Introduction

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The papers in this volume were commissioned with the aim of exploring the significant structural changes in the financial system over the past decade or so and the implications for policy-makers charged with the responsibility of maintaining financial system stability. In many ways these structural changes build on trends that had started in the 1980s in many advanced economies following widespread financial deregulation and the opening-up of capital markets.[1] Financial deepening over the past decade has continued at a rapid pace, with a wide range of new financial instruments and markets, securitisation now a prominent feature of markets in many countries, lightly regulated institutions growing in importance and household balance sheets expanding rapidly. Competitive pressures have intensified in many respects, helped in part by the ongoing globalisation of financial markets and an increasing number of large financial institutions operating across international borders. There have also been important changes in the ways in which financial institutions measure and manage their risks, spurred on by regulatory efforts.

These developments are in the main welcome. There is a general consensus that they have helped to underpin a more efficient allocation of financial capital, reduced the costs for households and corporations to manage their financial affairs and tended to spread risks more widely. There is perhaps less agreement about the implications of these changes for the management of risk and financial system stability more generally. A reminder of some of the uncertainties here was provided by the problems in the United States sub-prime mortgage market and the resulting turmoil in global financial markets that were unfolding at the time of the conference. One concern, for example, is the ability of market participants to assess risks accurately in the face of increasingly complex financial instruments. Weaknesses on this front may contribute to some risks being mispriced, allowing them to build to excessive levels. Another concern is that financial institutions and markets have become more tightly linked, including across countries, with the potential to alter the way in which shocks propagate through the system.

Overview

The conference opened with Claudio Borio's paper, which describes how technological advances have contributed to the creation of new instruments and markets, the emergence of new players, and tighter links between financial institutions and markets, including across international borders. He argues that the smooth functioning of the system is now more dependent on the availability

1. Eleven years ago the Bank held its conference on 'The Future of the Financial System' (Edey 1996). Many of the themes identified here were also described as important features of the changes taking place through the decade or so up to the mid 1990s.

of liquidity, and that the way in which problems in the financial system unfold has become more unpredictable as the complexity and scope of the system has increased. However, Borio cautions against placing too much emphasis on what has changed because key features of the financial system remain in place. In particular, there are still pervasive information problems, and the ability to perceive risk accurately and the incentives to manage it prudently remain imperfect, which can lead to excessive risk-taking during good times. Combined with the potential for the financial system to amplify shocks, these shortcomings can lead to financial system instability, whereby financial disturbances adversely affect the real economy.

Borio acknowledges the steady progress that has been made to strengthen financial systems around the world, through better infrastructure (payment and settlement systems, and accounting standards, for example) and minimum capital standards, which provide a buffer against shocks. Nevertheless, he argues that more should be done to limit the excessive build-up of risk by applying prudential 'speed limits'. Examples include adjusting provisioning and margin requirements so as to create some drag during periods of rapid expansion and provide support once risks are realised during less favourable periods. He suggests that to do this effectively will require not only close cooperation between prudential and monetary authorities, but also involve tax authorities and those responsible for setting accounting standards.

Chris Ryan and Chris Thompson complement Borio's paper by describing how the financial positions of Australian households, businesses and financial institutions have changed in recent decades. The authors show that household balance sheets in Australia have expanded significantly since the early 1990s, with housing debt, housing assets and financial assets all growing rapidly. Among financial assets, the strongest growth has been in superannuation and direct equity holdings, suggesting that households are now more exposed to market risks. In contrast to households, business sector gearing has remained moderate and is well below the levels seen in the late 1980s, notwithstanding the more rapid growth of business debt in recent years.

As in many other countries, rapid growth of the financial sector has been accompanied by large changes in the composition of financial institutions' assets and liabilities. For example, Ryan and Thompson show that banks now obtain less funding from retail deposits and more from wholesale markets. The banking sector has also become much more competitive, as evidenced by declining margins and the introduction of many new lending products. In the market for housing loans, this has been spurred by the emergence of mortgage originators (making extensive use of securitisation) and brokers, and the increasing prominence of foreign banks. Overall, the authors are positive about recent changes in the financial system. In particular, they argue that although mortgage portfolios have become riskier, the Australian banking system is healthy enough to cope with adverse shocks and that much of the rise in household debt is attributable to higher-income households with relatively low gearing and moderate debt-servicing requirements. However, they also note that sudden changes in pricing and liquidity may be more damaging than in the past.

Risk in the Household Sector

Household debt has risen substantially in a range of advanced economies. Karen Dynan and Donald Kohn's paper attempts to identify the factors that explain the rise in indebtedness in the US and assess whether it has increased the responsiveness of household consumption to income and asset-price shocks. Using household level data from successive waves of the Survey of Consumer Finances, the authors argue that financial innovations, increases in house prices and demographic changes have been the most important factors encouraging US households to take on more debt. Financial innovations have made it easier to assess credit risk, facilitating the process of securitising loans and increasing the availability of credit, including to those whose access had previously been limited. The importance of house prices is supported by evidence that most of the increase in indebtedness has been among home owners and that the increase tends to be larger in regions that have experienced larger rises in house prices. In addition, two types of demographic change have supported rising aggregate debt: the baby-boom generation entering their peak years of indebtedness and rising levels of educational attainment, which implies steeper lifetime income profiles. The authors argue that households with larger debts relative to their incomes may respond more to income and interest rate shocks, and that financial innovations that increase the availability of credit can increase the vulnerability of inexperienced borrowers. At the same time, however, the greater availability of credit and increases in net worth are likely to have made it easier for households to smooth their consumption through adverse shocks.

The paper by Christopher Kent, Crystal Ossolinski and Luke Willard explores similar themes to that of Dynan and Kohn, but from a cross-country perspective. They show that aggregate debt-to-income ratios have tended to rise more in those OECD countries with flexible financial markets; larger rises in house prices; larger declines in inflation and unemployment; and larger falls in macroeconomic and nominal mortgage rate volatility. The authors then present simulations based on an overlapping generations set-up with binding credit constraints to explore the relative strength of various explanatory factors. The results suggest that for countries where maximum repayment ratios are important features of credit constraints, lower inflation has been a key factor boosting indebtedness, though the bulk of this effect should have run its course by now. Lower unemployment and a willingness to refinance loans and hold debt for longer may also have played a role, along with the more recent relaxation of lending standards in a number of countries.

Kent *et al* also examine the implications of rising indebtedness for vulnerability, assuming that household decisions regarding debt are made optimally with regard to factors affecting risk. If the probability of adverse shocks is unchanged, an easing in credit constraints would lead unambiguously to an increase in vulnerability; this may nevertheless be welfare-improving if credit constraints had been unduly restrictive. In contrast, a decline in the probability of adverse shocks has two opposing effects. On the one hand, households are less vulnerable to adverse shocks for unchanged levels of debt. On the other hand, this creates the incentive to borrow more, which works to offset the decline in the risk of adverse shocks; the net effect depends on parameter values. Finally, looking beyond the confines of the model, the authors acknowledge that vulnerability can increase if households and financial institutions are overly optimistic about the true risks they face.

Giuseppe Bertola's paper examines the relationship between the depth of the financial system and household risk from a different angle by asking whether efficient financial markets can substitute for government redistributive policies when countries become more integrated with the rest of the world. He argues that if increasing international economic integration results in greater labour income risk for individuals, then countries that are more open might be expected to have broader redistributive policies. However, he also points out that because financial markets assist households to pool and offset these risks, countries with more efficient financial markets may have less need for redistributive policies. Bertola's econometric results broadly support his thesis; controlling for openness, there is evidence that those countries with more developed financial markets have smaller governments. Bertola concludes that governments should use regulatory policies and supervision to encourage financial market development, particularly in response to increasing globalisation.

Financial Institutions and Markets

Although regulation of the banking sector is pervasive, Franklin Allen and Elena Carletti argue that the market failures that justify this regulation are poorly understood, and hence it is difficult to determine whether public policies can improve on free-market outcomes or what form they should take. The authors postulate that policy-makers' desire to regulate financial markets is explained by their aversion to the high average and tail costs of financial crises. In their discussion of the benefits of regulation, the authors refer to earlier theoretical work that suggests that incomplete markets may result in liquidity to banks being inadequate when it is needed most, forcing them to sell assets in the market. However, because suppliers of liquidity are not compensated for the cost of providing liquidity in states where the demand for it is low, their average profitability can only be maintained if they can acquire assets cheaply when banks need liquidity. Thus, asset prices must be volatile to provide incentives for liquidity provision. Allen and Carletti describe how the problems of financial fragility, contagion and asset-price bubbles are all manifestations of this inefficient provision of liquidity.

Although the authors argue that with incomplete financial markets it may be optimal to regulate bank liquidity and bank capital, the information needed to do this is considerable. Consequently, financial instability may be best dealt with through the provision of liquidity by the central bank. Even so, the authors note that more research of these issues is required to determine optimal policy responses.

In contrast to Allen and Carletti, Rob Hamilton, Nigel Jenkinson and Adrian Penalver take the need for regulation as given and instead examine how regulators should respond to the financial deepening that has taken place in recent years. As with other conference papers, the authors argue that financial innovations have, overall, enhanced welfare. They also point out that financial institutions' risk management practices have been altered by these developments. For example, growth in derivatives has made it easier for institutions to hedge, diversify and transfer their risks, and innovation has allowed institutions to originate loans without holding them on their balance sheets, which has in turn spread credit risk more widely. However, the authors argue that these changes have not come without some cost. In particular, the incentive to monitor credit risk may become weaker when it is less concentrated, and increasing linkages between national financial markets may increase the likelihood of contagion and make it more difficult to resolve financial crises.

To maintain financial stability in the face of such large changes, the authors make a number of recommendations, including: improving stress testing to better account for the potential for contagion; delivering better capital and liquidity buffers through initiatives such as the Basel II capital standards; strengthening financial infrastructure; and enhancing international financial crisis planning.

To understand the regulatory challenges arising from structural changes, it is also necessary to have an understanding of the structure of the banking sector. Kevin Davis's paper does this by documenting how concentration and competition in the banking sector have changed over the past decade and discussing the implications of these changes for policy-makers. He argues that there has been no cross-country trend in the concentration of the banking sector over the past decade, though the global market share of the largest multinational banks has increased. His reading of the extensive literature is that there is little correlation between concentration and the contestability of banking markets. For example, in Australia, where the four major banks have long had a prominent position in the market, the banking sector appears relatively competitive, in part because of the presence of foreign banks and mid-sized domestic institutions.

This raises the question of whether increasing concentration in the banking sector is likely, and if so, whether it is desirable. Davis's survey suggests there is little evidence that very large banks are more efficient than their smaller counterparts, or that they benefit from economies of scope. Moreover, concentrated markets are not inherently more conducive to financial stability. Indeed, he cites evidence that the restriction of entry and competition may actually reduce stability. Finally, Davis draws out some of the implications of this analysis for Australian policy-makers. On the one hand, he argues that increased competitive pressures may have undermined the original rationale for the four pillars policy, which prevents mergers between the four major banks. On the other hand, he acknowledges that it is difficult to identify substantial benefits from further increases in the size of large banks. Given these uncertainties, he suggests that a review would be beneficial to ensure that the pros and cons of the current policy are carefully evaluated. He also argues that further work is needed to consider a range of other interrelated policies, such as the restrictions on foreign branch participation in the retail market; although if such restrictions are lifted, detailed consideration will have to be given to how depositors should be protected.

Regulatory Challenges

One manifestation of the globalisation of financial markets and lighter banking regulation is the emergence of large banks operating in many different countries. Observing this development in the European Union, Stefan Ingves argues that although cross-border banking stimulates competition, it involves special challenges for regulators. For example, as cross-border banking becomes more important, problems in one country's banking system will be more likely to spill over to other countries. In addition, actions by national supervisors may affect financial stability in other countries. Each of these challenges implies that national financial stability will become increasingly dependent on the activities of banks and authorities in other countries.

Ingves proposes that a European Organisation for Financial Supervision (EOFS) be created to supervise banks with substantial cross-border activities. Initially the EOFS would function as a non-regulatory central bank, conducting macro-prudential oversight and working closely with national supervisory authorities. If successful, the EOFS would eventually assume proper supervisory powers. This would result in a three-layered regulatory structure whereby banks that mainly operate domestically would be supervised by national authorities, regionally oriented banks would be supervised by 'colleges' that cooperate across borders, and the small number of truly pan-European banks would be supervised by the EOFS.

John Laker's paper focuses on the contribution of improvements in risk management practices within Australian banking institutions and regulatory structures to the strength of the banking system over the past decade. He points out that over this period, technological developments (such as electronic commerce) have not only changed the way banks deliver services but also altered the way they manage their risks. For instance, risk management functions within banks are more clearly identified and resourced, and better integrated into their overall operations. In his view, although regulatory initiatives such as the Basel II Capital Framework encouraged improvements, an equally important factor has been the greater sensitivity of boards and senior management to risk.

Although Laker is positive about the overall financial condition of Australia's banking institutions, he also sees a number of important challenges for the future. For example, he recognises that good economic times can erode the incentives for institutions to maintain and improve their risk management practices. More specifically, he argues that although the premise of regulation and economic capital modelling is that managers of banks will be rewarded for acting in the long-term interests of their organisation, in practice incentive structures that reward myopic behaviour could undermine the progress of the past decade. In addition, the move to a principles-based approach to prudential regulation presents new challenges because it can be difficult to judge whether a solution proposed by an institution is consistent with those principles.

Conclusions

There is no doubt that the financial systems of the advanced economies have undergone a significant transformation over the past decade or so. The papers presented at the conference highlighted a number of important factors driving these changes. In more deregulated markets, competitive pressures and technological changes have driven innovation and reduced the cost and increased the availability of funding; a relatively benign macroeconomic environment also seems to have been a relevant factor supporting both the supply of and demand for credit. Among other things, this has encouraged the rapid expansion of household balance sheets. There was some debate about whether the accumulation of household debt had gone too far. Although most households appear to be in a position to manage the new risks they have taken on, there was support for the idea that there was scope to help households better understand complex financial products.

There was a broad consensus that the financial system has become more efficient overall, and more resilient in a number of respects, though changes that have helped to moderate risks on certain fronts have also encouraged agents to take on new risks. The nature of these new risks and the implications for overall financial stability received substantial attention. It was recognised that much has been done to bolster the measurement and management of risk, including through improvements in regulatory frameworks and financial institutions' internal risk management systems. However, this has not prevented some mispricing of risks, which can, therefore, build up during relatively benign periods. This may in part reflect a natural tendency for procyclical optimism and incentives that tend to focus on short-term results. While these problems are relatively clear, the appropriate policy responses are less so. Some argue for built-in stabilisers and discretionary policies to rein in risk-taking. Others note that this will be difficult because of practical and political concerns including the right balance between monetary and prudential policy, and the overall breadth and depth of regulation more generally. What is clear is that these issues require further research.

The stresses in global financial markets of late were a timely reminder of at least two other issues that are likely to warrant further close attention. The first is how best to ensure sufficient provision of liquidity during times of stress, particularly in light of the apparent strong complementarity between financial institutions and markets. The second is how best to coordinate monetary and prudential policies, both within and across countries, in an increasingly interconnected world.

Reference

Edey M (ed) (1996), *The Future of the Financial System*, Proceedings of a Conference, Reserve Bank of Australia, Sydney.