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Financial Services

Financial Stability:

What It Is and Why It Matters

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In this issue...

What is financial stability? What is the role of the central bank and other government agencies in bringing it about? What are the implications for the private sector?

The Study in Brief

Financial stability has justifiably attracted increased attention from central bankers, government policymakers and, indeed, the general public. And not surprisingly: the last few decades have seen a number of serious episodes of international financial instability. While financial crises are not new, in recent years the combination of serious macroeconomic shocks and financial crises has resulted in large losses in several countries, including significant spending by governments to rescue failing financial institutions, focusing increased attention on the costs of financial instability.

Yet a definition of financial stability remains elusive and questions concerning the appropriate roles for central banks, other public sector agencies and the private sector in promoting or protecting financial stability remain largely unresolved.

This *Commentary* addresses these issues. It provides a working definition of financial stability as the following: a stable financial system is robust in the face of a reasonably wide range of adverse circumstances; that is, it can efficiently provide its usual range of financial services when under significant stress. Macro-financial instability, on the other hand, occurs when interdependencies or spillovers produce knock-on effects, or financial sector and real sector interactions that create or reveal financial system fragility and lack of robustness to shocks. The main concerns involve the effects of a real or financial shock to the economy, transmitted by financial institutions or markets, and the macroeconomic outcomes.

Many central banks have added a concern with financial stability to their primary focus on monetary policy. They stand ready to advance funds to banks facing liquidity issues, and many are also active in overseeing critical clearing and settlement systems and publishing frank assessments of their countries' financial stability. These financial stability reports are aimed at informing a broader public, particularly the private sector, which in the past has been insufficiently involved in issues that did not directly impact the bottom line.

There are dangers in central banks becoming too interventionist, including the possibility of creating conditions supportive of excessively risky behaviour in private markets. One of the central bank's objectives in publishing financial stability reports is to provide information to the private sector for possible use in taking action to mitigate risks, perhaps forestalling the need for further central bank action.

Central bank financial stability reports offer a starting point when examining the risks and exposures that the private and public sectors face, particularly in the macro-financial area.

The combination of increased attention among academics and practitioners, along with the improved techniques and analysis that will come from further research, may lessen the likelihood of major episodes of financial instability occurring in the future, and reduce the negative consequences of any that do occur.

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Financial stability in general has been a concern of public sector entities for many years.¹ But what is meant by macro-financial stability? Why is it important? Why is the term being used much more frequently? Can we measure it or model it for predictive purposes? What is the role of the central bank and other government agencies in bringing about financial stability? What are the implications for the private sector? What are the links to monetary stability?

As central banks continue to monitor and respond to tightened credit markets stemming from problems in the asset-backed commercial paper market, these questions are timely. Set against the financial crises of the last few decades and the challenges posed by such factors as the increased volume and complexity of financial transactions, they take on broader significance.

This paper examines these and other questions with a view to clarifying current challenges to financial stability and the roles that central banks, other public sector agencies and private sector entities can appropriately play in pursuing it. In the next sections of the *Commentary*, we look at the definition of macro-financial stability, then discuss why we should care about it. We examine the factors behind the increased attention being paid to macro-financial stability and focus on issues related to its measurement and modelling. Then we look at the role of central banks and other public agencies as they try to achieve and maintain financial stability, and discuss in more detail the activities of central banks in promoting macro-financial stability, including the publication of financial stability reports that address the potential issues affecting macro-financial stability. We discuss how the analysis of macro-financial stability could be used by the private sector; in particular, in what way financial stability reports can help the decision making of those working in financial institutions and financial markets. Finally, we focus on the possible links between monetary stability and financial stability, and offer some concluding remarks.²

What Is Macro-Financial Stability?

The issue of how financial stability should be defined has been the subject of debate for some years³ and remains an open question. Unlike the definition of monetary stability, on which there seems to be broad agreement, a widely accepted definition of financial stability seems to be some way off. British

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- 1 This is not to say that the private sector is unconcerned about financial stability issues. But, as will be seen, many of the issues related to macro-financial stability derive from externalities and interdependencies and, for the most part, the public sector is better placed than the private sector to identify and to address these issues. The implications of this are discussed later in the paper.
- 2 See Laidler (2006) for a discussion of some of the issues related to financial stability in the context of the possible reform of financial services in Canada.
- 3 See Allen and Wood (2006) or Schinasi (2006).

economist and former Bank of England Monetary Policy Committee member Charles Goodhart (2004) wrote that, “There is currently no good way to define . . . financial stability.” Goodhart further noted that when a group of experts was asked to define the term, “the most persuasive responses were that it was just the absence of financial instability.” The financial stability reports (FSRs) of some central banks offer a definition of the term,⁴ while others do not give an explicit definition but describe the circumstances that can arise and cause concern.⁵

Andrew Crockett (2000), a former executive director of the Bank of England and former head of the Bank for International Settlements (BIS), argues that financial stability has two dimensions — micro-prudential and macro-prudential. He suggests that the macro-prudential objective is to “limit the costs to the economy from financial distress, including those that arise from any moral hazard induced by policies pursued [by governments or their agents].” This could be thought of as limiting systemic risk and would involve minimizing the likelihood, and the associated costs, of the failure of significant parts of the financial system.

The micro-prudential objective involves “the limiting of the likelihood of failure of individual institutions” (or limiting idiosyncratic risk). While one can argue that crises are the most readily identifiable aspect of financial instability, focusing on crises does not allow for different degrees of financial instability⁶ or for changes in the source or nature of financial instability over time and in different countries.

So what *is* a good working definition of macro-financial stability? In spite of the absence of a generally accepted definition, there are some qualitative aspects that are common to most discussions and definitions. A stable financial system is one that is robust in the face of a reasonably wide range of adverse circumstances; that is, one that can efficiently provide its usual range of financial services when operating under significant stress.

Macro-financial instability typically involves such ideas as interrelationships or interdependencies, spillovers, systemic risk, domino effects, knock-on effects, system-wide consequences, financial sector and real sector interactions, financial system fragility or lack of robustness to shocks. Put differently, the main concerns involve the effects of a real or financial shock to the economy on a wide range of financial institutions and/or markets, and on the resulting macroeconomic outcomes. In the case of a real shock, the focus would be on its deleterious consequences for financial institutions and markets and the resulting amplification of the effects of the shock on the economy. In the case of a financial shock, such as the failure of a financial entity that had been a counterparty in many financial contracts, the concern would be that the unravelling of such contracts might have liquidity and credit implications for other financial institutions and possibly force some of them into default. Such outcomes could seriously affect the real economy.

4 For example, the view of the Central Bank of Norway is that, “Financial stability implies that the financial system is robust to disturbances in the economy and can channel capital, execute payments and redistribute risk in a satisfactory manner.” (Central Bank of Norway, Financial Stability Report, June 2007, page 2.)

5 See Čihák (2006), Table 3, for examples of definitions of financial stability in FSRs.

6 The concept of financial stress, which provides a notion of the relative degree of financial instability, may be more helpful in this context.

Central banks often have taken a rather narrow and more practical approach to promoting financial stability by focusing on systemic risk. Systemic risk reflects the interdependencies among participants in the financial system, from the classic contagion effects arising from the failure of a single bank that then spread to other banks (often through clearing and settlement systems that are poorly risk-proofed) to cases where a significant number of financial system participants are dependent on a single piece of financial infrastructure or where they have a common exposure to a single risk factor.

For central banks, systemic risk is generally seen as a form of market failure. Each financial system participant is primarily focused on the set of risks that affect its own risk profile and that are within its control. Each participant will tend to under invest in the mitigation of systemic risk, or even free-ride on the efforts of others. Thus, dealing with systemic risk is in society's best interest, and since the private sector does not have the appropriate incentives to address it appropriately, the public sector clearly has a role to play. One of the principal roles of central banks in this area has been to act as lender of last resort to avoid the unnecessary winding up of solvent, but illiquid, banks. This critical function can prevent financial panics arising from runs on banks.

More recently, many central banks have been involved in the operation of, or at least the oversight of, clearing and settlement arrangements in payments and, sometimes, securities and foreign exchange. In this context, central banks have focused on the introduction of appropriate risk-proofing arrangements in those clearing and settlement systems that handle values large enough to generate systemic risk.

Finally, central banks have also acted as advisers to governments with respect to the enactment of laws governing the three key elements of the financial sector — financial institutions, financial markets, and clearing and settlement systems — bringing a system-wide perspective to this activity.

Why Does Financial Stability Matter?

Why do we care about maintaining financial stability? Clearly, there are compelling reasons. Significant financial instability can result in lost output. It can lead to a misallocation of resources across different uses and across time. The financial system can be a source of instability or it can transmit (and possibly amplify) problems from one part of the financial system to other parts of the system, or to the economy more generally. Often the combination of an economic shock and a weak financial system can give rise to much worse outcomes than would be expected from an assessment of each of these areas separately.

Furthermore, macro-financial instability can seriously impair the lending of funds from ultimate savers to ultimate borrowers, resulting in a sharp reduction in the ability of the financial system to allocate credit. "The resulting impact on economic activity can be severe and long lasting and undermine the effectiveness of traditional macroeconomic policy tools such as monetary and fiscal levers."⁷

⁷ Crockett (2000).

The last few decades have been particularly notable because of the frequency and the size of episodes of financial instability. Not only has the magnitude of crises apparently increased, but so has the speed with which they develop. Advances in technology have facilitated the real-time marking-to-market of positions, leading to a shortening of the time frame for decision making in the management of portfolio positions. Certain trading strategies use real-time data and often assume adequate market liquidity in all circumstances. When market liquidity becomes significantly impaired, these strategies can generate self-fulfilling outcomes as asset positions are continuously adjusted to limit losses in response to price movements that were induced by earlier changes in asset positions. The result: significantly greater volatility in prices than would be warranted by the fundamentals.

Related to this point is the fact that, in the past, financial stress has usually involved financial institutions, particularly banks, to a very significant degree. With a much wider range of entities currently participating in financial systems, financial stress can now involve more, and more varied entities, potentially making crisis management more difficult than in the past.⁸ Furthermore, because there is greater integration among these entities, both domestically and internationally, it is possible that a financial system will transmit and amplify shocks more quickly and more broadly than used to be the case, rather than act as a shock absorber.⁹

It is important to emphasize that the concern about macro-financial stability does not refer to usual or even unusual movements of asset prices as markets adjust to shocks, and prices move to a new equilibrium. Indeed, financial stability is not the absence of volatility or of sharp adjustments in financial prices and quantities, which can be an important part of price discovery or quantity adjustment in a sound financial system. Rather, the concern about macro-financial instability refers to developments that have the potential to have major impacts on the economy through the destruction or serious weakening of the whole or large parts of the financial sector.

In this context, it is important that central banks and other public agencies responsible for macro-financial stability should avoid taking full responsibility for all problems in particular segments of financial markets or with particular participants. To be excessively interventionist in such circumstances risks delaying or distorting the necessary market adjustments. Worse, it risks committing public funds to mitigate losses in private markets in cases where such losses lack the potential to have a severe deleterious impact on the financial system or the economy. Deciding in what circumstances to intervene and in what circumstances not to intervene is a difficult determination. But it is an important and necessary one if moral hazard concerns are to be avoided and if various markets in the financial system are to efficiently price risk.

8 Consider, for example, the 1997 Southeast Asian crisis or Long-Term Capital Management (LTCM) difficulties.

9 This is not to deny the real benefits of increasingly integrated and innovative financial systems, which facilitate a much better diversification and management of risks across a greater range of domestic and international markets and institutions.

Recent difficulties in the asset-backed commercial paper market in Canada provide an example of the challenges faced by central banks that have macro-financial stability responsibilities. Among the tough decisions: whether to intervene and, if so, how in situations where the market for specific instruments is under stress. Central banks in their traditional role of lender of last resort can provide liquidity to the financial system or to individual deposit-taking institutions in order to address the potential for systemic risk as a result of sudden increases in demand for liquidity. This traditional role developed in financial systems in which banks played a significant role in intermediating credit between ultimate lenders and ultimate borrowers. Banks, in turn, were seen as the providers of liquidity to the rest of the economy.

Today, in a number of developed economies, including Canada's, financial markets are playing a greater role by directly intermediating credit, and new instruments such as asset-backed commercial paper have been developed. As well, new types of investors have appeared. Some commentators have wondered whether central banks' lender-of-last-resort role should evolve by, for example, providing liquidity directly to entities other than banks such as hedge funds. Similarly, some have suggested that central banks should become market makers in various financial markets to maintain liquidity.

While it may appear appropriate on the surface for central banks to intervene in specific markets or with specific market participants, there are very serious moral hazards in this context. Central bank actions could result in markets functioning less effectively in their price-discovery role. As we have noted, while there is no agreed definition of financial stability, it is not the absence of volatility or of sharp adjustments in prices and quantities, as these can be an important part of an adjustment process associated with price discovery or quantity adjustment in a sound and stable system.

Our view is that central bank intervention in specific markets or with respect to financial system participants other than deposit-taking institutions would have costs that would likely exceed any expected benefits. The conventional approach of central banks in providing liquidity to the financial system as a whole so that markets can generally continue to function and so that the overnight rate can be maintained near its target seems to be the most effective role that central banks can play in such situations.¹⁰

Increased Attention to Macro-Financial Stability

While the term financial stability is a relatively recent one, the concept is, in fact, a long-standing one. If one thinks of crises as representing an extreme form of financial instability and measures to prevent crises or mitigate their costs as attempts to achieve financial stability, then it is easy to see from the long history of the literature on crises that the notion of financial stability is not new. Indeed,

¹⁰ While the Bank of Canada has the legal power to purchase securities issued by financial and non-financial entities, this power can only be exercised in the extremely rare circumstance when the Governor of the Bank believes that there is severe and unusual stress on a financial market or financial system and that the entire Canadian financial sector or large parts of it are at risk.

central bank lender-of-last-resort facilities, banking supervision and, in some countries, explicit deposit insurance schemes were all policies introduced by governments with a view to preventing crises or minimizing their costs. That some of these policies failed at times to reduce the frequency of crises or to reduce their associated costs, largely because of incentive incompatibilities and time-inconsistent objectives, does not take away from their legitimate intent.

What factors account for the broadening in perspective and increased attention by central banks and other government entities to financial stability? One important factor was the financial crises of the 1980s and 1990s in both industrialized and emerging economies. These occurred in spite of the introduction of some of the measures referred to above. Indeed, as noted above, the last few decades have been recognized internationally as among the most financially unstable in modern history.¹¹ While financial crises are not new, the combination in recent years of serious macroeconomic shocks and financial crises that resulted in large losses to the economy, including large expenditures by governments to rescue failing financial institutions,¹² has focused increased attention on the potential costs of financial instability. At the same time, intensifying efforts aimed at both crisis prevention and resolution has taken on new significance.

A second factor leading to increased central bank involvement in financial stability analysis and remedial actions was the significant improvement in monetary policy in developed countries during the 1980s and the 1990s. Over the period of the Great Inflation, the principal focus of central banks had been the challenge of high inflation. With inflation's decline and the development of an effective inflation targeting framework, central banks were able to focus more of their attention on other issues.

A third factor that began in the latter part of the 1990s involved a transfer of responsibilities for bank supervision from the central bank to a newly created authority in some countries, such as the United Kingdom and Australia, and the prospect of such a shift in other countries. This development raised the question of what role a central bank without supervisory responsibilities should play in the achievement of financial stability.¹³ These developments also raised the question of how various government agencies could coordinate their shared responsibilities for financial stability.

A fourth factor contributing to the increased concerns about macro-financial stability has been the explosive growth in the volume of financial transactions and the increased complexity of new financial instruments. In addition, savings are increasingly being channeled to lenders via markets rather than through banks and other financial institutions, and financial institutions are increasingly using markets to manage risks in their asset portfolios. This has resulted in new players

11 Aliber (2005).

12 Hoggarth, Reis and Saporta (2001) estimate that losses of output during banking crises amounted, on average, to 15 percent to 20 percent of annual GDP.

13 More recently, these supervisory agencies have recognized that while their mandates focus on the sound operation of individual financial institutions (most importantly banks), it is also necessary for them to have a broader perspective on financial system stability when applying policies designed to deal with micro-financial stability issues.

and arrangements in the financial sector, along with new potential challenges to macro-financial stability. In turn, this has led to new demands for data and analysis as market participants and government agencies try to assess various risks and the ways that they are being managed.

A fifth and final factor, which was important in Canada, was the completion in the latter part of the 1990s of design work on risk-proofing the clearing and settlement systems. This was a crucial element in reducing the systemic and other financial risks in the Canadian economy, but also raised the question of what the Bank of Canada should then be concerned about in the area of financial stability.

Measuring and Modelling Macro-Financial Stability

Leading Indicators of Financial Stress

Recent attempts have been made to measure the risks to financial stability by, for example, the creation of leading indicators of financial stress (Illing and Liu, 2003). This has included efforts to measure the degree of imbalance that exists in asset markets or on the balance sheets of major sectors of the economy (e.g., households, businesses and financial sector participants).¹⁴ The objective is to try to measure the degree of macro-financial instability in an economy or a financial system with a view to helping to predict when an episode of instability is likely to occur.

Unfortunately, this work has not been based on a sound theoretical model of financial stability, nor does it contain a clearly defined transmission mechanism through which shocks bring about financial instability. The work often includes variables that various researchers think should be included in financial stability indices, along with a rather arbitrary set of weights assigned to these variables. Thus, these measures often suffer from the inability to take account of structural changes and innovations, which may cause them to falsely suggest imminent periods of instability or to fail to flag such periods. This may be a particular problem for financial systems operating in low-inflation regimes, since this environment is a relatively recent development.

14 Balance-sheet imbalances can include major exposures to interest rate movements as a result of large mismatches in the term to maturity of assets and liabilities, or major exposures to exchange rate movements as a result of mismatches in the currency denomination of assets and liabilities. Economy-wide imbalances can include government deficits or current account deficits that appear to be unsustainable. Suspected asset market imbalances occur when the current supply of, or demand for, a particular asset far exceeds or falls short of what appears to be reasonable, and possibly results in prices that are well above or below any semblance of a sustainable longer-run price. An example would be a speculative bubble in house prices that leads to a volume of housing starts that is far in excess of the underlying demand for new houses. Another example would be a demand for risky assets that leads to risk premiums well below what appear to be reasonable given the degree of longer-term riskiness of the assets.

Stress Testing

Given that the development of leading indicator measures is proving to be very difficult, some researchers have tried to simulate the impact of stressful or extreme events on the financial system and the economy. Such stress testing is a prominent feature in the IMF's Financial Sector Assessment Program, which attempts to assess the robustness of a country's financial sector with respect to various types of shocks. However, there are no sound models to explain clearly how various stresses will be transmitted through the financial system and, in particular, how interdependencies will influence the test, and how the various participants will react to these stresses.¹⁵

Collection of Financial Stability Data

While making progress in the assessment of macro-financial stability requires the development of robust models, measures of financial stability also require accurate and timely data. Unfortunately, there are many gaps when it comes to financial stability data. Balance-sheet data from various sectors of the economy, particularly from households and businesses, are often incomplete and out of date. Similar shortcomings are present in the data on asset prices. With an increasing amount of financial intermediation in developed countries moving away from financial institutions to direct transactions in the financial markets, there is a much broader range of participants for which balance-sheet data, and possibly trading data, would be very useful.¹⁶ But the collection of these data is often costly and difficult to organize. Some central banks, including the Bank of Canada, are examining whether they can play a role in defining and collecting financial stability data. Still, without clear definitions of financial stability, deciding on data needs can be very difficult. And even if the required data could be identified, the resources needed to collect them would be difficult to obtain given other competing demands. The absence of good data is one of the reasons why some observers think that we may be 10 to 15 years away from the development of reliable modelling and metrics to analyze financial stability.

Finally, as Donald Kohn, the vice-chairman of the Federal Reserve Board of Governors, has recently noted, we may have to get used to having less data about certain aspects of the financial system that could affect macro-financial stability.

15 Goodhart and Tsocomos (2007) note in this regard: "The agreement on the appropriate macro-monetary policies is based on an underlying consensus on the basic theoretical framework. There is no such consensus and no such framework (and little enough basic theory) that relates to systemic stability." The European Central Bank in its December 2005 Financial Stability Review (page 131) notes bluntly, "Financial stability assessment as currently practised by central banks and international organizations probably compares with the way monetary policy assessment was practised by central banks three or four decades ago — before there was a widely accepted, rigorous framework."

16 There are limits to the usefulness of certain kinds of data, particularly for those parts of the financial system in which balance sheets are adjusted very frequently.

He argues that in a financial system with increasing amounts of market-intermediated finance, we will be required:

“to live with less control and less knowledge than we had when banks were dominant. Greater uncertainty about where the risks are lodged is the flip side of better dispersion of those risks, especially to less-regulated sectors, and of more resilience of the whole system. Gathering additional information about the risk profiles of currently less-regulated institutions is unlikely to yield insights that can be acted upon and may create a false sense of comfort among market participants, which could make the system substantially more risky.” (Kohn 2007.)

Macro-Financial Stability and the Responsibilities of Central Banks and Other Public Agencies

One of the distinguishing features of macro-financial stability is that it is a shared responsibility among a number of public sector agencies. Governments have the responsibility to create the rules of the game. This involves creating the general legal environment in which various financial participants and supervisory bodies operate, including such areas as property rights, insolvency regimes, contract law, and the specific powers and responsibilities of the different kinds of financial entities such as banks, insurance companies and pension funds.

The supervision of various financial system participants is usually carried out by a supervisory agency or agencies (which, as noted above, are increasingly agencies other than the central bank). Such supervisory agencies are primarily responsible for micro-financial stability; that is, for the monitoring of idiosyncratic risk and the solvency of individual participants. Supervisory agencies are also responsible for compliance with the rules established by government. Included in this area is the work of securities commissions, particularly their responsibility to promote markets that are fair, with insiders not taking advantage of their position to exploit outsiders.

Central banks typically are involved in providing liquidity to certain financial system participants (and through them to the financial system as a whole), to the market as a whole, and for the operation or oversight of payment and sometimes of other clearing and settlement systems. Central banks bring a system-wide perspective to their analytical work in carrying out these responsibilities.

In some financial systems, there is also a deposit insurer, whose task involves compensating depositors in the event of a participant failure. (In the absence of deposit insurance, governments are often perceived as providing implicit guarantees to depositors). Deposit insurance has the capacity to help provide stability to a financial system by reducing the probability of banks runs, at least by retail depositors. On the other hand, such insurance also has the capacity to destabilize the system because of the application of policies that are incentive incompatible and time inconsistent with a stable financial system.

In addition to these agencies, there are also a number of quasi-public agencies whose activities can be factors in promoting the stability of financial systems. These include accounting standards boards, auditing standards boards, credit

rating agencies, and governments in their role of determining the rules governing the taxation of the income of financial institutions including, importantly, the definition of the provisions for loan losses eligible as a deduction from income.

Thus, the actions of many public sector or quasi-public sector bodies can have an impact on macro-financial stability. And no one agency has a mandate to lead or coordinate macro-financial stability policies. Given this situation, countries are increasingly examining the use of coordination mechanisms for the development and implementation of macro-financial stability policy.

One of the purposes of these coordination mechanisms is to help bring a macro perspective to banking supervisors and deposit insurers whose mandates typically require them to adopt a micro perspective with regard to financial stability.

Canada was an innovator in this regard. When the federal government merged two existing financial supervisory agencies into the Office of the Supervisor of Financial Institutions (OSFI) in 1987, a statutory committee called the Financial Institution Supervisory Committee (FISC) was created. Its membership consisted of the Governor of the Bank of Canada, the Superintendent of Financial Institutions, the Deputy Minister of Finance and the Chairman of the Canada Deposit Insurance Corporation (CDIC).¹⁷

These federal agencies meet regularly to exchange information about the domestic and international financial systems and to make decisions about how to deal with federally supervised problem institutions when necessary.¹⁸ FISC is also a forum for consultation and information exchange on supervisory matters that have implications for solvency, last-resort lending and the risk of deposit insurance payout. In addition to these two legislatively created arrangements, the heads of the federal agencies meet regularly as the Senior Advisory Committee (SAC) under the chairmanship of the Deputy Minister of Finance to discuss broader regulatory, policy and legislative issues pertaining to the financial system. Problems relating to individual financial institutions are mainly dealt with by FISC and the CDIC Board, while significant problems relating to macro-financial stability would likely be addressed by the SAC.¹⁹

The FISC was the first formal entity in the world where the macro-financial stability implications of micro-financial policies were analyzed and formally incorporated into the actions of a banking supervisor. Similar approaches have been developed in other countries. In the United Kingdom, for example, the Bank of England, the British Treasury and the Financial Services Authority share responsibility for macro-financial stability. Because of this joint responsibility, the three entities have signed a memorandum of understanding that explicitly sets out

17 Since its creation by the federal government in October 2001, the Financial Consumer Agency of Canada has also been a member of FISC.

18 The same entities, along with some private sector appointees, meet as directors of CDIC to deal with issues related to deposit insurance.

19 There has also been increased collaboration among central banks and securities commissions, both in Canada and internationally. Thus, the standards for securities settlement systems and for central counterparties in these systems that aim at reducing or eliminating the systemic risk in these systems were established jointly by the International Organization of Securities Commissions (IOSCO), the international body representing national securities commissions and the Committee on Payment and Settlement Systems (CPSS) at the Bank For International Settlements composed of central bank clearing and settlement system experts.

the nature of the responsibilities of each of the participating authorities, and the arrangements through which information is shared and by which decisions are taken.²⁰

An interesting parallel has occurred on the international stage. While domestic authorities can take actions that help promote macro-financial stability in their own countries, financial institutions, markets and infrastructures and their accompanying macro-financial stability risks are not necessarily contained by national borders. The Financial Stability Forum (FSF) was created in 1999 to promote international financial stability through information exchange and international co-operation in financial supervision and surveillance. The Forum brings together on a regular basis national authorities responsible for financial stability in important financial centres (treasuries, central banks and supervisors), international financial institutions, sector-specific international groupings of regulators and supervisors, and standard-setting committees. The FSF seeks to co-ordinate the efforts of these various bodies in order to promote international financial stability, improve the functioning of markets and reduce systemic risk.

In addition to the FSF, much of the work of the Bank for International Settlements' standing committees has focused on the analysis and coordination of policies with regard to macro-financial stability. The Committee on Payment and Settlement Systems has led the work on clearing and settlement systems (at times in collaboration with the International Organization of Securities Commissions), while the Committee on Global Financial Stability has addressed a broad range of issues in this area. The Basel Committee on Banking Supervision (on which the banking supervisors and central banks of the G-10 countries and a few other countries are represented) has primarily focused on micro-financial stability issues, but increasingly is taking account of macro-stability concerns.

How Central Banks Promote Macro-Financial Stability

Before examining the more recent activities of central banks in promoting macro-financial stability, it is worth noting briefly the differences and possible overlaps between monetary policy and financial stability policy. Monetary policy, the primary role of the central bank, is directed to achieving good macroeconomic performance by adjusting the policy instrument (the overnight rate of interest, in the case of Canada).

From the perspective of the central bank, its responsibilities for financial stability are very different in two important ways from its responsibilities for monetary stability. First, in the case of monetary stability, the central bank typically has sole responsibility for the conduct of policy, once the goal has been set by the government, or jointly by itself and the government. As was discussed earlier, in the case of financial stability the responsibility is shared among several governmental authorities.²¹

20 The MOU was updated in 2006 and can be found on the Bank of England's website <http://bankofengland.co.uk/financialstability/mou.pdf>.

21 In spite of this difference, many central banks have developed an organizational structure in which the departments fall under two headings, monetary stability and financial stability.

Second, as noted by British economists C.A.E. Goodhart and D.P. Tsomocos (2007), there is “a remarkable consensus” about the conduct of monetary policy, including the applicable theoretical framework, the appropriate institutional structure, the primary objective (price stability), and the choice of instrument (the short-term interest rate decided on pre-announced dates). No such consensus exists with regard to macro-financial stability, perhaps because of its complexity or because the analysis of issues related to it are still at an early stage.

Some of the instruments that are directed towards the achievement of macro-financial stability have little to do with monetary policy. These include long-standing techniques such as advances to individual banks that are solvent, but face unusual and significant funding needs that they cannot satisfy in the market. Such assistance is intended to avoid unnecessary failures that can lead to contagion and bank runs. Other financial-stability related measures are the oversight of clearing and settlement systems to minimize systemic risk along with, more recently, the publication of financial stability reports to inform the private sector and influence its behaviour.

There are, as well, actions that overlap the fields of monetary policy and macro-financial stability. For example, in circumstances of great uncertainty, such as following the 9/11 terrorist attacks on the United States, central banks are prepared to make very large amounts of liquidity available for two reasons. The first is to prevent financial markets as well as clearing and settlement systems from seizing up because of the uncertainty about whether there will be sufficient liquidity to meet their needs. The second is to prevent the short-term rate of interest from rising above its target level as a result of the increased desire for liquidity. Thus, in certain circumstances there is an overlap between the needs of monetary policy and the needs of macro-financial stability, and a given central bank action may be directed at achieving both objectives.

What can central banks do to promote macro-financial stability? One key initiative over the past few years has been the crucial involvement of central banks in the design and oversight of clearing and settlement systems for payments, securities and foreign exchange. These critical components of the financial infrastructure link the activities of many participants in financial institutions and markets. The recent focus on risk-proofing clearing and settlement systems derived from concerns regarding the possibility of domino effects. That is, because of the existing high degree of interdependencies, there is a high risk that the failure of a single participant in such a system could lead to the failure of other participants, the system itself, participants in other systems, or the other systems themselves. Typically, collateral provided by participants and caps on the size of exposures that could be created by system participants are key elements in lessening the risks inherent in these clearing and settlement arrangements.

The design of clearing and settlement systems for foreign exchange had to take into account the cross-border systemic risk created by the extremely large exposures banks built up against each other in the global foreign exchange markets,²² which had the potential to bring about multiple failures if a single large

22 See The New York Foreign Exchange Committee (1994) and Bank for International Settlements (1996).

participant failed. As a result of such risks, large global banks worked together to build the Continuous Linked Settlement Bank which linked risk-proofed, national large-value payments systems and used innovative techniques for the settlement of foreign exchange transactions with little or no counterparty risks. Similar cross-border questions about exposures are now being asked with regard to the linking of national securities clearing and settlement systems, and with respect to operational disruptions in these systems that could have systemic risk consequences across national borders.

One of the more important recent innovations in promoting macro-financial stability has been the publication of financial system or stability reports by central banks. This has provided them with a new technique that helps to achieve their macro-financial stability objectives. Central banks have put considerable effort into external communications about existing and potential future risks to macro-financial stability. A public discussion of threats to macro-financial stability led by central banks can be an important means of drawing the attention of the private sector and other public agencies to those vulnerabilities that the central bank considers most important.

Central banks are well-placed to lead this discussion because they bring a system-wide perspective to most issues, a result of their monetary policy responsibilities and their concern for systemic risk. However, much of this discussion still suffers from the problems discussed above, namely a lack of clarity regarding the definition and objectives of macro-financial stability, insufficient relevant data and, lastly, the lack of a sound model within which to consider (i) threats to macro-financial stability, (ii) stresses in the financial system and (iii) how to quantify such threats and stresses.

It also remains to be seen whether central banks will be as open and frank in signalling imminent risks to macro-financial stability in their reports as they have been in assuring financial system participants that the system is currently well-prepared to handle real and financial shocks. Almost all of the financial stability reports were initiated and have been published in what can be termed as “good economic times,” and central banks have not been forced to face this issue.

Our view is that central banks should be equally transparent when communicating bad news as they are with good news, and that the discussion of bad news should not be withheld for fear of creating a crisis. It is better that financial system participants be aware of, and discuss possible measures to deal with, imminent problems than to ignore such possibilities. Indeed, it is the hope and expectation of central banks that by their drawing early attention to potential problems, the private sector will take prompt action to address them. That said, there is the possibility that the weight attached to central bank judgments about impending problems might create self-fulfilling crisis expectations through the impact they could have on participant behaviour. It remains to be seen how this aspect of these reports will evolve.

In the same vein, some observers believe that central banks ought to use financial stability reports to critically discuss the impact on macro-financial stability of proposed changes to legislation or regulation, tax policies, accounting and auditing practices, etc. For many central banks, this would be a fairly radical departure from their role as so-called “inside advisers” to governments and quasi-

public agencies, and could have important implications for the nature of the relationship between the central bank and these agencies. On the other hand, it would be inappropriate for a central bank to ignore such issues in a publication that examines potential vulnerabilities of the financial system, since policies in these areas can bring about changes in participant behaviour that can have important macro-financial stability implications.

The Bank of England, in 1996, became the first central bank to issue a financial stability report, releasing a Financial Stability Review in conjunction with the Securities Investment Board (SIB). Two years later, the document became the sole responsibility of the Bank of England, with the SIB no longer involved in its preparation.

Gradually, over time, a number of other central banks began to issue similar reports, with the Bank of Canada publicly releasing its *Financial System Review* for the first time in December 2002. More recently, there has been a rapid increase in the number of central banks preparing and issuing such documents, and almost 50 central banks published FSRs at the end of 2005, with many others considering publication.²³

In addition, the International Monetary Fund began releasing its Global Financial Stability Report in 2002. Clearly, publication of financial stability reports has become a growth industry over the past decade. One notable exception is the Federal Reserve Board, which does not issue a report about financial stability in the United States.

Such reports typically contain several sections. For example, in the Bank of Canada's *Financial System Review*, the first section, and for many readers the most important section, sets out the developments and trends in the Canadian financial system. To quote from the Review:

"The first part of this section presents an assessment of the risks, originating from both international and domestic sources, that could affect the stability of the Canadian financial system. Key risk factors and vulnerabilities are discussed in terms of any potential implications for the system's overall soundness. The second part of the . . . section examines structural developments affecting the Canadian financial system and its safety and efficiency; for example, developments in legislation, regulation, or practices affecting the financial system." (Bank of Canada, 2007.)

The *Review* goes on to note that "risk assessment is focused on the vulnerabilities of the overall financial system, and not on those of individual institutions, firms or households." The concentration is on risk factors and vulnerabilities that could have systemic repercussions and could give rise to substantial problems for the entire financial system and, ultimately, for the economy as a whole.

In dealing, first, with conjunctural developments and, second, with structural developments, the *Review's* focus is on risks and potential vulnerabilities. In many cases, the risks being examined have a low probability of occurring. Nonetheless, if their occurrence could have major consequences for the economy, it is worth

23 Čihák (2006)

examining whether there are ways of reducing the vulnerabilities of the financial sector to such risks.

Conjunctural vulnerabilities flow from economic developments that might have consequences for the financial sector and that, in turn, could impact the wider economy. An example would be a significant weakening of the economy at a time when non-financial corporations were highly leveraged, thereby reducing their ability to service their bank loans. If, at the same time, the capital position of their bank lenders were relatively weak, corporate failures would lead to loan losses that could seriously deplete the capital of some banks. As a result, the banks would be forced to cut back significantly on credit-granting activities and possibly even be forced into insolvency.

Structural vulnerabilities typically relate to arrangements within the financial sector that have the potential to transmit and potentially amplify a shock within or outside that sector. Usually these are thought of as market failures or imperfections. An example would be a situation in which there are relatively few large financial institutions that act as counterparties in derivative contracts. The failure of one such institution might lead to multiple failures if the institution is unable to fulfill its contractual obligations.

The *Review's* next section presents a number of in-depth reports on specific issues of relevance to the financial system. The last section presents short research summaries of studies pertaining to financial stability done by Bank of Canada staff. These are typically published in much longer form in other venues such as the Bank of Canada Working Paper or Technical Report series.

The financial stability reports of other central banks are not dissimilar to that of the Bank of Canada. On the international front, the International Monetary Fund's Global Financial Stability Report "provides semi-annual assessments of global financial markets and addresses emerging market financing in a global context." The emphasis is on global financial risks, with particular attention paid to developments that affect the financial sector in many countries.

Implications for the Private Sector

Private sector participants in the financial system have incentives to assess the potential gains and risks that they face from the impacts of their own actions, but have little incentive to consider the impact of their actions on other participants, or on the financial system as a whole. This is a type of market failure that can justify public sector intervention to supply a greater degree of macro-financial stability; that is, macro-financial stability has many of the attributes of a public good.

Central banks and other authorities concerned with financial stability focus on ways to mitigate the effects of shocks on the financial system and on the economy. In particular, they try to identify areas of fragility in the financial system that permit or facilitate the propagation of shocks through the system. Among the tools used to identify areas of fragility are macro-prudential indicators and stress tests, although, as noted above, the usefulness of these tools is open to question.

Risk mitigation mechanisms fall under the heading of crisis prevention and/or crisis resolution.²⁴ However, it is necessary to guard against the perception that central banks can foresee all shocks and prevent them, or significantly reduce their associated costs. Shocks will occur unexpectedly, asset prices will fluctuate markedly at times, and the actions of individual participants in the financial system may well exacerbate these fluctuations. But attempting to prevent all potential crises runs a risk of misusing macroeconomic policies and suffering macroeconomic outcomes well below what is achievable. As well, there is a risk of inhibiting innovation in the financial sector, with adverse consequences for the economy as whole.

In this section, we examine some of the implications for the private sector of the conjunctural and structural analysis done regularly in Financial Stability Reports and the articles that appear in these publications. For this purpose, we use the analyses and reports in the December 2006 *Financial System Review* (FSR) of the Bank of Canada.

The first section of the semi-annual FSR presents conjunctural developments and risks. Certain of these come from macroeconomic developments, both international and domestic, while others come from developments within the financial arena. In the December 2006 FSR, the Bank commented on three key risks to financial stability. First was the possibility that the slowing of the U.S. economy might be more serious than expected, which might affect the financial health of certain customers of Canadian banks. The other risks identified were a disorderly resolution of global imbalances, and a significant and widespread reduction in risk appetite. The emphasis in the FSR is on the implications of such developments for participants in the Canadian financial system, particularly those for whom such developments could pose risks.

In the case of a disorderly resolution of global imbalances, with abrupt movements in currencies and the prices of other financial assets, increased protectionism and a much lower world growth rate than would otherwise be the case, the *Review* sets out some of the ways in which such an outcome would adversely affect Canada. The financial position of Canadian export-oriented and related sectors would weaken, increasing credit risk in the Canadian financial system. This could reduce employment in these areas, and affect consumption and the creditworthiness of households. Financial markets would become more volatile, particularly if there were a significant decrease in the risk appetite of investors caused by increased uncertainty or other factors. And, while the strong balance sheets of most sectors of the economy would help them deal with these shocks, there could be a sharp tightening of credit conditions and an associated repricing of risk.

In assessing such risks, it is necessary to focus on two elements — the likelihood that such a risk would be realized and the effect that such a realization would have on the relevant sectors of the economy. The Bank of Canada gives its own estimate as to whether the probability of such risks being realized has increased, decreased or remained unchanged since the previous FSR. However, it does not attach a probability to each risk, nor does it consider whether these risks

²⁴ Alternatively, these can be termed preventive or remedial measures.

are independent. Private sector participants might have a different view of the change in probabilities pertaining to such risks. Similarly, the Bank provides a view as to the implications for different sectors of the Canadian economy if such risks should eventuate.

What the Bank does in its analysis is to identify the potential risks and set out their broader implications for the economy as a whole. Specific participants in the financial or non-financial sectors of the economy might have different perspectives with respect to the seriousness of these risks because of the specific exposures that they have in their balance sheets or operations. Thus, while the Bank's analysis can be treated as a starting point for the private sector, its potential usefulness comes from the private sector's ability to apply the general analysis to particular circumstances.

For those parts of the private sector that have a widespread exposure to the Canadian and global economy, such as the large banks, pension funds, etc., the *Review* gives them an opportunity to compare their own analysis of risks with that of the Bank. If their analysis is different, it could be worthwhile for them to focus attention on where it differs and why, since managing the potential effects of shocks on their portfolios is a very important part of their risk containment and mitigation strategy. Even if the broad risks identified by the Bank in the FSR are the same as those identified by major private sector players, the implications for their operations might be of greater or lesser importance depending on the nature of their portfolios.

Following its discussion of the conjunctural developments, the Developments and Trends section of the FSR examines structural developments affecting the Canadian financial system. This section provides information on new markets and institutions, while drawing attention to issues and possible concerns related to them. For example, in the December 2006 issue there are short discussions of principal-protected notes, recent developments in securities transfer legislation and a proposal by an Investment Dealers' Association task force to strengthen the enforcement of securities law.

While this section of the *Review* may not be of interest to every financial system participant, it provides a short overview of issues that may not be familiar to every reader. In some cases, data are provided on size of markets along with concerns about developments in markets that could be relevant to the private sector.

In sum, a key objective of an FSR, particularly in this discussion of broader macroeconomic and financial developments, is to draw the attention of the private sector to developing risks, both conjunctural and structural, and to point out their potential for disruption to the financial sector and the economy. This provides the private sector with the opportunity to assess the potential risks that might affect their operations and to possibly mitigate these risks. In some cases, these actions may serve to lessen systemic risks to the financial system and to the economy.

The Reports section of the FSR addresses specific issues of relevance to the financial system in greater depth. These reports can relate to financial institutions, financial markets or clearing and settlement systems. They can be helpful in informing interested observers about legal, regulatory and institutional developments.

The final section of the FSR summarizes some of the recent research studies by Bank of Canada staff that are “designed to improve overall knowledge and understanding of the Canadian and international financial systems.” Such studies typically take a system-wide perspective and emphasize linkages across the different parts of the financial system, linkages between the Canadian financial system and the rest of the economy, as well as linkages to the international financial system.

Each of these articles is intended to provide a short summary of much more detailed research and analysis that has been published elsewhere, often in the Bank of Canada Working Paper series. Thus, casual readers can obtain enough information to give them a basic understanding of the research and its results. The more interested reader is referred to the more detailed reports. The dissemination of the research being done at the Bank of Canada on matters of financial stability is intended to increase the interest in, and understanding of, the issues being discussed and, perhaps, to raise the level of debate on such issues.

Links Between Monetary Stability and Financial Stability

Given that the monetary authority has responsibility for monetary stability and is one of a group of public sector entities that have responsibility for financial stability, the question arises as to what linkages there are between financial stability and monetary stability.

The traditional view is that monetary stability and financial stability are complementary goals (that is, achieving monetary stability aids in achieving financial stability and vice versa). Consider first the direction of causation from monetary stability to financial stability. Typically, financial institutions get into difficulty because they extend loans that cannot be repaid and the value of the collateral held against them is insufficient to cover them. It was believed that such problems were more likely to occur at times of high inflation, when expectations of future economic developments and asset prices were most likely to be distorted.

More generally, the lack of stability in an environment in which public policy (fiscal and monetary) kept shifting back and forth between expansion to support rapid economic growth and contraction to rein in the resulting inflationary pressures was apt to produce pressures on financial institutions. At times of rapid expansion of the economy, both lenders and borrowers tended to misjudge the ability of borrowers to repay loans when interest rates were raised to counter the subsequent inflationary pressures. Not only did the slowing of the economy impact negatively on the revenues of the borrower corporations but, to the extent that their borrowings were short-term or at floating rates, they were faced as well with increased debt-service payments. As borrowers became increasingly unable to service their debts, banks found themselves with rapidly increasing loan losses and possibly, in the case of a sharp downturn, the elimination of their cushion of capital. In extreme cases, the result was bank failures.

In contrast, at times of monetary stability, the likelihood of inflation-induced distortions of expectations was believed to be lower. Consequently, the likelihood of resulting sharp increases in loan-loss provisions and associated reductions in credit was reduced. In addition, monetary stability was expected to reduce the

amplitude of the business cycle and in this way to lessen pro-cyclical swings in the extension of credit by financial institutions.

In the other direction, it was believed that financial stability could help the authorities achieve monetary stability by making the monetary transmission mechanism more predictable. Difficulties and crises in the financial system pose a challenge to the monetary authorities since they are confronted with hard-to-predict changes in behaviour by participants. For example, in the early 1990s, the United States faced what then-Federal Reserve chairman Alan Greenspan called “financial headwinds,” because the profitability and capital problems of some banks led them to cut back on their lending. The Fed had to maintain interest rates at levels lower than normally would have been the case to offset the unwillingness of such banks to extend loans. These circumstances required the Fed to address two challenges: to identify the change in behaviour of the banks and to determine the amount of interest-rate easing needed to offset such behaviour.

Another challenge occurred in the fall of 1998 when the Russian debt default and the near-failure of the hedge fund Long-Term Capital Management led to global financial turmoil. Financial markets seized up for a short time, preventing potential borrowers from accessing needed funds through the markets. Central banks had to decide on the amount of liquidity to supply to the financial system, both to facilitate the increased lending by banks in place of market financing and to help the financial markets to function effectively by reducing uncertainty.

Over the past few years, as monetary stability has become broadly entrenched in many countries, a number of commentators, most notably at the Bank for International Settlements, have posed questions about its relationship with financial stability. Is monetary stability complementary to financial stability or, conversely, can financial vulnerabilities develop in a low-inflation environment? Or, indeed, can such an environment end up facilitating financial vulnerabilities.²⁵ Moreover, if the latter is the case, what could central banks do about it?

In part, these concerns have developed as a result of asset price fluctuations and outright booms and busts in asset prices in circumstances in which the rate of inflation of goods and services has remained stable. Underlying the concerns is the worry that problems in the financial sector could result in significant losses of output. Or, worse, perhaps there could even be a weakening or collapse of the financial intermediation mechanism that transfers savings into investment and, hence, promotes growth.

There have been several recent examples of asset price fluctuations in circumstances of low inflation, such as in Japan in the late 1980s and in the 1990s, and the United States in the latter part of the 1990s and early 2000s. There are also historical episodes in which a sharp boom in asset prices occurred during a period of stability in price indexes for goods and services, such as the experience of the United States during the 1920s. It has been argued that these episodes reflected a link between technological innovation and asset price movements.

With new discoveries or innovations, such as the introduction of radio in the 1920s or the spread of the new information technology in the latter part of the 1990s, the perception is generated that there will be large future profits from these

²⁵ See Crockett (2000) and Borio and Lowe (2002), for example. Laidler (2003) discusses the interwar literature on the question of the sufficiency of low inflation as a goal for monetary policy.

breakthroughs, driving up stock prices. This leads to expansion by firms and increased expenditures on goods and services by their shareholders. A herd mentality takes over, with wildly exaggerated expectations driving behaviour. Perceived risks decline and risk aversion may decline as well. More generally, at times of euphoria financial institutions might lend to purchasers of stock and other assets (financial and non-financial), where the loans seem to be well-collateralized but turn out not to be when a crash in asset prices occurs.

In the case of Japan in the late 1980s and early 1990s, the financial institutions not only lent large sums on the basis of land and stocks as collateral, they were also major investors in the stock market themselves. When stock and property prices fell dramatically, loan losses rose sharply and much of the banking system's capital was wiped out. The result: bailouts by the authorities, financial institution failures and a long period in which Japanese banks cut back on their lending as the capital position on their balance sheets remained weak.

This analysis has been extended further to suggest that not only can financial instability occur in spite of monetary stability, but that monetary stability can actually exacerbate financial instability in certain circumstances. One example was the belief on the part of some U.S. market participants in the latter part of 1990s that the business cycle was dead and that the economy would grow indefinitely at a stable pace. The sharply reduced level of concern about an economic downturn led to a decline in the risk premium on equities, thereby driving up stock prices. In addition, the so-called "Greenspan put," with the Federal Reserve expected to reduce interest rates to support the stock market if there was a significant fall in stock prices (because such a fall in stock prices would lead to an economic downturn and put undue downward pressure on inflation), was perceived as putting a floor under stock prices.

Thus, the pursuit and achievement of monetary stability was seen as potentially creating financial instability in certain circumstances. And some analysts suggested that monetary policy and/or regulatory policy actions should be taken in response to the buildup of indicators of potential financial instability such as an unduly rapid growth in credit and asset prices or movements of the real exchange rate (see Borio and Lowe, 2002).

The Bank for International Settlements has been in the forefront of those advocating that central banks take account of financial imbalances in the conduct of monetary policy. It does not advocate that central banks should identify and try to prick asset price bubbles. Rather, it argues that risks increase in upswings and materialize during the subsequent downswings, and that the authorities (governments, central banks and supervisors) should use financial information more broadly in conducting prudential and monetary policy to counteract these developments. In the case of prudential policy, it stresses micro-prudential supervision, financial standards, increased sensitivity to risks (as in Basel II)²⁶ and actions to increase the robustness of the financial system in coping with financial imbalances.

²⁶ Note that many observers are concerned with the potential for increased pro-cyclicality in the availability of credit that could result from the adoption of Basel II.

What should be the role of monetary policy in the view of the BIS? In the context of a low-inflation policy, the BIS maintains that monetary policy should try to avoid an excessive buildup of financial imbalances so as to obviate the disruptive effects of the subsequent unwinding.²⁷ While such a role sounds plausible on the surface, the conventional view remains that the symptoms or indicators suggested by the BIS are not sufficiently strong to justify an *ex ante* or preemptive action by central banks. Rather, the conventional wisdom remains that central banks should respond quickly and aggressively to difficulties raised by the unwinding of financial imbalances when they occur.²⁸

Conclusion

In many ways, the modern analysis of financial instability is in its early stages. Much work remains to be done in the analytic area, in data collection and in empirical research. Nonetheless, the sharply increased focus on this area by public sector entities, private participants in the financial sector and academic researchers holds out the promise of substantial progress over the next few years.

Still, we have found much agreement on the elements of financial stability as well as the international financial trends that have made its pursuit more complex and urgent. We have seen that central banks are now focusing more attention on financial stability, in addition to maintaining their focus on monetary policy. They are also active in overseeing clearing and settlement arrangements, advising on financial legislation, standing ready to advance funds to banks facing liquidity issues and publishing frank assessments of their country's financial stability. These financial stability reports are aimed at informing a broader public, particularly the private sector which in the past has been insufficiently involved in issues that did not directly impact its bottom line. At the same time, we warn that there are dangers in becoming too interventionist.

Now that the significance of these issues is widely recognized, there is some reason to expect that the combination of increased attention by public sector and private sector practitioners, along with the improved techniques and analysis that will come from further research, may lessen the likelihood of major episodes of financial instability occurring in the future and reduce the negative consequences of any that do occur.

The role of the private sector in promoting macro-financial stability has been less developed than that of the public sector since it lacks the incentives to sufficiently modify its behaviour in anticipation of market failure or externalities. Most of the responsibility for enhancing financial stability will continue to rest with the public sector. At the same time, considerable attention must be paid to the potential for moral hazard as a result of policy actions and the impact of macro-financial stability policies on the efficiency of the financial system.

The private sector will find the analysis in central bank financial stability reports a useful starting point for its own examination of the risks and exposures that it faces, particularly in the macroeconomic area. It might also find the

27 See, for example, White (2004).

28 See Kohn (2007).

discussions of structural issues useful in drawing attention to potential risks that it might face in its financial arrangements. One of the central bank objectives in preparing and publishing such reports is to provide information to the private sector that the latter will incorporate in its thinking and possibly use to take action to mitigate the risks that are discussed in the reports.

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