad hoc basis?
15. Do you have to appear before the accountee (for example before the minister or parliament)? If so, on a periodic or ad hoc basis?
16. Are there any consequences attached to a possible evaluation of the performance of the accountable institution? If so, what kind of consequences?
17. Has the accountability process been formulated in law or in some other form?

Appendix 2

Participating Central Banks

OECD Countries	**Did the CB participate in the survey?**
Australia	Yes
Austria	Yes
Belgium	Yes
Canada	Yes
Czech Republic	Yes
Denmark	Yes
Finland	Yes
France	Yes
Germany	Yes
Greece [15]	Yes
Hungary	Yes
Iceland	No
Ireland	Yes
Italy	Yes
Japan	Yes
Korea	No
Luxembourg	Yes
Mexico	Yes
Netherlands	Yes
New Zealand	Yes
Norway	Yes
Poland	Yes
Portugal	Yes
Slovak Republic	Yes
Spain	Yes
Sweden	Yes
Switzerland	Yes
Turkey	Yes
United Kingdom	Yes
United States	Yes

Appendix 3

Legal basis for the financial stability function

Country	Legal basis for the financial stability function
Australia	The objective of maintaining financial stability is not explicitly spelled out in the Reserve Bank Act, but rather implicit in the rba's general responsibilities. The Act states that the rba Board should use its monetary and banking policy so as to best continue to (i) the stability of the currency; (ii) the maintenance of full employment; and (iii) the economic prosperity and welfare of the people of Australia. However, the responsibility was explicitly acknowledged by the Government in its response to the recommendations of the 1997 Financial System Inquiry ('Wallis Inquiry'), when the Treasurer said that the role of the rba would be '… focused on the objectives of monetary policy, overall financial system stability and the regulation of the payments system' (Ministerial Statement by the Treasurer, 2 September 1997).
Austria	The objective of maintaining financial stability is laid down in Art. 79 (1) of the Austrian Banking Act 1993 (as amended in 2001) according to which '… observations and findings of a fundamental nature or of particular importance in the area of banking…' should be exchanged between the OeNB, the Financial Market Authority (fma) and the Federal Ministry of Finance. Moreover, Art. 13 (1) of the Financial Market Authority Law makes an explicit reference to financial stability: 'A Financial Market Committee shall be established at the Federal Ministry of Finance in order to promote the cooperation and exchange of opinions as a platform by the institutions jointly responsible for the stability of the financial markets.'
Belgium	The amended National Bank of Belgium Act 1988, art. 8 states that 'the Bank contributes to the stability of the financial system'. Besides joint Board membership (2 directors of the nbb are members of the Board of the bfc (the banking and securities supervisor) and another director is member of the Board of the

Country	Legal basis for the financial stability function
	oca (the insurance supervisor), the law establishes a Committee for Financial Stability, consisting of the board members of the nbb, the oca and the bfc.
Canada	The Payment Clearing and Settlement Act (pcsa) creates a statutory responsibility for the Bank of Canada to oversee clearing and settlement systems that could be operated in such a manner as to pose systemic risk. According to section 18 (g.1) of the Bank of Canada Act, the Bank may purchase or sell a wider than normally allowable range of securities for the 'purpose of promoting the stability of the Canadian financial system'.
Czech Republic	The objective of maintaining financial stability is indirectly included in the Czech Act on Banks: 'A bank shall carry on its activities with prudence and in particular pursue its business in a manner which is not detrimental to the interests of its depositors from the viewpoint of the recoverability of their deposits and which does not endanger the bank's safety and soundness.'
Denmark	In the National Bank of Denmark Act is stated that the National Bank in Copenhagen 'shall as the Central Bank … have the object in conformity with this Act and the regulations given under this Act to maintain a safe and secure currency system in this country, and to facilitate and regulate the traffic in money and the extension of credit'.
Germany	Section 3 of the 'Gesetz über die Bundesanstalt für Finanzdienstleistungsaufsicht' (Findag) specifies that besides the Bundesanstalt (supervisory agency) a Forum of Financial Market Supervision will be set up, in which the Bundesanstalt and the Deutsche Bundesbank are represented, while the Ministry of Finance can take part in its meetings. One objective of this forum is to deal with cross-sectoral supervisory issues, which are relevant for systemic stability. Apart from this the German Banking Act stipulates that the supervisory authority 'shall counteract undesirable developments in the banking and financial sector which … involve serious disadvantages for the national economy'.
Greece	According to the Statute of the Bank of Greece the objectives of prudential supervision shall be to enhance the stability and effectiveness of the credit system and the financial sector in general.
Finland	The Act on the Bank of Finland, which entered into effect on 1 January 1999, stipulates that Suomen Pankki is to participate in maintaining the reliability and efficiency of the payment system

Country	Legal basis for the financial stability function
	and overall financial system and to participate in their development.
France	According to the Banking Act of 1984, the Governor of the Banque de France chairs the Commission Bancaire, which is responsible for the supervision of credit institutions and investment firms.
Hungary	The Central Banking Act states: 'The nbb shall promote the stability of the financial system and shall contribute to the development and smooth conduct of policies related to the prudential supervision of the financial system' (Ast lviii of 2001 on the National Bank of Hungary; Chapter I, Section 4 (7))
Ireland	The Central Bank Act (1989) sets out as one of the objectives to contribute to the stability of the financial system.
Italy	The legal bases of this task are the 1993 Banking Law (Legislative Decree no. 385, article 5) and the Consolidated Law on Financial Intermediation (c1fi- Legislative Decree no. 58 of 1998, article 5). According to these laws, Banca d'Italia is responsible for the prudential supervision of banks, investment firms, ucits, as well as the other financial intermediaries under article 107 of the 1993 Banking Law. The law indicates as institutional purposes in the exercise of the Banca d'Italia supervisory powers the sound and prudent management of the institutions subject to supervision, the overall stability, efficiency and competitiveness of the financial system and compliance with the provisions concerning credit.
Japan	Article 1 of the Bank of Japan Law states: '1. The objective of the Bank of Japan, as the central bank of Japan, is to issue banknotes and carry out currency and monetary control. 2. In addition to what is prescribed by the preceding Paragraph, the Bank's objective is to ensure smooth settlement of funds among banks and other financial institutions, thereby contributing to the maintenance of an orderly financial system.'
Luxembourg	The Banque Central du Luxembourg is in charge of the oversight of payment and securities settlement systems, as stipulated in the law of 12 January 2001 transposing the Directive 98/26/ec on settlement finality in payment and securities settlement systems.
Mexico	Article 2 of the Mexican Banking Act states that 'The Banco de Mexico's purpose shall be to provide the country's economy with domestic currency. In pursuing this purpose, its primary objective shall be to seek the stability of the purchasing power of said currency. The bank shall also have the purpose of promot-

Country	Legal basis for the financial stability function
	ing the sound development of the financial system fostering the proper functioning of payment systems'.
Netherlands	Section 3, paragraph2, of the Bank Act 1998 states that 'In implementation of the (eu-) Treaty, the Bank shall, within the framework of the European System of Central Banks, contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system'. This provision of the Bank Act 1998 tallies with the eu-Treaty and the Statute of the escb, which in similar terms set out the task of the escb relating to the stability of the financial system. Furthermore, the Bank Act 1998 (Section 3, paragraph 1, and section 4) provides a number of tasks of the Bank, which are directly or indirectly related to the maintenance of the stability of the financial system.
New Zealand	Section 10 of the Reserve Bank of New Zealand Act (1998) requires the Bank to have regard, in the formulation of monetary policy, to the soundness of the financial system. In addition, Section 68 maintains that the powers conferred by the Reserve Bank Act shall be exercised for the purpose of promoting the maintenance of a sound and efficient financial system and avoiding significant damage to the financial system that could result from the failure of a registered bank.
Norway	Section 1 of the Norges Bank Act states that the Bank shall '…promote efficient payment systems domestically as well as vis-à-vis other countries, and monitor developments in the money, credit and foreign exchange markets'. Furthermore, Section 3 of the Act states that the Bank '… shall inform the ministry when, in the opinion of the Bank, there is a need for measures to be taken by others than the Bank in the field of monetary, credit and foreign exchange policy. The Bank shall inform the public about the monetary, credit and foreign exchange situation'. The Act relating to Payment Systems assigns Norges Bank responsibility for authorising and supervising banks' clearing and settlement systems.
Poland	The Act of the National Bank of Poland states: 'The responsibility of the nbp shall also include: … establishing the necessary condition for the development of the banking system' (Article 3.2).
Portugal	Article 12 of the Organic Law- Chapter 'Central Bank Functions'- lists, among other things, the following function: 'Provide for

Country	Legal basis for the financial stability function
	the stability of the domestic financial system, performing for the purpose the function of lender of last resort'.
Slovakia	Article 2 of the nbs Act states that the primary objective of the nbs is maintaining price stability. To this end, the nbs shall: a) determine monetary policy, b) issue banknotes and coins, c) control, coordinate and ensure the circulation of money, payment system and settlement between banks, d) supervise the safe functioning of the banking system and conduct of banking activities.
Spain	The law that granted independence to the Banco de España (Law on Autonomy of the Banco de España 13/1994) includes as one of its objectives to promote financial stability.
Sweden	The Riksbank Act states that it is the mission of the Bank to promote a safe and efficient payment system.
Switzerland	Not documented in law, but according to its mandate the Swiss National Bank (snb) has 1) to pursue monetary policy aimed at financial stability and 2) to improve the general set-up of financial institutions and regulation.
Turkey	According to the 4th Article of the new cbrt Law, the primary objective of the cbrt is to achieve and maintain price stability. It is also stated in the same article that cbrt takes precautions for enhancing the stability in the financial system and regulatory measures with respect to money and foreign exchange markets and monitor the financial markets as its fundamental duties.
United Kingdom	The Bank was formally charged with the responsibility for the 'overall stability of the financial system as a whole' by the Chancellor in a letter to the Governor on 20 May 1997 and subsequently in the Memorandum of Understanding between hm Treasury, the Bank of England and the fsa, published on 27 October 1997
United States	-

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Notes

1 Since the role of the European Central Bank (ecb) in financial stability matters is limited, the survey was sent to the National Central Banks within the European System of Central Banks (escb).
2 Definition obtained from the web site of the Federal Reserve Bank of Cleveland (www.clev.frb.org).
3 To stress that this is a citation, the text is in italics.
4 The MoU between hm Treasury, the Bank of England and the fsa can be found on the website of the Bank of England: www.bankofengland.co.uk.
5 Indeed, one CB argued that until recently, the financial stability tasks were spread within the bank and no department considered it as one of its tasks. 'It resulted in the process not being well coordinated. Financial stability was limited only to the regulation and supervision activity. In June 2002 a new department was established within the nbp (Financial System Department) and it is expected to focus on the central bank's role in safeguarding financial stability and to improve the coordination of actions in this field.'
6 Sometimes instruments can be classified under both headings. This holds especially for deposit insurance schemes.
7 In a general sense, it may even be argued that a sound monetary policy aimed at price stability can be regarded as a preventive instrument. After all, monetary stability is a perquisite for financial stability.
8 Definition obtained from www.anz.com.
9 The information has been obtained from the website of the International Monetary Fund: www.imf.org.
10 Again, one could add monetary policy to this list. The interest rate cuts during the ltcm crisis and after 11 September seem to have been motivated by financial stability considerations.
11 As the National Bank of Poland pointed out, in some cases there can be a need for quick support of the deposit guarantee scheme by the central bank. If the ailing bank is a large institution, the size of funds in disposal of the deposit guarantee scheme may not be sufficient for covering all deposit repayments. Such a bridge financing is present in the Polish Act on the Banking Deposit Guarantee Fund.
12 Bank Restructuring Agency: a lead agency, often created specifically to design and coordinate the implementation of the comprehensive strategy for bank restructuring and recapitalisation. This agency coordinates with other agencies and is accountable to the government for the restructuring process (Enoch, Garcia, and Sundararajan, 2001).
13 Hoggarth and Saporta (2001) compute both fiscal and quasi-fiscal cost. The latter involves the calculation of cumulative deviations from gdp trends.
14 The information has been obtained from the website of De Nederlandsche Bank: www.dnb.nl.
15 The Bank of Greece commented on a few basic questions, and did not answer the full questionnaire.