

The World in Crisis:
Insights from Six Shadow Financial
Regulatory Committees
From Around the World



Edited by Robert Litan

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Financial Regulatory
Committees
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Asia

Europe

Japan

Latin America

Australia / New Zealand

United States

November 2011

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Contents

	ACKNOWLEDGMENTS	vii
	ATTENDEES: JOINT MEETING OF SHADOW FINANCIAL REGULATORY COMMITTEES	ix
	FOREWORD	xiii
	EXECUTIVE SUMMARY	xv
	JOINT STATEMENT	xxxiii
1	Financial Crisis in the US and Beyond <i>Charles W. Calomiris, Robert A. Eisenbeis & Robert E. Litan</i>	1
2	Lessons from the Financial Crisis: Report of the Asian Financial Regulatory Committee <i>Jeremy Goh, Sri Adiningsih & Maria Socorro Gochoco-Bautista</i>	61
3	The Recent Financial Crisis: Lessons from Europe <i>Reinhard Harry Schmidt, Kern Alexander, Harald Benink, Rosa Lastra & Clas Wihlborg</i>	125
4	Lessons from Japan's Shadow Financial Regulatory Committee Japan in the Global Financial Crisis <i>Kimie Harada, Takeo Hoshi, Kaoru Hosono, Satoshi Koibuchi & Masaya Sakuragawa</i>	193
5	Learning from Past Mistakes: The Key to Latin America's Financial Systems Resilience to the Global Financial Crisis <i>Pablo E. Guidotti & Liliana Rojas-Suarez</i>	227
6	The Global Financial Crisis and Financial Regulation in the Antipodes <i>Christine Brown, Kevin Davis, Mervyn Lewis & David Mayes</i>	267

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**Attendees: Joint Meeting of Shadow Financial
Regulatory Committees**

Organized and chaired by George Kaufman,
Co-Chair of the US Shadow Financial Regulatory Committee
Washington, D.C., October 22-24, 2011

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Johnathan Batten

Hong Kong University of Science & Technology

Maria Bautista

Asian Development Bank, Manilla

Jeremy Goh

Singapore Management University

Qian Sun

Fudan University, China

Australia/New Zealand

Christine Brown

Monash University, Australia

Kevin Davis

The University of Melbourne, Australia

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The University of South Australia, Australia

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FOREWORD

The financial crisis of 2007-09 cost taxpayers in the United States and Europe the equivalent of some 25 percent of world GDP in guarantees and subsidies to maintain financial stability. This has prompted a major rethinking by governments, financial regulators and central banks of how financial institutions and markets should be supervised and regulated, so that going forward the chances of a repetition of this sort of crisis are dramatically lower and the adverse consequences of such crises will be less severe. Some changes (reforms) in regulation already have been adopted, while others are being considered but not yet fully thought through or implemented. And, while some individual countries have adapted or altered their regulatory regimes, the discussion over global coordination has not yet progressed very far.

This online book brings together, in separate chapters, the thoughts and analyses of members of six Shadow Financial Regulatory Committees, independent bodies of experts, from different countries or regions of the world (Asia, Europe, Japan, Latin America, Australia / New Zealand, and the United States) on how the crisis evolved in each of their countries or region and on lessons learned from the crises and from reform measures adopted or not adopted in their own areas to date. This book also proposes ways in which cross-country coordination of financial regulatory policies may help prevent future crises, or at least minimize their severity.

The book begins with an Executive Summary of the chapters, followed by a statement adopted by the six Shadow Committees at a

joint meeting in Washington, D.C. on October 22 – 24, 2011 on the current economic and financial crisis in the Eurozone countries, applying relevant lessons from the individual chapters.

The financial crisis that began in 2007 and its aftermath will have ramifications for many years. We hope that financial policy makers and interested citizens from around the world will find the different yet very common perspectives from the individual Shadow Committees illuminating and informative, and ideally helpful in avoiding or at least reducing the impact of future financial crises. The chapters are presented in draft form more or less as they were discussed at the meeting, with some light editing, in the belief that timeliness of availability will be more beneficial to policy makers in analyzing and solving the ongoing Eurozone crisis than additional editorial refinement. The names and affiliations of the Shadow Committee members who attended the summit meeting are shown at the end of the book.

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EXECUTIVE SUMMARY

This summary brings together some of the key highlights from the individual Shadow Committee chapters and from the Joint Statement. As readers will detect, a number of common themes run through the chapters. The summaries begin with the U.S. chapter, since the financial crisis began in that country. The subsequent chapters are arranged in alphabetical order of the other Shadow Committees.

No summary is provided for the Joint Policy Statement of all six Shadow Committees released on October 24, 2011, which follows this Executive Summary. This document is short and speaks for itself. The separate, but inter-related problems it identified as of that date – excessive public indebtedness of certain Euro-zone countries, undercapitalization of European banks, the lack of competitiveness of the southern Euro-zone economies given their ties to the Euro, and the inadequacy of a fund to effectively stabilize European bond markets – had still not been resolved at the time this document was released publicly (mid-November, 2011).

Lessons from the US Shadow Committee

The financial crisis of 2007-08 was no ordinary crisis: it grew out of the bursting of a real estate bubble that was financed with far too much debt and the resulting losses quickly depleted the capital cushions of inadequately capitalized financial institutions. The disaster – and that is what it has become as it infected principally developed

economies around the world that had similar characteristics – had its roots in both macroeconomic and microeconomic policy errors. The combination encouraged excessive risk-taking by homeowners, lenders, those who packaged loans into securities, the ratings agencies that were supposed to screen for high-risk securities, government policy makers over several decades who pushed home ownership too far, and regulators who failed to enforce the prompt corrective action regime of bank capital regulation that was put in place after the last major US banking crises of the 1980s and 1990s.

The policy responses also were imperfect, and ad hoc. Policy makers failed to realize quickly enough that the financial difficulties at major financial institutions were solvency, not just liquidity, problems. Regulators acted too little and too late to insist that certain of the weakest actors – Bear Stearns, Lehman Brothers, and a number of large banks – raise new capital when it might have been possible to do so. The delay was hugely costly, and ultimately led to many of the bailouts (forced rescues and protections of uninsured creditors) of the “too big to fail” institutions.

The longer-term legislative response, the Dodd-Frank Act of 2010, also leaves much to be desired. One of the main post-crisis reforms was an increase in bank capital requirements, but this was engineered by the Basel Committee and would have happened without the legislation. There are questions about whether turf issues will frustrate the ability of the new Financial Stability Oversight Council established to monitor systemic risk to do its job effectively. The new Consumer Financial Products Bureau has an unwieldy and unaccountable structure. The new non-bank resolution procedure, in principle, will haircut some unsecured creditors of troubled non-bank financial institutions in the future, but the ability of the Treasury to provide sufficient up-front financing casts some doubt as to whether this will actually happen. Other provisions of the bill, including the Volcker rule (banning proprietary trading by banks) and the Durbin amendment (imposing limits on debit interchange fees) address issues unrelated to the financial crisis that led to Dodd-Frank. Perhaps most important, the bill has no provisions aimed at reforming the two housing government-sponsored enterprises, Fannie Mae and Freddie

Mac, whose increased purchases of securities backed by subprime securities helped contribute to the crisis.

The US chapter concludes by outlining more than 10 lessons from the crisis. Among them is that too-big-to-fail is likely still with us, problems remain in the existing legal and regulatory structures for resolving large, complex global financial institutions and that the crisis exposed weaknesses in the primary dealer system and the tri-party repo market.

Lessons from the Asian Shadow Committee

The crisis has shown us that even with strong underlying economic fundamentals, Asian countries were (and are) not sheltered from global shocks due to trade and financial linkages. The crisis, while originating in the subprime segment of the U.S. mortgage market, quickly spread through financial and real channels. Many Asian economies were severely affected, which include even those that did not have any major exposures to the assets at the heart of the crisis. This was caused by the sudden drying up of liquidity and collapse of global trade. For some economies, the crisis was one of confidence.

Prior to the crisis, Asian economies were enjoying robust economic growth and many Asian stock markets were at their historical highs. However, Asian economies are diverse both in stages of economic and of financial development and as such, some Asian economies were more affected by the financial and economic downturn than others. It was sheer good fortune that as a result of the 1998 Asian Financial Crisis, actions by governmental authorities to impose structure reforms on banking systems and the beefing up of their foreign reserves provided a cushion for these countries. It is also important to note that financial institutions in Asia are relatively conservative and this conservatism may have worked to the advantage of these countries during the 2008 crisis.

As the crisis unfolded, authorities in the region introduced expansionary fiscal stimulus, accommodating monetary policies and other macro-prudential measures. Fiscal stimulus is estimated to be around

5% to 8% of GDP in the region. The monetary measures included sharp cuts in interest rates, reductions in reserve requirements for banks, expanded coverage of deposit insurance for depositors and intervention in the foreign exchange market. Other measures used by governments included imposition of short sale restrictions in the stock markets. Central banks also signed swap agreements to ensure that their financial institutions had access to foreign currencies, if needed. Due to the rapid decline in asset values as a result of extreme market conditions, “Mark-to-Market” accounting rules were suspended. With strong fundamentals and expansionary policies, the region experienced a sharp V-shape recovery in approximately 4 quarters. In 2009, many of the economies were back to the pre-crisis level in terms of GDP and stock market price levels.

The Asian Committee draws several lessons from the actions taken in the wake of the crisis.

First, fiscal expansion was a necessary element of crisis reaction. Plunging external demand, compounded by weak domestic private demand, left the government as the consumer of last resort throughout developing Asia. In striking contrast to the Asian crisis a decade earlier, the region was unable to export its way out of the recession. Governments responded decisively with sizable fiscal stimulus packages. Indeed, the forceful and synchronized fiscal policy response was uncharacteristic for a region in which the use of countercyclical fiscal policy is uncommon. Fiscal stimulus is likely to have had a major positive effect in shoring up business and household confidence by signaling the resolute commitment of regional governments to prevent an economic meltdown.

Second, prudent monetary policies certainly mitigated impacts from the crisis, but luck may have played a role too, since Asian central banks did not face as severe a challenge as did the advanced economies’ central banks. Concurrent with the fiscal expansion, monetary policies were loosened to maintain adequate liquidity for the economy. Policy interest rates were cut sequentially from the last quarter of 2008 and, in most economies, have been kept at a decade low since. These monetary operations provided room for the large fiscal expan-

sion to play its role in cushioning the impact of the slowdown and promoting the region's strong recovery.

Third, somewhat ironically, economies more open to trade suffered more than the relatively closed ones. On the whole, developing countries in Asia began facing the collapse in external demand from the major industrial countries in 2009. Exports from developing Asia plunged in the first half of the year—by 24.5% in the first quarter and 23.5% in the second. One of the lessons that Asian countries learned from the 2008 crisis was to wean themselves from excessive dependence on exports to countries outside the region and to rely to a greater extent on domestic demand. Expansion of intra-regional trade among Asian countries, especially in final goods, will provide the region with an additional source of resilience against external shocks.

Fourth, various Asian countries have toughened regulations related to mortgage lending, along with other housing policies, to contain household leverage and prevent housing price bubbles. Fueled by expectations for robust economic recoveries, asset prices, particularly of real estate, are also showing a surge, especially in China and Hong Kong, in the immediate aftermath of the crisis. In Singapore, the authorities have been actively monitoring the housing market to keep prices affordable for the masses. Sales of public land and macro prudential measures so far have been part of a contingent, pre-emptive, and graduated strategy to curb excesses.

Fifth, when people are fearful about their deposits in banks, countries such as Hong Kong, Singapore and Malaysia in October 2008 took the unprecedented step of offering blanket deposit protection to calm the market. These countries also coordinated their exit from offering blanket deposit protection guarantee.

Sixth, managing disruptive capital flows could be a challenge for the Asian Central Banks. Unsettled global financial markets and the expectation of changes in key regional currencies points to heightened volatility in international capital movements into and out of Asian countries, going forward. There is room for applying macro-pruden-

tial policies, to deter the formation of asset and price bubbles or for financial institutions to accumulate buffers. Where institutional capabilities are well established, temporary use of carefully designed capital controls are one possible approach to deter disruptive short-term flows.

Building strong reserve buffers may be important for Asian countries, however, the authorities are encouraged to keep it under review, lest a generationally inequitable outcome or an inefficient allocation of resources results.

One of the key effects of the crisis has been the increase in unemployment rates in all countries across Asia. Thus, it is important for countries to have social safety nets to mitigate hardship while not undermining work incentives. Job creation schemes, where the government contributed a portion of the wages, have been adopted by Singapore and Taiwan. All these measures have helped to reduce unemployment rates and personal hardship during the crisis.

Lessons from the European Shadow Committee

The subprime crisis spread quickly and directly to Europe because 40 percent of the securities backed by subprime mortgages were held by European financial institutions. Much was financed through issues of short-term securities. As a result several banks faced distress after liquidity in the markets dried up in September 2008.

Most countries in Europe responded with a battery of policy measures to avoid a financial meltdown: expanded deposit insurance, guarantees of banks' liabilities, support of asset values, and capital injections. During the critical years of 2007 through 2009 the central banks played a helpful role to the tide. The various national/regional central banks seem to have acted fast, and with the appropriate massive interventions they cooperated swiftly and smoothly. Conflicts and coordination problems arose as well, in particular with respect to management of distressed cross-border banks.

There are estimates that the direct fiscal costs have been around 3

percent of GDP, a number that seems to indicate that fiscal or governmental action was not only fast but possibly also efficient in terms of fiscal costs.

The massive central bank and government interventions had highly problematic long-term consequences as well. One consequence of the bail-outs of large banks is that the principle of “too big to fail” has become established to an even higher degree than before the crisis. The current sovereign debt crisis can also be seen as a consequence of the fiscal costs of stimulus packages and large bank bailouts in Ireland. The lack of effective ways of managing bank insolvencies, which contributed to the need for bail-outs, remains a problem and contributes to shape the EU approach to the current crisis.

The lack of special procedures for resolving banks and “Structured Early Intervention” remain glaring gaps in the crisis management procedures for large financial institutions. Continued work on an insolvency regime in the EU is urgently needed, and it should naturally contribute to financial stability. Without such procedures it will not be possible to restore market discipline on banks’ risk-taking.

Substantial reforms of regulation and supervision have been initiated in Europe. The EU is implementing Basel III (in the form of Capital Requirements Directive IV) with relatively high speed. EU bodies for coordination of supervision of large cross-border banks have been established. Macro-prudential supervision has been strengthened on the EU level. With these new institutions in place since the beginning of 2011, it can be expected that the response to future crises will be faster and more effective.

Many countries have implemented or are considering restrictions on executive compensation in order to strengthen risk management incentives with a longer time perspective.

The reforms have controversial aspects as well. The “maximum harmonization” principle in the implementation of CRD IV has been criticized, notably by the United Kingdom. Another controversial reform is the UK proposal to “ring-fence” traditional commercial

banking, especially in light of the lesson from the crisis that contagion occurs through securities markets as much as through the banking system. Incentive and competitive effects of restrictions on executive compensation are far from clear.

With the increased emphasis on coordination of supervision of large cross-border banks on the EU level, the vision of the Second Banking Directive that banks would be able to operate across the EU with a “single license” under home country control seems to be clouded. It can be restored only with substantial reforms with respect to the organization of banks as well as deposit insurance schemes and the Lender of Last Resort role of central banks.

The financial crisis of 2007 to 2009 and the ongoing European debt crisis serve as tests of how valuable and how dangerous the diversity and complexity of Europe as a political and economic entity is. A high degree of diversity may have been a reason why the financial crisis did not do too much damage in the first place. With less diversity, the crisis may have spread even faster and there may have been more contagion between the different countries and their financial systems.

The financial crisis was also a first test of how well the European political and financial system functions under stress. Were diversity and complexity factors that stood in the way of efficient and effective crisis management and appropriate structural responses? It is not easy to answer this question in a simple way. As mentioned above, intra-European cooperation during the financial crisis was not in all respects satisfactory. Coordination problems arose in the case of the imminent failure of some large banks that would have required a much closer and more effective coordination between the supervisory authorities and the governments of France, Belgium and the Netherlands, and behind closed doors there were many more problems resulting from divergent views and national interests. However, by and large diversity and complexity did not preclude a relatively well coordinated and consistent reaction to the crisis at the time it really reached its peak, that is, in the fall of 2008.

But the financial crisis has also taught the lesson that there were serious institutional deficiencies. The distribution of responsibilities for supervising banks that operate in different countries, and for supporting or resolving them in case of distress, had to be reconsidered and revised. At least to some extent, the EU has faced this challenge and made some progress towards a new institutional structure that might enable it to better deal with the next financial crisis that in some sense resembles that of 2007 to 2009. Thus, diversity and complexity do not seem to have prevented substantial progress in the ability to reduce the probability and the severity of future financial crises.

In the debt crisis, the assessment can, as of today, not be equally positive. The cause of the debt crisis can be seen in the high level of diversity between the different European countries and the inadequacy of the overly complex and at the same time weak institutional and political structures in Europe. These two do not match: especially when the members of the union are vastly different in some important respects, the coherence and the stability of the union can only be safeguarded if the central institutions are simple, transparent and powerful while retaining a high degree of legitimacy across the Union.

The immediate response to the outbreak of debt crisis has been poor by all standards. Policymakers and existing institutions have not been up to the task of dealing with the crisis-related problems as they arose. It seems that too much diversity – between countries as well as between different institutions and policy arenas – and too much complexity may have prevented a more effective and more efficient crisis management. And what has occurred at the height of the debt crisis does not bode well for the next task, i.e. that of overhauling the institutional structures in Europe and of making it less complex and more effective. It may well be that institutional complexity is not a virtue but a negative side effect of “excessive” diversity. The verdict is still open.

Lesson from Japan's Shadow Committee

Although the subprime loan crisis in the U.S. has spread to the rest of the world and led to a global recession, to date Japan's financial system has largely escaped the damage. The direct impacts on the Japanese financial institutions were limited, because Japanese banks did not have much exposure to the subprime-related securitized products. Nonetheless, the real sector suffered from the steep decline of external demand throughout the developed world. The declines in GDP and stock prices following the global financial crisis were large for Japan.

The chapter authored by the Japanese Shadow Committee discusses five reasons why the Japanese economy was able to maintain financial stability in the wake of U.S.-triggered crisis: (1) expectation of yen appreciation, (2) improved financial supervision, (3) nature of funding in the market for securitized products, (4) absence of housing bubbles, and (5) ample public liquidity created by the Bank of Japan.

Despite these factors, Japan's financial stability nonetheless is now jeopardized by several government policies adopted in the aftermath of the crisis. To limit damage to the economy, the government expanded fiscal policy, as many other advanced economies did. Monetary policy was also loosened (again). The Financial Services Agency (FSA) relaxed regulatory supervision to avoid credit crunch and encouraged banks to support small and medium enterprises in distress.

The Japanese experience during and after the global financial crisis teaches several important lessons, which apply both to Japan and to other countries. First, traditional micro prudential policy is important. When the U.S. was enjoying a credit boom in the mid-2000s, Japan was recovering from its banking crisis that started in the mid-1990s. The Japanese government finally strengthened financial supervision, and both Japanese regulators and banks did not want to repeat the financial crisis. This limited risk taking by Japanese banks as well as their exposure to risky securitized assets.

Second, the Japanese experience after the global recession shows the difficulty of implementing sound micro-prudential principles. The FSA relaxed the standard of bank supervision substantially, probably yielding to various political pressures. The FSA revised the supervisory manual and allowed banks to exclude restructured SME loans from disclosed non-performing loans more generally.

Third, stable funding sources for financial institutions are critically important, especially when tested during a crisis. While many large financial institutions in the U.S. and Europe relied on short-term market financing, Japanese banks relied almost exclusively on core deposits. When the U.S. and European banks faced liquidity problems due to their short-term financing, many of them were forced to sell their securities at fire sale prices, which further reduced their values as collateral and worsened the liquidity problem. The Japanese banking sector did not experience this vicious cycle. When Japanese industrial firms faced financial problems in the bond and commercial paper markets, the banks were able to step in and increase their loans.

Fourth, the Japanese experience shows the serious potential cost of fiscal expansion. High budget deficits and ever increasing government debt have harmed the health of the Japanese financial system more than the global financial crisis itself.

Finally, Japan experienced its own financial crisis about 10 years before the global financial crisis. Although the Japanese Shadow chapter does not discuss the Japanese experience with the crisis in the late 1990s, some lessons can be learned by comparing the two crises. Both crises were triggered by the burst of speculative bubbles. In the last couple of hundred years, numerous episodes of speculative bubbles have been followed by serious financial crises. The mechanism of how bubbles start, expand, and collapse is not fully understood, but we now know a number of potential warning signals for bubbles and crises that might follow. Those signals include continued low interest rates, especially relative to the economic growth rate; rapid growth of banks' balance sheets; and a real estate boom. It is important to continue efforts toward understanding, detecting, and

responding to bubbles to avoid or at least to reduce the cost of future financial crises.

Lessons from the Latin American Shadow Committee

As with other regions of the world economy, Latin America was adversely affected by the global financial crisis which originated in the US sub-prime mortgage market between 2007 and 2009. However, unlike in past crisis episodes, this time around a core set of Latin American economies displayed strong performance. Especially notable is the fact that financial systems in the region proved to be highly resilient to the external shock and, for instance, no country in the region suffered a significant loss of depositors' confidence nor had to face severe and systemic banking problems.

Nevertheless, the external shock did affect the region's financial systems in various ways. The drying up of liquidity that followed Lehman Brothers' collapse induced a sharp increase in investors' risk aversion, a reversal of capital inflows, and currency depreciations in most countries. Adverse financial conditions resulted in a reduction of liquidity in foreign exchange and domestic money markets. Moreover, trade finance plummeted reducing sharply the region's growth prospects and the ratio of non-performing loans increased. Facing large uncertainties, Latin American banks reduced the growth of credit to the private sector. However, in contrast to developments in the United States and other advanced economies, the adverse effects of the external shock were short-lived, their impacts being felt mostly after Lehman's collapse in September 2008.

The Latin American Shadow Committee's chapter argues that there were two key factors behind the resilience of Latin American financial systems during the crisis. First, the initial conditions in a number of countries in the region were favorable in the pre-crisis years. Sound macroeconomic policies and highly improved financial regulations were in place at the time the crisis erupted. This meant that banks and other financial institutions stood on a good footing when the external shock hit.

More specifically, the region generally displayed: 1) ample external liquidity in the form of large stocks of international reserves; 2) flexible exchange rates and, in some economies, the presence of a tested inflation-target monetary framework operated by an independent and professional central bank; 3) adequate fiscal management leading to sustainable or declining public debt to GDP ratios; 4) strong financial systems, well regulated and supervised, and largely disconnected from the international capital markets; and 5) expanding domestic capital markets underpinned by the growth of private pension funds. These key initial conditions reflected the fact that, to a significant extent, a number of core countries in the region had learned from their own previous catastrophic experiences with financial crises.

The second factor (highly related to the first one) behind the resilience of Latin America was the policymakers' appropriate response in dealing with the impact of the shock. In particular, and departing from previous crisis episodes, a set of Latin American countries were in a strong position to implement counter-cyclical monetary (and some even fiscal) policies that minimized the contraction of credit growth to the private sector and contributed to a rapid economic recovery. Of particular importance was exchange-rate flexibility and ample external liquidity. Both were decisive elements in strengthening the toolkit of the region's central banks during the crisis.

Lessons from the Australia/New Zealand Shadow Committee

There were similarities in the Australian & New Zealand (NZ) experiences in the crisis – notably, no prudentially regulated institutions failed – but both countries experienced an uncomfortable degree of financial market disruption which contributed to the failures of other financial firms. These failures, however, had largely domestic origins, particularly in NZ which saw most unregulated finance companies collapse before the global financial crisis started in earnest. Government support to financial markets included bank guarantees and funding, and was overlaid by fiscal stimuli. Both economies emerged relatively unscathed (less so in NZ which was also affected by drought and the Canterbury earthquakes), but the crisis experi-

ences have sparked substantive subsequent regulatory reform agendas in both countries.

Before the crisis both economies had strong fiscal positions (with low government debt outstanding), high and increasing interest rates, and strong economic growth with substantial dependence on exports of resources and commodities to Asia. Both had long-standing (large) current account deficits partly financed by large bank borrowings in international wholesale markets. In both countries housing prices appeared (to some at least) as inflated and high household leverage was also a potential cause of concern.

The financial systems of both countries are dominated by the four major Australian banks, and both countries were international outliers in eschewing deposit insurance. In Australia, the Australian Prudential Regulation Authority (APRA) was generally perceived to be a “tough” supervisor, but the Reserve Bank of New Zealand approach to bank oversight involved (up until the crisis) minimal government supervision in favor of market discipline, achieved by public disclosure and onerous bank director liabilities – coupled with Australian regulation and supervision of the consolidated parent entities. High ratios of loans/deposits and housing/total loans were features of bank balance sheets in both financial systems and while, like elsewhere, financial markets had been marked by asset price inflation and low credit spreads, there was little sign of lax bank lending standards.

A “caveat emptor” approach was applied outside the prudentially regulated sectors (and within in NZ), with substantial emphasis on achieving adequate disclosure, and reliance on education and financial advice to ensure market integrity. There was little in the way of “shadow” banking, and a substantial funds management sector existed in Australia reflecting compulsory defined contribution superannuation.

The region felt the effects of the crisis in a number of ways. One was through the international re-pricing of credit risk, which raised bank funding costs in international wholesale markets (albeit passed on to borrowers), and heightened uncertainty and liquidity prefer-

ence caused more widespread financial market disruption. In both countries equity markets followed (indeed exceeded) the downward international trend and the slowdown in global economic demand adversely affected domestic growth.

The early stages of the crisis, from the fall of 2007 until mid-September, 2008, saw failures of some hedge funds, finance and investment companies, and a freezing of the securitization market in Australia. Problems with margin lending/short selling arrangements emerged and some investors, but not banks, were seen to be exposed to “toxic” assets sold to them by international financial institutions. Bank liquidity demands were accommodated by the respective Central Banks, including the expansion of the range of repo-eligible securities.

After September/October 2008, the exchange rates depreciated, stock prices continued to fall, and depositor/investor nervousness was evident and reflected in attempted withdrawals from illiquid mortgage/property trusts. Throughout 2009, there were further failures of non-prudentially regulated finance-investment firms.

Both governments reacted strongly after Lehman’s collapse. Bank deposit and wholesale funding guarantees were introduced alongside large fiscal stimulus packages. In Australia the government took on a key investor role in new RMBS issues, and a short selling ban was introduced. Both Central Banks sharply reduced interest rates, further expanded the range of repo-eligible securities and undertook other liquidity enhancing measures, including entering foreign exchange swaps with the US Federal Reserve.

The relatively limited effect of the financial crisis upon the Australian and NZ economies can be traced to a number of factors including the effects of the resources boom and the importance of trade links with Asia. Fiscal stimulus and monetary easing also played a role. The resilience of the financial sector, reflected in the maintenance of strong profitability of the banking oligopoly, had several causes. Due perhaps to long-standing memories of banking woes at the start of the 1990s, lending standards had not declined. Prudential supervi-

sion of the Australian banks by APRA had been strict, and the merits of a simple regulatory structure involving such specialized institutions may be relevant here. The banks had no incentive for investment in “toxic” assets given their relatively profitable intermediation of wholesale market borrowings into domestic (largely housing) loans. Government guarantees enabled continued access to such international funding. Bank funding risks were passed onto borrowers and the equity market collapse impacted primarily upon investors. The concentrated branch banking system would seem to have made at least some contribution to financial stability in both countries.

Having introduced bank deposit guarantees in the crisis, both countries have had to determine longer term arrangements regarding deposit insurance, and here, very different paths are being taken. While Australia has made its Financial Claims Scheme permanent, NZ is adopting an “Open Bank Resolution” policy which imposes potential losses upon depositors at a failed bank. Bank guarantees have also entrenched perceptions of Too Big to Fail (although New Zealand policy would see depositors face a write-down rather than a bail-out), but there is little evidence of policy actions aimed at rectifying resulting competitive imbalances.

The two countries have been relatively quick to introduce Basel III capital adequacy and liquidity requirements. In NZ there has been a marked change in the structure and responsibilities of regulatory agencies with the Central Bank taking on a prudential regulation and supervision role and the replacement of the Securities Commission with a Financial Markets Authority. Neither country has shown interest in direct intervention in matters such as remuneration, or a forced separation of activities (such as retail ring fencing in banking). Luckily, resolution arrangements for banks were not tested during the crisis, so there have been no live trials of policies such as New Zealand’s proposed Bank Creditor Recapitalization scheme. Subsequent legislation has seen APRA’s powers strengthened. In both countries legislative requirements for supervisory consultation and consideration of Trans-Tasman effects have been bolstered. Particularly in Australia, failures outside the prudentially regulated sectors which imposed substantial losses on retail investors have led to a

major focus on consumer/investor protection reforms, including changes to financial adviser responsibilities, lender requirements for assessing product suitability, and greater disclosure requirements for providers of financial services and products.

Conclusion

The financial crisis continues to have aftershocks. Although the crisis had greater impacts on developed economies than on emerging markets, the ongoing European crisis threatens all economies.

The different Shadow Committees reports make clear that different lessons have been learned from the initial crisis and its aftermath. But there are common themes. An effective system of capital regulation, effectively enforced, is essential for financial stability. Ad hoc rescues of creditors and other stakeholders of failed or troubled financial institutions may purchase temporary stability, but at the very substantial cost of moral hazard over the long run. Macroeconomic errors, in particular excessive laxity for sustained periods, can lay the seeds for future crises.

The members of the Committees that have drafted these chapters hope that policy makers and citizens around the world can learn from these and other lessons that are provided in the pages that follow.

JOINT STATEMENT OF SHADOW FINANCIAL REGULATORY COMMITTEES

Asia, Australia/New Zealand, Europe, Japan,
Latin America, United States

Statement,
Washington, D.C.
October 24, 2011

The Eurozone Crisis: A Roadmap for Urgent and Decisive Action

While European leaders have been meeting in Brussels to address the crisis in the eurozone, our six Shadow Financial Regulatory Committees have been meeting in Washington to consider lessons from the recent global financial crisis. We believe that there are important lessons from that crisis for providing a framework for assessing the plans for resolving the current European crisis.

One of the central lessons of the recent global financial crisis, and other financial crises that have plagued the world the past decades, is that failing to recognize and credibly allocate losses does not make them go away. Rather, delayed action exacerbates market uncertainty about who will lose and how much, which worsens and prolongs market reactions to losses. For example, in 2007 and 2008, US and EU policy makers failed to resolve losses in financial intermediaries, even though those problems were apparent and recognized by mar-

kets. By waiting to act or recognize and allocate losses, policy makers aggravated uncertainty and were forced to respond reactively to the collapse in market confidence in the fall of 2008, which greatly enlarged the economic and social costs of the crisis.

Europe now faces a three-dimensional crisis: (1) debt sustainability problems of sovereigns, (2) bank solvency or capital inadequacy problems, and (3) differential competitiveness across countries of the eurozone (over- or under-valuation of real exchange rates within the eurozone). These problems are interrelated and the weights attached to each of them vary across countries within Europe. There is an urgent need for Europe to respond to these problems decisively. We acknowledge that this is hard, since there is no easy and painless way out. The necessary decisions that must be made will entail substantial costs over several years.

European policy makers must bear in mind that when short-term interventions are announced, market participants will be looking for credible commitments that ensure long-term sustainability of whatever plans are presented. This requires mechanisms for restoring sovereign solvency, confidence in banks, and competitiveness for troubled eurozone members. The ingredients of such a program include the recognition and allocation of existing losses, as well as reforms of fiscal policy, improvements in financial regulation, and growth-enhancing measures.

In order to address these problems quickly and effectively, Europe must undertake a four-stage plan for dealing with its crisis.

First, Greece – which is the most obviously troubled and fiscally unsustainable country within the eurozone – must restructure its debt to a sustainable level. While assisting Greece to restructure in an orderly fashion and restore growth, European leaders must ensure that the rest of Europe is successfully protected from any contagion to other countries' banks and sovereign debts that could accompany Greek restructuring. A successful response requires the agreement and articulation of a plan for allocating losses related to Greece in a way that prevents the contagion that results from a lack of a credible plan.

Second, as part of a broader, credible and transparent formula for recognition of losses and loss allocation, European governments must ensure that banks will be adequately capitalized to restore market confidence in the financial system. This means that banks that are currently exposed to potentially large losses must be sufficiently strong to avoid insolvency risk, or protected by government guarantees, or resolved with clear implications for their claimants, or re-capitalized, either with private or public funds. Tougher choices about bank resolution are now required because prior bailouts have significantly weakened public finances.

Third, sufficient funding must be available from a coordinated, large, and credible source to eliminate uncertainty about the sustainability of European sovereign debts. This also entails the recognition and allocation of losses, either explicitly or implicitly, and the provision of sufficient liquidity support. For example, the European Central Bank (ECB), European sovereigns, the IMF, or some other international consortium, could provide sufficient support for some or all sovereign debts. Funds from such a facility could be made available either without preconditions or only to qualifying countries that have passed sufficient reforms. All of these arrangements would be examples of coordinated, large, and credible plans for resolving sovereign debt uncertainty, each of which would imply effective taxes and transfers among various countries' taxpayers. Thus far, although the European Financial Stability Fund (EFSF) and ECB have provided some support to sovereigns, that support has been insufficient to resolve market uncertainty. We note, of course, that support from the ECB without credible commitments on the part of ECB member countries to absorb the fiscal consequences of ECB purchases, might result in a significant inflation tax.

Fourth, a sustainable long-run path for the current members of the eurozone must address long-run competitiveness problems related to current real exchange rate misalignments. Southern European countries' real exchange rates are currently substantially over-valued relative to the north. There are three obvious ways to correct this problem.

One approach – a passive strategy – would simply envision a painful deflationary adjustment of prices and wages in the south over several years. This approach entails costs of slow growth, high unemployment, and potential political unrest, all of which could undermine necessary fiscal consolidation. This approach may prove unsuccessful, and therefore, result in little gain at great cost.

A second strategy would be for some countries to leave the eurozone immediately. This would be disruptive to markets, and could undermine confidence in European institutions and the commitment to integration.

A third possibility would be to ease the adjustment process toward reestablishing competitiveness by engineering a higher inflation rate for several years in the eurozone. This would impose an inflation tax on the north, while easing the deflationary adjustment in the south. This adjustment would still require deep structural reforms in the south to prevent future misalignments of real exchange rates. To make these reforms credible, it might be necessary to reform governance structures within the eurozone and the EU.

Regardless of which of these options for the eurozone is chosen, it is vital that international bank regulation be fundamentally changed because the bank capital standards set by the Basel Committee and in place since 1989 contributed importantly to the crisis. As the incoming ECB President, Mario Draghi, recognized in a speech in Brussels in May, “the existence of loopholes [in the Basel framework] because of lack of coordination or consistency was indeed one of the major factors of the crisis.”

The European implementation of Basel II in the EU Capital Adequacy Directive of 2006 encouraged banks within the euro area to treat claims on member states denominated in euros as riskless by assigning such claims a risk weight of zero. This meant that banks were not required to back any of these holdings with equity. The European Central Bank (ECB) compounded this problem by lowering its minimum credit quality standard for collateral from A- to BBB- when it was confronted with liquidity problems and a deterioration

in the credit ratings of some member states.

The six Shadow Committees have been highly critical of the Basel standards over the years on multiple grounds, including their complexity and arbitrariness. We believe that the time has come to abandon the current Basel methods for setting capital standards and to substitute better standards, including a simple, but ample, minimum required leverage ratio – shareholders’ equity divided by total assets.

The entire world has a stake in an urgent, credible resolution of the eurozone crisis and rectification of bank regulation. There are several channels of potential transmission of European problems to the rest of the world if this crisis is not satisfactorily addressed. Failure to fix the bank capital standards will continue to provide artificial incentives for banks to purchase sovereign debt, regardless of quality, and thereby sow the seeds for possible future crises.

If capital flees the weaker European economies, there is a great risk that it will also flee from emerging markets in general, and from countries with high debt-to-GDP ratios, especially those with short-term maturity profiles. This would lead to higher interest rates and credit contraction in all these markets. Indeed, there is an urgent need to bolster IMF resources in order to provide liquidity to emerging market economies that could be damaged by the fallout from a failed eurozone plan.

In Latin America, the negative impacts could be magnified by the fact that European banks account for a large share of the banking system. If European banks are adversely affected by the crisis in their home countries, there is a significant risk that they will transfer funds from their Latin American operations to their home country offices, thereby leading to a dangerous contraction of credit in Latin American economies.

The U.S. economy is exposed financially in a different way. Roughly 40% of U.S.-based money market mutual fund assets are invested in the short-term liabilities of European banks. If those banks cannot honor their obligations, they expose these money funds to “breaking

the buck” and thus either potential runs, or yet another bailout as occurred after the Lehman failure in September 2008.

Worldwide investors are exposed through their equity investments in Europe. A crisis in Europe which resulted in a significant decline in European equity values could not only cause direct losses to shareholders in other economies, but trigger an equity crash in other markets.

Problems in Europe, if not properly addressed, could also severely interrupt trade finance, thereby cutting global trade. This outcome would be amplified by the substantial contraction in real activity in Europe that would cause a decline in exports from all countries now sending goods and services to Europe. Europe’s largest trade partners – the United States, Asia (China and Japan included), and all commodity exporters – would suffer.

Furthermore, there are unknown exposures. For example, it may be difficult for regulators to know the extent of counterparty risks relating to various European financial instruments and financial institutions. In the United States in 2008, AIG was rescued in part because regulators feared it was excessively exposed to counterparties on its credit default swap contracts. Who knows if there are other potential AIGs out there in the event of a Eurozone crisis?

In sum, time is of the essence. Actions to address the European crisis in a credible sustained fashion are urgently needed, while bank capital regulation throughout the world must be fundamentally reformed.

1

US Shadow Financial Regulatory Committee Financial Crisis in the US and Beyond

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1.0 Introduction and Summary

The 2007-2009 financial crises that started in the summer of 2007 had its origins in the US housing policies, the subprime mortgage market in particular, and the end of the real estate bubble in the US. Housing prices had started to decline in mid-2006 and into 2007 just about the time that issuance of highly leveraged securities by large financial institutions began to accelerate. The crisis was quickly transmitted to other financial sectors and throughout the rest of the world, in part because of the important role that foreign banks and their subsidiaries played in the US mortgage backed securities market. The crisis and post-recession period has been accompanied by extraordinary policy innovations by the federal government, the

Treasury and the Federal Reserve as they attempted to respond to what was initially perceived and treated as a liquidity crisis but which subsequently proved to be a solvency crisis.

The Federal Reserve cut its target federal funds rate and has maintained it at a range of 0-.25 percent since December of 2008 in an attempt to stem the crisis and thereafter stimulate the economy. It also instituted a series of liquidity support programs designed to redirect short term funds to primary dealers, then to support particular markets like the asset-backed commercial paper market, mutual funds and the mortgage market. It created a special purpose vehicle to subsidize the acquisition of Bear Stearns by JP Morgan Chase in March 2008. Finally it embarked upon a policy of quantitative easing as a substitute for its inability to lower interest rates further because of the problem known as the “zero bound” to nominal interest rates.

The Congress passed emergency stimulus legislation that attempted to use fiscal policy to stimulate the economy and job creation. The US Treasury created a series of programs to effectively guarantee the debts of Fannie Mae and Freddie Mac in the late summer of 2008, and to recapitalize large financial and non-financial institutions in the fall and winter of 2008 through the Temporary Asset Repurchase Program (TARP).

Financial markets have suffered significant pressures in the past, such as the 1987 crisis, the Long Term Capital Management crisis, and most recently the “dot com” bust in equity valuations that resulted in the loss of more than \$5 trillion in wealth. But those problems were not transmitted to other financial markets or to the real economy to any significant degree, largely because the dot com bubble was financed mainly in equity markets and did not involve US or other financial institutions taking significant risk through additional leverage that proved fatal when stock prices declined.

Careful consideration of the causes, consequences and policy responses suggest that various factors contributed to the severity of the 2007-08 crisis, and experts disagree about the weights to attach

to each in explaining what is now regarded as the most significant economic contraction since the Great Depression. The effectiveness of the various policy responses remains a matter of controversy, too, but one fact is not in dispute: the bailouts and subsidies involved in supporting large financial and non-financial institutions alike have reduced wealth and transferred resources from taxpayers to creditors, and in some cases, to the stockholders and management of those troubled institutions. The problems, and arguably some of the policy responses, may have unintentionally created an adverse feedback from the financial to the real sector of the economy. This paper attempts to provide greater clarity about the main causes of the crisis, the early signs of problems that were brewing, what measures US policy makers took in response to the crisis and its aftermath, and what lessons have been learned.

2.0 Origins of the Subprime Crisis

The 2007-09 financial crisis originated in the US financial system and then spread through much of the developed world. As is well known, the crisis centered on losses from subprime mortgage origination and securitization, and its effects were greatly magnified by excessive leverage in many large financial institutions. That is not to say that the US was unique in its high-risk, high-leverage binge in the years running up to the crisis (2002 to 2007). Many other countries (including, notably, the UK, Iceland, Spain, Ireland, and Hungary) also suffered from their over-exposure to risk during that period. But without the uniquely large subprime mortgage shock in the United States, the global financial crisis and its severe macroeconomic consequences for the world would have been much milder and shorter.

Why focus on subprime shocks, when US and global banks ultimately are facing losses on virtually all kinds of loans? The answer is that the losses on other categories of assets were smaller and came later in the cycle, and thus reflected the large shocks that originated in subprime lending.

In other words, the crisis developed not just from a world-wide asset

price bubble, or a US asset price bubble; it was first and foremost (although not exclusively) the product of a US subprime credit-driven housing bubble. Furthermore, all parties were not equally exposed to subprime losses (or to losses more generally, as shown in Figure 1), and any attempt to come to grips with the causes of the subprime crisis that does not explain this cross-sectional variation is incomplete. Some of the largest banks -- JP Morgan Chase, Bank of America, Deutsche Bank, Goldman Sachs, Morgan Stanley, Barclays, and Credit Suisse -- had relatively small exposures to subprime, at least before some of them acquired institutions that had large exposures of this kind. Indeed, some of these institutions benefited in some ways from the crisis, either because they were able to buy competitors at low cost (e.g., JP Morgan's acquisitions of WAMU and Bear Stearns), or because their competitors disappeared. In contrast, for the financial firms with large subprime exposures at the outset the crisis was an utter disaster that forced them either (1) to be placed in bankruptcy or conservatorship (Fannie, Freddie, and Lehman), (2) to be acquired by private firms (Bear, Merrill), or (3) to receive heavy assistance from governments to survive as independent firms (AIG, Citibank, and UBS).

The stories about the origins of the subprime shock that are being told are not all the same, and some popular stories overstate their case or require qualification. For example, some critics point to allegedly obvious incentive problems inherent in the "originate and distribute model" that led to the failure of securitization as an intermediation technology. The main criticism has been that securitization permitted the sponsors of the securities to have too little skin in the game. Two facts require a dose of caution before accepting that explanation.

First, sponsors actually retained large amounts of the subprime debts that they issued (and have the losses to show it), although some sponsors thought they were shedding their risks by putting them into ostensibly "off-balance sheet" entities ("Structured investment vehicles" or "SIVs" that certain banks had to put back on their balance sheets when losses became evident).

Second, it is important to understand that securitization, per se, did not fail. Securities backed by credit card loans, an alternative product to subprime MBS for consumer-finance based securitized debts, have operated reasonably well for three decades. Credit card-based securities continued to be issued until September 2008, when all financial transactions shrank dramatically, but these securities have since recovered along with other financial flows in recent months. Likewise, securities backed by prime mortgages have not evidenced anything like the losses that have shown up in the more avant-garde securities backed by subprime mortgage loans.

Others point to rating agencies as the culprits for the crisis. There is merit to the view that rating agencies grossly underestimated subprime risk, but here again, there was not uniformity in rating agencies' behavior. Research for over a decade has noted that ratings of securitized debts tend to be inflated relative to corporate debts, so there is evidence of a general inflation of ratings for securitized products. But during the financial crisis, the severe errors in rating methodology that produced grossly overstated ratings were specific to subprime-related securities.

When searching for explanations for these and other facts about the origins of the US subprime crisis, something else should be kept in mind. This was a financial institutions crisis, involving severe losses and insolvencies for commercial banks, investment banks, and to a lesser extent insurance companies, not just a financial crisis broadly defined. The history of financial institutions crises – that is, financial collapses in which financial intermediaries are severely exposed to loss – provides helpful guidance of where to look for explanations. Macroeconomic factors, including monetary policy laxity, are generally associated with financial booms and busts, but these macroeconomic considerations are not sufficient by themselves to produce crises centered on financial institutions, especially banks).

Banking crises - defined as moments of unusually large numbers of bank insolvencies, perhaps but not necessarily of large banks in particular, or times of banking panic – typically result from a combination of favorable macroeconomic circumstances (e.g., loose monetary

policy) alongside severe microeconomic distortions, often relating to government subsidization of risk. Banking episodes of this nature have been rare historically, but have become common worldwide over the past three decades (Calomiris 2009a). Furthermore, in the US and elsewhere, high and pro-cyclical bank leveraging – a key source of bank vulnerability to asset price bubbles – is also a recent phenomenon (Schularick and Taylor 2009). These and other factors point to structural changes in banking systems – especially related to safety net policies that protect banks – which have weakened or removed market discipline and distorted banks’ incentives toward risk taking around the world that wound up playing major roles in the crisis (Barth et al. 2006).

In coming to grips with the origins of the current global financial crisis, this section will: (1) describe the microeconomic distortions in incentives toward risk; (2) explain the particular origins of subprime-related risk taking in the US and its timing; (3) discuss why some, but not all, large financial firms had taken on large subprime risks; and (4) explain the breakdown in the ratings process for subprime-related securitized debts, but not other debts.

2.1 It Wasn’t Just Bad Luck

The default risk on subprime mortgages was substantially underestimated in the market during the subprime boom of 2000-2007. One starting point for explaining the origins of the subprime crisis is to ask whether the large losses and huge underestimation of risk that occurred in the pricing of subprime-related securities was the result of identifiable and predictable errors, or alternatively, just bad luck. Recent academic studies describe in detail the faulty assumptions that underlay the massive securitization of subprime mortgages and related collateralized debt obligations (CDOs, which were complicated securities that were constructed from other securities, mainly those backed by subprime mortgages). It can be difficult to establish the “before the fact” (or *ex ante*) unreasonableness of any assumptions. Nevertheless, in the case of subprime securitizations, it is not so difficult. Some facts known to everyone in advance of the subprime collapse were simply put aside in the modeling of risk by numerous parties.

In retrospect, the two most important errors of subprime risk modeling were: (1) the assumption that house prices would not fall, an especially important assumption, given that subprime mortgage-backed securities (MBS) was much more sensitive to house price assumptions than normal MBS, as discussed further below, and (2) the assumption that ignoring “soft” information and allowing lending with little or no borrower documentation (“no-docs” or “low-docs” mortgages) based entirely on Fair Isaac Co. (FICO) credit scores would not result in significant adverse selection in the pool of no-docs and low-docs mortgages. In short, the models wrongly assumed that a mortgage with, say, a 600 FICO score and with proper documentation of employment was roughly as good as a mortgage with a 600 FICO score with no documentation. According to recent research by Rajan, Seru and Vig (2011) each of those two modeling errors was of roughly equal importance in generating the massive deterioration in subprime mortgage portfolios. Without those assumptions there would have been no subprime debt crisis. And yet, those assumptions were obviously unreasonable on an *ex ante*, not just *ex post*, basis during the subprime boom.

What was the basis for assuming that house prices would never fall? The subprime mortgage was a relatively new product, which grew from humble beginnings in the early 1990s. By 2003, Wallison (2011, p. 65) shows that there were already hundreds of billions of dollars in subprime mortgages outstanding, especially in the portfolios of Fannie Mae and Freddie Mac. Underwriting quality deteriorated over time for subprime and Alt-A loans, especially after 2003. Total originations took off, more than doubling in 2004 and peaking in 2006 and early 2007. Subprime risk models based their stress tests, including their house price stress tests, on a short period of “look-back.” For some variables in the models (say, interest rates) that may have been a reasonable practice, given the short track record of the product, but it was not reasonable to base projections of the possible paths of housing prices only on ten years of retrospective data. Doing so meant that modelers relied on the experience of housing prices during a single recession -- the 2001 downturn -- to gauge the potential downside for the housing market. The 2001 recession was also unique from the standpoint of the housing cycle

since it was the only recession in US history in which housing price growth was sharply positive. Other prior recessions show a very different pattern. Wouldn't it have been more reasonable to assume during the 2003-2007 period that the next recession might see a flattening or a decline in housing prices, which was the rule rather than the exception?

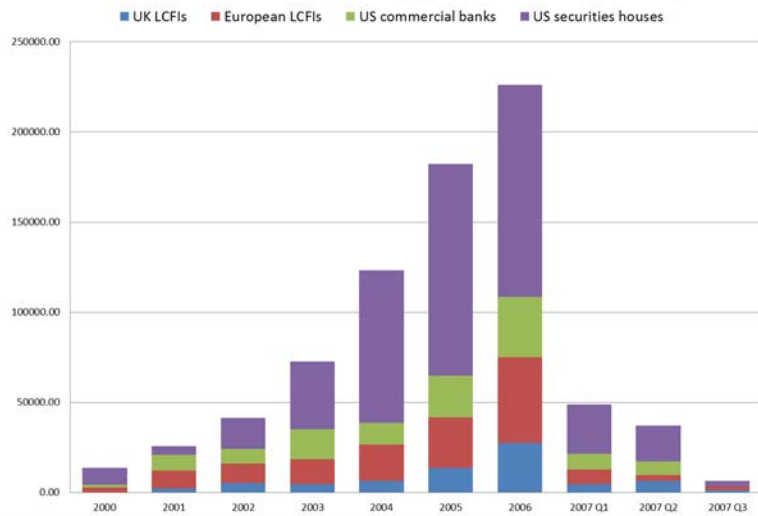
Indeed, some well-placed risk managers worried that the US was overdue for a housing price decline, partly because of the extremely positive performance of the 1990s and early 2000s. David Andrukonis, a risk manager at Freddie Mac, recognized in his April 5, 2004 letter to a superior that the reliance of underwriters on house price appreciation to "bail out" subprime lenders was based on a false extrapolation of the past into the future: "We are less likely to get the house price appreciation we've had in the past 10 years to bail this program out if there's a hole in it" (Calomiris 2008). There were economists, notably Robert Shiller (2000) of Yale and Raghuram Rajan (2005) of the University of Chicago, who warned the wider public of a housing bubble in the making.

The assumption that no-docs mortgages would have the same risk as well-documented mortgages with similar FICO scores also defied economic logic and the experience of the mortgage market with no-docs products in the 1980s. Mr. Andrukonis weighed in – as did several other risk managers at Freddie Mac – to discourage his superiors from entering this product area in 2004. He reminded them that "in 1990 we called this product 'dangerous' and eliminated it from the marketplace." The warnings did not work, and top management specifically referred to their political mandate to grow subprime credit in rebuffing the objections of their risk managers.

Freddie Mac was not alone in its enthusiasm for subprime products. Many financial institutions piled in and as a result the growth in subprime originations from 2004 to 2007 was meteoric (See Figure 1), and was accompanied by a significant deterioration in borrower quality due to the growth in no-docs and low-docs mortgages. The heavy weight of no-doc mortgages in subprime portfolios after 2004 nonetheless largely reflected the decisions of Fannie Mae and Freddie

Mac (the government-sponsored entities that dominated the mortgage market) to make massive purchases of no-doc subprime MBS in mid-2004. These decisions were made over the strong objections of their risk managers who pointed to large adverse-selection consequences from doing so (Calomiris 2008). Those objections not only were based on the experience they had with no-docs mortgages in the 1980s but also using simple economic theory, the consequences of no-doc lending were predictable. If a mortgage lender hangs out a shingle saying that he will ask no questions but the FICO score, then it will attract (“adversely select”) people who know that their FICO scores are about to deteriorate. The three primary reasons for consumer defaults are the loss of a job, a severe health problem, and divorce.

Figure 1. Issuance of Subprime Mortgage Backed Securities (\$ billions)



Source: Bank of England, Financial Stability Report 2007

All of those three events are known to the borrowers long before their consequences show up in the FICO score; only by doing proper due diligence can a lender detect these problems well in advance of their impact on that score. Banks that do not behave prudently will predictably “adversely select” lower quality borrowers. Even more remarkably, subprime originations for late 2006 and early 2007 continued at peak levels despite mounting evidence beginning in mid-2006 that housing prices were flattening (which had predictably

disastrous consequences for subprime portfolios), and evidence of unprecedented performance problems beginning to occur in existing portfolios, which were discussed openly by the ratings agencies.

Josef Ackerman, the CEO of Deutsche Bank, said in a speech given at the European Central Bank in December 2008 that his bank fled the subprime market in mid-2006 in reaction to these obvious signals of problems. Professor Gary Gorton of Yale, in his oral comments at the August 2008 Kansas City Federal Reserve Bank's Jackson Hole Conference described the continuing high-volume of originations in 2006 and 2007 by Merrill, UBS, and Citibank in light of the obvious problems brewing in the housing market as "shocking." Gorton (2008) emphasized that the core assumption on which subprime lending had been based was the permanent appreciation of home prices. By the middle of 2006, that assumption was being disproven, and no one – least of all the rating agencies – seemed to care.

The rating agencies did notice the problem, they just did not react to it very well – a failure that reflected the conflicted incentives of the agencies (as discussed further below in Section 2.4.1)¹. According to Fitch's extremely negative discussion of subprime prospects in December 2006, the environment became increasingly negative after the first quarter of 2006, as indicated by the fact that "the number of sub-prime downgrades in the period between July and October 2006 was the greatest of any four-month period in Fitch's history for that sector" (up to that point). Fitch correctly predicted that "the sensitivity of sub-prime performance to the rate of HPA [home price appreciation] and the large number of borrowers facing scheduled payment increases in 2007 should continue to put negative pressure on the sector. Fitch expects delinquencies to rise by at least an additional 50% from current levels throughout the next year and for the general ratings environment to be negative, as the number of downgrades is expected to outnumber the number of upgrades." Nevertheless, in the midst of all this negative news, subprime mortgage originations continued at a feverish pace, and not until the middle of 2007 were these serious problems reflected in significant (albeit still inadequate)

¹ Technically, the ratings agencies are not "agencies" at all, in the sense that they did not represent any private party or were governmental bodies. We use the term here because it is the colloquial term for them.

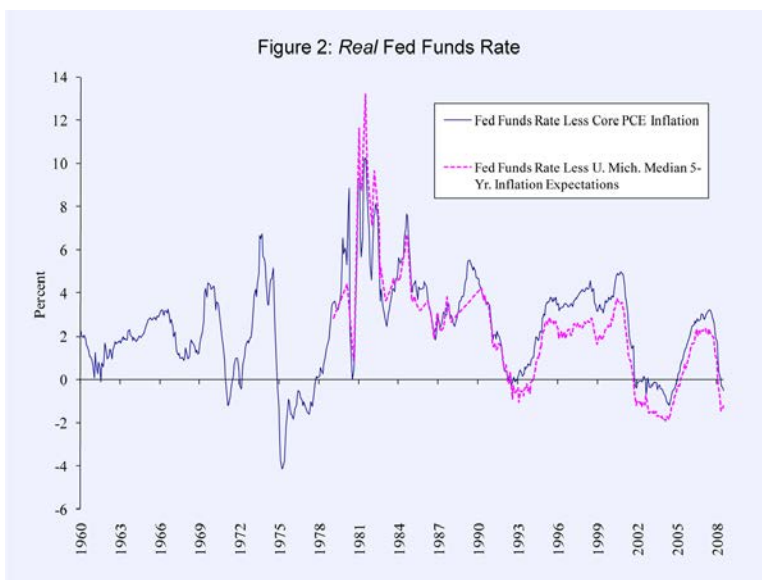
changes in modeling assumptions by the ratings agencies.

The predictable risk-taking mistakes of financial managers were not the result of random mass insanity; rather, they reflected a policy environment that strongly encouraged financial managers to underestimate risk in the subprime mortgage market and a prudential regulatory system that did not provide an effective check on those excesses. Four categories of error were especially instrumental in producing the crisis and we discuss them in turn.

2.2 Error 1: Monetary Policy and Global Imbalances

Lax Fed monetary policy, especially from 2002 through 2005, promoted easy credit and kept interest rates very low for a protracted period. As already noted, the history of banking crises teaches us that, while monetary ease by itself is not a sufficient condition for generating a banking crisis, it is frequently a significant contributor aggravating bad decision making (Bordo and Haubrich 2009, Calomiris 2009b, and Bekaert et al. 2011) show that reductions in the fed funds rate target in particular are associated with a substantial narrowing of risk premia in markets.

As Figure 2 shows, the history of postwar monetary policy has seen only two episodes in which the real fed funds rate remained negative for several consecutive years; those periods are the high-inflation episode of 1975-1978 (which was reversed by the anti-inflation rate hikes of 1979-1982) and the accommodative policy environment of 2002-2005. Figure 2 also shows that the Federal Reserve deviated sharply from pursuing policies consistent with the “Taylor Rule” (an equation used by monetary economists to describe the historical relationship between fed funds rates set by the Fed and contemporaneous unemployment and inflation) in setting interest rates during the 2002-2005 period. Fed funds rates remained substantially and persistently below the levels that would have been consistent with past behavior described by the Taylor Rule.



Not only were short-term real rates held at persistent historic lows, but because of the peculiarities in the market for medium- and long-term US Treasuries due to global imbalances and Asian demands for debt, the Treasury yield curve was virtually flat from 2002 to 2005, meaning that extremely low interest rates prevailed across all maturities. Accommodative monetary policy and a flat yield curve made credit easily available to support expansion in the housing market at abnormally low interest rates, which encouraged overpricing of houses, while also stimulating demand for higher interest-bearing, seemingly safe securities, like the first “tranche” of MBS backed by subprime mortgages.

To be fair, however, the Fed was operating in a more complicated environment. Had it tried to choke off housing, which was the main driver for the recovery and the main beneficiary of multiple and general public policies outlined in the following section, it likely would have resulted in substantial Congressional pushback and possible measures that would have compromised the independence of the Fed itself.

2.3 Error 2: Subsidization of Mortgage Risk

Numerous government policies specifically promoted or subsidized subprime mortgage-related risk taking by financial institutions (Calomiris 2009b). Those policies included (a) HUD mandates on the portfolio composition of mortgages purchased by the government-sponsored enterprises (GSEs), Fannie Mae and Freddie Mac, to promote “affordable housing,” which required the GSEs to meet quotas for proportions of assets invested in loans to low-income borrowers, minorities, and borrowers living in “underserved” locations; (b) lending subsidies via the Federal Home Loan Bank System to its member institutions that promoted high mortgage leverage and risk; (c) FHA subsidization of high mortgage leverage (nearly zero down payments) and high borrower default risk; (d) government and GSE mortgage foreclosure mitigation protocols that were developed in the late 1990s and early 2000s to reduce the costs to borrowers of failing to meet debt service requirements on mortgages, which encouraged risky mortgage borrowing by forcing originators to renegotiate delinquencies rather than foreclose (these new protocols were associated with a substantial reduction from the mid-1990s to the early 2000s in the probability of foreclosure occurring conditional on 90-day delinquency); and (e) almost unbelievably, 2006 legislation that prohibited so called “notching,” which encouraged rating agencies to relax their standards for measuring risk in subprime securitizations, and sent a continuing strong signal to markets that government remained committed to using its powers to promote continuing optimism about the mortgage market.

All of these government policies contributed to the underestimation of subprime risk, but the politicization of Fannie Mae and Freddie Mac and the actions of members of Congress and the Clinton and Bush Administrations in particular which encouraged reckless lending by the GSEs in the name of affordable housing were among the most damaging microeconomic policy actions that later contributed to the financial crisis.

In order for Fannie and Freddie to maintain their implicit (now explicit) government guarantees on their debts, which contributed

substantially to their profitability, they believed (with good cause) that they had to meet mandated portfolio targets for low-income borrowers and under-served locations set for them by HUD. At the behest of Congress and both Administrations, HUD raised these targets over time, requiring the two housing GSEs to ramp up their investments in risky subprime mortgages and guarantees of mortgage securities backed by such loans (Wallison 2011 and Pinto 2011). Unfortunately, because the number of creditworthy subprime borrowers did not grow as fast as HUD's GSE mandates, the only way for the GSEs to meet their quotas was to debase their underwriting standards, especially by accepting undocumented subprime loans with high loan-to-value ratios.

Absent the involvement of Fannie and Freddie in aggressive subprime and Alt-A mortgage buying beginning in 1997, it is likely that the total magnitude of toxic mortgages originated would have been substantially reduced, although the precise counterfactual is difficult to specify. Nevertheless, it is reasonable to assume that Fannie and Freddie crowded in market participation more than they crowded it out. The removal by Fannie and Freddie of caps on their no-doc and low-doc lending, and the entry into no-doc mortgages in an aggressive way in 2004, facilitated the doubling of subprime and Alt-A originations in that year, and continuing increases from 2004 to 2006.

In mid-2006, when housing price weakness led others like Goldman Sachs and Deutsche Bank to pull back, Fannie and Freddie – as their HUD quotas required – continued to purchase subprime and Alt-A securities well into 2007. The GSEs' involvement likely contributed to the willingness of Citibank, UBS, and Merrill Lynch to continue originating subprime securities long after the flattening of house prices. Also, Fannie and Freddie had demonstrated little interest in monitoring compliance by originators with representations and warranties (which they had systematically ignored), and they seemed to offer originators a blank check – a reliable put option if problems arose. The reliability of that put option was enhanced by Fannie and Freddie's accounting practices (now the subject of an SEC suit), which understated the size of the aggregate amount of their sub-

prime exposures. By September 2008, however, market participants were aware of the spiking rates of delinquency in mislabeled “prime” mortgages, and only then did Fannie and Freddie’s likely insolvency become apparent.

2.4 Error 3: Prudential Regulatory Failure

Prudential regulation of commercial banks by the government has proven to be ineffective in preventing massive risk taking by protected banks with insufficient buffers of capital to absorb their losses. That failure is reflected in (a) fundamental problems in measuring bank risk resulting from regulators’ ill-considered reliance on credit rating agencies assessments and internal bank models to measure risk, and (b) the too-big-to-fail problem (Stern and Feldman 2004), which makes it difficult to credibly enforce effective discipline on large, complex financial institutions (like Citibank, Bear Stearns, AIG, and Lehman) even if regulators detect that those institutions have suffered large losses and that they have accumulated imprudently large risks.

The risk measurement problem has been the primary failure of banking regulation, and a subject of constant academic regulatory criticism for decades. Bank regulators utilize various means to assess risk, depending on the size of the bank. Under the simplest version of regulatory measurement of bank risk, subprime mortgages should have had a 100% risk weight, but in the case of securitizations guaranteed by Freddie and Fannie, that weight was only 29%. The more complex measurement of subprime risk (applicable to larger US banks) relies on the opinions of ratings agencies or the internal assessments of banks, and unsurprisingly, neither of those assessments is independent of bank management.

2.4.1 Subprime Ratings Inflation and the Regulatory Reliance on Ratings

Rating agencies, understandably are supposed to cater to buy-side market participants (i.e., banks, pensions, mutual fund companies, and insurance companies that maintained subprime-related asset ex-

posures), but when their ratings are used for regulatory purposes, buy-side participants also reward rating agencies for underestimating risk, since that helps the buy-side clients avoid regulation. Likewise, it is widely believed that one major problem with rating agency grade inflation of securitized debts, in particular, is that sellers of these debts (sponsors of securitizations) are the ones who pay for ratings rather than the buyers. Yet this view, too, fails to recognize that the buyers of the debts also want inflated ratings because of the regulatory benefits they receive from those inflated ratings.

Moreover, rating agencies had no incentive to construct realistic models or respond realistically to bad news relating to subprime instruments for a simple reason: their buy-side clients did not want them to. Institutional investors managing the portfolios of pensions, mutual fund companies, insurance companies and banks continued to buy subprime-related securitization debt instruments well into 2007. Even the financial institutions, both domestic and international, that sponsored these instruments (and presumably had the clearest understanding of their toxic content) continued to retain large amounts of the risk associated with the subprime MBS and CDO securitizations they packaged, through purchases of their own subprime-related debts and credit enhancements for subprime conduits. Were the bankers who created these securitizations and retained large exposures for their banks related to them, and other sophisticated institutional investors who bought subprime-related securities, aware of the flawed assumptions regarding housing prices and no-docs mortgages that underlay the financial engineering of subprime MBS by ratings agencies? These assumptions were widely publicized as part of the process of selling the securities. Did they object? Apparently not.

Why did bank investors create these risks for themselves and other institutions, and why did sophisticated institutional investors buy these overpriced securities? The obvious answer is that asset managers were placing someone else's money at risk, and earning huge salaries, bonuses and management fees for being willing to pretend that these were reasonable investments. For financial institutions originating and holding such positions, managers were able to point to low regu-

latory capital risk charges as supportive of the low default risk on these securities. Rating agencies also gave legitimacy to this pretense, and were paid to do so. Even savvy investors or originators may have reasoned that other competing banks and asset managers were behaving similarly, and that they would be able to blame the collapse (when it inevitably came) on a surprising shock. The script would be clear, and would give plausible deniability to all involved. “Who knew? We all thought that the model gave the right loss assumption! That was what the rating agencies used.” Plausible deniability was a device for allowing asset managers to participate in the feeding frenzy at little risk of losing customers (precisely because so many participated). Because asset managers could point to market-based data and ratings at the time as confirming the prudence of their actions on a forward looking basis, they were likely to bear little cost from investor losses.

In short, the regulatory reliance on ratings magnified a preexisting agency problem on the buy side of the securitized debt market. Rating agencies and asset managers were willing accomplices and the latter invested too heavily in risky assets because of an incentive conflict or “agency problem,” in part because regulators relied on the agencies’ ratings. If asset managers had informed their clients of the truth – that the supply of good investments in risky assets had been outstripped by the flood of financial savings, and that consequently, the risk-reward tradeoff did not warrant further investment in risky assets – then asset managers would have been required to return money to clients rather than invest in risky assets. Presumably the money would then have ended up in bank deposit accounts or other low-risk (and low-fee generating) investments. Returning the money to investors under these circumstances would have made investors better off (given the poor return to bearing risk), but it would have made asset managers worse off since their fees grew in proportion to the amount of funds invested in risky assets.

To what extent is it plausible to argue against this view by pointing to the novelty of securitization products (subprime MBS, CDOs, etc.), which may have made investors and rating agencies unable to gauge risk properly in advance of the crisis? As noted, data and logic avail-

able prior to the crisis showed that key assumptions regarding the possible path of home prices and the adverse-selection consequences of no-docs mortgages were unrealistic. Furthermore, the novelty of a securitization product, in and of itself, should be an indicator of a need to adjust estimates of risk upward. Experience suggests that rating agencies frequently have underestimated the risks of new products and only adapted their behavior after major credit or fraud events occur, which shows that their risk measures and controls for new products tend to be inadequate. Experience prior to the subprime collapse (in credit card securitization, in delinquent consumer account receivable securitization, and in other areas) in particular has shown that the learning curve related to underestimation of risk can be steep. Decades of experience with steep learning curves in new securitization products indicates yet another reason that properly incentivized institutional investors should have been cautious about the new, fast growing markets in subprime mortgages and CDOs.

Indeed, it is particularly revealing to contrast the measurement of subprime risk with the measurement of risk in the much older credit card securitization business. In credit card securitization, even during the subprime crisis, market participants paid close attention to the identities of originators, to their performance in the past, to the composition of portfolios, and to how compositions changed over time, and originators were rewarded with greater leverage tolerances for “seasoned” receivables with good track records. In contrast, until the middle of 2007, the ratings of subprime portfolios (based largely on the unrealistic expected loss assumptions) seem to have been extremely insensitive to changes in borrower quality, product type (which is correlated with unobservable aspects of borrower quality), or the state of the housing market. And there was dramatic new entry into subprime origination in 2004-2006 by fly-by-night originators, yet these new entrants offering new, riskier products to new customers seem to have been able to raise funds under more or less the same low loss assumptions as old originators who offered older, lower-risk products. The principles learned over twenty years in the credit card securitization business were thrown out the window when rating subprime-related securitizations.

This account of the origins of the crisis does not place the blame for the mispricing of risk exclusively on securitization sponsors (the sell side) or on rating agencies. After all, sponsors were only supplying what asset managers of their own institutions or outside buyers were demanding, fueled by the Fed's low interest rate policy and Asian money, which encouraged buyers to seek out seemingly safe, higher paying assets. And the rating agencies were also doing what the investors wanted – going through the mechanical process of engineering conduit debt structures, and rating them, based on transparently rosy assumptions. Rating agencies were not deceiving sophisticated institutional investors about the risks of the products they were rating; rather they were transparently understating risk and inflating the grading scale of their debt ratings for securitized products so that institutional investors (who are constrained by various regulations to invest in debts rated highly by nationally recognized statistical ratings organizations, or NRSROs) would be able to invest as they liked without being bound by the constraints of regulation or the best interests of their clients.

Many observers wrongly attribute rating agencies' behavior solely to the fact that sponsors, rather than investors, paid for the ratings. But as noted above, if sophisticated institutional investors had not wanted the models to be mis-specified and the ratings to be inflated, then the ratings agencies would not have built such faulty models and would not have generated such inflated ratings. Regulatory reliance on ratings encouraged ratings inflation and model misspecification of subprime-related securitized debts. Ratings inflation therefore would have occurred even if the buy side had paid for ratings.

2.4.2 Too Big To Fail

The too-big-to-fail problem relates to the lack of credible regulatory discipline for large, complex financial institutions. For them, the prospect of failure is considered so potentially disruptive to the financial system that regulators have an incentive to avoid intervention. The incentives that favor "forbearance" and/or explicit government assistance ex post can make it hard for regulators to ensure compliance ex ante. The too-big-to-fail problem magnifies the so-

called “moral-hazard” problem of the government safety net: banks that expect to be protected by deposit insurance, Fed lending, and Treasury-Fed bailouts, and that believe that they are beyond discipline, will tend to take on excessive risk, since taxpayers share the costs of that excessive risk on the downside.

The moral hazard of the too-big-to-fail problem was clearly visible in the behavior of the large investment banks in 2008. After Bear Stearns was rescued by a Treasury-Fed bailout in March, Lehman, Merrill Lynch, Morgan-Stanley and Goldman Sachs all sat on their hands for six months awaiting further positive developments (notably, an improvement in the market environment or a handout from the federal government). In particular, Lehman did little to raise capital or shore up its position not only because management thought financial conditions would improve, but also because its chief executive officer thought that the government would never let it fail (Sorkin, 2009). But when conditions deteriorated and the anticipated bailout failed to materialize for Lehman in September 2008 – showing that there were limits to Treasury-Fed generosity – the other major investment banks immediately either became acquired or transformed themselves into commercial bank holding companies to signal to markets that they would have increased access to Fed and government support.

2.5 Error 4: Large Bank Insensitivity to Market Signals

Distorted incentive problems played a key role in the financial crisis. In particular, the breakdown in risk controls can be directly traced to incentive problems. The crisis demonstrated that despite the large literature and attention paid to ways to structure compensations schemes so as to make them sensitive to market signals, these mechanisms all proved ineffective in limiting undue risk taking.

It is interesting that for a long period of time, the partnership was the dominant form in investment banking. Partners had substantial portions of their wealth at risk, but as institutions grew, incorporation was encouraged by the need to raise additional capital to help finance the huge scale that industry has assumed. This meant that

internally generated funds were insufficient to fund large mergers and leveraged investment vehicles. Investment banks abandoned the partnership form in the 1980s and early 1990s and formed limited liability corporations as a means of raising more capital (and also enabling partners to liquefy their ownership interests in their institutions, Cumming and Eisenbeis (2009).

The corporate form freed investment banks from barriers to raising capital. However, for some activities like trading and securities issuance, the opportunity for high returns, the tradability of securities that they issued and sponsored, the ability to take on huge leverage and the difficulties of assessing risk positions created perverse incentives. When accompanied by a long economic boom period, these factors combined to enable financial institutions to take on more leverage and risk in the pursuit of high returns, and ultimately large personal compensation packages for management. It was not unusual for financial institutions – both banks and investment banks alike – to target returns on equity in the high teens and mid-twenties, well above historical norms.

Government regulations contributed to the perverse incentives. For example, limiting who can buy stock in commercial banks has fragmented ownership and made institutions less sensitive to the interest of shareholders, which contributed to the buy-side agency problems within banks that led to large subprime risks. Hedge funds and private equity funds have traditionally been barred from controlling bank holding companies. Pension funds, mutual funds and insurance companies are limited by regulations to only own small stakes in any public firm, including banks. By limiting the concentration of ownership of banks, these regulations collectively immunized managers of large banks from challenges by sophisticated shareholders that could have reined in their risk-taking.

Lack of sensitivity to market risk monitoring allowed bank management to pursue investments that were unprofitable for stockholders in the long run, but that were very profitable to middle managers who ran those portfolios in the short run, given the short time horizons of managerial compensation systems. When such discipline is

absent managers are able to profit from risk-taking to benefit themselves at the expense of stockholders. An asset bubble (like the subprime bubble of 2003-2007) offers an ideal opportunity for this kind of behavior. If senior managers establish compensation systems that reward subordinates based on total assets managed or total revenues collected, without regard to risk or future potential loss, then subordinates are incentivized to expand portfolios rapidly during a bubble without regard to risk.

Few academic studies attempt to explain the dramatic differences in performance, compensation and other incentive arrangements within the financial services industry, or even recognize that they exist. One particularly interesting exception is Ellul and Yerramilli (2010), who show that differences in ex ante risk and ex post losses were predictable across bank holding companies on the basis of the relative strength of the institutional commitment to risk management. As a proxy for that commitment, they employ the ratio of the compensation paid to the chief risk officer relative to the compensation paid to the chief executive officer. Banks with a high ratio suffered less risk ex ante and less loss ex post.

In other words, failures in the internal organizational rules of the game that bank CEOs established were crucial contributors to the crisis. The question remains, however, why some banks chose to invest more in risk management than others. The existence of government subsidies for affordable housing and government guarantees can explain why Fannie Mae and Freddie Mac absorbed half of subprime mortgage risk, but cannot explain why Citibank and JP Morgan Chase made such different choices leading up to the crisis. Thus far, empirical research has not delivered a convincing explanation for these differences.

2.5.1 What About Deregulation?

This review of the four areas in which government policy contributed to the financial crisis has made no mention of deregulation – specifically the Gramm-Leach-Bliley Act of 1999 (GLB) which removed the remaining barriers to common ownership of investment and

commercial banks. Many observers nevertheless have claimed that “deregulation” caused the crisis. But involvement by banks and investment banks in subprime mortgages and mortgage securitization was in no way affected by the deregulation of the last two decades. Indeed, investment banks without significant commercial bank operations, and vice versa, each aggressively participated in the origination and securitization of subprime mortgages. GLB had nothing to do with this activity. In fact, deregulation cushioned the financial system’s adjustment to the subprime shock when it was fully manifested by making banks more diversified and by allowing troubled investment banks to become stabilized by becoming, or being acquired by, commercial banks (Calomiris 2009b).

2.5.2 The Size of the Shock vs. the Size of the Crisis

The severity, duration, and spread of the subprime crisis were disproportional to the actual losses directly related to subprime securities. Why did subprime losses cause such widespread havoc throughout global financial markets? The answer to that question revolves around a chain of causation from insolvency concerns about banks, producing funding problems for those banks (and others), which ultimately led to a perceived liquidity crisis that adversely affected the pricing of all assets.

The impacts of financial losses are magnified when the distribution of loss is hard to ascertain. This “asymmetric-information” problem produces a widespread scramble for liquidity throughout the financial system when it is under stress, which causes suppliers of credit to refuse to roll over debts, and causes interest rates on risky securities and loans to rise dramatically, reflecting not only the fundamental credit risk in the system, but also the illiquidity of the markets. This race for liquidity magnifies losses and the risk of financial failure far beyond what otherwise would have occurred if it were easy to identify exactly who suffered from the fundamental exogenous shocks giving rise to the crisis.

Gorton (2008) argues that the complexity of subprime-related securitizations contributed greatly to the inability of the markets to

identify the distribution of loss in the system, once the crisis began. That alleged inability reflected the complex design of the distribution of cash flows in the various securitizations, the multiple layers (or tranches) of securities, and the sensitivity of the portfolios that contained these instruments to uncertain changes in housing prices. Securities backed by subprime mortgages were especially vulnerable to the decline in housing prices because the payouts on these securities were predicated on scenarios that only envisioned rising housing prices. This only made it more difficult reliably to project payouts in a declining housing price environment.

Schwarz (2010) devises an innovative means of distinguishing between the exogenous effects of fundamental loss expectations and the endogenous effects of the scramble for liquidity in explaining the widening of credit spreads during the crisis. Liquidity risk is captured by market factors unrelated to default risk (e.g., spreads on sovereign bonds of different liquidity), and credit risk is captured by differences between banks in the rates they paid in the interbank market (abstracting from changes in the average interest rate, and therefore, from the common effect of liquidity risk). She finds that roughly two-thirds of the widening of credit spreads was attributable to liquidity risk.

2.6 Summary and Conclusion

Loose monetary policy and global imbalances can explain the timing of the housing market boom, but like other severe banking crises historically, microeconomic government policies that distorted the risk taking decisions of financial institutions were crucial necessary conditions for causing the subprime mortgage crisis. The microeconomic policy errors enumerated above that caused the subprime crisis relate to the fundamental design of the financial system – housing finance policy, prudential regulatory policy, and corporate agency problems at large banks – all of which been the subjects of substantial academic research prior to the financial crisis.

3.0 Government and Federal Reserve Responses to the Crisis¹

There were three distinct phases of the financial crisis and each elicited its own response on the part of the Federal Reserve in the United States in its attempt to deal with the associated problems. The first phase or “liquidity phase” dates from early August of 2007 until the first week in September 2008. The press reported that markets had frozen up, banks could no longer fund themselves in the overnight markets and interbank market spreads had widened significantly. The second phase or “solvency phase” began in early September of 2008 with the failures of Lehman Brothers and AIG and the government takeovers of Freddie Mac and Fannie Mae. Market spreads again widened and problems began to spread to broader segments of the mortgage market and money market mutual funds threatened to break the buck. Finally, the third phase began in mid-December of 2008 when the FOMC changed how it administered its Federal Funds rate target from using a single interest rate to targeting a range for the funds rate between 0 and .25%. This last period ushered in a time of unconventional monetary policy that involved significant expansion of the Federal Reserve’s balance sheet. For purposes of this paper, we will focus primarily on the first two of these three phases.

3.1 Phase I – Liquidity Problems and Frozen Markets

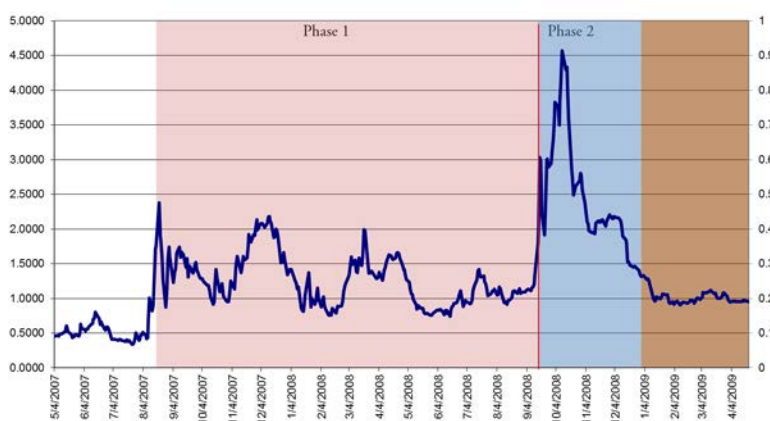
The financial crisis began rather slowly in May of 2007, but then erupted in August of 2007. Increased credit spreads in the interbank lending markets jumped significantly, especially in the LIBOR (London Interbank Offer Rate, which was the rate for international bank funding), Federal Funds and asset-backed commercial paper markets.

The claim was that these markets had frozen up and that financial institutions could no longer fund themselves in the short-term markets. The problems institutions had in funding themselves were reflected in the “TED” spread shown in Figure 3. The TED spread represents the difference between the 3 month London Interbank Borrowing Rate (LIBOR) and the three month Treasury bill rate.

¹ This section draws heavily upon Eisenbeis(2008, 2009, 2011).

The figure shows that the typical spread prior to its spiking averaged about 25 basis points through April of 2007. It then jumped to an average of about 50 basis points in May 2007. This doubling of spreads provided some of the first clues as to the impending liquidity concerns. Liquidity problems accelerated in August when the spread jumped to 1% on August 10th, then to 1.3% on August 15 before peaking at 2.375% on August 20th, as shown by the vertical red line in the figure.

Figure 3. TED Spread - 3 Month LIBOR less 3 Month Treasury Bill Rate - July 2007-April 2009

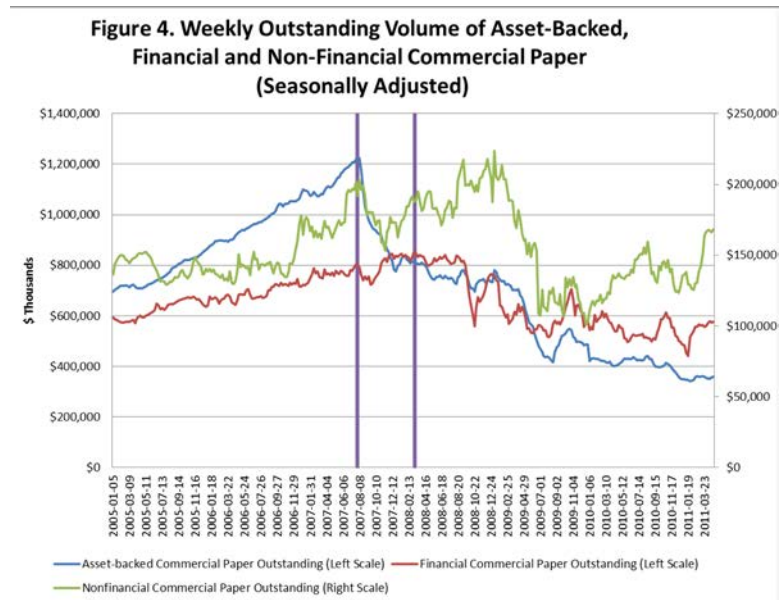


Much of the interbank funding that was going on was related to the ballooning mortgage market and the “originate to distribute” model for mortgages – both prime and sub-prime. Both mortgage originators and securitizers borrowed short term and relied upon extreme leverage to warehouse temporarily both new mortgages and newly packaged mortgage-backed securities until they could be sold to investors. In some instances, institutions like AIG employed leverage combined with short term borrowing to finance their holdings of longer term mortgage-backed securities.

The issuance of mortgage-backed securities and in particular, securities that were backed by sub-prime loans, didn't peak until 2007, even though the US housing market had begun to decline in late 2005 and into 2006. Figure 1 showed earlier that the issuance of

Residential Mortgage-Backed Securities (RMBS) backed by sub-prime loans in 2004 far exceeded what it was in 2002 and accelerated further in 2005 and into 2006, which is about the time that the US mortgage market had begun its decline. Most importantly, the figure shows that among the principal players in this market were US investment banks and foreign institutions, namely from the UK and Europe, which also helps to explain why the mortgage crisis was quickly transmitted to those areas and not to Canada, Japan or other parts of the world.

Particularly hard hit was the asset-backed commercial paper market where much of the sub-prime mortgage-backed securities were financed. Figure 4 compares the financing in the asset-backed commercial paper markets with that of the financial and non-financial paper markets. Growth in the asset-backed segment of the market accelerated in 2005 and mirrored the jump in sub-prime RMBS, far exceeding the growth of both financial and non-financial paper. The asset-backed market peaked in the first week of August 2007 and then abruptly declined, leveling off by the end of the first quarter of 2011. The peak corresponds to the spike in the TED spread shown in Figure 3.



Interestingly, the financial commercial paper segment didn't peak until August 2008, just before the Lehman Brothers failure and related events, while rates for non-financial paper didn't peak until even later in January of 2009. So, initially the crisis was concentrated only in the mortgage paper market, though it was the largest segment of the overall short-term debt segment at that time.

The Federal Reserve viewed the widening of interest rate spreads and the freezing up of the commercial paper market to large complex financial institutions as a classic liquidity crisis affecting individual institutions. It responded first, as Bagehot would have, by lending freely at the discount window, and by instituting several related special programs to redirect funds to those individual institutions most in need between August 2007 and March of 2008. The principal borrowers were primary dealers that the Federal Reserve's Open Market Desk dealt with directly on a day to day basis.

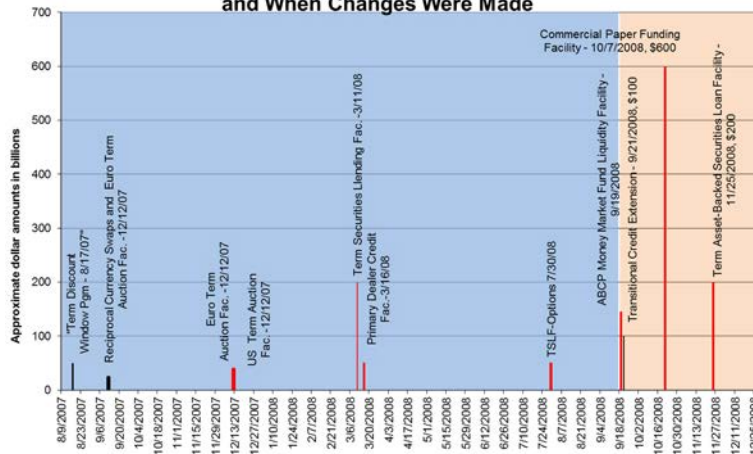
Specifically, on August 17, 2007 the Fed expanded the ability of banks to borrow at the discount window from overnight to as long as 90 days through its Term Discount Window Facility. The Fed intended to lend freely through its primary discount window facility, but in fact very little lending was channeled in this manner. Volumes were quite low throughout the fall of 2007, reaching \$2.9 billion on September 12. But they then tapered off significantly, and didn't expand again until early December 2007.

On December 12, 2007 the Fed created the Term Auction Facility (TAF) which enabled banks to bid for discount window funds at auctions held approximately every two weeks for either 28 days or 84 days. That program got off to a rather modest start; loan volume averaged between \$20 and \$ 60 billion from December 2007 to March of 2008.

Also that March, the Fed broadened eligible participants in its emergency lending programs to include primary dealers that weren't banks. For example, on March 11, 2008 the Fed created the Term Securities Lending Program (TSLF). This program expanded the Fed's securities lending program to include all of the primary deal-

ers, permitting them to borrow securities from the System Open Market Account (SOMA) in an overnight program for as long as 28 consecutive days. The dealers could then repo (sell and then re-purchase) those securities out as collateral for overnight funds as a source of liquidity, thereby avoiding to have to liquidate securities at fire sale prices. Again, however, relatively modest use was made of the program. The maximum outstanding during the early period was slightly over \$100 billion spread among several users, both domestic and foreign. A few days later on March 16, the Fed established its Primary Dealer Credit Facility (PDCF) which permitted all primary dealers - meaning non-bank primary dealers - to borrow from the Fed on the full range of collateral permitted under the tri-party repo system. Figure 5 show the timeline of this and other programs that the Fed put in place.

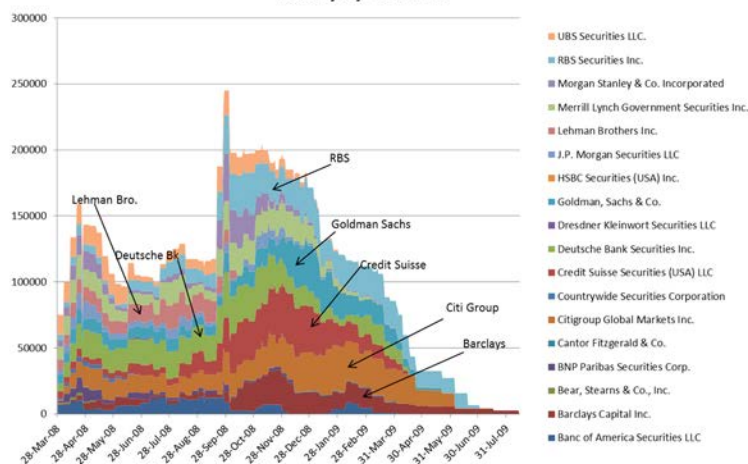
Figure 5. Timeline of Key Federal Reserve Liquidity Innovations and When Changes Were Made



All of these initiatives affected the composition of the Federal Reserve's balance sheet and, except for the Term Securities Lending Facility, which was an off balance sheet program, increased the amount of recorded reserves available to the banking system. The Fed offset the increase in bank reserves by reducing its holdings of government securities from nearly \$800 billion to about \$475 billion by August of 2008.

But the largest impact upon the banking system reserves came from the TSLF. Under that program, the Fed employed an auction process enabling successful bidders to borrow securities over night for as long as 28 days. Each morning the securities were taken back into the Fed's portfolio so the program was off balance sheet and didn't reflect an increase of bank reserves on the Fed's books because of the way the record keeping was done. The effect of the TSLF was to reallocate bank reserves to the primary dealers that would otherwise have been available to smaller banks or holders of Fed funds to support lending and asset acquisition. Figure 6 shows not only the daily outstanding volumes but also details which institutions were the beneficiaries of the program.

Figure 6. Daily Outstanding Lending Under the Term Securities Lending Facility by Borrower



The Federal Reserve's treatment of the rise in spreads in the short term money markets as a liquidity problem for particular institutions continued until the problems in Lehman Brothers, AIG, Freddie Mac and Fannie Mae in the fall of 2008 made it clear that something more fundamental was at work.

3.2 Phase II - The Solvency Problem

Numerous events occurred early in 2007 signaling that the widening spreads were evidence of much more severe difficulties in many

foreign and domestic money center participants than simply a temporary liquidity squeeze. These events, especially those involving institutions with heavy commitments to the mortgage market, were significant warning signs of major trouble. For example, HSBC fired its head of its US mortgage lending business in February 2007 due to large losses. Bear Stearns suffered big subprime mortgage losses in two of its hedge funds in June of 2007 and was obviously the dominant user of the Primary Dealer Credit Facility. Furthermore, Bear reported its first ever quarterly loss in December of 2007, which was more than two months after the initial jump in spreads earlier that fall. Countrywide avoided failure by being acquired by Bank of America in January of 2008 (an acquisition that later contributed to severe financial problems at Bank of America as large portions of its loans soured or became the subject of litigation relating to allegations of improper representations and warranties when those loans were sold and packaged into securities).

Meanwhile, mortgage-related losses kept cropping up in numerous large financial institutions. Particularly hard hit were those institutions that relied upon leverage and short term funding to support longer term asset holdings. The risks associated with those positions gradually were reflected in larger money market spreads where those positions were being financed.

Figure 3 clearly shows the decline in spreads in the days following the Fed's efforts to supply liquidity (from August of 2007 through the first two quarters of 2008) that proved to be only temporary and had a relatively minor overall impact on spreads. Indeed, spreads proved to be volatile and even rose to about 200 basis points on two separate occasions. One of those events was associated with the revelation of the precarious financial condition of Bear Stearns in the lead up to its government-assisted rescue in March.

Figure 3 also shows that the so-called liquidity spike in the TED spread in August of 2007 was minor compared to the jump that occurred in early September 2008 when, in a few short days, a series of unprecedented events shook the financial world. Freddie Mac and Fannie Mae were placed in government conservatorship (Septem-

ber 7, 2008). Lehman Brothers declared bankruptcy about a week later (September 15, 2008). The Federal Reserve Bank of New York was quickly authorized on September 16th to lend \$ 85 billion to American International Group (AIG). Treasury established a special guarantee program for money market mutual funds to prevent them from “breaking-the-buck.” The Fed initiated a series of currency swap arrangements with foreign central banks to provide dollar liquidity in foreign markets. The Fed and Treasury announced initiatives to provide credit facilities to backstop the mortgage-backed securities market which had been so dependent upon the asset-backed commercial paper market. And finally, virtually all remaining US investment banks were permitted to convert to bank holding companies. The TED spread peaked at over 450 basis points on about October 10. It seems clear now that this particular jump was suggesting the existence of major solvency concerns about many of the primary dealers and other large foreign financial institutions in Europe and the UK.

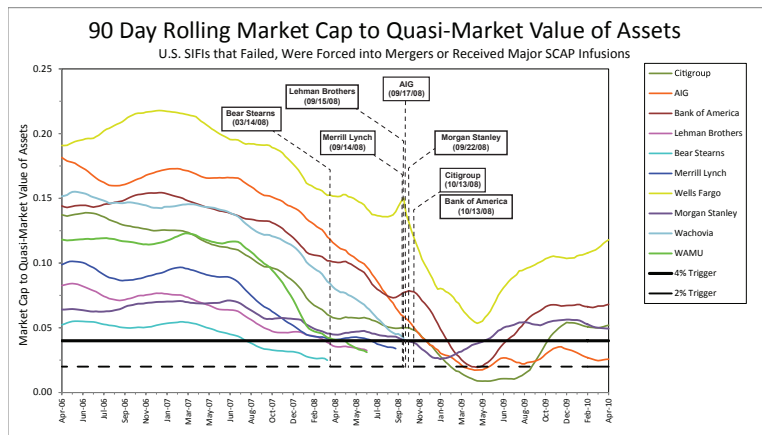
As the result of the various problems that surfaced in September 2008, the Treasury and the Federal Reserve finally recognized the dangerously large solvency challenges in many large financial institutions. This led both agencies to take the unprecedented step of asking Congress for \$700 billion in taxpayer funds to create the Troubled Asset Relief Program (TARP). The initial aim of TARP was to stabilize the financial system by buying troubled assets.

After an initial false start, Congress passed the Emergency Economic Stabilization Act of 2008 on October 3, 2008 which granted this authority to Treasury. However, instead of purchasing assets, Treasury quickly changed course within a few days and the allocated funds were used to inject capital into the nation’s largest financial institutions through its Capital Purchase Program as well as into others on an as needed basis. The banking agencies also initiated so-called stress tests to bolster public confidence in the nation’s largest institutions that had raised the needed equity to cover losses and that passed the tests. Indeed, losses at those institutions large enough to justify market skepticism were reflected in the spreads. From the third quarter of 2007 through the second quarter of 2009 the twenty five largest

US banking organizations reported significant losses of over \$1 trillion that clearly validated market concerns about their deteriorating financial condition.

Perhaps the most remarkable fact about the reactions of policy makers to the crisis was the failure to force banks and investment banks to recapitalize themselves sufficiently between October 2007 and September 2008, or before the crisis was full-blown. Although global financial institutions did raise roughly \$450 billion in capital during this period, this was not enough to offset the declines in market perceptions of bank equity. As Figure 7 shows, all the large US financial institutions that ultimately were bailed out saw continuous decline in their market equity ratio (the ratio of the value of their equity capital relative to their assets) over many months prior to the crisis of September 2008. Given the desire to avoid dilution, financial institutions chose to allow their equity ratios to plummet over time. Regulators and Treasury officials could have demanded that these regulated institutions raise more capital, but they did not, almost certainly because they did not recognize or were unwilling to admit the gravity of the problem. This is perhaps the most obvious and most significant policy failure during the crisis.

Figure 7 - Calomiris - Herring chart on institutions equity that were bailed out.



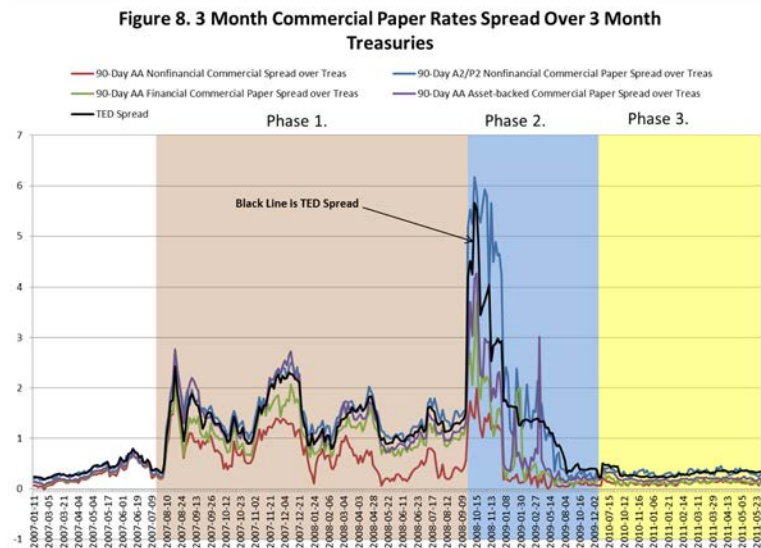
In response to the events of September 2008 and afterwards, the Federal Reserve's strategy changed. Prior to that date, the Fed had

treated the liquidity problems as being idiosyncratic and confined to selected large financial institutions. After September 2008, the Fed began to address a deficiency in general market liquidity. Policy shifted from channeling liquidity to the major primary dealers while offsetting those efforts with assets sales from its portfolio to one of significant monetary expansion. The Fed initiated foreign currency swaps with other foreign central banks that then provided dollars in international money markets that were starved for dollar liquidity and believed to be totally dysfunctional.

As a result, the Federal Reserve's balance sheet expanded from about \$1.1 trillion in September of 2008 to slightly more than \$2.4 trillion (when one includes the impact of the off balance sheet securities lending program) at year-end. In addition to the currency swap program, the Fed initiated three other programs to inject liquidity into the system: the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF, put in place September 19, 2008), the Commercial Paper Funding Facility (CPFF, put in place on December 7, 2008) and the Term Auction Facility (TAF). These three programs accounted for the bulk of the expansion of the Fed's portfolio.

The combination of the various Treasury and Federal Reserve actions during the Solvency Phase II of the crisis helped bring the TED spread (see Figure 3) down promptly, stabilizing it at about 100 basis points in the spring of 2009. The TED spread drifted lower throughout the rest of the year. Spreads in other markets, such as the commercial paper market, the Euro dollar market, and T-bills exhibited similar declines. See, for example, Figure 8 which shows commercial paper spreads compared with the TED spread.

TED spreads as well as those in the commercial paper market and Euro dollar market continued to decline throughout the rest of the year. The return of spreads to near pre-crisis levels was regarded as a policy success. The stabilization of financial markets meant that the policy focus turned to attempts to stimulate the real economy and to revitalize the US housing market.



3.3 Phase III – Policies to Stimulate the Real Economy and Stabilize Housing

The Federal Reserve attempted to stimulate economic growth and employment throughout the crisis with a series of 10 downward adjustments in its target federal funds rate from 5.25% in September 2007 to a range of from 0 to .25% in mid-December, 2008. When it became clear that the crisis-driven declines in the target fed funds rate weren't sufficient and that further downward movement was not possible because nominal rates can't go below the zero (the so-called "zero bound problem"), the Fed embarked upon what is now known as QE1, or "quantitative easing" by reversing its sales of government securities and adding to its holdings of longer term Treasuries. It also began purchasing housing related agency mortgage-backed securities in the second week of 2009 from Freddie, Fannie and Ginnie Mae. The Federal Reserve's holdings of longer term Treasuries expanded from a low of \$475 billion in March of 2009 to \$777 billion in March of 2010.

QE 1 was followed by QE 2 in November 2010 when the Fed declared it would add an additional \$600 billion in longer term Treasuries.

suries to its portfolio at a monthly pace of about \$75 billion and ending in June of 2011. In October, 2011, the Fed announced its intention to engage in what has become known as “operation twist.” It will sell short term treasuries from its portfolio and purchase about \$400 billion in longer term treasuries by June of 2012. It will also reinvest maturing agency and mortgage related assets in new housing related assets. Finally, there remain significant questions about the condition of many major financial institutions both in the US and Europe. In particular, as of this writing (November, 2011), Europe is experiencing a fiscal and sovereign debt problem that shows little signs of being resolved.

4.0 The New Regime

As with all legislative responses to financial crises, the Dodd-Frank Wall Street Reform and Consumer Protection Act (“Dodd-Frank”) was enacted with the stated objective of ensuring that something like the financial crisis of 2007-08 would “never” happen again. More realistically, the goal of the Act, or any piece of similar financial legislation, should be to reduce the likelihood and severity of future financial crises. However, the legislation was rushed and in many instances failed to address critical issues that contributed most importantly to the crisis. In particular, the legislation failed to solve the problems that were associated with Freddie Mac and Fannie Mae and housing policies more generally. We will outline our own views on this central question in the next section.

Here we concentrate on briefly summarizing the main provisions in an act that ran well over 2,000 pages. As with other types of legislation, even with as much detail as was written into this statute, the Dodd-Frank Act still required more than 240 rulemakings by numerous federal financial regulatory agencies to carry out the statute’s many mandates. At this writing, only some of these rulemakings are completed; most are in various stages of the proposal process and await final determinations over coming months. Many have been delayed and have missed the statutory deadlines incorporated in the Act.

It is likely that some of the regulatory reforms mandated by Dodd-Frank – such as those relating to capital standards for banks and changes in executive compensation of financial institution executives and other employees – would have been carried out even if the Act had not passed. Others clearly required legislative authorization. Where possible, we indicate the current status (as of early November, 2011) of the relevant rulemakings.

4.1 Dodd-Frank: An Overview

The policy debate after the great financial crisis of 2007-08 largely centered on two broad but very different views of the crisis and how to prevent its reoccurrence, which divided almost exactly along party lines in Congress but also was reflected in academic and popular discussions of what happened.

The Republican view was that market-based regulation of finance did not fail, but was hugely distorted by government, in at least two major respects. Policy makers in both parties took home ownership too far, largely by requiring Fannie Mae and Freddie Mac to purchase ever larger amounts of mortgages extended to increasingly unqualified borrowers. In addition, critics (not just Republicans) aimed their fire at the Federal Reserve for maintaining excessively loose monetary policy, which fueled the demand for housing and created a bubble that eventually popped. The low interest policy also encouraged investors to search for yield, which they found in a new form of mortgage-backed securities CDOs backed by subprime loans that were given safe ratings (unwisely) by the ratings agencies. On the Republican view, the fixes for the future lie in withdrawing or significantly cutting back housing mandates and subsidies, coupled with monetary policies that avoid the creation of future bubbles, not with more regulation and supervision by the same regulators who (they agree here with the Democratic view discussed next) failed so badly in the run-up to the crisis.

In contrast, Democrats broadly believed the crisis was due to a combination of failed market discipline (by shareholders, debt holders, management and ratings agencies), coupled with a massive failure

in offsetting government regulation of financial institutions, principally banks but also the “shadow banking system” of non-bank mortgage originators, investment banks, money market funds, and insurer-hedge funds (AIG). Dodd-Frank was enacted with entirely Democratic votes in both houses of Congress and was designed, in principle, to respond to these failures by directing various federal financial regulatory agencies to write a comprehensive set of new rules to prevent all actors in the system from again taking such huge risks. As mentioned previously, the Act did not reform the housing GSEs, or their Congressionally-mandated affordable housing mandates, which fueled the demand for securities backed by subprime mortgages, and thus for those mortgages themselves.

4.1.1 Dodd-Frank Specifics

The Dodd-Frank Act has numerous provisions. We have put them into the following categories, which roughly track the major perceived causes and implications of the crisis:

- those aimed at improving consumer protection and curbing in inappropriate subprime mortgage lending or similar products;
- those designed to reduce leverage by specific financial institutions and the financial system as a whole, thereby reducing “systemic risk”;
- provisions aimed at reducing the tendency of governments to protect otherwise uninsured creditors of “too big to fail” (TBTF) financial institutions, including derivatives dealers in certain situations (the “swaps pushout” or “Lincoln rule”);
- miscellaneous provisions added to the bill ostensibly to reduce the likelihood of future crises or to address other matters (the “Volcker rule” against proprietary trading by depository institutions); and various other new rules unrelated to prudential goals (such as the “Durbin amendment” limiting the fees that issuers of debit cards can charge merchants and new rules to encourage the hiring of women and minorities at financial institutions). Dodd-Frank contains too many provisions to be summarized adequately here.

Our discussion covers the major categories of reforms and highlights their primary stated objectives. These provisions are summarized in the following table, and discussed in more detail in the following sections.

Main Provisions of Dodd-Frank and Their Primary Aims

Provision of Dodd-Frank	Primary Aims of Provision		
	Prudential	Consumer Protection / Subprime	Reducing TBTF
Creation of CFPB		X	
Elimination of regulatory use of ratings	X		
Chinese walls for rating agencies			X
Legal liabilities for rating agencies			X
Skin-in-game requirements for mortgage securitizers		X	X
Regulation of compensation	X		
Increase in bank capital	X		X
Creation of FSOC to regulate SIFIs and Macroprudential risks	X		X
New resolution authorities	X		X
Living wills	X		X
Encourage exchange trading of derivatives			X
“Swaps pushout” rule	X		
Volcker rule	X		X
Durbin amendment		X	

4.1.2 Consumer Protection and Curbing Subprime Lending (or Similar Products)

Four different components of Dodd-Frank are designed, at least in part, to limit subprime lending and other financial products unsuitable for consumers.

First, the Act embodies the view that at least some significant portion of subprime loans would not been taken out by the borrowers had they known more about the key terms, and by implication, if the

multiple disclosures required under federal and state laws had been simpler. To address these problems, the Act creates a new Consumer Financial Protection Bureau to establish new protections for consumer financial products (other than investment products already regulated under the securities laws) and enforce all existing consumer financial protections under various existing laws (consolidating responsibilities in this area formerly held by other federal financial regulators, principally banking regulators). The CFBP does not have the authority to preempt state consumer rules, but is expected to coordinate its enforcement activities with those of state banking and consumer protection offices. The structure of the CFBP is highly unusual in two respects: it is lodged within the Federal Reserve System, but given a budget that draws on the Fed, which neither the Fed nor the Congress can change. As of this writing, Congress has not confirmed the Administration's nominee for the first director of the Bureau, Richard Cordray. Republicans are insisting that confirmation be tied to changes in both of these unusual structural features, by making the Bureau into a multi-member Commission and subjecting its spending to the normal Congressional appropriations process.

Second, the Act contains several reforms aimed at reforming the ratings of securities, including eliminating their use in the regulatory process. This is a difficult challenge because the regulatory use of ratings is so pervasive; so long as this reliance persists, the rating agencies will continue to have undesirable incentives to hand out unduly optimistic assessments.

Nonetheless, the Act has several features that have the potential for mitigating the ratings inflation problem. Specifically, the SEC is directed to issue rules requiring the agencies to establish "Chinese walls" between their ratings employees and those engaged in marketing the agencies' services; new rules requiring the agencies to be more transparent about the methods and data underlying their ratings; and perhaps most important, a charge to all federal financial regulators to remove existing mandates that ratings be used in any way to ensure the safety and soundness of the institutions under their watch. The Act also authorizes suits against the agencies for reckless

ratings. If this provision survives constitutional challenge, it should induce the agencies to be more careful with their ratings in the future (though it also may cause them to be excessively cautious also).

Bank regulators, however, are struggling with how to replace the regulatory use of ratings when overseeing the health of banks (most obviously, this provision of the Act also conflicts with the latest revisions of the Basel capital standards, which retain a role for ratings in computing minimum required bank capital).

Third, the Act addresses another widespread complaint about factors that led up to the crisis, the ability of subprime loan originators and securitizers to sell the loans or the securities without apparently retaining any “skin in the game.” To the extent this occurred, and it is a more controversial question with respect to securitizers than originators, the ability to quickly get out of mortgage positions undermined incentives for due diligence. The Act attempts to solve this problem by requiring securitizers of certain asset-backed securities, principally those backed by mortgages where the borrowers have made down-payments of less than 20 percent of the value of the property, to retain at least a 5% “unhedged” position in those securities. The hedging requirement can be simple to implement where a specific loan is backed by a very specific hedge, such as a loan-specific credit default swap (essentially “insurance” in case the borrower cannot pay). But defining what is a permissible hedge is much more difficult in the more usual case where a financial institution broadly diversifies its assets and liabilities, making it no longer possible to identify a specific hedge against a specific loan.

Fourth, Dodd-Frank seeks to end the short-term bonus culture in lending institutions and in the securitization process that rewarded loan originators and packagers of securities on the volumes of business they originated or sold, regardless of how the loans or securities later performed. To do this, the Act requires federal banking regulators to issue rules encouraging the use of compensation arrangements that limit excessive risk-taking. In fact, even prior to the Act’s passage, the agencies had required (in June 2010) bank employees (not just executives) to be paid according to their long-run perfor-

mance, which as a practical matter, meant greater use of long-term bonuses and restricted stock. Many banks had been moving in this direction shortly after the crisis, in anticipation of the new rules and in response to media and shareholder pressure.

4.1.3 Reducing Leverage and Systemic Risk

The permitted growth in leverage by both commercial and investment banks in the run-up to the crisis is widely understood to have magnified the impact of the subprime lending losses. The Act has several provisions aimed at correcting this problem.

The first requirement is for bank regulators to increase capital standards for individual banks, a step that would have occurred even without the Act because of the prominent role played by the Basel committee in setting internationally comparable bank capital standards and the immediate recognition by members of the Committee after the crisis to increase those standards. In contrast to the near decade it took for the Committee to agree on the second revision to the standards, the Committee issued its third revision, post-crisis, in just about two years.

The new capital rules are about as complicated as those they replaced, and readers can learn the details elsewhere. The key point is this: once they are fully phased in by 2019, the standards will raise minimum bank capital-to-asset ratios by three times relative to the standards they replaced. The new international standards also continue to rely on ratings by the ratings agencies to help put different assets into different “risk buckets” against which differing amounts of capital are to be required. As we have indicated earlier, this practice was a contributing factor in the run-up to the crisis, and is also inconsistent with the ratings reforms in Dodd-Frank under US law, discussed shortly.

Although a main purpose of the new standards, as well as the earlier ones, is to level the “capital playing field” of banks in different countries, in fact it is already clear at this writing that they are not likely to do any such thing, at least for some significant period of

time. On the one hand, the large US banks which have the clearest obligations to abide by the international standards have generally already met the new standards, with the possible exception of Bank of America, and depending on how severe the losses US banks may incur on account of the suit filed against them by the Federal Housing Finance Administration (the GSEs' regulator) for violating certain representations and warranties in the asset-backed securities they sold to Fannie Mae and Freddie Mac. In contrast, it is widely understood by market participants, and by early November even implicitly acknowledged by European officials as part of their efforts in resolving the Eurozone currency and financial crises, that many European banks with significant sovereign debt exposures to troubled European governments are likely to be significantly undercapitalized, even judged by the phased-in Basel rules, and may even require capital injections from their governments.

A second significant source of difference in the effective capital standards between the Basel member countries is that so far the Committee has reached no agreement on the specific amount of additional capital (or liquidity) required of "systemically important" banks. At this writing, it looks like the Basel Committee, backed by the G-20, instead will authorize a range of 1-2.5% of additional capital for large banks.

Speaking of systemic risk, Dodd-Frank creates a new body – the Financial Stability Oversight Council (FSOC) – with the clear duty to monitor systemic risk and to take advance measures to minimize it. In effect, this means two things. First, the FSOC is charged with identifying "systemically important financial (non-bank) institutions" (SIFIs), based on such criteria as their size and degree of interconnection with other financial institutions and the financial system more broadly. Banking organizations (including holding companies) with assets of \$50 billion or more are automatically defined by the statute as SIFIs. Once it identifies these institutions (which as of this writing the international Financial Stability Board has done but the FSOC has not), the FSOC is charged with implementing a stiffened system of regulating these institutions to prevent their future downfall, requiring among other things, higher capital

and liquidity standards than for non-SIFIs, and a more intense system of supervision. None of these “plus” factors have been spelled out as of this writing.

Second, the FSOC is charged with the more difficult – some would say impossible – job of identifying asset price “bubbles” that, if and when they “popped,” could cause systemic risk, and then to take preventive action, such as by raising capital/liquidity requirements for SIFIs or down-payment or margin requirements for real estate and stock lending, respectively (as illustrations) during these “bubble periods.” Although the academic literature has not yet provided clear guidance of whether bubbles can be accurately forecast without significant “false positives” (false indications of a bubble that is not truly the case), it is conceivable that forecasting techniques will improve in the future. In the meantime, it is an open question – and an issue of risk tolerance – as to whether a process such as the one created by Dodd-Frank for identifying and doing something to slow the growth of future asset bubbles will be worth the potential cost in slower growth caused by premature, unjustified measures to restrain asset price bubbles.

The FSOC also has an unwieldy structure which could hinder its effectiveness and mission. The FSOC is made up of representatives of all federal financial regulatory agencies plus representatives of state banking and insurance regulators (some of which can’t vote), agencies that not only may be tempted to protect their turf in times in crisis but also could have very different views about either the presence of systemic risk or what to do about it. While having multiple perspectives has its benefits, it can also slow reaction times in times of crisis, even with the best analytical resources available to the committee (from the Fed’s ample research staff and the new Office of Financial Research housed within the Treasury Department).

Dodd-Frank also mandated the study of new ideas for structuring capital requirements– in particular, the potential use of contingent capital (debt that automatically becomes equity if the bank’s capital falls below some pre-defined trigger) as part of the regulatory toolkit. Numerous academic commentators (Flannery 2009 and Calomiris

and Herring 2011) have noted the potential advantages and limitations of contingent capital requirements both from the perspective of risk control and efficiency. Once the mandated studies by the Fed and others have been completed they may be considered by Congress.

4.1.4 Addressing TBTF

In addition to the financial crisis itself, one of the most unpopular features of the various rescue efforts aimed at minimizing its damage were the government-sanctioned bailouts of the creditors of a number of large non-bank financial institutions (such as AIG, Fannie Mae and Freddie Mac), as well as the subordinated debt holders of large banking organizations. Dodd-Frank contains multiple provisions that its proponents claimed were designed to reduce this “too big to fail” (TBTF) problem in the future. Opponents, however, have questioned the effectiveness of those provisions, and the regulatory implementation of the new resolution process that will emerge from the legislation remains to be fully fleshed out (and won’t be fully known until the new resolution process is actually tested).

First, the Act creates a bank-like resolution process for any troubled non-bank (not just one designated a SIFI by the FSOC) that expressly prevents any creditor (other than derivatives counterparties) from receiving more than they would in bankruptcy. Under the new process, the Treasury Secretary, with approval of 2/3 of the members of the Federal Reserve Board and 2/3 of the directors of the FDIC, has the authority to appoint the FDIC as the receiver for any troubled non-bank financial institution (not just those deemed by the FSOC to be systemically important). Among other things, the deciding authorities must determine that undertaking such action “would avoid or mitigate serious adverse effects on the financial stability or economic conditions of the United States.” Unless the board of the troubled entity consents, the Treasury Secretary must gain approval, under an expedited process, for the receivership from a federal district court in the District of Columbia.

Dodd-Frank also gives the FDIC the authority to provide a wide

variety of temporary or up-front financial assistance to a troubled systemically important financial institutions (SIFI) in order to ease its resolution, and if necessary to borrow from the Treasury, but unsecured creditors still can receive no more than they have a right to under liquidation, while management must be removed. The Secretary of the Treasury can establish a resolution fund to pay for any borrowings the FDIC might need, financed by assessments on large banks and systemically important financial institutions. But the Fed is prohibited under the act from using its lender of last resort authority under Section 13(3) of the Federal Reserve Act to bail out any specific institutions or their creditors. In combination, these provisions are designed to prevent any taxpayer bailouts of individual institutions in the future. Critics, however, point out that the Act institutionalizes bailouts, and requires surviving banks (and, therefore, their customers and stockholders) to be taxed to fund any assistance provided by government to the creditors of insolvent institutions under the new resolution procedure. As just noted, whether the Act will work as designed to limit, or alternatively, expand, the TBTF problem will not be known until the process is tested in a future crisis.

Second, Dodd-Frank anticipates future financial troubles by requiring all systemically important financial institutions to have resolution plans or “living wills” that enable a receiver or trustee to dismantle or liquidate them at least cost. This provision is especially important to provide a guide to resolving large, complex financial organizations with hundreds, if not thousands, of subsidiaries and affiliates, often domiciled in different countries. The FDIC approved its living will rule in September, 2011, but no rule in this area can become final until the Federal Reserve Board also acts.

Although the presence of a living will cannot eliminate all creditor disputes over priority in claims, the mere act of having such a document prepared, and signed off on regularly by both the board of the holding company or top-level legal entity in charge of the organization, but also by the appropriate regulators, should help to focus attention on legal structures that clearly delineate creditor priority. Simply having to go through the exercise could help reduce the costs of resolving the institution in the event of failure.

The living will provisions also give the regulators the “nuclear option” of forcing the organization to divest certain operations or even break up entirely if the resolution plan is not deemed satisfactory. Although it is highly unlikely regulators would ever take such a step, the mere threat of doing it gives them powerful leverage to force large, highly interconnected entities either to reduce their complexity (often constructed for tax reasons) or at least to provide clearer guidance to a future receiver or trustee in bankruptcy.

Third, Dodd-Frank attempts to reduce the likelihood of future AIG-like bailouts by pushing financial derivatives previously traded off exchanges (over the counter or “OTC”) onto more organized trading platforms and through central clearinghouses. The opaque nature of the credit default swap (CDS) market in particular, and the fact that such instruments were “cleared” bilaterally solely between the two parties involved (buyer and seller), were among the features identified by the Treasury and the Fed to justify their bail out of the creditors of AIG, whose derivatives subsidiary could not honor the hundreds of billions of dollars of CDS commitments it had made after Lehman Brothers was permitted to fail in September, 2008. The authorities feared that creditor or counter-party losses from an AIG failure could have caused financial havoc.

In principle, the clearinghouse mandate for standardized derivatives in Dodd-Frank, coupled with requirements that trades be conducted on more transparent exchange-like venues (“swaps execution facilities” or SEFs under the Act), should make an AIG-like episode – a derivatives counter-party with huge obligations it cannot honor – less likely in the future. In addition, the CFTC is charged under the Act with making sure that the clearinghouses set adequate capital requirements for clearing members, and margin or collateral requirements for trading parties, whether or not their instruments are sufficiently standardized to be cleared centrally. The Commission also is charged with setting rules for how the SEFs will operate, specifically the extent to which derivatives bids (offers to buy) and asks (offers to sell) can or must be posted electronically on some type of platform or can continue to be relayed over the telephone between the parties

(as is the case now), and how transactions will be reported (hopefully more frequently than is now the case).

Last, Dodd-Frank was amended with provisions advanced by former Senator Lincoln known as the “swaps pushout” requirements. These provisions deny Federal Reserve loans to support a “swap entity,” or any organization, including a bank, that “regularly enters into swaps with counterparties as an ordinary course of business for its own account.” Like the customer exception in the Volcker rule (discussed below), the Lincoln rule exempts banks entering swaps entered into in connection with loans to customers, or if banks limit their swaps activities to hedging.

Regulators may have difficulty over time enforcing a strict line between customer or hedging related swaps transactions and all others the Lincoln rule is meant to cover. These difficulties are likely to surface most pointedly during a financial crisis when the Fed is trying to decide whether it can extend a loan to a troubled bank that, like many banks, engages in swap transactions. The Fed takes a political risk if it construes the Lincoln prohibition too liberally, but an economic risk to the financial system if it construes the prohibition too strictly.

4.1.5 Other Provisions

Like much legislation that makes its way through Congress, Dodd-Frank had Christmas tree elements to it, too – namely provisions that had little or nothing to do with rectifying the causes of the crisis that preceded it, but nonetheless were politically useful in one manner or another in attracting support for the overall bill and for punishing the large banks – which were at the center of the financial storm. The so-called “Volcker rule” and the “Durbin amendment” are two such provisions.

The Volcker rule, named after the former Fed Chairman, prohibits any bank or thrift institution, or a bank or thrift holding company, from engaging in “proprietary trading.” Some of the largest banks divested themselves of their internal hedge funds or proprietary trad-

ing desks even before Dodd-Frank was enacted, or quickly thereafter. However, among the key details of the rules that remain to be ironed out in regulation is how regulators will interpret the exception written into the rule for customer trades. Drawing a sharp line between permissible hedging of customer transactions and conducting trades for the banks' own accounts, however, is not easy to do and fraught with potential negative unintended consequences. Depending on how strictly regulators enforce this distinction, the Volcker rule could significantly diminish liquidity in the trading of financial instruments, imposing a social cost on the markets that could outweigh any benefits of risk reduction it is meant to accomplish, or push substantial amounts of financial intermediation overseas. In any event, given the lack of evidence that bank proprietary trading (much of which centered on the trading of stocks, bonds, and currencies) played a significant role in causing the crisis, the best that can be said for the Volcker rule is that proprietary trading arguably is not the kind of activity that should be supported or subsidized by deposit insurance and that prohibiting it could contribute to preventing a future crisis. Even that argument, however, does not necessarily explain why the Volcker rule should be applied to affiliates of insured banks that are not financed by deposits. To the extent that such trading has been profitable for banks, denying them the ability to pursue it could thus detract from their safety and soundness.

The Durbin amendment requires the Federal Reserve to limit the interchange fees paid by merchants to banks, under various criteria, but with the unmistakable direction that the fees be lowered relative to their pre-Dodd-Frank average of 44 cents per transaction. In late 2010, the Fed proposed a limit of 12 cents, which it later increased to 21 cents in early 2011. Consistent with the Act, the final limit exempts banks with assets under \$10 billion, but it is not clear how many merchants will channel their debit transactions through higher cost networks, although the Durbin Amendment also gives merchants the ability to permit customers to direct which types of payments (cash, credit cards, debit cards) and networks to use. At this writing, some banks have already reacted to the lower debit card transactional limits by limiting debit reward programs, by charging customers monthly fees for using their debit cards, or raising other

bank fees, all in an effort to counter the loss in revenue from the transactional limit.

4.2 Nothing about the Housing GSEs (Fannie/Freddie)

The most important omission in Dodd-Frank is its failure to address one of the recognized causes of the subprime lending explosion, namely the increased purchases of securities backed by subprime loans by the two housing GSEs, Fannie Mae and Freddie Mac. The GSEs did this in response to higher “affordable housing limits” set by Congress and perhaps also in an effort to boost earnings by taking on higher yielding securities in their portfolios. Both GSEs collapsed and were put into government-run conservatorship in September, 2008, and remain there. At this writing, the federal government has poured roughly \$150 billion dollars into maintaining the GSEs operations, which since the crisis have accounted for the majority of the purchases of all mortgages extended in the United States.

It is widely understood why Dodd-Frank contained no provisions dealing with Fannie/Freddie: at the time, there was no consensus even with the Democratic members of Congress, let alone between members from both parties, about what to do with them. The lack of consensus continues to this day. At this writing, the two main competing ideas are to phase out the two entities over some gradual period (most likely by lowering the “conforming limit” of mortgages the GSEs can purchase or guarantee), or to explicitly make them government entities subject to stricter safety and soundness oversight. If the latter route is chosen, the regulatory dynamics are likely to be similar to those for banks: initial tough scrutiny by regulators who would have the political freedom to act that way during some post-crisis “honeymoon period,” followed by a tendency to relax their guard if and when the economy, and especially the housing market, recovers.

5.0 Lessons Learned

This review of the financial crisis and agency and legislative responses have suggested many lessons for how to deal with future crises. These

include problems that were associated with monetary policies and public pursuit of possibly unobtainable housing goals to problems associated with regulation and supervision of financial institutions. The following sections contain a high level list and brief description of each of these lessons.

5.1 Housing Subsidy Policies: The unintended consequences of even well-meaning government policies can be costly to taxpayers, especially when hidden from view.

At the root of the financial crisis was a collapse of the US housing market and the policies intended to increase home ownership that encouraged excessive leverage by homeowners (who took on mortgages and financial commitments with low or no down payments and teaser rates) and incentivized lax underwriting standards by lenders and securitizers. All parties acted on the assumption that housing prices would continue to increase and that there was very little risk of a downturn in prices and this assumption was also incorporated in the pricing and risk models that were employed. Much of this profligate behavior was driven by the implicit government support enjoyed by Fannie Mae and Freddie Mac, whose subsidy costs were hidden for decades from the public but when they were forced into public view – when both housing enterprises had to be rescued by the federal government – proved to be hugely costly for taxpayers.

5.2 Easy monetary policies kept interest rates below equilibrium for a long period of time, caused asset price inflation, fueled unreasonable expectations and proved to have costly consequences for taxpayers.

Easy monetary policies in the early 2000s that kept interest rates low and were designed to help the economy gain traction coming out of the 2000-2001 recession had a significant and ultimately highly detrimental side effect: the fueling of the housing price bubble. When that bubble burst, the costs proved to be enormous. The unanswered question going forward is how to prevent future such asset price bubbles, especially those facilitated by leverage, before they get out of hand. In particular, is monetary policy too blunt an instru-

ment, or are more finely tuned policies available that can be reliably implemented without too much error? Regardless of the answers to these questions, the Fed must be sensitive in the future to asset price effects of its monetary policies.

5.3. Regulatory and supervisor weaknesses and flawed risk monitoring systems resulted in imperfect and lax prudential regulation.

The financial crisis exposed many weaknesses in both the supervisory process and in the information necessary to measure adequately institutions' risk exposures. Perhaps the most important lesson was that the so-called measures of capital and capital adequacy were woefully deficient and didn't capture the true financial condition of institutions. Moreover, risk-based capital standards, in particular, did not control institution risk taking nor did the risk weights truly reflect the default characteristics of the assets held by many of the nation's largest banks. In fact, the evidence showed that markets did a much better job of pricing the deteriorating conditions of these assets than did the supervisors.

Furthermore, despite claims that financial institutions only suddenly experienced liquidity problems, funding problems actually developed over a period of time alongside mounting market perceptions of losses. The crisis exposed the fact that policy makers' incentives and actions differed from what the law (FDICIA of 1991) required, namely prompt corrective action to require weakening banks to bolster their capital positions, shed assets, or both. The result was regulatory forbearance even as reported bank equity ratios declined from March 2007 to September 2008.

Perhaps equally important was the fact that the system for supervising and monitoring the condition of investment banks was essentially not operative. When it came to the non-bank primary dealers, the Federal Reserve was not aware of the true (deteriorating) condition of these institutions.

5.4. Regulation can be easily circumvented as evidenced by the growth of off balance sheet activities and special purpose vehicles.

Financial institutions used special purpose vehicles, especially to expand their mortgage lending, securitization and derivatives activities, as a principal means to lower their capital requirements and increase leverage. Regulators viewed these special purpose vehicles as bankruptcy remote and thereby accommodated the capital avoidance. These vehicles, which levered thin layers of capital with very short-term commercial paper that funded longer-lived mortgage securities and related assets, were exposed to runs when difficulties in the mortgage market became apparent in 2007. Credible reforms must address incentives of banks to avoid effective regulation and of supervisors, regulators and politicians to forebear. The problems of risk measurement, capital budgeting ex ante that is commensurate with risk, as well as the maintenance of capital in the face of losses are not just technical problems, but rather are mainly incentive problems. Solutions must address incentives.

5.5. Compensation policies failed to restrain risk taking.

Compensation schemes failed to align the interests of financial institution managements with those of their shareholders and encouraged excessive risk taking in the interest of generating short term profits at the expense of adverse longer run consequences. This behavior was especially manifest with respect to subprime mortgage loans and securitizations, where too many parties were paid commissions on volumes of loans made or securities manufactured and sold rather than on how the mortgages or securities actually performed.

5.6. Emergency lending programs that are well-designed should be self-liquidating and transparent.

Once the crisis began to unfold, the Federal Reserve embarked upon a series of emergency lending programs aimed at stemming what at first was believed to be a pure liquidity problem (see also Lesson 5.10 below). Many of these initiatives were targeted at the primary dealers of government securities while others were directed towards

supporting financial markets more generally. Of the two types of programs, both ostensibly achieved their short-run purposes in that markets and spreads calmed down once the programs had been put in place. However, it did appear that the programs that were structured and priced in such a way as to be self-liquidating were less controversial and probably resulted in smaller subsidies than the other programs. What was lacking, however, were adequate disclosures of the nature of the support provided and which institutions and companies received the benefits of that support. Only after litigation did the Federal Reserve reluctantly provide information that would allow at least a partial post mortem on the programs. Those efforts are still on-going.

This experience with crisis emergency lending suggests that work needs to be done to refine the structure of these programs and conduct of the discount window facilities on a contingency basis. Those plans should be completed and be made publicly available so that in future crisis mechanisms can be pulled off the shelf and implemented as needed rather than inventing programs with uncertain prospects for success as a crisis is unfolding.

5.7. The crisis revealed weaknesses in the ability of regulators to resolve troubled financial institutions – especially bank holding companies and investment banking institutions.

The failures of large, complex institutions exposed weaknesses in the resolution regime for troubled financial institutions, especially bank holding companies and non-bank financial enterprises. The lack of forward planning was one problem, but also the complexity of the institutions and informational problems concerning the interrelationships and counter party risk exposures on a real time basis made closure (as opposed to subsidized acquisitions and mergers) more difficult. In the case of Bank of America, for example, the risks it acquired through its acquisition of Countrywide and Merrill Lynch revealed limitations in the acquiring bank's ability to do due diligence in a timely manner during a crisis. Some of these problems have been addressed in the Dodd-Frank legislation, notably through requirements to establish "living wills," but how well these provisions will work cannot be known until they are tested in a future crisis.

5.8. The crisis exposed glaring problems in existing processes and legal structures for resolving troubled large complex global financial institutions like Lehman Brothers and AIG

The failures of Lehman and AIG exposed the difficulties of resolving complex institutions quickly, and in an orderly fashion, with cross-border activities conducted through affiliates and subsidiaries chartered in other countries with different resolution regimes. US authorities have no ability to close or wind up the foreign subsidiaries of a US chartered institution. As a result, the problems with fund transfers between the head office and the London subsidiary of Lehman Brothers continue to plague the resolution and settlement of claims. In contrast, the bailout of AIG avoided those problems but resulted in substantial taxpayer exposure. None of the legislative responses have dealt with the need to deal with cross-border failures. Colleges of regulators and international coordination bodies have focused on the issues, but the problem is far from being resolved.

5.9. The regulatory and governmental responses to the crisis have only served to reinforce the perceptions that too-big-to-fail is still in place, Dodd-Frank notwithstanding.

While one of the stated purposes for passing the Dodd-Frank legislation was to limit “too-big-to-fail” and the moral hazard that can accompany bailouts of the creditors (and possibly stakeholders in) large financial institutions, the injection of capital into both troubled and other institutions has helped to reinforce the public and market perceptions that no large US financial institution will be permitted to fail. The largest US institutions are now fewer in number and larger than they were prior to the crisis, and this has done little to reduce the perception that “too-big-to-fail” continues as US policy. This perception, meanwhile, fuels the fear that such institutions will take on additional risks that expose US taxpayers to future bailouts, much as Fannie and Freddie already have done.

5.10 The crisis revealed the importance of being able to promptly distinguish between liquidity and solvency problems. The key problem was not liquidity but excessive leverage and solvency problems in major US and foreign financial institutions.

The Federal Reserve's initial response to the crisis reflected its belief that the economy faced only a temporary liquidity problem, to which the Fed responded by broadening access to its discount window while providing liquidity to the primary dealers with whom the Fed and US Treasury regularly dealt. While spreads between the inter-bank lending rate and the rate on US Treasury debt did decline thereafter, the events in the fall of 2008 exposed the fact that many financial institutions in fact were severely troubled and arguably insolvent. This suggests that there were significant informational deficiencies in the monitoring and prudential supervision of such firms.

5.11 The crisis exposed structural weaknesses in the primary dealer system and tri-party repo market. Consideration should be given to alternative arrangements such as those employed by the European Central Bank.

Arguably, the dependence of the Federal Reserve on a small group of large complex financial institutions to conduct monetary policy and to collect and disseminate securities throughout the financial system created the need to provide unusual financial support to those institutions once weaknesses in their financial condition were exposed. Additionally, the critically important tri-party repo market's dependence upon just two large complex financial institutions to operate the infrastructure and provide large amounts of intra-day credit suggests that the structure of that market enhanced the interconnectedness among financial institutions in ways that increased systemic risk in the system.

Looking ahead, the Fed should consider alternative arrangements for buying and selling the securities it uses to manage the money supply. One such arrangement is used by the European Central Bank which conducts its monetary policy auctions with over 500 different counter parties.

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2

Lessons from the Financial Crisis: Report of the Asian Financial Regulatory Committee

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Abstract

The global financial crisis of 2008 was triggered by the subprime loan crisis in the US which resulted in the Lehman Brothers bankruptcy filing and bail-out of several major financial institutions. Market integration meant that this crisis quickly spread to the rest of the world. The crisis negatively impacted both the financial and real sector of Asian countries. To dampen the effect of this imported crisis, authorities in this region reacted swiftly through accommodating monetary policy and significant fiscal spending. Other macro-prudential measures were also adopted. Prior to the crisis, both the financial and real sectors in Asian countries were robust and together with the swift government response, the economy of the Asian countries recovered within four quarters. However, the accommodating policies also resulted in imported inflation as a result of strong capital inflow (both FDIs and Hot Money). Several countries experienced extremely strong housing price appreciation and macro-prudential measures had to be put in place to stem asset bubbles from forming. Currencies in this region also appreciated due to excess demand.

Introduction

The 2008 Global Financial Crisis (GFC) was a result of the subprime mortgage crisis that began in the US. At the height of the crisis, stock markets in the world experienced declines by as much 50 percent. The crisis generated tremendous hardship in many countries. The Asian economies were among them, though not with the same intensity as in many developed economies.

This chapter summarizes economic conditions before, during and after the 2008 GFC. It outlines the role of government in Asian countries during the crisis and the type of policies, both fiscal and monetary, that were adopted to combat the downward spiral of the real and financial sector. Other macro-prudential measures that were adopted also will be discussed.

By and large, the Asian economies experienced a sharp downturn as a result of the crisis but the recovery was equally sharp. This was partially due to a combination of robust economic and financial conditions of these countries and also the swift and coordinated actions taken by the authorities. The rapid recovery created a new set of problems for these countries, such as housing bubbles and currency appreciation which affected many export-oriented economies.

The chapter begins with a summary of the conditions of Asian markets before the crisis, followed by the effect of the 2008 GFC on both the real and financial sectors. Section 3 discusses policies adopted by the various local authorities and Section 4 summarizes the outcome of these policies. In Section 5, we outline the committee's view on lessons we can learn from the 2008 GFC with policy implications for authorities with the hope that it will serve as a guide in dealing with future financial crisis.

Pre-Crisis Economic Condition (2007 and before) of Asian Markets

Prior to the onslaught of the 2008 Global Financial Crisis (GFC), Asian economies was experiencing robust economic growth. This

was partially attributed to the strong economic growth of the West and China. Economic growth was robust in the first half of 2007, but trailed off in the second half of the year due to the subprime mortgage crisis in the United States and rapidly rising oil prices.

In hindsight, during mid-2007, the global financial market was expecting turmoil in the credit market arising from the US subprime mortgage crisis. At the same time, ongoing global current account imbalances as well as skyrocketing oil and commodity prices were threatening global financial stability and economic growth. However, Asian economies are diverse both in stages of economic and financial development and as such, some Asian markets are more integrated with the West than others.

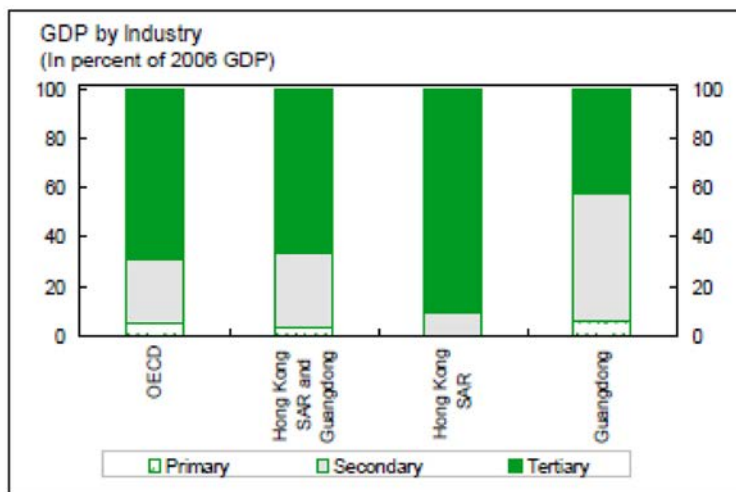
There are however, some similarities in the Asian economies. By and large, these economies had relatively sound economic and financial fundamentals. The 1998 Asian financial crisis prompted actions by the authorities to impose structural reforms on banking systems and also to beef up foreign reserves. As we will show, many of the economies were experiencing low inflation and robust economic growth prior to 2007. The countries kept a low debt-to-GDP ratio to approximately 60 percent on average. Many of the Asian stock markets were at their historical highs. And an important fact not commonly publicized by the financial press is that financial institutions in Asia are relatively conservative and this conservatism may be attributed to the 1998 crisis.

China & Hong Kong

China's gross domestic product (GDP) grew by 11.5 percent in the first three quarters of 2007 from the same period the previous year. Accelerating investment spending provided the main impulse for the rise in China's GDP growth in 2007, reflecting fundamental factors such as rapid profit growth, rising profit margins and still relatively low lending rates. Hong Kong SAR's economic growth averaged around 7.5 percent during 2004 to 2006. Following growth of 6.8 percent in 2006, the economy grew by 6.1 percent in the first three-quarters of 2007. Domestic demand was the main driver of

growth. Private sector construction was also starting to recover after an almost decade long decline. Inflation was low, partly reflecting temporary budgetary measures that held down housing costs.

China's banking industry grew rapidly, in line with the economic development of the overall economy. Chinese banks have historically been, and continue to be, a significant source of capital for the economy and the primary choice for domestic savers. As of year 2006, the total assets of China's banking sector amounted to Yuan 43.95 Trillion (US\$ 5.812 Trillion), an increase of Yuan 16.31 Trillion (US\$ 2.16 Trillion) from 2003. During the same period, the total liabilities of the banking sector reached Yuan 41.71 Trillion (US\$ 5.516 Trillion), an increase of Yuan 15.14 Trillion (US\$ 2.0 Trillion).



ASEAN: Indonesia, Malaysia, Philippines and Singapore

Indonesia, Malaysia, Philippines and Singapore entered the sub-prime global crisis with strong initial conditions. Aided by a generally favorable global economic climate, these countries experienced robust economic growth. For example, Indonesia's fundamentals were strengthened through sound macroeconomic policy implementation, including prudent debt management. Economic growth

averaged 6 percent since 2005, fiscal performance was strong, the current account was in surplus, both public and external debt had been halved to about 30 percent of GDP, and international reserves had risen by \$22 billion in that period to a comfortable level of more than 150 percent of short-term debt.

The Malaysian economy registered a healthy growth rate of 8 to 9% during the pre-crisis period. Inflation during the same period was between 2 to 5%. Singapore's economy became increasingly resilient to changing global conditions, supported by pragmatic macroeconomic management and ongoing structural reform. Economic performance was impressive, with growth remaining strong and inflation subdued. Real GDP growth reached 7.9 percent in 2006, driven by solid external demand and a pick-up in domestic spending. Growth registered 7.6 percent (year-on-year) during the first half of 2007.

The economic performance and outlook for the Philippines had improved markedly over the past few years before 2007. Founded on fiscal consolidation, investor confidence revived; strong remittance income led a surge in balance of payment inflows. There was a marked turnaround in fiscal accounts in 2007. Performance of public enterprises had improved, and the national government had lowered its deficit through expenditure restraint and VAT reform in 2006.

In the Asian financial sector, banks continued to be well capitalized and profitable. For example, in Indonesia, the capital adequacy ratio rose to over 20 percent, while the net interest margin remained at about 0.5 percent. Non-performing loans were relatively stable at around 6.6 percent of credit outstanding. The financial systems in other Asian countries were also sound and no short-term risks were evident. The health of the system was supported by the improving financial position of banks, corporations, and households. Banks were well-capitalized, and profitability and asset quality had continued to improve. Bank exposures to the property and equity markets had risen but risks were manageable. Corporate profitability had also increased, and households' liability-to-asset ratio had been dropping.

Korea and Taiwan

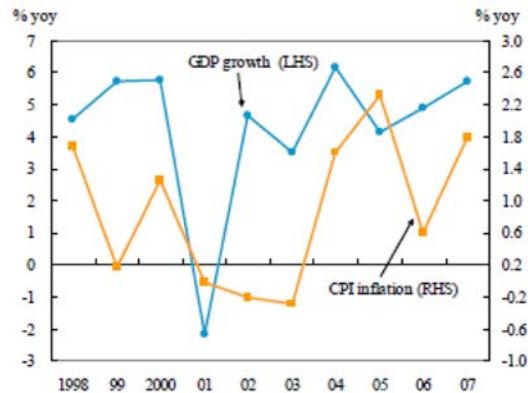
Korea's growth performance during the pre-crisis period was relatively strong (5% real GDP growth rate in 2006) and inflationary pressures were contained. Export performance was strong and domestic demand resilient. Inflation was persistently below the Bank of Korea target range of 2.5 to 3.5 percent.

Korea: Real GDP Growth (Annual percentage change)			
	2006	2007 Proj.	2008 Proj.
Real GDP	5.0	4.8	5.0
Total consumption	4.5	4.1	3.7
Investment	3.2	5.5	3.7
Of which: construction	-0.4	1.7	1.4
Net exports (contribution)	1.6	0.7	1.3

Sources: CEIC Data Company, Ltd; and IMF staff projections.

The Taiwan economy also was growing steadily, while inflationary pressures inched up. Taiwan's economy grew 5.72% in 2007, up from 4.89% in 2006, primarily attributable to stable export growth and a rebound in domestic demand. In addition, rising international commodity prices had pushed up domestic consumer prices. Reflecting this, the consumer price index (CPI) rose by 1.8% in 2007, up sharply from the 0.6% registered a year earlier.

Economic growth and consumer price inflation rate in Taiwan



Note: Figure of 2007 GDP growth is preliminary statistics.
Source: DGBAS.

Economic Condition of Asian Markets During the 2008 GFC

The 2008 global financial crisis began to affect Asian economies and markets in a significant manner around the 4th quarter of 2007. The stock markets in many Asian countries were experiencing historical highs when the crisis hit. The financial markets were the first to feel the effect of the US subprime crisis. It is interesting to note that investors in the region were not exposed to exotic structured debt obligations in a significant amount but still the market reacted negatively to the announcement of the bankruptcy filing by Lehman Brothers. The real sector started heading south from the 1st quarter of 2008 and hit bottom a year later. The 2008 GFC also had negative effects on both the financial/banking and real estate sector of many Asian countries.

We review first the real sector, and then discuss the financial sector, during and after the crisis in each of the major Asian economies.

China & Hong Kong: Real Sector Impacts

Despite the turmoil created by the US subprime credit market crisis, China's economy remains on a solid footing, propelled by vigorous

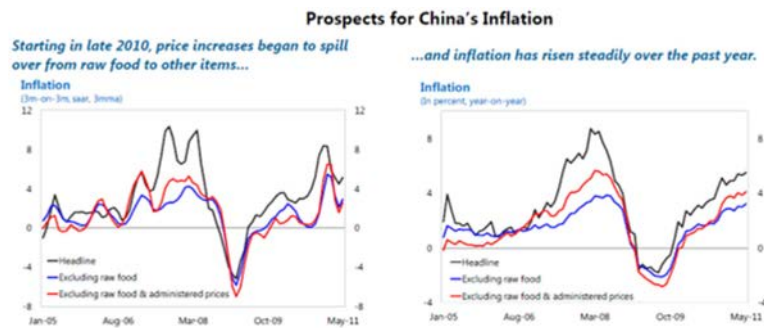
domestic and foreign demand for its goods and services. Wage and employment increase fuelled consumption, the expansion in infrastructure and real estate construction provided a cushion for the Chinese economy, and net exports contributed positively to economic growth.

China's economy cooled to its slowest pace in seven years in 2008, expanding 9 percent year-on-year as the widening global financial crisis continued to affect the world's fastest-growing economy. GDP was 30.067 trillion yuan (US\$4.4216 trillion) in 2008. The 9-percent growth rate was the lowest since 2001, and it was the first time China's GDP growth fell into the single-digit range since 2003. Economic growth showed "an obvious correction", but the full-year performance was still better than in other countries affected by the global financial crisis. The weakness in the 4th quarter of 2008 reflected reduced industrial output as inventories piled up amid sharply lower foreign demand. Exports, which accounted for about one-third of GDP, fell 2.8 percent year-on-year to US\$111.16 billion in December.

Hong Kong SAR's economy was, however, severely affected by the global financial crisis (through both trade and financial channels). Despite the steepness of the downturn in early 2009, job losses were relatively modest and unemployment stood at 5.2 percent (in seasonally adjusted terms, August to October). Weak services exports and income flows have narrowed the current account surplus to around 11.5 percent of GDP in the first half of 2009. Nevertheless, significant capital inflows have led to an increase in official reserves to around US\$223 billion by the end of August of 2009.

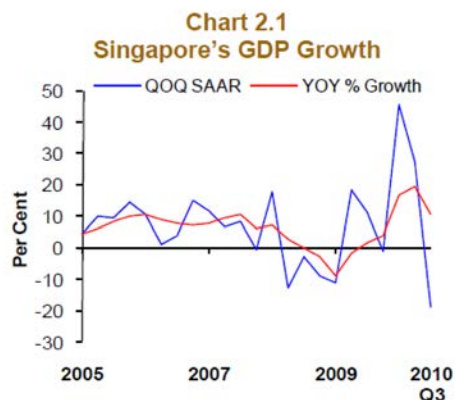
Inflation was a major concern for both the Chinese and Hong Kong authorities. Hong Kong's inflation has declined as a result of lower food inflation and the direct effects of fiscal measures (such as the concessions in rates and public housing rent). Inflation has rebounded from the lows in 2009, driven by higher costs for utilities and certain services (such as education, tourism, and transportation). In China, over the past year, consumer price inflation has been a pressing social and economic issue. In May 2006, inflation was 5½

percent with a broadening of price pressures beyond just fresh food. Inflation jumped in mid-2007 as the nation ran short of pork, grain and other food items. Consumer prices rose 7.7 percent in May 2008 over the same month last year. That was well above the government target of 4.8 percent for that year. Inflation in February 2009 reached a 12-year high of 8.7 percent.



ASEAN (Indonesia, Malaysia, Philippines and Singapore): Real Sector Impacts

Singapore was among the first countries in Asia to enter a recession. The economy shrank by about 8 percent in 2009, the worst performance since the country's independence in 1965, primarily as a result of a slump in external demand and private investment. Nonetheless, Singapore's economic fundamentals remain strong and provide an important buffer against the external shocks. As elsewhere in the region, Singapore's financial markets have experienced substantial turbulence, but the impact of the downturn is being felt primarily through the trade channel.



Source: Department of Statistics

Malaysia was also hit hard by the global downturn. The impact was mostly through the trade channel but global financial market turbulence also had a negative impact, although not directly. In Malaysia, exports plunged, capital inflows reversed, and local financial markets experienced heightened volatility. The economy contracted for the first time in ten years; by 10.5 percent in the 1st quarter of 2009, after a decline of about 12 percent in the 4th quarter of 2008. The drop in GDP was driven by faltering external demand: exports which account for about 110 percent of GDP and are concentrated in electronics and commodities fell by more than 15 percent year-on-year in the first quarter of 2009.

In the Philippines, GDP growth declined 4.4 percent in 2008 and by another 3½ percent in 2009, driven by softening external and private domestic demand. Inflation reached 9½ percent in 2008, but declined to 6 percent in 2009, led by a decline in commodity prices and weaker demand. The Philippine economy avoided a technical recession, as 2nd and 3rd quarter GDP rebounded by 1.7 percent and 1.0 percent, respectively, following the 2.1 percent contraction in the 1st quarter when precautionary savings dampened private consumption and weak exports discouraged investment.

The effects of the Global Financial Crisis on the finance sector were not as deep as compared to the U.S. and Europe. Philippines' CPI trended down during the year, reaching 3.25 percent year-on-year

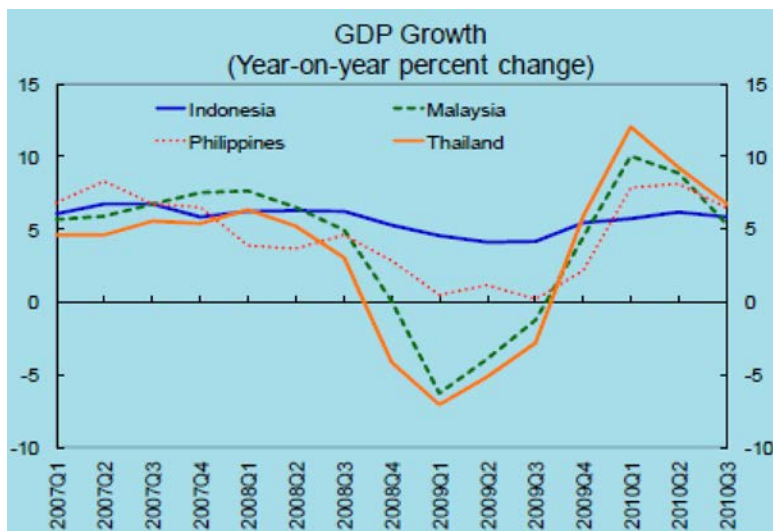
during the January through November 2009 period. The deceleration in inflation primarily has been driven by the decline in food and commodity prices following the 2008 spike. Core inflation has also declined over the year from around 7 percent year-on-year at the end of 2008 to 2.75 percent year-on-year as of November 2009.

The secular decline in the NPL ratio's of Philippine banks continued to 2009, before marginally increasing in 2010. The NPL ratio was 4.5% in 2007 and 3.5% in 2008. The ratio declined further to 2.97% in 2009 but slightly increased to 3.1% in 2010. The immediate effect of the GFC on the Philippine finance sector lies in the steep rise of the risk premium on holding Philippine government bonds, measured as the interest rate difference between a 10-year RoP Note and a U.S. bond of similar maturity. The increasing risk is also seen in the CDS spreads on Philippine bonds which widened to 283.1 basis points in September 2008 from 265 points in June 2008. This CDS spread increased to 385 basis points by December 2011.

Capital flow reversals were estimated at \$1.3 billion in 2008 due to the steep increase in the risk premium of holding Phil debt and deleveraging by U.S. financial institutions. This pressured liquidity in the banking system since the BSP requires foreign currency deposits to have a 100% cover, and banks normally use foreign currency sovereign bonds as reserve assets. The increase in risk premia drastically reduced the value of the bonds and bank reserve assets. In conditions where there is a sustained increase in the risk premium, banks must increasingly scramble for more bonds.

Singapore's CPI in 2008 increased over 6% year-on-year. The sharp rise in CPI inflation in Q1 2008 was driven by higher oil prices. This was moderated by the fall of oil prices as the global economy slowed down. Domestic inflation is restrained by subdued factor costs, such as the temporary slack in the labour market and increase in commercial spaces. Inflation in Malaysia reached a 26-year high in mid-2008, but has since declined as commodity prices have collapsed and slack in demand has put a lid on pricing power. Core inflation has also edged down.

The impact of the global recession on the Indonesian economy was limited. Indonesia's economic growth decreased from 6.1 percent in 2008, to 4.5 percent in 2009, making Indonesia one of the world's top performing economies throughout the global recession. Indonesia's GDP growth was mostly driven by household expenditure, which contributed more than 50 percent of GDP during 2001-2009 periods. Exports had the second largest contribution to GDP and also played a significant role in supporting economic growth. From 2001 to 2009, exports growth ranged between 6.2 percent and 7.8 percent on average every year. Nevertheless, the value of exports of goods decreased from US\$139.60 billion in 2008 to US\$119.64 billion in 2009; imports of goods decreased even more from US\$116.69 billion to US\$88.71 billion in the same period. Since the decrease in imports was larger than the decrease in exports, Indonesia's trade balance surplus increased from US\$22.91 billion to US\$30.93 billion, while its current account surplus increased from US\$126 million to US\$10.62 billion, during the same period. Moreover, being a natural resource exporter, high commodity prices mitigated the decrease in Indonesia exports. In 2010, exports registered remarkable recovery by increasing again to US\$158.06 billion. However, the current account decreased to US\$5.61 billion, while gross domestic product grew by 6.1 percent in the same period.



In Indonesia, CPI inflation has decelerated rapidly since October 2008: year-to-date inflation through May 2009 was only about 0.1 percent and the annual rate has since declined to 6 percent. Core inflation, which excludes administered and volatile prices, however, is a bit higher with a year-to-date rate of 1.7 percent. The deceleration follows strong inflationary pressures in 2008 resulting from high commodity prices as well as strong credit growth and domestic demand, which together led to inflation of 11 percent in 2008, well above Bank of Indonesia's 4–6 percent target range.

Korea and Taiwan: Real Sector Impacts

Korea experienced the dual onslaught of a sudden stop in capital flows and collapsing exports in the aftermath of the collapse of Lehman Brothers. In September 2008, Korean domestic banks and foreign bank branches faced a sharp reduction in their credit lines, and rollover rates on short-term external bank debt dropped to around 40 percent. As a result, the capital account deteriorated by over 6 percentage points of GDP, compared to 5.5 percentage points of GDP during the 1998 Asian financial crisis. Both the foreign exchange and equity markets declined around 30 percent, a severe US dollar shortage spilled over into domestic money markets, and the perceived default risk of Korean banks, which rely heavily on wholesale funding, increased by more than anywhere else in the region.

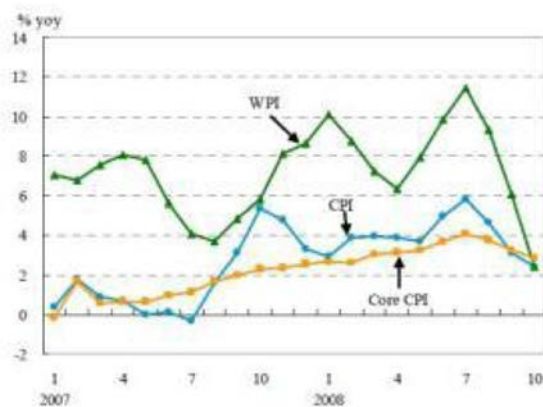
Shortly thereafter, Korea suffered its greatest export slump on record. At the low point in January, exports were down 35 percent year-on-year, compared to a fall of 22 percent year-on-year when the dotcom bubble burst in 2001. Since the Korean market is an open market, the external shock quickly spilled over to domestic demand: real investment contracted by 6.5 percent quarter-to-quarter and private consumption fell by a striking 4.5 percent. Overall, the Korean economy contracted by 5.1 percent in the last quarter of 2008, among the sharpest contractions worldwide.

Taiwan's export-dependent economy and its financial services sector were heavily affected by the global financial crisis. Taiwan's economic

growth reached 5.4% in the first half of 2008, underpinned mainly by robust export growth against the backdrop of strong intra-Asian trade performance. However, export momentum weakened in the face of the global economic downturn, coupled with sluggish private consumption and private investments. Preliminary statistics from the DGBAS indicate that Taiwan's economy turned to a negative growth of -1.02% in the 3rd quarter of 2008, and further contracted to -1.73% in the 4th quarter, causing annual economic growth to decline considerably from the previous year's 5.70% to 1.87% in 2008.

In Taiwan, from the beginning of 2008, high international raw material and commodity prices had driven up wholesale prices. Consumer prices also continued to rise, attributable to price hikes in crude oil, electricity, fuel, agricultural and industrial raw materials as well as heightened food prices due to damage from several typhoons. The Wholesale Price Index (WPI) reached a peak of 11.44% per year in July, while the Consumer Price Index (CPI) stood at 5.81%, reflecting increased inflationary pressures. The average WPI and CPI from January through October of 2008 increased notably by 7.95% and 3.92% year-on-year, respectively.

Chart 2.2 Consumer and wholesale price inflation rates



Note: Figures are measured on a year-on-year change basis.
Source: DGBAS.

Financial Sector Condition of Asian Markets During the 2008 GFC

Capital Market in Selected Asian Countries

The Hang Seng Index (HSI) increased by 39% in 2007, the largest annual gain since 2003. However, market volatility also increased significantly. Apart from strong economic fundamentals, the rise in the Index was also propelled by the expansion of the Qualified Domestic Institutional Investors scheme on the Mainland, expectations that individual Mainland investors would eventually be able to invest directly in the Hong Kong stock market, and the US interest rate cuts after August 2007. Although the global credit market turmoil affected local sentiment significantly, the subsequent rate cuts by the Fed helped sustain the gains. The Index surged to a record high of 31,638 at the end of October 2007 before falling back to the 27,000 level towards the end of the year.

The bankruptcy of Lehman Brothers and the failure of a number of large financial institutions in the US and Europe triggered a wave of selling in global stock markets, putting downward pressure on domestic equity prices. The Hang Seng Index (HSI) lost nearly half its value during 2008, closing at 14,387 at the end of the year.

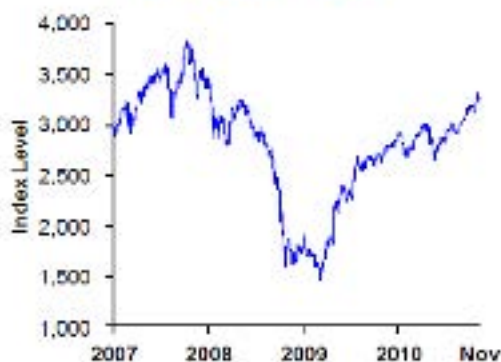
While equities have moved broadly in line with global markets.



The Singapore equity market declined sharply in line with regional and global equity markets, but a swift turnaround has since occurred.

Between March 2008 and March 2009, when the domestic equity market hit a trough, the Straits Times Index (STI) lost some 50% of its value and average turnover volume declined by almost a fifth. At the same time, in line with global trends in bond markets and quantitative easing in the US, yields on 2-year and 10-year Singapore Government Securities (SGS) have declined around 15 and 45 bps respectively from a year ago and the yield curve has flattened.

Chart 2.5
Straits Times Index



Source: Bloomberg

In Malaysia, the benchmark equity price index declined by more than 30 percent between mid-2008 and March 2009, although it rebounded by some 25 percent in April-May. The domestic financial markets were not insulated from the higher asset price volatility and lower trading liquidity that were driven by rapid shifts in the domestic and global risk factors. In the domestic equity market, the upward momentum from the second half of 2007 continued in the early part of 2008. The Kuala Lumpur Composite Index (KLCI), which was supported mainly by the plantation counters following increasing commodity prices, peaked at 1,516.2 points in January. The trend reversed as global and domestic developments unfolded in the ensuing months. As commodity prices escalated, market sentiments were further exacerbated by concerns about implications of rising cost pressures on cash flows of businesses.

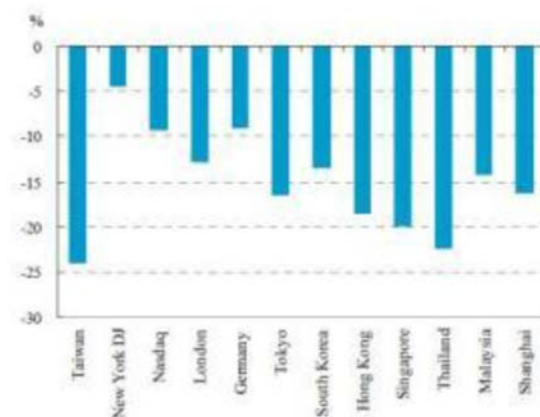


The domestic equity market was not insulated from the global events in September and October, which caused massive indiscriminate sell-offs in global equity markets. These events led to significant downward pressure on the KLCI. The KLCI stabilized towards the end of 2008 to conclude the year at 876.8 points. Market capitalization contracted by 39.3%, a relatively better performance within the region. Volatility in the equity market, however, remained elevated amidst heightened risk aversion and uncertainty. Equity market volatility averaged 20.5% for the year (2007: 16.3%).

Motivated by the developments of cross-strait economic and trade issues after the presidential election in March 2008, the Taiwan Stock Exchange Weighted Index (TAIEX) of the Taiwan Stock Exchange (TWSE) market trended upward and reached a high of 9,295 in mid-May 2008. Afterward, two gigantic US mortgage lenders (Fannie Mae and Freddie Mac), Lehman Brothers, and AIG faced difficult financial conditions, and the consequent blow to market confidence prompted major stock markets around the world to slump, setting new record one-day percentage declines. Due to the global stock market crash and foreign investors' net selling, the TAIEX then fell back to 5,719 at the end of September, down 38.47% compared to its highest closing level in 2008. Meanwhile, Taiwan's GTSM Index (the over-the-counter or OTC index) basically tracked the move-

ments of the TAIEX, falling sharply after hitting a peak of 163 in May 2008, and then declining to 83 at the end of September, a decrease of 49.08% from its highest closing level in 2008.

Chart 3.6 Comparison of major stock market performances



Notes: 1. Figures are for 2008 Q3.
2. Taiwan's data is for the TWSE market.

Source: TWSE.

As the global stock market turned bearish, the TWSE market cooled down during the first three quarters of 2008, with a dramatic decrease in trading value. However, as the result of market value tracking the movements of trading value, turnover ratio in terms of trading value on the TWSE still posted 152.25%, down slightly from 153.28% in 2007. After reaching a peak of 382.81% in 2007, the turnover ratio in the OTC market plummeted to 247.53%, with a dramatic decrease in trading value during the first three quarters of 2008. In order to mitigate the impact of the extreme volatility in international stock markets from late September, the FSC temporarily suspended all short selling and narrowed the daily percentage fall limit from the existing 7% to 3.5%. Consequently, the trading value of all TWSE- and OTC-listed stocks contracted markedly, leading to a lower turnover ratio and weakened market liquidity. Trading value started to increase slowly after the FSC resumed the 7% down-limit, effective from 27 October 2008.

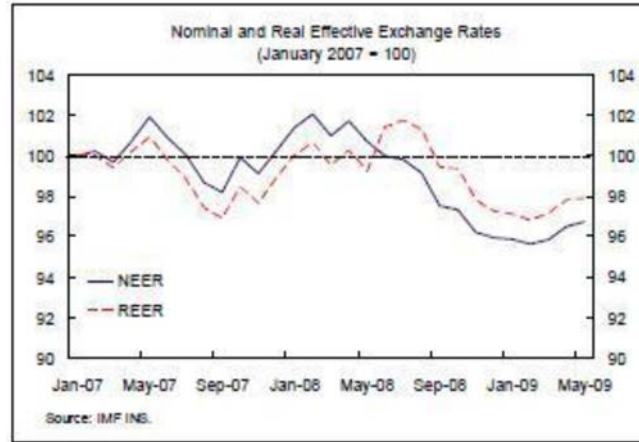
Compared to major stock markets around the world, the accumulated turnover ratio of the TWSE between January and September 2008 was lower than those on New York's Dow Jones and NASDAQ, and the stock markets in Germany, South Korea, and Shenzhen, while approximately equal to those in London and Shanghai, but still higher than those in neighboring markets of Tokyo, Hong Kong, Singapore, Thailand, and Kuala Lumpur.

Foreign Exchange Market in Selected Asian Countries

Daily turnover in the Singapore foreign exchange market, the fifth largest in the world, shrunk, as financial institutions hoarded cash and U.S. dollar liquidity evaporated. It was 15 percent lower than a year earlier by end 2009. With the recovery of trade and sentiment about regional prospects, volumes rebounded, supporting activity in this important segment of Singapore's financial sector.



The Malaysian ringgit has appreciated slightly vis-à-vis the U.S. dollar since April, after experiencing depreciation pressures last fall and early this year as capital outflows intensified (Figure 2). The real effective exchange rate (REER) has strengthened by about 10 percent between mid-2005 (when Malaysia exited a fixed exchange rate regime) and September 2008, owing to both a nominal appreciation and relatively higher domestic inflation. Since then, the REER has depreciated by about 1½ percent.



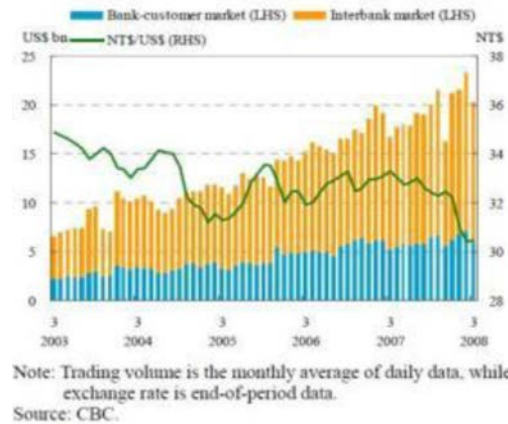
After the dramatic appreciation in 2008 Q1, the Taiwan NT dollar exchange rate generally moved in a narrow range between 30 and 31 against the US dollar in Q2, but then depreciated to 32.13 at the end of September, a 5.53% drop compared to the end of June. The NT dollar exchange rate weakened due mainly to continued foreign capital outflows from the Taiwan stock market and the rebound of the US dollar caused by sizable international capital inflows into the US to address a worsening financial crisis.

Chart 3.10 Movements of NT dollar exchange rate against key international currencies



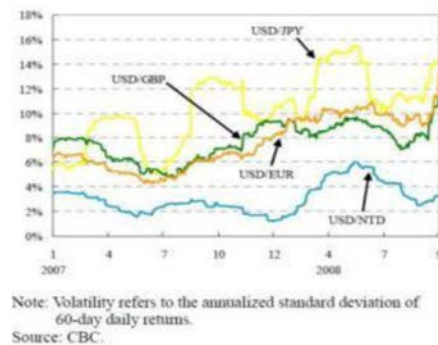
Note: 2 January 2007 = 100.
Source: CBC.

Chart 3.11 NT\$/US\$ exchange rate and foreign exchange market trading volume



The trading volume on Taiwan’s foreign exchange market has gradually decreased due to the stockpiling of US dollars in the market, while the average daily trading volume in the first eight months of 2008 reached US\$20.2 billion, an increase of 10.16% compared to the US\$18.3 billion recorded during the same period of the previous year. In 2008 Q1, volatility in the NT dollar exchange rate against the US dollar increased dramatically, hitting a peak of 6.00% in late May, and then decreased steadily to around 3.00%, before settling at 3.25% at the end of September. Compared to the volatility in the exchange rates of major currencies (e.g. GBP, EUR, and JPY) against the US dollar, the NT dollar exchange rate was relatively stable.

Chart 3.12 Exchange rate volatility of various currencies against US dollar



Banking Sector in Selected Asian Countries

Malaysia's financial sector has faced the crisis from a position of strength. Total assets of the financial sector (bank and nonbank) were about 350 percent of GDP in 2008. Significant steps have been taken to increase the openness of the financial sector, and most foreign exchange controls introduced during the Asian crisis have been lifted. Banks (which account for the bulk of financial sector assets) are well capitalized, have low NPLs and sufficient liquidity. Reliance on external funding is minimal, and there are no material rollover risks.

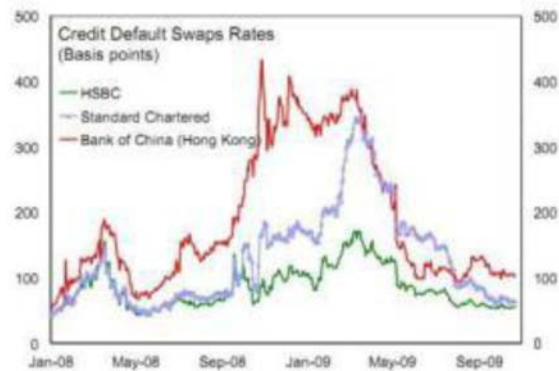
Islamic finance has become an important element of Malaysia's financial sector. Islamic banking is gaining market share, both through entry of foreign players and new product offerings. The issuance of Islamic securities (sukuk) now exceeds that of conventional corporate bonds. In the view of many observers, Islamic finance has added stability to the system, inter alia by anchoring banking practices to underlying real economic transactions and limiting leverage.

The financing portfolio was mainly concentrated in the retail-based sectors and small and medium enterprises (SMEs), which accounted for 53.4% and 17.2% of total outstanding loans and financing respectively. Enhanced risk management capabilities contributed to the better loan quality of banking institutions, with the net non-performing loan (NPL) ratio declining to 2.2% as at end-2008 (2007: 3.2%). The domestic financial markets remained orderly despite heightened price volatility, higher outflows and lower trading volume. This was supported by ample ringgit liquidity in the system.

In Indonesia, banking indicators were generally robust, and the system has proved to be resilient. Financial soundness indicators improved in 2008 whereby profitability rose and the capital base strengthened further as banks retained a larger share of their profits and increased capital. Overall liquidity conditions have improved since end-2008, with overnight interbank market rates, loan-deposit ratios, and banks' overall excess reserve holdings with Bank Indonesia back to pre-crisis levels. Credit growth has slowed on a monthly

basis since December 2008, although this is not entirely unexpected after a prolonged period of rapid growth and in light of the more uncertain environment.

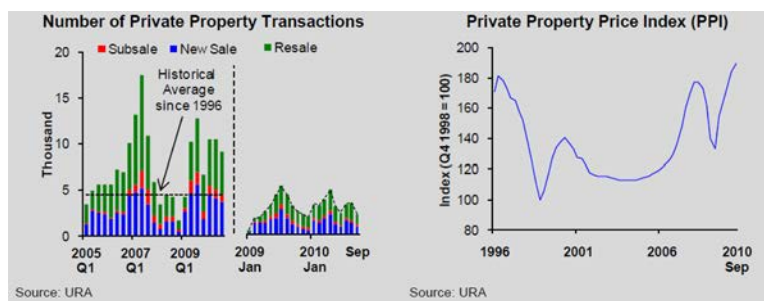
Hong Kong banks withstood the downturn well, reflecting effective regulation and supervision and a cautious approach to lending by Hong Kong banks. The banks were generally not exposed to the securitized products at the center of the crisis in the U.S., have strong internal risk management systems, are highly liquid, and have low loan-to-deposit ratios. While risk spreads on Hong Kong banks rose in late 2008 this was largely a product of increased global risk aversion. Capital adequacy ratios were 16.5 percent at end-June, up from 13.8 percent in September 2008, with around 0.75 in the form of Tier 1 capital. In terms of leverage, Tier 1 capital makes up over 5 percent of assets (adjusted for goodwill, intangible and deferred tax assets).



Banking system profitability has declined due to higher provisioning and tighter interest margins. In addition, the economic slowdown has worsened credit quality, particularly on lending to small and medium sized enterprises. Nevertheless, nonperforming loans remain at low levels (classified loans were 1½ percent of the total in June) and stress tests show the banking system to be robust even in a very negative scenario.

Real Estate Sector Condition of Asian Markets During the 2008 GFC

In Singapore, after a prolonged stagnation, private house prices (as opposed to the prices of the publicly built dwellings where some 80 percent of Singaporeans live) started to increase in 2006, crested in mid 2008, and fell swiftly with the 2008 GFC.



The Hong Kong residential property market experienced a marked downturn in the second half of 2008, reversing most of the gains recorded between late 2007 and early 2008. By the end of 2008, house prices declined by 17% and transaction volumes by 54% from June, as tightened credit and worsening economic prospects restrained demand from home buyers. The sharp correction in property prices also exerted downward pressure on rental costs, which declined by 19% for residential property and by 4% for office space between June and December 2008.

In Malaysia, the year 2008 saw some moderation in the earnings of the property and construction sectors, as players grappled with the twin effects of rising costs and slowing demand. Turnover and profits were lower due to deferment in property launches reflecting the 8.5% drop in property sales in 2008. Margins were affected by the significant rise in building material costs partly following the liberalization of the pricing structure for steel and cement and disruptions in projects' schedules. The strong financial buffers built over the recent years and the more disciplined borrowing practices ensured that the leverage ratio of property companies remained manageable at below 50%. These strong financials place the developers in a stronger position to withstand the slowdown from the 2008 GFC.

Residential Property Transactions and Sales Performance

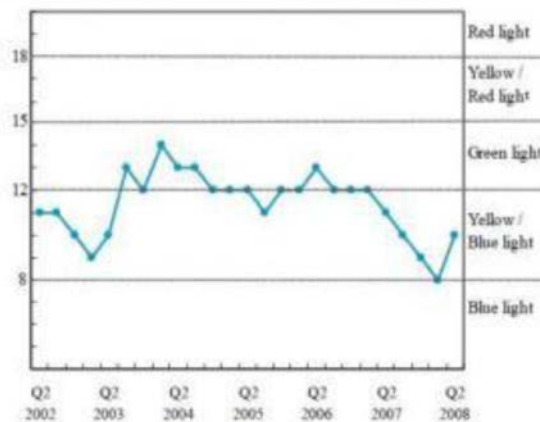
	2007	2008p	Growth (%)
Residential property transactions			
Units	199,482	216,702	8.6
Value (RM billion)	36.5	41.3	13.2
Sales performance	45.1%	44.5%	
Units launched	52,664	48,830	-7.3
Units sold	23,749	21,725	-8.5

p Preliminary

Source: National Property Information Centre (NAPIC), Valuation and Property Services Department

In Taiwan, rising prices but falling transaction volumes, coupled with a climbing house vacancy rate and generally tighter lending standards on the part of banks, exerted increasing downward pressure on the real estate market. Taiwan's real estate indicator rose slightly in 2008 Q2 but remained under a yellow/blue light, representing a slowdown in the real estate market. As for real estate cycle composite indicators, the composite index of leading indicators continued dropping in the first two quarters of 2008, while the composite index of coincident indicators 70 rose sharply in 2008 Q2 but remained lower than the figure in the same quarter of 2007.

Chart 8.1 Real estate cycle indicators

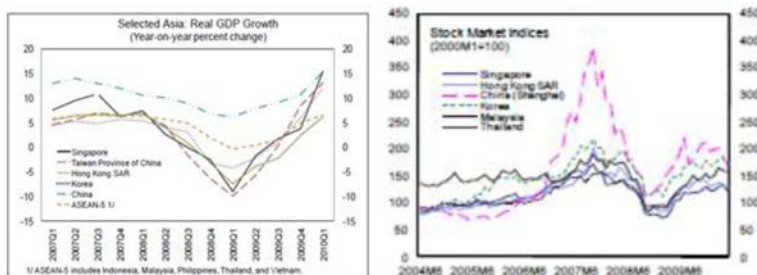


Source: "Quarterly Report of Taiwan Real Estate Cycle Indicators," Architecture and Building Research Institute, MOI.

The asset quality of real estate-related loans in domestic banks remained satisfactory, with their average NPL ratio remaining low at 1.43% as of June 2008. Even though banks adopted stricter lending standards for real estate-related loans, the default risk in these loans might have increased, as a result of a heavier debt repayment pressure for borrowers caused by the cooling real estate market, expiring interest-only periods of high loan-to-value mortgages, the rising unemployment rate, and slowing domestic economic growth.

Economic Recovery of Asian Markets After the 2008 GFC: What The Asian Governments Did

Many of the Asian economies entered into the 2008 GFC with strong economic fundamental and sound financial systems. During the course of the crisis, authorities in the region introduced expansionary fiscal stimulus, accommodating monetary policies and other macro-prudential measures. The governments of Asian countries embarked on fiscal spending to stimulate their respective economies and reduce unemployment. The fiscal stimulus is estimated to be around 5% to 8% of their GDP. In addition, some of the monetary measures include sharp cuts in interest rates, reduction of reserve requirements for banks, expanded coverage of deposit insurance for depositors and intervention in the foreign exchange market. Other measures used by governments included the imposition of short sale restrictions in the stock markets. Central banks also signed swap agreements to ensure their own financial institutions have liquidity access to foreign currencies. As a temporary measure, due to the rapid decline in asset values as a result of extreme market conditions, “Mark-to-Market” accounting rules were suspended.



With strong fundamentals and expansionary policies, the region experienced a sharp V-shape recovery in approximately 4 quarters. In 2009, many of the economies were back to the pre-crisis level in terms of GDP, and stock market price levels.

For example, Indonesia is one of the countries which managed their economies well during the global recession 2008, limiting the impact of the crisis on its financial market. Indonesian authorities implemented several measures, which were aimed at limiting the impact of the global financial crisis on the economy. The policies that were adopted generally were similar to those implemented in other countries, and ranged from eased monetary policies, fiscal stimulus, and various measures to reduce financial market liquidity.

The following section will summarize the extent of the recovery in both real and financial sectors in select Asian countries and will discuss policies introduced by local authorities to combat the crisis in more detail.

Monetary Policies – China and Hong Kong

Hong Kong's currency has been pegged to the US dollar since 1983. The main goal of this policy is to ensure currency stability. Given the monetary policy outlook in the US, the expansion of the HKMA's balance sheet is likely to persist for an extended period. Eventually, though, these extraordinary conditions will reverse, leading to capital outflows. The exchange rate will move to the weak side of the convertibility band and the HKMA will sell U.S. dollars to absorb Hong Kong dollar liquidity. The authorities indicated that they certainly expected, at some point, foreign currency inflows would turn around. They were fully prepared to handle such an eventuality including, if needed, intervention on occasion within the convertibility band, in line with the rules of the Linked Exchange Rate System. There was agreement that communicating the authorities' policy actions during this period would be critical in order to avoid any disruptive market movements.

In China, the Chinese banks extended new loans of 31 percent of GDP in 2009. This pattern was largely due to the removal of limits

on credit growth, supported by a relaxation of restrictions on property lending and a reduction in both interest rates and reserve requirements. In July 2005, the central bank began to allow the Renminbi to appreciate against the U.S. dollar, at its peak reaching a rate of appreciation of around 1 percent per month. However, in response to increasing volatility in the world economy and in global financial markets, the central bank returned to pegging the Renminbi to the U.S. dollar in July 2008.

Monetary Policies – ASEAN countries of Indonesia, Malaysia, Philippines and Singapore

In Indonesia, the authorities' policy response has focused on exchange rate flexibility (allowing sharp rupiah appreciation, with real appreciation far exceeding that of regional peers), supplemented by modest reserve accumulation aimed at reducing the short-term volatility of the exchange rate. The following monetary policy measures were adopted:

- Bank of Indonesia, which initially raised its benchmark rates to cope with inflationary pressure caused by soaring commodity prices, had to lower the rate gradually from 8.75 percent at the beginning of the first half of 2009 to 7 percent by the end of the second half of 2009. The measure was taken in order to increase liquidity in the market. BI rate has since 2009 been reduced to 6.5 percent.
- The financial crisis increased exchange rate volatility in the market. As a policy response, the central bank intervened in the market to reduce high volatility thereby restoring exchange rate stability. However, BI only intervened in the foreign exchange market when moral suasion proved ineffective in influencing market participants.

Recent growth performance, combined with recent and prospective ratings upgrades, have made Indonesia an attractive investment destination, which has posed a new set of policy challenges. Despite the lack of evidence of emerging asset bubbles, continued large inflows are worrisome because additional upward pressure on the ru-

piah could weaken competitiveness, and further increase sterilization costs. In addition, given the short term nature of the inflows, there are also concerns about the risk of a sudden reversal arising from renewed global risk aversion. Indonesia's real effective exchange rate (REER) fluctuated significantly during the 2008 crisis, due to sharp moves in the nominal exchange rate. It fell nearly 20 percent from its peak in August 2008, before turning around in February 2009 to surpass pre-crisis levels by April 2010.

In Malaysia, since November 2008, the BNM has slashed its policy rate by 150 basis points to 2 percent. Reserve requirements have also been cut to reduce the cost of financial intermediation. Timely liquidity support in the interbank market has kept the overnight interbank rate close to the policy rate, suggesting orderly market conditions throughout.

In the Philippines, monetary policy responded well to the crisis and has helped to foster the recovery. A 200-basis-point cut in policy rates during December 2008–July 2009, and additional crisis-related liquidity support measures helped to cushion the economy against the downturn. A US dollar repurchase agreement facility was opened to augment dollar liquidity in the market and ensure sufficiency of credit to support importation and legitimate dollar expenditures. The central bank made available \$10 billion in currency swaps; approximately 25% of foreign reserves, to minimize the short term disruptive effects of the GFC induced capital reversal. The Monetary Board also temporarily suspended the mark to market rule for valuing dollar assets of banks from the start of the financial turmoil to September 2009 so that losses on dollar assets values don't have to be temporarily recognized. This move reduced the demand for foreign exchange just to cover mark-to-market losses on reserve assets. The monetary board also pre-emptively adjusted policy rates in response to the anticipated domestic impact of the global financial crisis.

In Singapore, the MAS which target a nominal effective exchange rate (NEER) band to safeguard price stability tightened the policy stance by re-centering upward the policy band at the prevailing level of the NEER and returning to a modest and gradual appreciation of

the NEER for the period ahead. The policy shift marked the end of the accommodative monetary conditions since October 2008. The move validated a stronger currency and implied a slight revaluation of the NEER. By keeping Singapore Dollar strong against other currencies, it helped to cushion the impact of imported inflation.

Monetary Policies – Korea and Taiwan

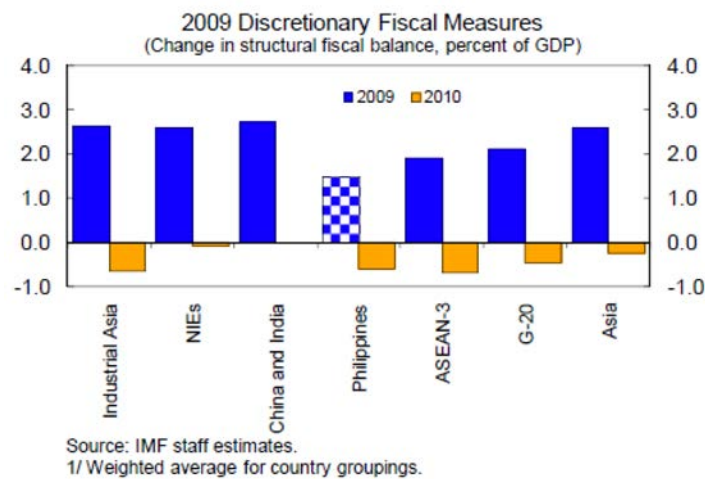
In Korea, the Bank of Korea (BOK) undertook a wide range of policy measures to ensure the adequate flow of credit and support the rapidly deteriorating economy. It cut interest rates by a cumulative 325 basis points between October and February 2009 to 2 percent. BOK also broadened the list of eligible counterparties and collateral in its repo operations and relaxed banks' liquidity requirements. BOK further set aside ₩ 5 trillion (\$4 billion) to assist financial institutions to purchase corporate bonds and commercial paper, and increased its ceiling for subsidized SME lending by ₩ 3½ trillion to ₩ 10 trillion (\$8 billion).

In Taiwan, The CBC lowered the discount rate by 2.375 percentage points in seven cuts from September 2008 to March 2009. Lower interest rates helped to reduce individual and corporate funding costs, encourage private consumption and investment, and stimulate domestic economic growth. From 18 September 2008 onward, the CBC lowered the required reserve ratios on demand deposits and time deposits by 1.25 and 0.75 percentage points, respectively, releasing around NT\$200 billion of funds with a view to increasing the momentum of bank lending.

The Taiwanese Board of the CBC also expanded the scope of Repo facility operations in its meeting on 25 September 2008 to provide financial institutions with sufficient liquidity. The monetary policy decisions included: (1) expanding eligible counterparties to include securities firms and insurance companies; (2) extending the term of Repo facility operations to within 180 days from 30 days; (3) expanding eligible instruments to include CDs issued by the CBC; and (4) allowing financial institutions to apply for the CBC's approval for Repo facility operations based on their funding demand, in addition to the operations announced by the CBC.

Fiscal Policies – China and Hong Kong

In Hong Kong, fiscal policy has been geared toward supporting the economy through a range of temporary tax and fee reductions, as well as assistance to the elderly and low income households. The government has also provided loan guarantees to small and medium enterprises and pushed ahead with several large infrastructure projects.



In China, the public stimulus was concentrated in infrastructure spending, drawing on the government’s successful use of capital spending as a countercyclical tool during the Asian financial crisis. The government did, however, devote an estimated 2–3 percent of GDP to higher social spending and incentives largely on the tax side to support private consumption. Ten Major Steps to Stimulate Domestic Consumption and Growth in China estimated to be worth RMB 4 Trillion include focusing on housing, rural infrastructure, transportation, health and education, improving environmental protection, enhancing innovation in industries, disaster rebuilding, raising income levels, tax reforms and enhancing financial support.

Fiscal Policies – ASEAN countries of Indonesia, Malaysia, Philippines and Singapore

In Singapore, the 2009 budget, which envisaged an unprecedented countercyclical support, over performed. The government benefited from higher-than-anticipated tax revenues (from incomes and property) as well as some undershooting of expenditure. The deficit as defined by the authorities turned out at about 1 percent of GDP, some 2½ percent of GDP lower than planned. The 2010 budget (announced in February) envisages an unchanged deficit but some unwinding of fiscal countercyclical support. For example, the 2009 job subsidy scheme came to an end in June, and credit support to SMEs will be phased out by 2011. Key initiatives in the 2010 budget underscore a return to a medium-term orientation for fiscal policy. In particular, the budget implements recommendations from the high-level Economic Strategies Committee (ESC) to foster productivity growth and reduce dependence on foreign labour through higher levies.

In Malaysia, two stimulus packages have been rolled out. In early November 2008, the authorities announced a fiscal package of about 1 percent of GDP in new spending to support growth. The original 2009 budget (in August 2008) envisaged a reduction in the deficit of the central government to 3¾ percent of GDP through sizeable cuts in current expenditure. The revised deficit target (of about 5 percent of GDP) reflected lower projected revenues and broadly unchanged outlays. However, spending priorities have shifted in favor of “high-impact” projects financed by savings on fuel subsidies (i.e., public works, education programs, and some pro-business initiatives). Additional measures include a temporary reduction in employees’ contributions to the pension fund.

The second fiscal stabilization package, announced in March 2009, amounts to about 9 percent of GDP. The package includes loan guarantees (about 40 percent of the total) and will be implemented over two years. The fiscal impulse is estimated at about 2 percent of GDP in 2009. The second package aims at limiting the depth of the recession and includes an array of expenditure and revenue

measures. The former account for the bulk of the package, which excludes loan guarantees. They relate primarily to infrastructure expenditure, worker training programs, and the recruitment of public sector employees. Tax measures include exemptions for interest on housing loans and some income tax deductions for laid-off workers.

Indonesia issued its first ever dollar-denominated Islamic bond, or sukuk, in April 2009 after the passage of legislation in 2008 rationalised the market. The issuance, which raised US\$650m, is expected to help finance the state budget deficit. The sukuk market is expected to expand in coming years as the government uses them to tap into lucrative financing available from the Middle East.

As a method to stimulate the economy, in 2009, the Indonesian corporate income tax (CIT) rate was cut from 30 percent to 28 percent with a 5 percent discount for listed companies; personal income tax was reduced from 35 percent to 30 percent. In 2010, the CIT rate was reduced further to 25 percent with the 5 percent discount for listed companies. Indonesia also launched a fiscal stimulus package which included, among other things the promotion of established labor intensive infrastructure projects with total stimulus packages that amounted to IDR 71.3 trillion in 2009. Besides, the government allocated IDR 12.2 trillion to infrastructure development, which was expected to generate 1 million jobs.

In the Philippines, fiscal policy was loosened in response to the crisis, but poor revenue performance will likely lead to a breach of the deficit target. The 2009 budget targeted a national government deficit (IMF definition) of 3¾ percent of GDP. By January 2009, the Monetary Board explicitly recommended that countercyclical fiscal spending be implemented to cushion the impact of the global financial crisis on domestic economic activity. Public construction activity went up 11.5% in 2009 Q1 and by 29.9% in 2009 Q2. The national deficit widened to 3.2% of GDP as countercyclical policy was implemented in 2009 (official figures from the Philippine DoF is 3.9% of GDP). The NEDA and DoF crafted an economic resiliency plan (ERP) with a budget of PhP 330 Billion using a mix of government spending, tax cuts and public-private partnerships.

The ERP has several core objectives:

- Ensuring faster and sustainable economic growth
- Reducing unemployment incidence
- Providing social safety nets to the most vulnerable sectors (extreme poor, returning OFWs and workers in export industries)
- Ensuring low and stable prices
- Enhancing competitiveness in a globalizing economy.

The declared capital outlays 300 Bn ERP for 2009 were:

- 160 Billion increase in the 2009 government spending budget (relative to 2008) to finance small, community level infrastructure projects and social protection measures
- 40 Billion combined tax cuts for low and middle income earners, as well as a scheduled cut in corporate incomes provided by the revised income tax law
- 100 Billion, as an off budget item, to be provided to government financial institutions to finance large infrastructure projects
- 30 Billion in increased benefits for members of the SSS and GSIS, the private and government pension systems, respectively.

The most prominent social protection programs were the conditional cash transfers (CCTs) and the Food for School Program. The government also allocated funds for the Phil Health Indigent Program to improve public health among the lower classes of society. There was a fiscal crisis from 2000 to 2004, and although reforms were implemented and fiscal gains were attained in 2005-2007, the reforms did not have traction. The government originally targeted a balanced budget for 2009, but decided to forego the target to mitigate the effects of the global financial crisis.

Fiscal Policies – Korea and Taiwan

The Taiwanese government adopted a four year project of Expanding Investment in Public Works to revitalize the Economy with a total of NT\$500 billion to expand investment in public works schemes.

This project is expected to increase real GDP by 0.68 percentage points in 2009. The government issued consumption vouchers valued at NT\$3,600 per person starting from 18 January 2009, totaling around NT\$ 80 billion, to effectively stimulate private consumption and boost the domestic economy. The ceiling of the estate and gift tax rates was lowered to 10% from 50%. It is expected to attract capital remitted abroad to flow back and revitalize domestic markets. To create employment opportunities, the government introduced the 2008-2009 Short-Term Employment Promotion Program, which aims to provide approximately 46 thousand and 56 thousand job openings in 2008 and 2009, respectively. Moreover, the 2009-2012 Employment Promotion Program is expected to add 50 thousand employment opportunities per year from 2009 to 2012, and effectively reduce the unemployment rate.

In Korea, conventional fiscal stimulus has been a crucial line of defense during the current downturn. The government introduced two fiscal stimulus packages for 2009: the first package in the original budget amounted to about 2 percent of GDP, while the second, passed in April, amounted to 1.7 percent of GDP. The authorities have also undertaken extensive quasi-fiscal measures to boost bank lending to SMEs, which account for 80-90 percent of employment. They expanded the available amount of SME loan guarantees, announced automatic rollovers of guarantees expiring in 2009, and increased the guarantee coverage per loan. In addition, the authorities injected capital into policy banks, encouraged commercial banks to roll over all SME loans falling due in 2009 (16 percent of GDP), and established targets for SME loan growth.

Other Financial Measures Taken By Select Asian Countries' Government

In Singapore, Monetary Authority (MAS) entered into a swap facility of US\$30bn with the US Federal Reserve, authorised through February 1st 2010, to ensure that financial institutions in Singapore had access to US dollar liquidity. Furthermore, the MAS guaranteed all Singapore-dollar and foreign-currency deposits of individuals and non-bank customers in licensed banks, finance companies and mer-

chant banks. The government has taken steps to ensure that Singapore-based companies do not face liquidity constraints because of the financial crisis. These include putting new programmes in place, the most important of which is the Bridging Loan Programme. It has also broadened eligibility requirements for existing programmes such as the Internationalisation Finance Scheme and the Local Enterprise Finance Scheme to allow more companies to make use of them.

In Malaysia, the SME Assistance and Modernization Facilities and the SME Assistance Guarantee Scheme were established in 2008 and 2009 respectively for this purpose. Two additional schemes, namely the Working Capital Guarantee Scheme and the Industry Restructuring Loan Guarantee Scheme, were launched in early-2009 to enhance the avenues for companies to obtain funds for working capital purposes as well as to promote high value added activities. There is also a provision of a blanket Government guarantee through the Malaysia Deposit Insurance Corporation (PIDM) on all ringgit and foreign currency deposits placed with financial institutions.

Indonesian authorities adopted these additional measures:

- **Structural Policy:** To cope with the deteriorating economy, the government provided additional support of infrastructure development, aimed at raising the country's economic competitiveness. On December 2009, the Indonesian government established an infrastructure guarantee fund PT. Penjaminan Infrastruktur Indonesia. The infrastructure fund was implemented through the establishment of PT. Sarana Multi Infrastructure in 2009 and PT. Indonesia Infrastructure Finance in 2010. In addition, the government approved the issuing of infrastructure bonds which are aimed at absorbing foreign capital inflow into Indonesia.
- **Liquidity Support:** Bank Indonesia reduced the minimum bank reserve requirement limit from 9.08 percent to 7.5 percent, a measure that was stipulated in PBI No.10/19/PBI/2008 dated October 14th, 2008. The measure was aimed at increasing liquidity in the banking industry. An-

other measure to increase liquidity in the banking system was the requirement for state-owned enterprises to place their funds in domestic banks. Banks were allowed on a temporary basis not to mark to market obligations on their bond holdings.

- **Deposit Guarantees:** To strengthen confidence in the banking industry and avert bank panic, the deposit guarantee was raised. This was implemented through two government regulations in-lieu-of-law (PERPU) on collateral and banks deposit guarantee issued by the Ministry of Finance and Bank Indonesia. The measures in effect increased the amount of deposits guaranteed from Rp 100 million to Rp 2 billion.
- **Financial Regulation:** In 2008, capital market authority BAPEPAM-LK issued a new regulation, which made it easier for issuers to buy back shares. The regulation exempted issuers from the obligation to obtain approval of the General Shareholders Meeting to effect such a measure, reduced the maximum limit of paid-up capital to only 20 percent, exempted with the requirement that placed a limit on share buyback volume to one day. The regulation was intended to reduce the volatility of the composite stock price index. In an effort to encourage companies to issue their shares on the capital market (go public), in December 2008, the Ministry of Finance issued a regulation (Nr 238/2008), which made listed companies eligible for a 5 percent cut income tax (under certain conditions for example at least 4 percent of their shares was supposed to be owned by the public). In an endeavour to strengthen financial markets and enhance good corporate governance, BAPEPAM-LK issued relevant regulations relating to securities credit rating in June 2009. The regulations were aimed at improving the performance of credit rating companies.

Other Actions taken by Indonesia's Government are summarized in the following table (IMF, 2009)

Benchmark Policy Rates	Liquidity Support	Securities Market Support	Deposit Insurance/ Debt Guarantees	Bank Recap/Asset Purchases/Other Fiscal and Regulatory
BI's overnight repo rate cut by 200 bps to 10.25 percent and overnight deposit rate increased by 125 bps to 8.50 percent (September 16, 2008)	Reserve requirement for foreign currency deposits cut from 3 percent to 1 percent (October 13, 2008) and for rupiah deposits from 9.1 percent average to 7.5 percent (October 24, 2008)	Ban of short-selling, stock market shut down for three days, and trading in Baskie shares suspended (October 8–10, 2008). Short-selling allowed again in February 2009.	Deposit insurance coverage extended from Rp 100 million to Rp 2 billion for both local and foreign currency deposits (October 13, 2008)	Temporary suspension of mark-to-market valuation requirements on banks' bond holdings (October 9, 2008)
BI policy rate lowered by 25 bps to 9.25 percent and interest corridor narrowed to 100 bps, from 200 bps (December 4, 2008). BI policy rate lowered by 50 bps to 8.75 percent (January 7, 2009).	Banks allowed to use SBIs and government bonds worth 2.5 percent of their total rupiah deposits as secondary reserves (October 22, 2008)	New regulations for share buy-backs issued (daily limits scrapped and rule requiring shareholder approval removed); state firms to conduct share buy-backs (October 9, 2009)	Issuance of decree-in-lieu-of-law establishing a Financial Safety Net (October 15, 2008). Legislation is still under discussion by parliament.	All bond auctions suspended until end-2008; government and BI initiate buy-back program of government bonds (October 2008)
BI policy rate lowered by 50 bps to 8.25 percent (February 4, 2009)	Rupiah liquidity injected through repos, expansion of eligible collateral for short-term financing with BI, FX swap facilities expanded (October 13, 2008)		Banks allowed to sell export receivables to the central bank (December 8, 2008). A new export financing agency created to provide trade guarantees, insurance, and lending (December 17, 2008).	Monitoring of foreign exchange transactions strengthened by requiring documentation for underlying transactions in excess of \$100,000 (November 13, 2008)
BI policy rate lowered by 50 bps to 7.75 percent (March 4, 2009)	State firms required to repatriate export proceeds and transfer their foreign currency deposits to domestic banks (October 28, 2008)		Deposit Insurance Corporation took over Bank Century (November 21, 2008)	New regulation banning structured currency derivatives products (November 27 and December 17, 2008)
BI policy rate lowered by 25 bps to 7.50 percent (April 3)	Commodities exporters required to use letters of credit issued by local banks in future, to make sure that foreign exchange remains onshore (announced January 9, 2009; implementation delayed till April 1)		BI revoked the business license of Bank IFI. Deposit Insurance Corporation to handle liquidation process (April 17, 2009)	BI announced Basel II adoption postponed and new regulation to ease capital requirements on SME loans (February 2, 2009)

The Taiwanese Government announced that it would guarantee all deposits in insured financial institutions (both banks and community financial institutions) by their full amount until the end of 2009. Other policies include (1) temporarily resuming the ban on short-selling 150 listed shares below the previous day's closing price, suspending borrowed and margin stocks from short-selling, and narrowing the percentage fall limits of share prices; (2) encouraging companies to buy back their own stocks as treasury stocks or company directors to purchase their companies' stocks; and (3) encouraging state-owned financial institutions and the four government-managed funds to purchase low-priced stocks of well-performing companies.

In addition, the FSC released a new regulation on 30 April 2009, which gave the green light to Qualified Domestic Institutional Investors (QDIIs) from China wishing to invest in Taiwan's securities and futures. It was expected to expand the scale of the local capital market so as to promote its internationalization and competitiveness. Other policies assisted in granting loans to companies and individuals.

In order to help Taiwanese corporations raise funds from capital markets, the Taiwanese government also implemented several related measures, including: (1) relaxing the lower limit of offering prices for equity offerings; (2) allowing issuers of convertible bonds which are

due before the end of 2009 to set additional conversion price reset provisions or modify terms, such as extending the due date, after reaching the final decision at shareholders' meetings and negotiating with bondholders; (3) allowing companies to issue new corporate bonds to pay off previous bond indentures; and (4) allowing public-issuing companies to repay corporate bonds using the residual funds of previous bond issues.

In Korea, the authorities set aside \$55 billion in foreign exchange reserves to provide as swaps or loans to banks and trade-related businesses, effectively substituting for loans previously provided by foreign creditors. In anticipation of a substantial rise in banks' NPLs, the authorities pursued a strategy that includes capital injections and purchases of impaired assets. Policy measures have been introduced to manage the volatility of capital inflows.

Post- 2008 Global Financial Crisis: Effects of Fiscal Stimulus, Monetary Policies and Other Measures

We now summarize in this section the effects of the multiple policy measures implemented in each of the countries during the crisis.

China and Hong Kong

Fiscal and Monetary policy packages adopted by the Chinese government were instrumental in mitigating the effects of the shock to external demand and in arresting the downward momentum to both activity and confidence (see figure below). Economic growth began to pick up in the second quarter of 2009 and reached an average for the year of 9.1 percent, around half of which is estimated to be due to public spending. Inflation moved into negative territory for much of 2009 but has since registered a modest increase. The bulk of this inflation has been directly attributable to higher food prices.

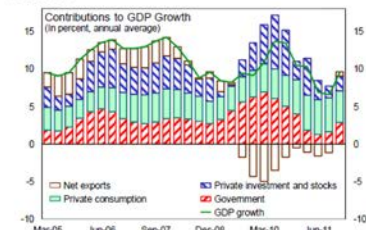
The balance of payments saw an unprecedented and dramatic change. The current account fell quickly as export volumes fell and imports surged. The terms of trade also moved against China, accentuating the decline in the trade surplus. On the capital account side,

foreign direct investment fell, in line with global trends. Despite the lower current account and reduced FDI inflows, reserve accumulation continued to be rapid, reaching over US\$40 billion per month in the year to March.

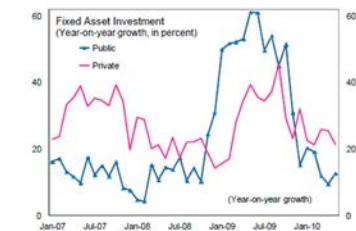
Figure 1. A Robust Recovery

Main Message: The recovery is well established with increasing signs of a transition from public stimulus to private sector-led growth.

The economic recovery began early and has proceeded at a fast pace.



...while the surge in investment has been extraordinary.

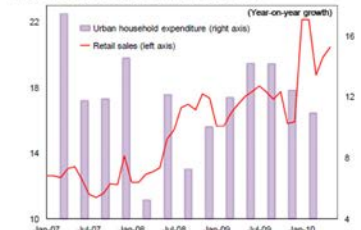


The export rebound has, however, been outstripped by import demand.

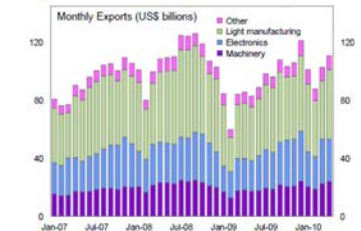


Sources: Bloomberg, CEIC Data Company Ltd.; and staff estimates.

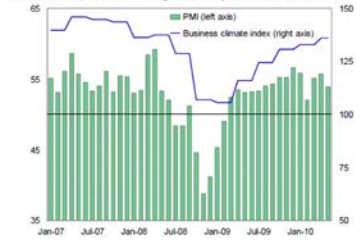
Consumption growth has been vigorous, helped by robust labor markets and government policies,...



Exports are above their pre-crisis levels with particular strength in electronics and light manufacturing.



Forward-looking indicators show continued growth momentum, albeit slowing modestly in recent months.



The Mainland Chinese government has been clear about its intention to shift growth away from exports and high levels of investment toward a greater reliance on household consumption. This has important longer-term implications for Hong Kong SAR since around one-third of its service exports are concentrated in providing logistics, merchandising, and other services related to Mainland trade.

As a consumption-based economy develops further on the Mainland, producers there could progressively orient themselves toward the domestic market and Mainland service providers could increasingly compete with Hong Kong entities (particularly in finance, merchandising, and logistics).

Hong Kong's chief executive policy address placed a particular focus on the government's strategy for promoting economic development. The address indicated that the government would continue to provide a supportive environment to Hong Kong SAR's traditional key industries (financial services, tourism, trading and logistics, and professional services). In addition, the government intends to seek out ways to foster new service sectors including education, health-care, testing and certification, environmental industries, innovation and technology, and creative industries. Specific measures include providing land for private, post-secondary education institutions and private hospitals, as well as encouraging the rehabilitation of industrial buildings to meet Hong Kong SAR's changing economic and social needs. The authorities have established a Council for Testing and Certification to enhance professional standards and garner international recognition. The government also plans to expand the incentives on offer for companies undertaking research and development investment.

The authorities attach significant importance to the progress that has steadily been made to integrate Hong Kong SAR's financial system with that of the Mainland and develop the offshore Renminbi business. The authorities saw as particularly encouraging recent steps to permit trade settlement in Renminbi between select Mainland enterprises and counterparts in Hong Kong SAR, Macao SAR, and ASEAN countries. They also saw good prospects, over time, for an interbank market to develop which would allow for cross-border Renminbi transactions, as well as for Renminbi project financing and syndicated Renminbi loans.

ASEAN: Indonesia, Malaysia, Philippines and Singapore

Singapore's monetary, fiscal, and macro prudential policies are ap-

appropriately aimed at sustaining the expansion and curbing risks in the goods and asset markets. The MAS' two-step recalibration of the monetary policy settings has restored a neutral stance. The withdrawal of fiscal support has been timely and well calibrated. The bulk of the fiscal impulse has been taken away, notably with the rolling back of the Jobs Credit Scheme and the expiration of other extraordinary interventions in the 2009 budget. The fiscal stance is now about neutral and in tune with internal balance. With output close to trend, the 2010 budget focuses on measures to strengthen potential growth.

Capital inflows: Regarding risks posed by volatile capital movements, the gross inflows remained well below the 2006–07 peak. Traditionally Singapore has been a net exporter of capital. In fact, surges in capital inflows, such as that in the first quarter of 2010, are generally intermediated out of the country. In the authorities' view, there is little evidence that capital inflows are a significant source of asset price bubbles in Singapore. When necessary, the MAS has intervened in the foreign exchange market to dampen upward pressure on the Singapore dollar (and thus deliver price stability), sterilizing the liquidity injections to limit the volatility of domestic interest rates.

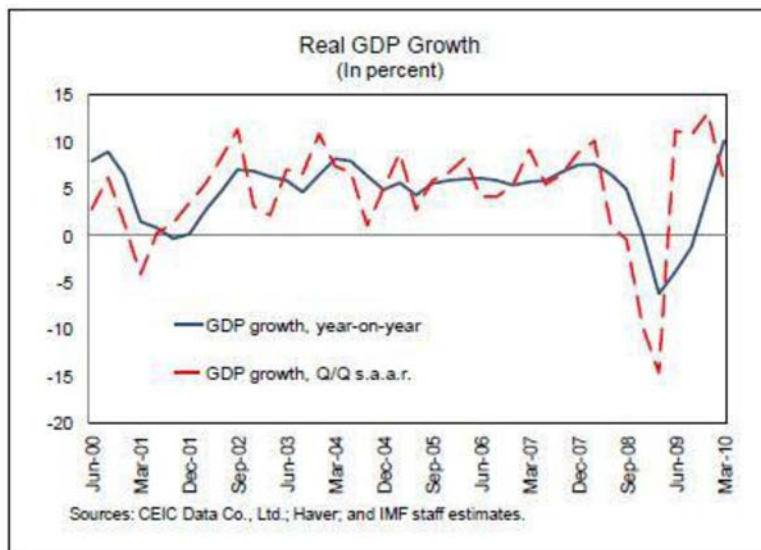
Bubble risks: The return to an appreciation path for the NEER has brought along a lower cost of credit for businesses and households, with a possible impact on asset prices. The authorities shared the view that there may be hot spots in the private housing market where prices have moved significantly faster than developments in the broader economy since it turned around in 2009. However, fundamentals too are at play and may explain much of the action. Singapore's private properties have undergone a major price correction in 2008–09 with no systemic ripple effects.

There is wide agreement that Singapore's financial sector is strong. Domestic banks are funded primarily through retail deposits. Their loan-to-deposit ratio is below 90 percent, regulatory capital is about 17 percent of risk-weighted assets (the Tier 1 ratio is 14 percent), and the liquid asset ratio is about 18 percent. All these indicators imply ample cushions over statutory requirements. At about 2 percent of total loans, NPLs at local banks are only marginally up. Foreign

banks (which account for over half of banking assets) are subject to strict licensing procedures and the MAS has an ongoing dialogue with both head offices and home-country supervisors of the larger institutions. Insurers have seen investment income and new business premiums recover. They continue to have strong capital and liquidity buffers as well as a conservative asset mix. The latest round of stress tests based on severe assumptions about international and domestic shocks suggests that, even in worst-case scenarios, NPL ratios at local banks would remain below historical highs and capital adequacy would not be impaired. Direct exposures to banks in fiscally-stressed European countries are small.

As part of its regular review, the MAS has proposed enhancements to the deposit insurance scheme including raising the deposit insurance coverage limit. Ninety percent of depositors would be insured once the ceiling of deposit protection is more than doubled, as proposed by the MAS. Staff noted that, in this connection, consideration could be given to the adoption of risk-based premia. The MAS at the same time proposed several enhancements to current guidelines on corporate governance. These enhancements (relating for example, to the composition of the Board and structures for risk management) would apply to banks incorporated in Singapore and certain finance and insurance companies.

In Malaysia, after three quarters of contraction, GDP began growing in the last quarter of 2009 pulled by exports, private consumption, and public spending. With strong momentum in late 2009 and the first quarter of 2010, seasonally-adjusted GDP is now close to pre-crisis levels, reversing a 6.5% peak- to-trough loss.



Domestic financial conditions have improved with the turn of the cycle. Supported by policy, credit growth remained positive even as output shrunk. It is now gaining steam on its own benefitting from strong demand for consumer loans and mortgages. The recovery in business lending has also been robust. Equity prices have risen about 50 percent since the lows of March 2009, and about 5 percent so far this year. The rally has not been as strong as in other regional markets, reflecting Malaysia's weaker capital inflows and shallower correction in the sell-off. Corporate bond issuance, which remained relatively strong in 2008, has also been recovering. A landmark issuance of a U.S. dollar government Islamic bond took place in June. Notwithstanding unsettled investor sentiment, the global sukuk was oversubscribed and priced at 180 basis points over U.S. treasuries, a more favorable pricing than for other regional issuers.

Malaysia's external position continues to be strong. The buildup of official reserves during the commodity up-cycle before the crisis helped accommodate large capital movements through 2009 in the global sell-off of emerging market assets. Reserves fell from nearly \$126 billion in mid-2008 to just above \$88 billion in March 2009, as Bank Negara Malaysia (BNM) intervened to support the ringgit.

By the end of the year, the drawdown had been reversed. At end-June 2010, reserves were about \$95 billion, roughly unchanged from a year earlier. Malaysia has emerged from the global recession with strong forward momentum. Countercyclical policies and sound fundamentals have paved the way for the broad-based recovery underway. Smooth exits from extraordinary interventions are in train and policy is returning to more normal settings. The authorities should be commended for skillful macroeconomic management.

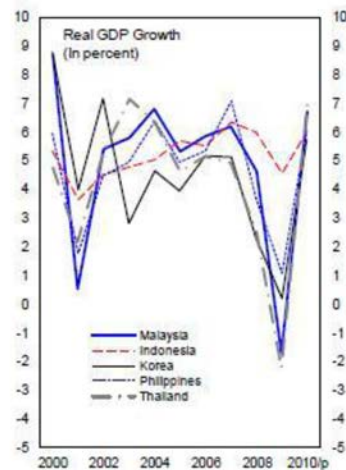
Malaysia's financial sector also has shown resilience in the global downturn. The authorities' sustained efforts to develop capital markets, broaden intermediation, and strengthen risk management have paid dividends during challenging times. The Central Bank of Malaysia Act of 2009 further reinforces the underpinnings of the financial system. As the regulatory framework adapts, Bank Negara's commitment to a hands-on proactive approach will continue to serve Malaysia well. The Islamic banking system continued to remain resilient throughout 2010, supported by high capitalization, improved asset quality and sustained profitability in an environment of ample liquidity. Prudent administration of the profit equalization reserves by the Islamic banks has contributed towards the effective management of displaced commercial risk. Islamic banking institutions have also been actively managing re-pricing gap risk that arises from the fixed rate nature of the financing portfolio with Islamic profit rate swaps. In reducing the concentration to fixed rate financing, Islamic banking institutions have also increasingly been focusing on variable rate Islamic financing products in the form of *musharakah mutanaqisah* (diminishing partnership) and *ijarah* (leasing).

The prompt policy measures undertaken by the Bank in 2008 and 2009 to provide a conducive enabling environment for business and household sectors to deal with their debt difficulties during this period, and to ensure continued credit flows to the economy, have enabled financial intermediation to continue smoothly and efficiently. The Malaysian financial markets remained vibrant and supportive of corporate funding and international trade, with strong growth in both the *ringgit* and non-*ringgit* fund raising activities in the bond and *sukuk* markets. The foreign exchange market also saw increased

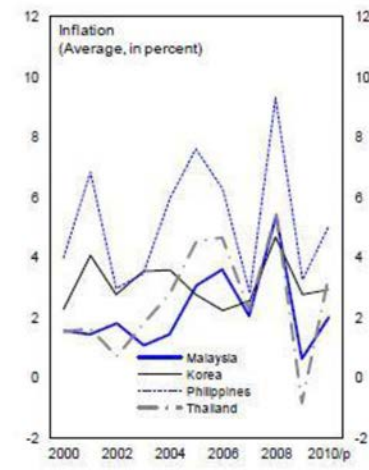
breadth and liquidity as a result of the development of new financial instruments, the gradual liberalization of foreign exchange administration rules and further flexibility accorded to foreign money brokers to increase the competitiveness, efficiency and transparency of the money and foreign exchange markets.

Figure 1. Malaysia: Real Sector Developments and Outlook

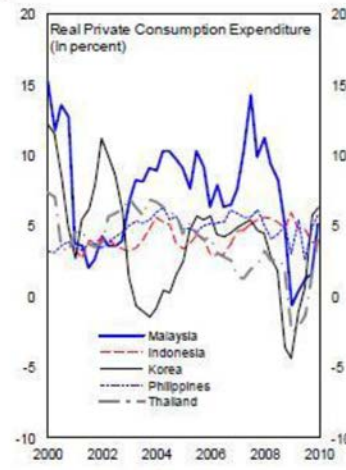
Growth has rebounded as elsewhere in the region...



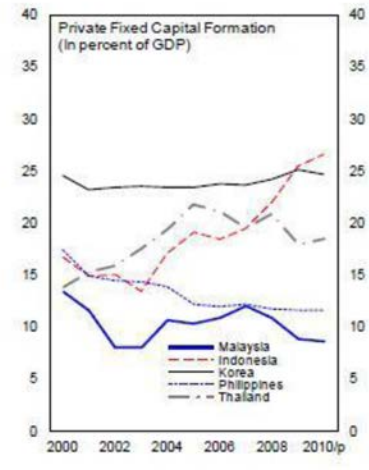
...and inflation remains in check.



Private consumption held up better than in peers...



...but private investment continues to languish.



Sources: IMF, *World Economic Outlook*; and APD databases.

group of countries. Several factors contributed to this resilience: strong initial conditions (including low debt levels), greater dependence on domestic demand, a diversified export base, and appropriate policy responses. Reflecting this economic strength, capital inflows have been surging, posing policy challenges. Large portfolio inflows since the second half of 2009 have complicated macroeconomic management and raised questions about the most suitable policy response.

Economic growth has been resilient. Real GDP growth in Q1 of 2010 was 5.7 percent (year-on-year), the fastest pace since Q3 of 2008, and comes at the back of 4.5 percent growth in 2009. Domestic demand continues to be a strong contributor, with a shift from consumption to investment occurring in 2010, reflected by the rising imports of raw materials and capital goods, as well as cement consumption. On the supply side, the service sector, notably transport and communication, has anchored growth, with manufacturing showing signs of recovery after slowing in 2009.

Inflation has remained relatively low in 2010, following a sharp deceleration in 2009. The rupiah's recovery since its sharp fall in late 2008 has helped to limit imported inflation. With declining food and commodity prices and excess capacity in the economy, average inflation slowed to 2.8 percent (year-on-year) in 2009, well below the 3.5 – 5.5 percent target range. Average annual inflation through June 2010 has increased to 4 percent, mostly driven by higher food prices. Administered prices, which were reduced in late 2008 and early 2009, partly reversing the increase that took effect in June 2008, have increased broadly in line with headline inflation.

Monetary operations have been complicated by the large inflows, and BI has responded by introducing measures to strengthen its liquidity management. Reserve accumulation has added to the need for large draining operations, and BI has stepped up SBI issuance since 2009. However, to deter banks from relying on SBI's for short-term cash management and onshore/offshore arbitrage activities, BI began in March 2010 to shift the maturity structure of SBIs from one-month to 3- and 6-month tenors, and from weekly to monthly

auctions. Also, in the June 16 measures, BI widened the corridor between its overnight deposit facility (FASBI) rate and the overnight BI repo rate by 100 bps to 5.5 percent to 7.5 percent, respectively. The wider corridor increases the borrowing cost from BI and lowers returns on its deposits, encouraging banks to trade in the interbank market.

Additionally, Bank Indonesia has kept the policy rate unchanged since September 2009. After easing the policy rate by 300 bps during the crisis, BI has left the rate at an historic low of 6½ percent. Interbank and SBI rates declined in line with the policy rate, but a similar reduction in deposit and lending rates has not occurred. To facilitate a reduction in deposit rates, with the expectation that such a move will also lower lending rates, BI guided 14 banks in August 2009 to gradually reduce their deposit rates to no more than 50 bps above the policy rate by December 2009. Banks complied with the deposit rate reduction, but lending rates have remained mostly sticky downward, resulting in wider spreads between deposit and lending rates. Still, credit growth in 2009 was 10 percent, markedly lower than in previous years, but consistent with the economic conditions in a crisis year as demand for working capital and investment funding had declined but is gaining strong momentum in 2010 (annual growth of 18½ percent in June).

Financial soundness indicators remain strong. Banks were generally resilient to the crisis as evidenced by their capital adequacy ratio (CAR) of 17½ percent at end-2009, above the regulatory minimum of 8 percent and BI's informal target of 12 percent. Gross nonperforming loans (NPLs) increased by 14 percent in 2009, but the NPL ratio was broadly unchanged at 3.2 percent of total loans, and loan loss coverage increased. Despite the difficult operating environment, profitability remained high with net interest income driven by higher interest rate spreads and loan growth, and banking sector liquidity conditions improved during the year.

Philippines' banking system is exposed to domestic and external channels of risk. In response, the BSP has introduced a number of measures to help address the fallout from the global financial crisis,

including strengthening the prompt corrective action (PCA) framework would be a good preparatory measure to adequately deal with any bank distress. The shift from a tightening to a neutral monetary stance was appropriate considering the rebalancing of risks. If downside risks materialize, the policy response would depend on the nature of the shock. The exchange rate is assessed to be broadly in line with the level implied by longer-term fundamentals. The fiscal policy easing in 2009 was appropriate and relatively effective, but the limited fiscal space would argue for a measured withdrawal in 2010. To underscore the commitment to fiscal prudence, a credible medium-term consolidation plan should be announced in parallel with the 2010 budget. A formalized fiscal framework would further underscore the credibility of the consolidation plans.

Korea and Taiwan

The Korean authorities' speedy and comprehensive response helped stabilize the economy by early 2009. Generous provision of won and dollar liquidity, including by drawing down official reserves, led to a quick recovery in money markets and prevented external defaults. Sizeable monetary and fiscal stimulus boosted confidence and supported economic activity. And the setup of recapitalization and toxic asset funds pre-empted the risk of prospective loan delinquencies turning into major deleveraging on the part of banks. As a result, activity gathered strength over the course of the first half of 2009.

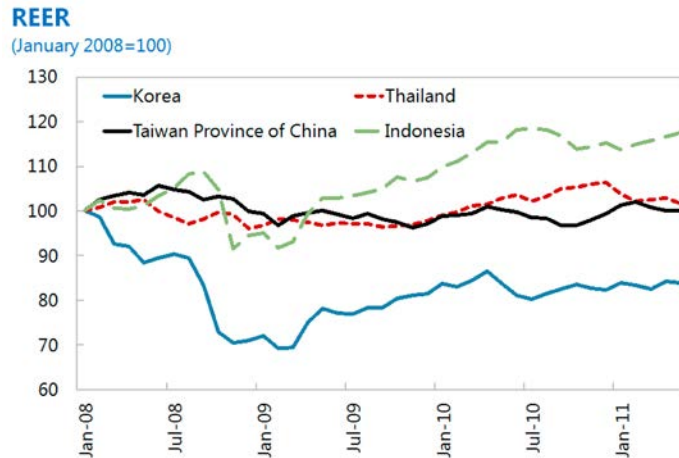
	G20	Korea
Expenditure Measures	77	73
Infrastructure	32	28
SMEs	1	21
Safety nets	20	22
Housing	5	0
Strategic Sectors	4	0
Other expenditure measures	16	2
Revenue measures	23	27
Personal income tax	8	6
Indirect taxes	4	3
Corporate income tax	10	16
Other revenue measures	1	1

The steep exchange rate depreciation helped fend off deflationary pressures. The BOK intervened only exceptionally, confined spot market intervention to smoothing operations, and secured swap lines from other central banks totalling \$90 billion. The weak Won

redirected domestic demand from imports to domestic production and, in combination with falling oil prices, turned the current account from a deficit of 3¾ percent of GDP in the third quarter of 2008 to a surplus of 4½ percent of GDP in the first quarter of this year. As a result, reserves fell by just \$38 billion in the last quarter of 2008 to \$200 billion and have since risen to \$232 billion. Moreover, the weak Won has sustained core inflation, at 3.5 percent in June, while headline inflation has declined to 2 percent on the back of softer commodity prices, slightly below the target range of the BOK.

The Korean economy transitioned from recovery to a robust expansion in the second half of 2010. This expansion was supported by both strong exports and robust domestic demand. Overall, the economy expanded by 6.2 percent in 2010. Momentum eased in the first half of 2011, reflecting the maturing of the expansion as well as several temporary factors. Investment was dented by balance sheet problems in the construction sector, while consumption was weakened by the impact of rising food and fuel prices on real disposable incomes. Export growth eased due to the adjustment of global inventories and softening of industrial production growth. The supply chain disruptions from Japan's earthquake had only a limited impact on Korea's exports.

The external current account is in surplus and the real effective exchange rate (REER) is weaker than the pre-crisis levels. With the recovery from the crisis, Korean exports grew by 30 percent in 2010, leading to a current account surplus of 2.8 percent of GDP, about 0.5 percentage points above the 2000–07 average. The REER remaining well below pre-crisis levels also supported the positive current account balance, with a surplus of 0.9 percent of GDP in the first quarter of 2011.

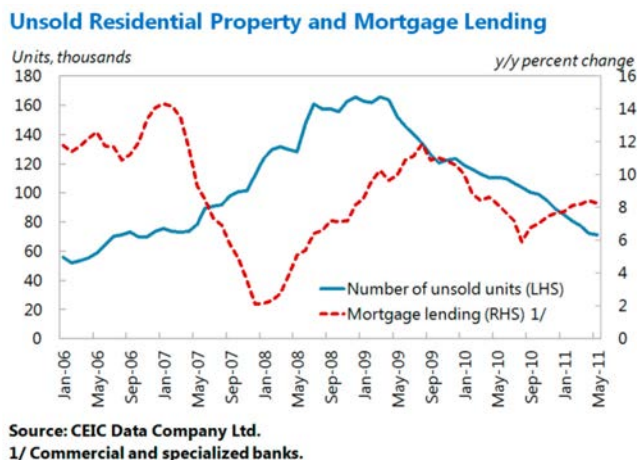


Source: IMF, Information Notice System.

The banking sector as a whole remains strong, notwithstanding the run on deposits in some mutual saving banks (MSBs) this year. The average capital adequacy ratio (CAR) of the commercial banking system stood at 14.3 percent, while the LTD ratio has declined to 96½ percent. Meanwhile, nonperforming loans (NPLs) remain low at 1.3 percent.

Macro-prudential measures have reduced maturity mismatches, and coupled with LTD limits, lowered commercial banks' reliance on wholesale funding. However, the share of nonperforming SME loans remains high as progress on bank-led SME restructuring has been slow. Weaknesses in the construction and real estate sector were the predominant cause of the run on deposits in eight MSBs this year. The authorities have responded swiftly by suspending the operations of these banks while protecting insured deposits.

House prices have stabilized after two short-lived downturns and recoveries since 2008. Since the most recent trough in mid-2010, national house prices have risen by about 5 percent, and are 8.4 percent above their post-crisis lows. The number of unsold units has been reduced to pre-crisis levels, including through purchases by the state owned Korea Land and Housing Corporation (KLHC).



Growth has rebounded impressively in 2010 since the recession in the second half of 2008.

Following the collapse in economic activity in the fourth quarter of 2008 (-16.8 percent quarter-on-quarter seasonally-adjusted annualized rate (SAAR)), the subsequent recovery has solidified with GDP growth averaging 7.4 percent (quarter-on-quarter SAAR) in the first half of 2010. Moreover, the recovery is increasingly being driven by private sector demand, in particular fixed investment and a slowdown in destocking. This rebound owes to a number of factors, including a proactive policy response and the normalization in global trade. Monetary policy rates were cut by 325 basis points between October 2008 and February 2009 and fiscal policy eased significantly (an estimated fiscal impulse of 2¼ percent in 2009), against the backdrop of strong underlying public finances. Moreover, Korea's export-dependent economy benefited greatly from the rapid rebound in international trade, partly led by the turning of the global inventory cycle, and the initial steep depreciation of the Won. Finally, the healthy balance sheet positions of banks and large corporations made them resilient to the downturn.

Taiwan's banking sector has seen a recovery since early 2010, mirroring the improved performance of the island's economy as a whole, as the export-dependent economy has emerged from the global finan-

cial crisis. In one indication of the better times, several banks have announced pay raises for their staff. Taiwan's economy expanded by a stronger than expected 5% year-on-year in the second quarter of 2011.

In the early years of the forecast period the authorities will withdraw cautiously the emergency economic stimulus measures that were introduced in late 2008 and 2009. A major challenge for the monetary authorities in Taiwan at present is the need to protect the island from the effects of volatility in global financial markets. The introduction of further capital controls is a possibility (several modest controls have been put in place since mid-2010, amid fears that inflows of hot money could cause a rapid rise in the exchange rate, which in turn could damage the competitiveness of Taiwan's export-led economy). Another policy concern is the recent rapid rise in property prices, particularly in the capital, Taipei. Such increases pose the risk of the formation of a property bubble; such a bubble might undermine the broader economy, were it to burst.

Exports of goods and services grew by an impressive 26% in 2010, owing in part to strongly recovering rates of GDP growth in Taiwan's main export markets in Asia. Growth in exports is expected to slow to a more sustainable average annual rate of around 7% in 2011-15. A major factor supporting exports in the forecast period will be improving cross-Strait relations. Services exports will be supported by an expansion in freight traffic, and also by growth in the number of visitors to Taiwan from mainland China as visa restrictions are gradually relaxed.

The appreciation of the exchange rate could cause problems for some of the island's exporters, as it will tend to erode the competitiveness of the country's exports. If Taiwan's economic recovery is not sustained in the forecast period (as we assume that it will be), or if neighbouring countries engage in a policy of competitive devaluation, the CBC is likely to intervene in foreign-exchange markets in an effort to weaken the New Taiwan dollar against the US dollar, in order to support the export sector. As US interest rates are set to remain low, especially in the early years of the forecast period, an unex-

pectedly rapid increase in interest rates in Taiwan could put upward pressure on the local currency. Inflows of hot money will continue to play a major part in determining the path of the currency's exchange rate against the US dollar.

Taiwan's economy has performed strongly so far in 2011 amid buoyant overseas demand for its electrical and electronic goods and steady domestic consumption. The Directorate-General of Budget, Accounting and Statistics (DGBAS) estimates that real GDP expanded slightly more strongly than expected, by 5% year on year, in the second quarter of the year. Exports of goods and services (on a national-accounts basis) grew by 4.4% year on year in the period, although this represented a substantial slowdown from growth of 11.2% in the first three months of 2011. Taiwan's manufacturers, and in particular those producing components for smartphones, will nevertheless be buoyed by merchandise export figures (on a customs basis) for July, when shipments soared by 17.6% year on year to a record monthly value of US\$28.1bn. Exports to the US rose by an impressive 23% year on year (owing in part to high seasonal sales of electronics ahead of the start of the academic year in that country), although that country's economy has remained sluggish and such growth in Taiwan's exports to the US is unlikely to be sustained. Taiwan's domestic consumption expanded by a fairly respectable 2.6% year on year in the second quarter of 2011, although this was down from growth of 2.9% in the first quarter and 5.1% in the fourth quarter of 2010. Growth rates in mining and quarrying and also in manufacturing decelerated considerably in April-June, and the services sector fared little better, recording slower growth in all categories except education. But the picture for services industries is by no means gloomy, as total sales by Taiwan's wholesalers, retailers and restaurant operators reached NT\$1.2trn in July, the highest monthly figure ever recorded.

In 2009, the health of Taiwan's financial system was restored after experiencing the temporary effects of the global financial turmoil in the second half of 2008. Financial markets, particularly the stock market, improved. The profitability of domestic financial institutions bounced back sharply, while asset quality remained sound. The resilience of the financial sector against risks increased, supported by

the fact that capital levels held by financial institutions, except for a few domestic banks and life insurance companies, were adequate and continued to rise. Throughout this period, payment and settlement systems operated smoothly. This, coupled with the introduction of a new mechanism in the securities settlement system for the stock exchange, contributed to reinforced safety and efficiency in settlements.

Lessons We Can Learn From The 2008 Global Financial Crisis – An Asian Perspective

The 2009 Global Financial Crisis has shown us that even with strong underlying economic fundamentals, Asian countries are not sheltered from global shocks due to trade and financial linkages. The crisis, while originating in the subprime segment of the U.S. mortgage market, quickly spread through financial and real channels. Many Asian economies are severely affected, which include even those that did not have any major exposures to the assets at the heart of the crisis. This is caused by the sudden drying up of liquidity and collapse of global trade. For some Asian countries, it was a “crisis of confidence”.

A key factor in determining the impact of the global crisis on individual economies was the extent to which underlying vulnerabilities had interacted with the shock and amplified its effect on the financial system and the overall economy. For example, and as has been well-documented by now, the build-up of leverage, rapid house price appreciation or excessive credit growth have all been found to lead to larger economic downturns when an economy is hit by a financial shock. This highlights the role of balance sheet vulnerabilities in the dynamics of an economy when it is subject to shocks. Moreover, it raises the question of the role of inflation targeting frameworks in the run-up to the crisis, and whether they can contribute to creating the pre-conditions that better insulate an economy from shocks through improved balance sheets, thereby supporting the mandate of the monetary authority to maintaining price stability and minimizing output volatility.

Selected lessons related to the 2008 Global Financial Crisis can be glimpsed from the actions taken by the different Asian countries.

Fiscal Policy: Plunging external demand, compounded by weak domestic private demand, left the government as the consumer of last resort throughout developing Asia. In striking contrast to the Asian crisis a decade earlier, the region was unable to export its way out of the recession. Governments responded decisively with sizable fiscal stimulus packages. Indeed, the forceful and synchronized fiscal policy response was uncharacteristic for a region in which the use of countercyclical fiscal policy is uncommon. Developing Asia's macroeconomic focus has been more on keeping budget deficits under control rather than using spending and taxes to smoothen the business cycle. Indeed, these fiscal experiments did play a key role in maintaining regional resilience. In particular, higher government spending had a positive effect on GDP during the worst of the slowdown. At a minimum, the fiscal stimulus is likely to have had a major positive effect on plunging business and household confidence by signaling the resolute commitment of regional governments to prevent an economic meltdown.

Monetary Policy: The prudent policies and behavior of Asian monetary authorities and financial institutions certainly contributed to avoiding crisis, but luck may have played a role too, since Asian central banks had not been challenged by hard choices, unlike the advanced economies' central banks. Concurrent with the fiscal expansion, monetary policies were loosened to maintain adequate liquidity for the economy. Most central banks went beyond the usual operating channel of cutting the policy rate by pumping additional liquidity to the economy through either pursuing direct injection of liquidity or creating demands for domestic assets. Policy interest rates were cut sequentially from the last quarter of 2008 and, in most economies, have been kept at a decade low since.

This drop of policy rates initiated expansion in financial depth (measured by M2/GDP). Between the fourth quarter of 2008 and fourth quarter of 2009, on average, financial depth grew by about 38% in a sample of 11 developing Asian economies (China, Hong Kong,

Taiwan, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Thailand and Vietnam). Attributing this all to a change in policy rates would be misleading since that would suggest a percentage point decrease in the policy rate corresponds to an 18% growth in the ratio of M2 to GDP. Therefore, liquidity operations must have played a considerable role in promoting financial depth.

These monetary operations provided more comfortable room for the large fiscal expansion to play its role in cushioning the impact of the slowdown and promoting the region's strong recovery. Both fiscal and monetary policies worked. Yet, as Asia's recovery picks up, policy makers are facing a new challenge—how to normalize the policy stance while continuing to support the recovery process and avoid creating new problems.

Trade: Developing Asia started 2009 facing the collapse in external demand from the major industrial countries. Exports from developing Asia plunged in the first half of the year—by 24.5% in the first quarter and 23.5% in the second. Economies more open to trade suffered more than the relatively closed ones. Equally, although it is true that the regional financial system as a whole was not affected severely by the crisis, the financially more open economies suffered more than relatively closed economies.

Varied GDP growth performance across Asia highlighted the importance of resilient domestic demand—both consumption and investment—when hit by a large external shock. The severe impact of the export collapse was felt particularly through the fall in business sentiment and hence private investment.

Increased uncertainty, particularly for export orders, reduced business investment. Business sentiment and investment picked up in the second half of the year, particularly in Hong Kong, China, Korea, Taipei and Malaysia. Buoyant import demand from the PRC seemed to account for this turnaround because demand from the industrial economies was still subdued.

One of the lessons learnt from the 2008 Global Financial Crisis is for

Asian countries to wean themselves from excessive dependence on exports to countries outside the region and rely to a greater extent on domestic demand. Expansion of intra-regional trade among Asian countries, especially in final goods, will provide the region with an additional source of resilience against external shocks. Further progress in regional free trade agreements (FTAs) would play an important role to support sophistication of production networks in the region.

Housing Market Bubbles

Various Asian countries have enacted policies on regulation related to mortgage lending, along with other housing policies, to contain household leverage and prevent house price bubbles. On the back of the expectations for robust economic recoveries, asset prices, particularly of real estate, are also showing a surge, especially in China and Hong Kong.

In Singapore, the authorities have been actively monitoring the housing market to keep prices affordable for the masses. Sales of public land and macro prudential measures so far have been part of a contingent, pre-emptive, and graduated strategy to curb excesses. If necessary, more measures can be taken by the Singapore government.

Deposit Protection

At a time when people are fearful about their deposits in banks, countries such as Hong Kong, Singapore and Malaysia in October 2008 took the unprecedented step of offering blanket deposit protection to calm the market. These countries also coordinated their exit from offering blanket deposit protection guarantee.

Following this experience, Hong Kong and Singapore have considered increasing the deposit protection limit. In Hong Kong, the proposal is to increase the deposit protection limit to a little over twice the level of per capita income. This is warranted and in line with the coverage in other jurisdictions. As part of these changes, consideration could be given to making deposit insurance premium risk-

based to ensure risk management discipline in financial institutions. Consideration could also be given to, over time, moving away from the current system of netting deposit claims against performing liabilities to the bank. This would further strengthen the protection afforded to depositors.

Capital inflows

Managing disruptive capital flows could be a challenge for the Asian Central Banks. Unsettled global financial markets and the expectation of changes in key regional currencies points to heightened volatility in international capital movements into and out of Asian countries, going forward.

Surging capital inflows into several economies— especially those that have rebounded firmly and attracted investors with a rising risk appetite—are complicating macroeconomic management. In addition, the continued low policy rates in the major industrial countries and greater market liquidity have prompted speculative flows due to large interest-rate differentials and a resumption of some carry trades. Economies faced with such surges have several options, including better coordination with industrial countries, from which much of these flows may originate in the search for better yields. The response need not be an immediate monetary tightening. In economies where recovery is firm, pursuing some fiscal tightening can ease pressures on rising interest rates. For others, accumulation of international reserves or allowing greater exchange rate flexibility may be more appropriate.

There is also room for applying macro-prudential policies, to deter the formation of asset and price bubbles or for financial institutions to accumulate buffers. Where institutional capabilities are well established, temporary use of carefully designed capital controls are one possible approach to deter disruptive short-term flows.

Official reserve accumulation

Building strong reserve buffers may be important for Asian coun-

tries, however, the authorities are encouraged to keep it under review, lest a generationally inequitable outcome or an inefficient allocation of resources results.

Social Safety Nets

One of the key impacts of the 2008 Global Financial Crisis is the rise in unemployment rates in all countries across Asia. Thus, it is important for countries to have social safety nets to mitigate hardship while not undermining work incentives. Job creation schemes, where the government contribute a portion of the wages, are adopted by Singapore and Taiwan. All these measures taken helped to reduce the unemployment rates and hardship during the crisis.

In some Asian countries such as Singapore, Hong Kong and Korea with an ageing population, consideration could be given to ways to raise the return to pensioners and facilitate the monetization of housing wealth.

Banking Reform

Even though the financial landscape has somewhat stabilised by end 2010, many reform priorities have been identified. Some banks remain vulnerable to credit and liquidity risks. This highlights the need to improve coordination of macro and micro prudential supervision, and develop a crisis management framework for quick resolution of problem banks, including adoption of the Financial Safety Net law. Addressing weaknesses in the legal mandate for supervision and governance structures in financial institutions are also essential to further enhance stability. More generally, strengthening enforcement of creditors' rights and developing a deeper capital market will help improve financial intermediation and deliver a more diverse funding base to promote long-term investment.

Savings

Developing Asia's contribution to the global imbalances—its persistent high current account surpluses—has been driven mainly by ex-

cess saving. Resolving this problem means removing the policy bias toward specific sectors and interest rate distortions that induce excess corporate saving. Strengthening domestic financial systems and underdeveloped social safety nets will reduce households' need to accumulate precautionary saving.

Conclusion

Based on the Asian experience, there are many key lessons that we can take away from the 2008 Global Financial Crisis. In times like these, the authorities will do better to embark on measures like fiscal stimulus especially when there is plunging external demand and weak domestic private demand. Monetary policies are effective in providing liquidity for the effective functioning of the economy. Countries may consider placing a greater emphasis at focusing on internal demand as a means of reducing reliance on external trade.

Measures have to be enacted to hedge against the impact of surging capital inflows that could be disruptive to the economies. The end result could be rapid asset inflation if left unchecked. One of the risks could be the bursting of the housing market bubbles. Experiences of several Asian countries have shown that having a sizable reserve may cushion negative effects stemming from any crisis.

When there is a need to shore up investors' confidence, decisive actions by the authorities have to be implemented swiftly. One such example is the provision of blanket deposit guarantee. There must be sufficient official state reserves for these measures to be credible.

Finally, there is a need to reform the banking system and enact social safety nets as a hedge for future crisis. Hopefully, the lessons learnt from the Asian economies can help to mitigate hardship and difficulties in the event of another financial crisis.

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The Recent Financial Crisis: Lessons from Europe

A Report prepared by the
European Shadow Financial Regulatory
Committee (ESFRC)
for the International Meeting of Shadow Financial
Regulatory Committees, Washington, DC
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The drafting committee that prepared the report consisted of Reinhard Harry Schmidt (chair), Kern Alexander, Harald Benink, Rosa Lastra and Clas Wihlborg. Valuable contributions were also provided by Tom Berglund, Gérard Hertig, Karel Lannoo and Cathérine Lubochinsky.

I. Introduction and Summary

A. Purpose and focus of the report

The purpose of this report by the European Shadow Financial Regulatory Committee (ESFRC) is to provide an account and assessment of how the financial crisis of the period 2007 to 2009 has affected the region covered by the ESFRC and of how the relevant authorities reacted to the crisis. These reactions include measures taken by central banks, governments or fiscal authorities and regulatory and supervisory bodies.

Defining a topic always implies drawing boundaries between what shall be covered and what has to be left out. In a report about the effects of, and the reactions to, the financial crisis of 2007-2009 in Europe, these boundaries are particularly important and also particularly difficult to draw, and this is for several reasons.

The first reason is related to the substance of what this report shall cover. We restrict our report almost completely to the financial crisis of 2007 to 2009. This implies two boundaries. In the descriptive parts we focus on the events of these three years, that is, the early phase of the financial crisis. However, we go beyond these years in the discussion of regulatory and policy responses to the financial crisis since many responses with longer term implications only materialized after 2009. Still, our focus lies on what one could call the financial crisis in the narrow sense. For the most part we leave out the crisis in the real economy, which was partly caused by the financial crisis but started only after the collapse of Lehman Brothers in September 2008 and reached its peak in the year 2009. The sovereign debt crisis that erupted in 2010 is also not covered in detail. However, since the real economy crisis and the government debt crises are closely related to the genuine financial crisis, we shall briefly address these two topics and their linkages to the crisis in the financial sector in the concluding section.

The second limitation refers to the regional coverage. Europe is a complex entity with a high degree of diversity, not least in terms of economic and political structures. This complexity and diversity is a defining characteristic of Europe, as is also codified in the Lisbon Treaty, and a feature that is highly relevant in the discussion of the effects of the financial crisis and the reactions to the crisis. Europe comprises countries such as Italy, the Netherlands, France and Germany that are members of the European Union (EU) and at the same time belong to the euro-zone, countries such as the UK that belong to the EU but have not joined the euro-zone, and finally others such as Switzerland which are neither in the EU nor in the euro-zone but are financially closely connected to both the EU and

the euro-zone¹. As an implication, Switzerland and the UK each have their own independent central bank, and Switzerland also has its own regulatory and supervisory agencies that are in principle completely independent of EU regulation and EU authorities. With the UK and Switzerland in addition to the EU-plus-euro-zone countries Germany and France, the area covered in this report comprises those European countries that are home to Europe's most important financial centers. For the sake of not overburdening this report, we leave out discussions concerning the countries of central and Eastern Europe, even though they have also been greatly affected by the crisis.

The diversity and institutional complexity of the European financial and finance-related institutional landscape is a factor that poses more problems than merely that of deciding what this report is to cover: it may pose real, substantive problems. Diversity and complexity per se may be a cause of the severity of a crisis and an impediment to efficient and effective crisis management and crisis resolution. At least one might be inclined to think that managing a crisis when it occurs and later on resolving it is easier in a single country with a strong central power, as it is the case in the United States. And it is also easier in a group of largely independent countries that each have their own central bank and regulatory authorities, as it is the case in South America, than in a region such as Europe that is diverse and complex and endowed with a patchwork of national and supra-national institutions.

This presumption raises two important questions. One is whether diversity and complexity have really made the crisis worse and crisis management more difficult in Europe, and the other one is whether and in which way and to what extent the crisis has induced changes in the institutional structure in Europe. We find the aspect of diversity and complexity of the institutional structures in Europe so important and also so instructive for potential readers of this report, especially those from outside of "Core Europe" that we will use it as the "Leitmotif" of this report, that is, as a recurrent topic that shows up in the way in which we analyze how the financial crisis of 2007 to 2009 has affected Europe and how Europe has reacted to it.

¹ The same applies to the membership of the European Shadow Financial Regulatory Committee.

Structure of the report

After a brief summary of the main points of this report we turn in Section II to a brief account of the unfolding of the financial crisis as far as Europe was concerned. Section III is dedicated to crisis management. It takes a look at how the central banks of the euro-zone, Great Britain and Switzerland reacted, first to the outbreak of the crisis in 2007 and then once more after Lehman Brothers filed for bankruptcy in September 2008. Fiscal or government responses are discussed as well, focusing on rescue operations of the various national governments. In section IV we discuss reform initiatives that have been or will be implemented with the objective of making a future crisis less likely. We look, among other things, at the new Basel III Accord and its transposition into European banking regulation and at the new, post-crisis assignment of powers to regulate and supervise banks and other financial institutions in the different parts of Europe. Many unresolved reform issues remain as work in progress in Europe. These issues are discussed in Section V including resolution regimes for large financial institutions in trouble. Section VI concludes and, as already indicated, broadens the perspective by also looking at the real-economy side of the crisis and at the current euro-zone government debt crisis.

B. Summary of main findings

The subprime crisis spread quickly and directly to Europe because 40 percent of the securities backed by subprime mortgages were held by European financial institutions. Much was financed through issues of short-term securities. As a result several banks faced distress after liquidity in the markets dried up in September 2008.

Most countries in Europe responded with a battery of policy measures to avoid a financial meltdown: expanded deposit insurance, guarantees of banks' liabilities, support of asset values, and capital injections. During the critical years of 2007 through 2009 the central banks played a helpful role to the tide. The various national/regional central banks seem to have acted fast, and with the appropriate massive interventions they cooperated swiftly and smoothly. Conflicts

and coordination problems arose as well, in particular with respect to management of distressed cross-border banks.

There are estimates that the direct fiscal costs have been around 3 percent of GDP, a number that seems to indicate that fiscal or governmental action was not only fast but possibly also efficient in terms of fiscal costs.

The massive central bank and government interventions had highly problematic long-term consequences as well. One consequence of the bail-outs of large banks is that the principle of “too big to fail” has become established to an even higher degree than before the crisis. The current sovereign debt crisis can also be seen as a consequence of the fiscal costs of stimulus packages and large bank bail outs in Ireland. The lack of effective ways of managing bank insolvencies, which contributed to the need for bail-outs, remains a problem and contributes to shape the EU approach to the current crisis.

The lack of special procedures for resolving banks and “Structured Early Intervention” remain glaring gaps in the crisis management procedures for large financial institutions. Continued work on an insolvency regime in the EU is urgently needed, and it should naturally contribute to financial stability. Without such procedures it will not be possible to restore market discipline on banks’ risk-taking.

Substantial reforms of regulation and supervision have been initiated in Europe. The EU is implementing Basel III (in the form of Capital Requirements Directive IV) with relatively high speed. EU bodies for coordination of supervision of large cross-border banks have been established. Macro-prudential supervision has been strengthened on the EU level. With these new institutions in place since the beginning of 2011, it can be expected that the response to future crises will be faster and more effective.

Many countries have implemented or are considering restrictions on executive compensation in order to strengthen risk management incentives with a longer time perspective.

The reforms have controversial aspects as well. The “maximum harmonization” principle in the implementation of CRD IV has been criticized, notably by the United Kingdom. Another controversial reform is the UK proposal to “ring-fence” traditional commercial banking, especially in light of the lesson from the crisis that contagion occurs through securities markets as much as through the banking system. Incentive and competitive effects of restrictions on executive compensation are far from clear.

With the increased emphasis on coordination of supervision of large cross-border banks on the EU level, the vision of the Second Banking Directive that banks would be able to operate across the EU with a “single license” under home country control seems to be clouded. It can be restored only with substantial reforms with respect to the organization of banks as well as deposit insurance schemes and the Lender of Last Resort role of central banks.

II. The Timing and Evolution of the Crisis

A. How the crisis arrived in Europe

The financial crisis started in the mortgage market of the United States. For various reasons including an easy money policy of the Federal Reserve and relevant political priorities, this market had experienced very strong growth in the early years of the decade. However, when interest rates started to rise in 2006, delinquencies of mortgage loans went up dramatically, especially those of subprime loans, that is, loans granted to borrowers with very limited credit-worthiness. Subprime related losses led to the closing of two of Bear Stearns’ hedge funds in June 2007, and the first mortgage lenders had to be rescued or to file for bankruptcy also in 2007.

Until the end of 2006, the financial markets in Europe had been booming, risk-related fears were almost non-existent as evidenced by indices of credit default swaps and interest rate differentials between secured and unsecured borrowings. However, when the crisis started in the US, it immediately also infected the European capital market and European banks and other financial institutions with full force.

The main mechanism of contagion was that several European banks had for some time invested heavily in securities created out of American mortgage loans via securitization and that these banks had placed these investments in special purpose vehicles (SPVs) that used a loophole in disclosure regulation and were therefore not consolidated. Most of these SPVs refinanced their investments by borrowing in the interbank market. In several cases, their liquidity was guaranteed by the sponsoring banks, and because of the maturity of these guarantees, the obligations and the risks that the sponsoring banks had thereby incurred were not transparent to the market and possibly even to the relevant supervisory authorities.

Investing in securitized American mortgage loans through SPVs had been a well developed and rather rewarding business for the European banks for quite some time. However, in the years 2005 to 2007, the nature of these operations started to change. One element of change was that the quality of the underlying loans deteriorated. Secondly, the terms for refinancing changed, longer term investments were funded through interbank borrowing with ever shorter maturities. While this “riding the yield curve” made these operations even more profitable, it also created a kind of risk that most of the bankers had almost considered obsolete: the risk of insufficient liquidity.

When the sponsoring banks were obliged by contract or out of reputational concerns to honor their liquidity guarantees to the SPVs these banks had created, many of them themselves started to have liquidity problems, and since the value of the underlying assets also declined drastically, the liquidity problems were at the same time also genuine solvency problems.

In particular, public or semi-public German banks such as IKB and the regional banks (Landesbanken) Sachsen LB, WestLB and BayernLB had to declare heavy losses and had to be rescued by their owners. In Great Britain, the former building society Northern Rock experienced a bank run, the first one in England since more than a hundred years. Several banks from almost any European country had to report heavy losses and had to face life-threatening liquidity and even solvency problems.

Of course, there were various indicators of a looming crisis even before the summer of 2007 that one could easily diagnose as purporting disaster in retrospect. One early warning signal was the heavy use of unconsolidated or off-balance-sheet investment vehicles by many banks. Another one was the steep increase in leverage of most financial institutions; and a third one was the increasing mismatch of maturities of assets and liabilities of many financial institutions. Finally, also in Europe there was an enormous increase in bank activity (measured by total assets over GDP, for example) and of bank liquidity. Finally, in some European countries, notably Ireland, Spain and the UK, house prices had risen as much as, or even more than, in the United States, where the subprime crisis had started.

However, even though the relevant information about these potential problems was available in some places such as the research departments of central banks, it was grossly incomplete and widely scattered between institutions and therefore hard to interpret correctly. Moreover, talking about an upcoming storm when the sky is still completely blue and sounding a warning message that is also heard by others is not that easy. Thus, essentially one can say that the relevant authorities as well as most private market participants were caught by surprise when the first wave of the crisis hit the shores of Europe in the middle of 2007. And when the first high waves had washed over the strand and the water seemed to calm again, even very competent observers believed that the worst was already over and that it was enough to slightly raise the height of the dams that were already in place. The fact that the ECB raised interest rates as late as June 2007 is probably the strongest piece of evidence that even very competent institutions seem to have believed that the storm would not be as strong as had been feared for a short time. Equally, stock prices and thus the “collective expectations” of stock market investors did not show any signs of weakness almost to the end of 2007, a time when the German blue chip index DAX still stood above 8000, almost its all time high. The same applies to CDS prices, which reflect the riskiness of loans and bonds. Until mid-2007, they were close to zero in the US as well as in Europe.

How the crisis was transmitted to Europe

The main mechanism through which the subprime crisis first affected European banks was the exposure to the credit risk resulting from investments in securitized subprime loans and similar at least potentially “toxic assets”. For most European banks, this risk was concentrated in the investment portfolios of SPVs (or conduits). For several banks, the volume of potentially “toxic assets” held in this form surpassed the bank’s equity. For instance, in the case of Sachsen LB, a small German public bank, it was more than ten times as large as the bank’s equity.

What made the investment in SPVs particularly risky were the twin facts that they were refinanced on the capital market with increasingly shorter maturities, thus creating the risk of illiquidity, and that they were not supported by equity, since they were in most cases not consolidated. When the interbank and short-term capital market suddenly dried up, because investors feared the risk of investing in SPVs, the problems did not only show up at the SPVs as seemingly independent legal entities, but also at the banks that had set them up and were more or less responsible for their liquidity and solvency. Another factor that greatly contributed to the spreading of the crisis was the evident lack of transparency. Banks started to mistrust each other because they felt that they did not know to what extent partners in the interbank market were exposed to risks related to subprime investments. Banks started to hoard liquidity and this in turn increased the risks of the entire banking system in Europe.

The severity of the crisis and the speed with which it spread can be discerned from various financial statistics. For instance, according to IMF data, total write-offs of European banks due to investments in securitized loans – i.e. only a part of all write-offs – between mid-2007 and end of 2009 reached the unbelievable level of over 350 bn. USD for UK financial institutions and more than 400 bn. USD for banks domiciled in the euro-zone. German banks were most heavily affected with more than 50 percent of all write-offs in the euro-zone. Equally telling is the development of stock prices and banks’ market capitalization. Figure 1 shows that within a year and a half, the stock

market values at all major Western stock exchanges fell by about 50 percent, with those of banks and other financials being even more severely depressed. Figure 2 provides data for individual banks.

Figure 1. Stock price Indices for blue chips and financials (Source: Datastream)

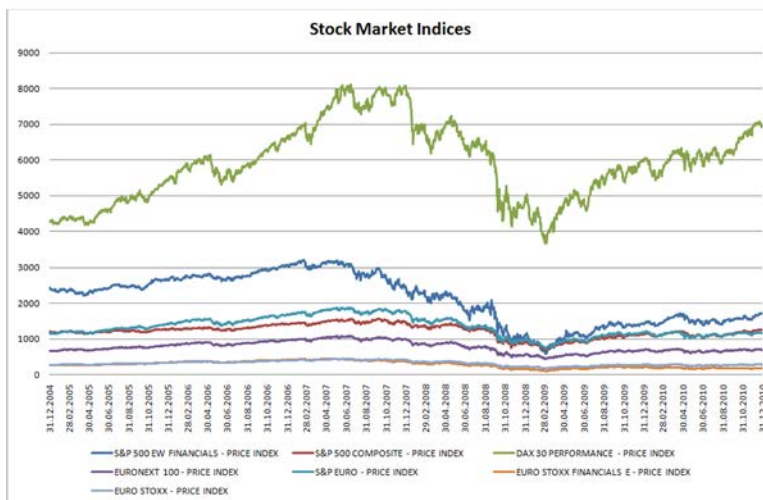
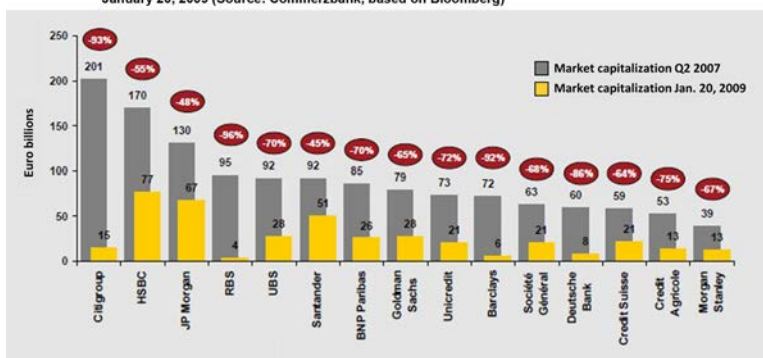


Figure 2: The impact of the crisis on the market capitalization of major banks for Q2-2007 to January 20, 2009 (Source: Commerzbank, based on Bloomberg)



B. The sequence of events from 2007 to 2009

The financial crises narrowly defined – that is, the time between 2007 and 2009 -- can be broadly broken down into two parts or phases: the time from early 2007 to September 2008 (“Before Lehman”) and

the time from September 2008 to the end of 2009 (“After Lehman”). After that, and thus in its third and fourth phase, the crisis first seemed to have somewhat subsided as far as the financial sector was directly affected, while it spread to the real economy (with severe negative repercussions on the financial sector) and then ultimately to the area of government debt. However, as indicated above, we do not cover the third and fourth phase in this report.

The first phase began with signs of weakness in the US subprime market in early 2007. In the second quarter, SPVs and other financial institutions, especially mortgage banks that had invested in subprime loans started to experience soaring delinquencies and at the same time increasing problems of rolling over the short-term funding which most of them had adopted since the early years of the decade. One could, in general terms, say that this was the beginning of the end of the “originate and distribute” model of finance. In the third quarter of 2007, liquidity problems became paramount, and regulators and supervisors, central banks and governments became increasingly concerned that the crisis would become ever larger and might threaten the entire banking system and also affect the real economy.

Several European banks experienced serious difficulties and had to be rescued in some way. Most notable are the problems of British, German and Swiss banks. In the UK, three out of the four former building societies that had converted from their former legal status of financial mutuals to corporations were among the earliest victims of the crisis. After their “demutualization”, these banks had adopted business strategies that were much riskier than those pursued before. The case of Northern Rock is particularly well known. This bank was essentially a hedge fund with a relatively small retail operation attached to its main capital market-related business. When the inter-bank market dried up in September of 2007, Northern Rock experienced a classical bank run. In order to safeguard the entire British banking system, Bank of England, FSA and the British government intervened and the bank was nationalized in February 2008. Bradford and Bingley, also a former building society that had expanded dramatically after becoming a corporation, was first rescued by being taken over by the Government and then sold to Spain’s Banco

Santander. Halifax was saved by being taken over by Lloyds Bank/TSB, one of the largest British banking groups. However, the rescue of Halifax turned out to be a millstone around Lloyds Bank/TSB's neck since only a few months after taking over Halifax, Lloyds Bank/TSB had to be rescued by a sizable injection of government equity and a large loan package from Bank of England. The government acquired around 43 percent of Lloyds' equity.

Even more serious was the case of Royal Bank of Scotland, at times Britain's largest bank and certainly the one that had grown fastest during the past decades through an ambitious strategy of acquiring other banks, the most recent case being the acquisition of a large part of the Dutch bank ABN-Amro. RBS had grown so much that it was clearly "too big to fail". In the course of its aggressive expansion strategy, it had also accumulated enormous risks, experienced huge losses when the crisis set in and had to be bailed out by the British government. The UK government injected a huge sum by buying equity so that it ended up holding 84 percent of the RBS shares.

The run on Northern Rock had caused worries among experts as well as the general public in England and even beyond that this run on one bank might lead to a generalized banking crisis. The British Government reacted by declaring a blanket guarantee for all bank deposits held in British banks, a move that was soon after imitated by most European governments.

In Germany, the most serious early cases were Sachsen LB, HypoRealEstate (HRE) and Industrie-Kredit-Bank (IKB). All three of them had played the game of placing important parts of their business in SPVs, which would borrow funds in the capital market with increasingly shorter maturities and invest in asset backed securities including those backed by American subprime mortgages. They all had to be saved already in late 2007. It is hard to imagine that neither the managers of the banks that sponsored these SPVs nor the members of their supervisory boards nor the bank supervisors and bank auditors had not been aware of the risks that these banks had accumulated.

Sachsen LB was a small regional bank, a Landesbank, whose normal operations were largely concentrated in Saxony, a part of former East Germany. The extent to which Sachsen LB dared to build an empire of SPV business on a very small equity base is simply stunning. In the crisis it almost collapsed and was taken over by a much larger Landesbank, LBBW, which in turn seems to have suffered under the burden it had taken on its shoulders, but has so far survived the crisis. Before the crisis hit, HRE was a very large player in the German market for real estate financing and a major issuer in the German covered bond market. A few years before the financial crisis, HRE had bought the former state-owned Depfa-Bank, which had relocated its operations to Ireland, most probably because of the Irish “light-touch regulation”. It was mainly because of deals done in Ireland that HRE almost broke down in 2007 when the short-term refinancing of medium-term investments became extremely difficult. HRE was saved through equity, loans and guarantees from the German government, because it was, according to the views of many observers and also that of the German finance minister at that time, much too big to fail.

The third “early casualty” was IKB, a bank that used to be a public bank with the mandate to provide medium- and long-term loans to Germany’s larger mid-sized corporations. Still in 2007, the majority of IKB’s shares were held directly and indirectly by German public entities. As it seemed, the conventional business of making loans was not thrilling and not profitable enough for IKB’s managers, owners and supervisory board members. Therefore, IKB embarked on a strategy of setting up SPVs, borrowing short-term and investing medium to long-term in asset backed securities of various kinds – and doing this on a very large scale. The borrowings of the SPVs were guaranteed by IKB, and funds raised by IKB were in turn de facto guaranteed by some of the bank’s owners. All relevant details were never known to the general public. In view of the lack of transparency of the ownership structure and of the political importance of funding Germany’s mid-sized firms, it is not surprising that when illiquidity was imminent, another government-related bank was “kindly requested” to bail out IKB.

In August 2007, the French Bank BNP Paribas suspended three investment funds which had invested in the US real estate market. The governments of France, Belgium, Luxembourg and the Netherlands had to save the large multi-country banks Dexia and Fortis. In August the Danish central bank rescued Roskilde Bank by buying it out. However, with the notable exception of the Swiss banking giant UBS, which announced massive asset write-downs in October 2007, individual banks in other European countries were less affected by the “Before Lehman phase” of the crisis.

We now turn to the “After Lehman phase”. The first half of 2008 was a time in which the “turmoil” - as some observers who did not want to use the word crisis, called the events - seemed to subside at least to some extent. This situation changed abruptly in the middle of September 2008. On September 7, 2008 the US government had to rescue Fannie Mae and Freddie Mac by bringing them into conservatorship; on September 15, 2008 Lehman Brothers filed for bankruptcy protection after negotiations to find a buyer had failed; and on September 16, 2008, the US government had to rescue the large insurance company AIG by de facto nationalizing it. In fact all of these financial giants were too big to fail. At least that had been the general assessment, and therefore the downfall of Lehman came as a huge surprise for almost all participants in the international financial market. It had simply not been deemed possible; and learning the lessons that some banks may be too big to save caused panic among bankers and policy makers alike.

The Lehman disaster changed everything. All of a sudden, it was clear that what went on was not a crisis of individual institutions, but a general financial crisis that affected many, if not all, banks and especially those that were heavily involved in capital market related business (or investment banking) and that were closely linked to other banks. Moreover, actors as well as observers now understood that it was not a “classical” liquidity crisis that was unrelated to solvency problems, but a delicate combination of very severe liquidity and solvency problems.

The authorities expected contagion, and such contagion did indeed

occur. All over Europe, banks suffered from acute liquidity problems and imminent solvency problems. Almost all national governments reacted by offering capital injections, loan packages and guarantees for bank liabilities and notably customer deposits to prevent a melt-down of the entire financial system from happening. The main central banks, Bank of England, ECB and Swiss National Bank, made almost unlimited liquidity available and eased the requirements for collateral that they would accept. Details are discussed in section III below.

Moreover, it immediately became clear that the crisis would not be confined to the financial sector but would rather have very strong ramifications for the real economy, which in turn would affect the banks and other lenders. These indirect effects were particularly severe in the countries of east and Southeast Europe.

In two Western countries, Iceland and Ireland, and in the three Baltic States the crisis affected the entire banking system. In Iceland and Ireland, almost the entire banking system was nationalized or bailed out or rescued in some other form.

If one looks at those cases of banks and entire banking systems that were most seriously affected both before and after the collapse of Lehman Brothers, an interesting pattern emerges. Almost all casualties were banks and banking systems that were particularly international or transnational in their structures and operations. The German banks named above had shifted most of those operations that brought them into trouble to places outside German jurisdiction and supervisory competences. German supervisors later complained that they did not have sufficient access to information they would have needed to avoid disaster.

Dexia, and similarly Fortis, was a bank that had very substantial operations in several countries so that it would not be obvious which national supervisor and which national government would be the one to initiate a financial rescue. When Dexia had to be rescued, cooperation between the authorities of Belgium, France, Luxembourg and the Netherlands did not function in the way expected before.

The three large Icelandic banks had developed a huge business outside of Iceland that surpassed the competences of their national supervisors by far. Much the same applied to the big Irish banks. The banking systems of the Baltic States were almost completely dominated by foreign banks, most of them from the Scandinavian countries, so that national authorities were also not fully competent to oversee their operations and limit the risks they incurred.

A general lesson from these cases is that the old division of roles as enshrined by the second EU banking directive, that is, the rule of home country control, turned out to be ineffective in a serious crisis situation.

III. Crisis Management

A. Central bank responses

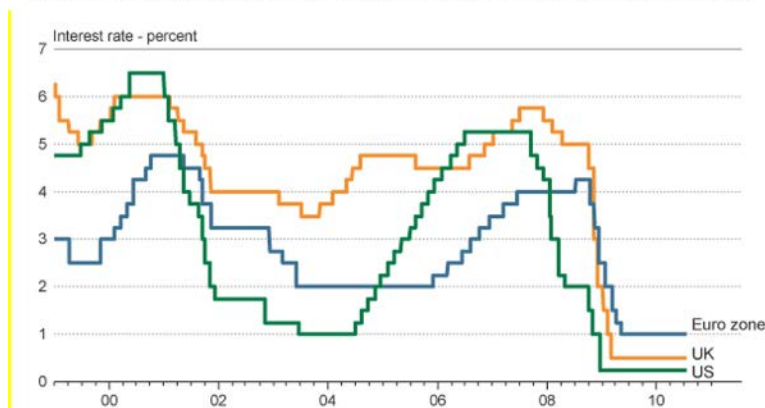
As indicated above, in its early phase, the financial crisis was largely perceived as being “merely” a liquidity crisis, though a very serious one. In particular, the ECB seems to have held this view. Even if this perception was one-sided and thus grossly incomplete, the crisis was of course also a liquidity crisis and thus a situation that first and foremost required central bank activity as a means to respond to the crisis and to keep its impact within limits.

In order to solve the liquidity crisis, European central banks, in close coordination with the Federal Reserve and later on also with the Bank of Japan and some other central banks, acted on two dimensions: the level of interest rates and banks’ liquidity including foreign exchange refinancing. Interest rates were almost continuously lowered after the crisis had reached its peak in September 2008, and they finally reached an extremely low level. However, in the euro-zone the process of lowering interest rates had a strange start because as late as July 2008, the ECB again raised its main lending rate to 4.5 percent. The interpretation of such a move probably is that the ECB was convinced that what went on was only a liquidity crisis with no profitability/insolvency issue involved, and that by that time the worst of the pure liquidity crisis was already over. But that was before the Lehman shock, which changed everything including the views of

the nature of the crisis held by central banks. Soon after September 15, 2008 the liquidity situation of the banks in Europe, as well as in the US, deteriorated precipitously. As it was reported, banks did not trust each other anymore and were therefore more than reluctant to lend funds to each other even over very short periods. As a consequence, central bank policy had to change course immediately. In October, 2008 the ECB's main lending rate was cut by 50 basis points and it finally reached its lowest level in May 2009. This process was essentially a concerted action between the central banks of different countries and regions (Fed, ECB, Bank of England, and central banks of Canada, Sweden and Switzerland). Between November 2008 and May 2009, the ECB implemented six rate cuts, bringing its main intervention rate down to 1%, when the Federal Reserve preferred to slash interest rates by 1 full point as soon as December 2008, thus setting the Fed Funds target rate to a range between 0% and 0.25%.

Figure 3 shows the longer term development of major countries' interest rates, including their drastic decline in the course of the financial crisis.

Figure 3: Central bank rates in the euro-zone, the UK and the US (Source: Reuters, Datastream)



The second element of central bank intervention was the provision of de facto unlimited liquidity to banks and other financial institutions through various programs some of which had never been used before. The entire process of refinancing banks was reviewed and al-

tered in important ways. The maturities of central banks' refinancing facilities were extended, the range of collateral was broadened and the auctions procedures were changed allowing unlimited access to liquidity. As soon as August 9, 2007, and thus much earlier than the lowering of interest rates started, the euro-system provided unlimited access to overnight liquidity to banks. A new large three-month refinancing facility was introduced later that month, and extended to 6 months until March 28, 2008. Through this facility, the ECB pumped €117 billion additional liquidity into the euro-zone financial system, and in July 2008 it renewed and extended this program. Supplementary liquidity support measures were taken by national central banks such as a program of the Bundesbank to provide liquidity to money market funds if this were needed.

The expansion of acceptable collateral at the ECB, which started in January 2009, was certainly a move widely discussed because it greatly affected the overall credit risk of its balance sheet. Similar moves were undertaken by Bank of England, Swiss National Bank, Bank of Japan and most notably the Fed, which, however, had started much earlier than the ECB to change collateral requirements.

Since liquidity problems of banks and other economic agents may not only appear in their respective national currency, all major central banks undertook fast action to make foreign exchange facilities available to their customers. This concerned mainly dollar facilities, which non-US central banks procured through massive swap arrangements with the US central bank. By September 2008, the volume of swap lines made available to the ECB by the Federal Reserve had already increased considerably, and was then again raised from USD 120 billion to USD 240 billion. Overall, the countries of the euro-zone, UK, and Switzerland, their central banks, their banks and their firms and private clients benefited greatly from having almost unlimited access to dollars through these swap arrangements.

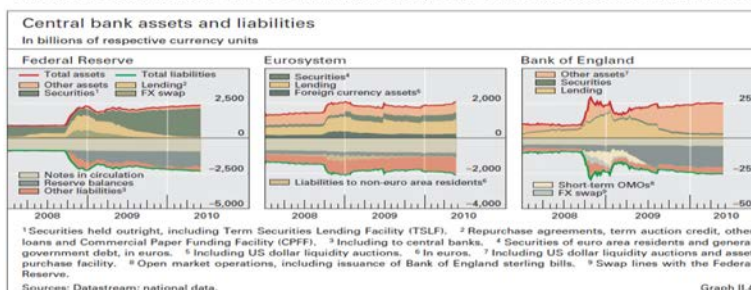
Swap arrangements were also put in place in the opposite direction. As several European countries do not belong to the euro-zone, their banks had refinancing problem in Euros which their national central banks could not provide. Therefore, the ECB agreed early on to sup-

ply Euro liquidity to credit institutions outside the euro-zone (UK, Poland, Denmark, Sweden, Hungary) with similar currency swap mechanisms as the ones used later, in 2009, with the Fed in order to provide dollars to the euro-zone banks.

In addition to those measures just described, central banks also occasionally use so-called non-conventional measures. These include the purchase of government securities and securities issued by banks and even by corporations. In Europe, Bank of England started to buy gilts in May 2009. Like the Fed which used its Commercial Paper Funding Facility and various other programs, the ECB introduced a €60 billion program to support the European covered bond market in July 2009.

Of course, the massive intervention of central banks in the course of the crisis had various consequences that may appear controversial. One of them is the well known moral hazard problem -- the expectation that banks and other economic agents can count on the proper functioning of at least one part of the safety net and of the resulting weakening of the incentives to be careful and avoid excessive risks. Another problem may be the fact that the interventions have greatly expanded the balance sheet of all central banks that were involved in the crisis management operations. This expansion may be difficult to undo later and can make the conduct of an “orderly” monetary policy after the crisis very difficult. It might even lead to inflationary pressure since an expansion of the balance sheet of central banks is closely related to a corresponding expansion of the money supply. Figure 4 shows the development of the assets and liabilities of three important central banks.

Figure 4: Central Banks' Assets and Liabilities (Source: BIS Annual Report 2009/2010)



Exactly on September 15, 2009, that is, a year after the Lehman bankruptcy, Fed Chairman Ben Bernanke proclaimed publicly that, as far as central banks and their relation to banks are concerned, the financial crisis was over. Bank of England's Governor Mervyn King echoed this assessment only a few days later, and as it seemed, the views in the ECB may have been similar. This does not imply that the central bankers ignored their role in solving the crisis in the real economy, which was an outgrowth of the financial crisis, and of course in view of the ongoing government debt crisis in Europe, it was certainly premature to declare the end of the crisis. However, looking back on the two critical years of 2007 to 2009, one can say that the central banks played a good and very helpful role in stemming the tide. What was especially valuable was that the various national/regional central banks seem to have acted fast and with the appropriate massive interventions and that they cooperated swiftly and smoothly.

B. Fiscal or government responses

Before September 2008, European policy makers had been convinced that the crisis was one of liquidity, and they were by and large confident that the ECB and the entire European System of Central Banks would be up to the task of calming the "turmoil". This complacent view was no longer tenable, though, when the crisis reached its culmination in September 2008 after the collapse of Lehman Brothers. Then, all of a sudden, governments in all major countries, of course including those in Europe, noticed that this crisis was more than a liquidity crisis, that it might become very severe, threatening the stability and even the existence of the entire financial system and would most probably also affect the real economy in their respective country and thus also their electorates.

For instance, as soon as October 10, 2008, the council of EU finance ministers (Ecofin) determined that it would be necessary to take serious and concerted action to save the financial system in Europe. Of course, this decision was an implicit promise to save in particular the large European banks which operated across borders and which were deemed to be "systemically relevant". Politicians did not want to see

on their continent a replay of the collapse of a bank like Lehman Brothers that was not only very large but also extremely complex as an institution, that operated in many countries and that was therefore also in many – and largely intransparent – ways connected with other financial institutions in many countries. What made political fears and decisions to safeguard large banks understandable was the fact that there was no institution in Europe that had any clear notion of which bank was connected with which other bank and how high the risk exposure of individual banks to other banks might be. Many large banks did appear to be too big to fail. Since the danger of banks failing and the need to avoid any large bank collapse seemed to be very real, it was clear that public money would have to be involved. And since this public money would inevitably come from government budgets, it was almost natural that the early crisis management would first and foremost involve national authorities. The role of the EU and its Commission was therefore rather limited at this stage of the crisis. It was essentially restricted to coordinating national crisis management measures and thereby to signal that it would not interfere with national rescue measures by invoking rules concerning state aid and similar competition issues.

In late 2008 and early 2009, many large European banks found themselves in difficulties, and governments were convinced that they would have to intervene in some form. Since all governments faced largely similar problems they also used the same set of tools for interventions. What were these tools?

Partial or full nationalization was one tool, certainly one that governments were not happy to use. Already in early 2008, the UK government had fully nationalized Northern Rock. Iceland nationalized its entire banking system and the government of Latvia nationalized Parex Bank, the country's second largest bank, in order to prevent a general banking crisis. In the course of 2008, Britain's Lloyds Bank, the large housing finance bank Bradford and Bingley and most notably the huge Royal Bank of Scotland were partially nationalized. Another case was the break-up and partial nationalization of Dexia and Fortis. The Spanish government had to take over the Savings Bank of Castilla y La Mancha. In Germany, Commerzbank was par-

tially nationalized, as was Hypo RealEstate (HRE) in a first round. Later, after parliament had cleared relevant legal hurdles, HRE was fully taken over by the German government. This enumeration of European banks that were either fully nationalized or had to accept sizable injections of government equity is not complete.

Another form of supporting banks is through injections of government equity capital that has an element of nationalization to it but is generally perceived to fall short of even a partial nationalization. Intuitively, one would draw a dividing line by checking whether a bank would have defaulted if it had not received government equity, a case that we would count as a bail-out by nationalization, or whether injecting government funds would “only” be a means of stabilizing the bank by increasing its capital base and thus indirectly also stabilizing other banks. Even the latter type of government investment does not necessarily occur on a voluntary basis as far as the banks are concerned. The US Treasury under Hank Paulson provided the “model” for an injection of equity in systemically relevant banks in spite of their protests that they would neither need nor want government funding.

In many countries, the national government injected equity into banks, either with their consent or even with more or less overt coercion. This was, for example, the case in Austria, France and Italy. In most of these cases, government equity was provided in the form of hybrid instruments that would yield higher current revenue for the respective treasury and would still count as Tier 1 equity in the eyes of bank supervisors. However, it had the drawback of not offering governments the opportunity of benefitting from an increase in stock prices, which they would help to bring about by stabilizing the banks and even the entire economies.

In order to provide equity capital to some or all of a country’s large banks, several national governments in Europe set up special institutions whose legal and institutional structures were in fact quite similar to the type of special purpose vehicles that had played such a fatal role in bringing about the crisis in the first place.

Another instrument of government support for individual banks or groups of banks or even all banks in a given country are guarantees. For instance Italy provided a state guarantee for all new debts that banks would take on in the time between October 2008 and the end of 2009. This is a way of making new financing easier for a bank that may be in trouble or that may at least appear to be in trouble. A very important form of guarantee is the guarantee of customer deposits. As soon as October 2008 the EU (Ecofin) decided to raise mandatory deposit guarantees from their former level of €20,000 to €50,000. But this was not considered enough by most national policy makers. The UK, Germany and some other countries proclaimed unlimited government deposit guarantees, leaving open how these guarantees could be funded and priced. The purpose of these extensive deposit guarantees was evidently to prevent a run on individual banks or even on all banks, i.e. a banking panic.

Table 1 provides an overview of the instruments employed by national governments worldwide to stabilize the financial sector of their respective countries, and Table 2 provides numbers which demonstrate that the government or fiscal interventions were indeed of a massive scale never seen before.

Table 1: Main Financial Crisis Responses in Selected Countries Between Sep. 2008 and Jan. 2009 (Source: OECD 2009)

	Increased guarantee of private deposits	Guarantees for bank loans or debt	Funds to purchase commercial paper	Purchase mortgage bonds	Ban or restrict short-selling	Capital injections	Option to purchase toxic assets
United States	X	X	x	x	x	x	x
Japan		X	x		x		
Euro area	X						
Belgium	X	X			x	x	
France	already high	X			x	x	
Germany	X	X			x	x	x
Italy	X				x	x	
Ireland	X	X				x	
Netherlands	X	X			x	x	
Spain	X	X		x	x		
Switzerland	X		x			(x)	x
United Kingdom	X	X	x	x	x	x	

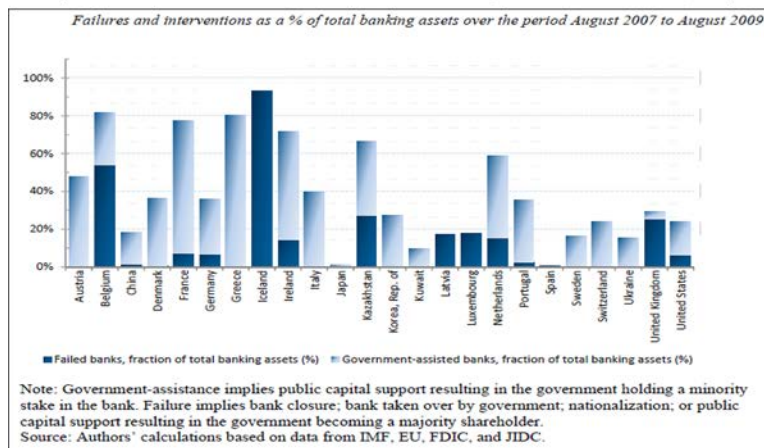
Table 2: Gross Fiscal Costs of Rescue Packages in Selected Countries in 2008
(Source: OECD, 2009)

	Capital injection	Guarantees	Total of measures announced	Total (% of GDP)
United States	\$ 250 billion		\$ 700 billion	5,1
France	€ 40 billion	€ 320 billion	€ 360 billion	19
Germany	€ 70 billion	€ 400 billion	€ 480 billion	19,8
Italy			€ 40 billion	2,6
Ireland		€ 450 billion	€ 450 billion	235,7
Netherlands		€ 200 billion	€ 200 billion	
Spain	€ 50 billion	€ 100 billion	€ 150 billion	14,3
Switzerland			SFR 60 billion	
United Kingdom	£ 50 billion	£ 250 billion	£ 400 billion	28,6

In a study published in 2010, IMF researchers Laeven and Valencia undertook an effort to show which fraction of banks, measured by the percentage of banking assets, were affected by government capital injections (see Figure 5). This fraction was at or beyond the mark of 80 percent in Iceland, Belgium (with Dexia and Fortis), France, Greece and Ireland. However, these totals comprise two components which are of a very different nature. The dark blue parts of the respective columns show the extent to which banks were nationalized or in some other way massively supported – with high values for Belgium, Iceland and the UK, and the light blue part show the milder form of government equity support that are important, for instance, in France and Switzerland².

² See Luc Laeven and Fabian Valencia, “Resolution of Banking Crises: The Good, The Bad, and the Ugly”, IMF Working Paper 10/146, Washington DC.

Figure 5: Bank Failures and Interventions in Selected Countries (Source: Laeven and Valencia, 2010)



It would go too far to describe in any detail how individual national governments responded to the acute crisis. We therefore restrict ourselves to a few comments for the cases of Germany, France and the UK. Government action in other European countries largely imitated what was done in these three countries, though in most cases at a smaller scale.

In Germany, the most acute case dealt with already in September 2008 was the near-collapse of Hypo Real Estate already mentioned above. In a concerted action, the federal government and German banks agreed on a first rescue package in order to avoid an immediate bankruptcy. Finance Minister Peer Steinbrück later said that when the people involved in the long nightly discussion understood the seriousness of the problems of HRE and the consequences that its collapse would have, they “looked into an abyss”. Later the rescue efforts had to be stepped up considerably.

On October 5, 2008 Chancellor Merkel and Finance Minister Steinbrück declared an unlimited guarantee for all bank deposits of private bank clients. One week later, a rescue package for the entire financial industry was provided by the government. It had a volume of €480 billion, consisting of €400 billion as guarantees for bank debts

of all kinds and €80 billion for possible equity injections (of which not more than a quarter was later used). One week later, parliament passed the Financial Market Stabilization Law, whose provisions were closely coordinated with those of other EU and G7 country governments. Important provisions of this law stipulate conditions that banks that receive government support would have to fulfill. In particular, remunerations of top bankers in government supported banks would be capped at €500,000. The next legal project, in February 2008, created SoFFin, the government agency that would be assigned the task of administering the €480 billion fund mentioned above.

In early 2009, a law permitting the creation of “bad banks” was passed. The German concept of a bad bank law was designed in such a way that the fiscal costs would be kept within rather strict limits. A bad bank would leave the overwhelming part of the burden resulting from “toxic assets” with the bank whose balance sheet would be relieved so that it would be in a position to issue new loans.

During the first phase of the crisis, French banks were comparatively little affected. Nevertheless, the French government created an agency that provided equity support to all large French banks to the tune of €10 billion in October 2008, and later doubled the level of its equity participations.

In the United Kingdom, the crisis hit very hard. The complete or almost complete nationalizations of major banks have already been mentioned above. The British government provided a large pool of capital to finance these operations and to be prepared for further rescue measures, and it also issued a blanket guarantee for customer deposits in all banks operating in the UK, which notably extended to Icelandic and Irish banks.

B. A brief and tentative assessment

Even in retrospect, it is of course extremely difficult to assess the measures taken by central banks and national governments. The appropriate standard of assessment is not how costly these measures were,

but rather whether they have been effective in terms of what they aspired to achieve and of what would have happened if they had not been taken. By and large, one can say that the complete meltdown of the financial sector, that appeared possible in the fall of 2008, was avoided. Even though almost regularly new liquidity injections by the central banks and additional fiscal measures were required in the course of the half year after September 2008, the crisis management of central banks and governments in Europe were successful at least in a short-term perspective. What was perceived as rather positive by the general public was that international cooperation and especially that in Europe seems to have functioned quite well – though with the exception of insufficient cross-border coordination in the Dexia and Fortis cases – and that the rescue operations were not impeded by too much political haggling in the major European countries.

To be sure, massive central bank and government interventions would have highly problematic long-term consequences. These consequences have now become apparent in the context of the current sovereign debt crisis and the controversial role that the ECB has started to play in this new crisis. These developments imply that we must add a strong question mark to the general positive assessment of the short-term crisis management of late 2008 and early 2009.

An important question is how costly the early government interventions have been for the respective national governments. To some extent, the results of relevant studies are surprising. For instance, Deutsche Bank Research shows that, compared to earlier systemic banking crisis, the direct fiscal costs to most governments have been far less than what would have expected in view of the massive scale of interventions. Laeven and Valencia also provide data on this question. For the years 2007 to 2009, they report that on average the direct fiscal costs have been around 3 percent, a number that seems to indicate that fiscal or governmental action was not only fast but possibly also efficient in terms of fiscal costs³. Any assessment of the fiscal costs of the crisis is of course difficult given that one cannot

³ See Jan Schildbach, “Direct fiscal costs of the financial crisis: Probably much lower than feared”, Deutsche Bank Research, May 14, 2010, and Luc Laeven and Fabian Valencia, “Resolution of Banking Crises: The Good, The Bad, and the Ugly”, IMF Working Paper 10/146, Washington DC.

definitely say which fraction of guarantees, which made up a considerable part of the support offered by governments, will ultimately be used, which part of investments will eventually be recovered by selling acquired government stakes in banks, and which part of government loans will be repaid. Deutsche Bank researcher Jan Schildbach and IMF researchers Laeven and Valencia attempt to estimate the probable costs *ex post* of government interventions. If, in contrast, the total initial sums of government investments, loans and guarantees are added up one arrives at a figure of more than 10 percent of GDP of the countries affected by the crisis.

III. Reform Initiatives

A. Focus and overview

We now turn to structural or medium-term responses in the area of regulation and supervision, the main area of concern for Shadow Regulatory Committees. Such responses cannot be delivered as rapidly as those discussed before, and they are expected to have a lasting impact. Therefore, they are medium-term responses and hopefully even longer-term responses. Of course, besides regulatory responses there were also other important responses to the crisis, such as those referring to labor markets, rules of monetary policy and the distribution of political influence and power. But for space considerations, we refrain from addressing them except for some occasional hints.

One such response is the widening of the international forum in which world-wide economic policy issues are discussed from G8, the group of eight leading industrialized countries, to G20 in 2008. G20 also encompasses 12 additional members from the group of emerging countries. For instance, with China, India and Brazil, it includes countries with an ever-increasing economic and political weight.

The transition from G8 to G20 is of great importance for the main topic of this report because at all G20 meetings of 2008 to 2010, notably those in London (2009), Pittsburgh (2009) and Seoul (2010), the financial crisis and the international response to it were the dominant topics. The decisions taken by the assembled 20 heads of state kick-started many of the national and regional responses to the crisis

discussed in this section of our report. For instance, in motivating the steps they had taken to avoid a repetition of the crisis (or at least to mitigate the negative effects that a new financial crisis might have), EU authorities regularly referred to commitments made at G20 meetings. Through this stimulating function of the G20 meetings alone the medium-term reactions have an international dimension.

The Basel Committee on Banking Supervision is equally international in nature. This forum of national and regional central bank governors and heads of supervisory authorities has proven to be very influential. Its so-called Basel rules for capital adequacy have been adopted (with some modifications) by almost all countries and become de facto international financial ground-rules. When the crisis hit, the Basel Committee started almost immediately to work on Basel III, a fundamental overhaul of its former capital requirement rules known as Basel II. Closely related to the Basel Committee is the equally international Financial Stability Board, a post-crisis version of the former Financial Stability Forum.

Almost all countries reacted unilaterally to the crisis by adjusting their financial regulatory rules. It would go much too far to describe all of these responses in this report. In subsection B, we briefly hint at some national-level responses in selected European countries. Subsections C and D are dedicated to the EU response to the crisis. Subsection C covers changes of substantive regulatory reform, and in subsection D we take a look at the fundamental change in the institutional structure of regulation and supervision in the EU which has, without any doubt, been prompted by the experience of the crisis.

Even though much has recently been undertaken to alter the financial regulatory and supervisory regimes, there are several issues that the crisis has shown to be also extremely important but that have yet to be addressed properly. These include the rules for liquidating and winding up financial institutions that operate across borders and the allocation of responsibility for foreign bank branches in a crisis. We address these topics in the next section.

B. Individual country responses

After the first rescue operations had been implemented in September and October 2008, governments and the general public in most countries recognized the need to fundamentally change the rules of the game for the financial industry. One reason for this were the bank losses. Irrespective of how one tried to measure them (e.g. lost market value of listed banks or write-downs), they were gigantic. In late 2008, the IMF had estimated total write-downs for European and US banks to be slightly above USD 1 trillion - only to revise its estimate upward to USD 3.5 trillion one year later.

The strong pronouncements and decisions of the G20 mentioned above were an important stimulus for undertaking national structural reforms in addition to the international structural reforms discussed below. Germany's national structural responses to the crisis provide a good example. They were adopted in the immediate wake of genuine crisis management, and there was even some overlap. The adoption of a bad bank law, for instance, can be classified as a short-term and at the same time also medium-term response. Capital requirements were immediately tightened in Germany, going beyond what can be expected at the EU and global levels, and banks were advised to create their own liquidity rules. New rules concerning bank risk management, known as MARisk (minimum requirements concerning risk management) were adjusted to correct past weaknesses. Clearly medium-term oriented were laws sent to parliament concerning the resolution of banks. Even a – rather moderate – tax on banks was introduced in order to fund a vehicle that might be used to bail out banks in a future crisis.

In July 2010, an “Act concerning the remuneration policies of banks, other financial services institutions and insurance undertakings” was adopted by parliament. The essence of this law is to make remuneration less sensitive to short term performance and limit the permitted level of bonuses as opposed to fixed salaries, thus following the recommendations of the Financial Stability Board. The intention is, of course, to limit bankers' risk-taking incentives. Another law issued at the same time constrains short sales of traded securities issued by

banks and related derivatives. We return to compensation issues in Section IV. F. below.

A particularly interesting piece of legislation is the “Act for the restructuring of credit institutions” from January 2011. It prescribes a two-step procedure in the case of a possible insolvency, which reflects, at least to a certain extent, the concept of Prompt Corrective Action. In addition, it weakens the positions of owners and creditors in the case of insolvency and extends the power of the bank supervisory authority (BAFin) to request measures in order to limit bank risks and avoid insolvency.

Consumer protection was not much of an issue in Germany in the immediate post-Lehman phase, even though a large number of “naïve” investors had lost considerable sums when Lehman broke down. Bank related as well as independent investment advisors had allegedly talked these investors into investing in certificates that suddenly became worthless. As was reported, the clients had not been told in sufficient clarity that certificates are not insured in the way bank deposits are in Germany. Only much later investment advisors were subjected to rules aiming at preventing naïve clients from losses because of investments not suitable to them. It remains to be seen whether these new rules are more than a populist measure to calm angry investors who no longer trust their bank advisors.

Equally, not much happened in Germany concerning the institutional aspects of regulation and supervision. When the current coalition government was formed in October of 2009, a clause in the coalition agreement provided that the new government would take away essential supervisory functions relating to banks from BAFin and transfer them to the Bundesbank. But even though such a strengthening of the role of the central bank in supervisory matters would have corresponded to the international trend after the crisis, the plan was not implemented and not even discussed again after the crisis.

In many other European countries, similar measures were conceived, planned and implemented. The arsenal includes bank reorganization

laws, tighter rules concerning risk management and various instruments of consumer protection. There is no need to describe all these measures here. However, two cases deserve a special look: the UK and Switzerland.

In the United Kingdom, important changes are imminent. One of them concerns the institutional set up. As is currently planned, the comprehensive supervisory authority for the entire financial sector, the Financial Services Authority (FSA), is about to lose most of its present powers. Once a model imitated throughout Europe, the FSA has, in a certain sense, now become a victim of the crisis. It was severely criticized for not having avoided the great problems that British banks had experienced. As a result, most of its regulatory and supervisory powers will, according to plans, be transferred back to the Bank of England, which had been the main supervisor for banks before the FSA was created.

Regarding regulatory substance, the UK Government seems determined to introduce stricter prudential rules than those it expects to come out of Brussels, and, perhaps more importantly, is currently trying to find a suitable way of separating commercial and investment banking – in much the same way that these two lines of banking business had been separated before the Thatcher reforms of the 1990s known as the “Big Bang”. This issue of “ring-fencing” of commercial banking activities is discussed in Section IV.E.

Banking regulation and supervision in Switzerland faces a specific problem because the two big international banks domiciled in this country, Credit Suisse and UBS, have total assets that are many times bigger than the country’s GDP. Moreover, they are heavily involved in investment banking activities. Naturally, the mere possibility of these banks breaking down is widely perceived as a massive threat for the country since UBS was one of the greatest losers in the crisis and had to be strengthened – or saved – by a substantial capital injection and asset transfer measures undertaken jointly by the Swiss government and the Swiss central bank.

The Swiss authorities have reacted to this threat by requiring Credit

Suisse and UBS to have a much higher capital ratio than domestically operating banks. This special capital ratio is envisaged to be 19% of risk-weighted assets. Moreover, the Swiss regulator introduced a leverage ratio set at a minimum of 3% of total assets at the group level. It may be appropriate to add here that many banks themselves reacted to the crisis by voluntarily introducing far-reaching changes. They have compensated the loss of equity capital brought about by crisis write-downs by raising capital on a large scale. According to the Banque de France, banks in the euro-area raised the equivalent of USD 232 billion, British banks USD 157 billion and Swiss banks USD 51 billion between the third quarter of 2007 and the third quarter of 2009. By and large, half of this new capital came from public sources and half from private investors.

As a consequence, average Tier 1 capital ratios were higher in mid-2009 than they had been when the crisis started. Leverage ratios were much lower in 2009 than in 2007, and the cost-income-ratios of most banks had returned to their pre-crisis levels by the end of 2009. Allegedly, several very big banks have drastically reduced their risk exposure, in several cases by discontinuing proprietary trading almost completely. Only one important risk indicator had not changed by the end of 2009: the average non-performing loan ratios remained high even though there was, at that time no discussion about sovereign risk.

C. The EU response and the new supervisory structure in the EU

In an integrated world, and even more so in Europe with its strongly integrated markets and financial system, financial stability is no longer a national concern. The crisis has served as a test of how well the European political and financial system functions under stress. The European Union currently has 27 members of which 17 countries have adopted the euro. The divergence between EU and euro-zone membership is creating interesting and challenging coordination problems in Europe. A key pillar of integration in the EU is the single market, which aims at creating an economic area in which goods, persons, services and capital can flow freely. The 17 countries which adopted the euro as part of Economic and Monetary Union have

embarked on a course of even closer integration in the economic and monetary field, and the past financial crisis and even more so the current crisis in the euro-zone are likely to lead to an even deeper integration among the euro-zone countries, since important decisions are taken, or at least prepared among the euro-zone member states' finance ministers and at the level of the ECB.

In the EU, the two tasks of financial regulation and supervision have for quite some time been distributed between central and national authorities. The general rule was that, with some exceptions such as those mentioned in the last subsection, core regulation is in the hands of the EU while supervision is almost completely national business.

The suitability of the centralization of regulatory powers at the EU level depends in a crucial way on how decisions are made in the EU. Until the early years of the last decade, the legislative process in matters of financial regulation was extremely complicated and therefore also very slow. De facto and to a certain extent also de jure, changes in financial regulation had to be based on a consensus among all major EU Member states. Especially the UK government used to be opposed to any new regulation that might restrict the London-based financial industry, and Germany and some other continental European countries were opposed to a far-reaching policy of deregulation that the EU Commission traditionally favored. As a consequence, EU level regulatory activity had been almost paralyzed for a long time.

This situation changed somewhat when the so-called Lamfalussy Process was introduced as part of the well-known Financial Sector Action Plan (FASP) of the EU. The Lamfalussy Process is a regime for financial rule making that allows for faster legislation by slightly relaxing the consensus requirement. However, decision making power was still highly decentralized so that far-reaching decisions were hard to reach in a short time span, as required in the financial crisis. Equally important, the political will to centralize supervisory functions at the EU level had not been there for many years. Here also, resistance came primarily from Great Britain and from Germany,

though for different reasons. The drawback of not having any trans-national EU-wide supervisory authority with true decision powers was deeply felt when large multi-country banks started getting into trouble during the financial crisis. Well-intentioned agreements between national supervisors, so called Memoranda of Understanding, and regular meetings of national supervisors in so called colleges of supervisors proved to be insufficient instruments of coordination. If this state of affairs – a severely handicapped European regulator and non-existent European supervisory institutions – had remained as it was, it would have prevented the EU from responding to the crisis in any substantial way.

However, this state of affairs did not remain unchanged. After the fall of 2008, EU financial regulation was modified to an astounding extent, both in substance and with respect to the institutional set-up. These changes also came about with respectable speed, given that revising regulation and restructuring institutions cannot be the work of a few days. In what follows, we first take a look at post-crisis EU financial regulation and then address the pertinent institutional changes.

Probably the most important piece of regulatory change in the EU after the financial crisis is the transformation of the new capital adequacy rules known as Basel III into the Capital Requirement Directive of the EU. This is an important topic discussed separately in the next subsection. Other aspects of regulatory change are summarized here⁴.

The EU took regulatory action in response to the crisis – and also in response to the G20 decisions – as early as October 2008. The first step was to raise the minimum cover provided by national deposit insurance schemes to €50,000.

About a year later, a number of new capital-related regulations were adopted in the form of an amendment to the Capital Requirement Directive. This is clearly attributable to the crisis experience. Among

⁴ The rest of this subsection draws heavily on an article by ESFRC member Karel Lannoo entitled “The EU’s Response to the Financial Crisis: A mid-term review”, CEPS Policy Brief No. 241, April 2011.

other things, the new rules tighten capital requirements for securitizations and for the trading book and impose longer deferral periods for the bonuses that bankers can receive.

The most important G-20-related measures concern the regulation of hedge and private equity funds in the Alternative Investment Fund Managers Directive (AIFMD), the introduction of a mandatory licence for rating agents in the Credit Rating Agencies Regulation, and the centralised clearing of derivative financial instruments in the draft European Market Infrastructures Regulation (EMIR).

Regulation concerning credit rating agencies (CRAs) subjects EU-based CRAs to a mandatory licence and strict conduct of business rules, whereas, unlike in the US, no rules had been in place previously. The new CRA regulation was adopted within six months – a record by EU standards.

Whereas the US has mandated the removal of all references to credit ratings in regulatory acts (under the Dodd Frank Act), the EU has not done so yet, and ratings continue to be used for determining the risk weights in the standardised approach of the Capital Requirements Directives (CRD, implementing Basel II and III) and in the credit-providing operations of the ECB.

In the middle of 2011, the EU's response to the financial crisis was well advanced. Many new rules related to elements contained in the G-20 commitments had been enacted or proposed, with discussions having reached a well advanced stage. When looking at who and what is directly addressed by the new EU regulation, one finds most of the "usual suspects" that are blamed for the crisis: banks that do not hold enough capital in view of the riskiness of their trading operations, unregulated hedge funds and private equity firms that so far avoided supervision, over-incentivized and short-term oriented investment bankers, and speculators operating in insecure and intransparent over-the-counter markets. One can, of course, question whether the implied verdicts are justified and, even more so, whether current regulation of these agents, institutions and markets really does make financial systems in Europe and beyond safer. But one

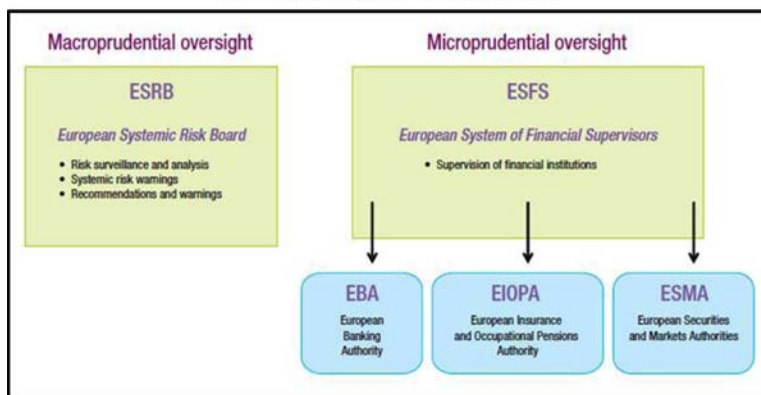
cannot ignore that the EU has produced an impressive set of new regulations concerning important issues in a very short time. In doing so, it has contributed to achieving what the G20 had proclaimed as a highly plausible aim, namely to leave no financial product, no financial market and no financial institution outside of the purview of regulation and supervision. Of course, there are some issues that have not been addressed so far at the EU level. These include the structure of the financial sector in general and the banking industry in particular – the “Volcker rule” issue – and regulation and supervision of banks in trouble that operate in different countries.

Perhaps even more important than the innovations in substantive financial regulation is the profound innovation concerning the institutional framework in the EU. Almost immediately after September 2008, a high level working group chaired by Jacques de Larosière had been given the mandate by the EU Commission to propose a new institutional structure for regulation and supervision in the EU. The working group did fulfil its mandate in a way that one can only call fundamental. Its report was published in February 2009. Following quite closely what this group of experts had suggested, the EU Commission made its own proposal to create a new regulatory and supervisory structure in Europe public in May 2009. Ecofin accepted the Commission proposal only a few days later, and since January 2010 the new institutions are in place and operative.

The new regulatory and supervisory architecture consists of a set of four – one plus three - new institutions. One of them is the European Systemic Risk Board (ESRB). The other three, often called the three European Supervisory Authorities (ESAs) jointly form the European System of Financial Supervisors (ESFS). The ESFS comprises the European Banking Authority (EBA), which has its seat in London, the European Insurance and Occupational Pension Authority (EIOPA), which resides in Frankfurt, and the Paris based European Securities and Markets Authority (ESMA). Figure 6, which is taken from the Banque de France⁵, represents this new institutional structure.

⁵ Banque de France, “Financial Crisis and Economic Crisis”, January 2010, p. 123.

Figure 6: The New European Supervisory Architecture



Both the ESRB and the ESAs are new institutions. So far, no independent institution was responsible for EU level macro-prudential oversight. The ESRB has its secretariat at the ECB in Frankfurt. The closeness to the ECB is, of course, no coincidence because the ESRB is supposed to use information and research capabilities available at the ECB and to cooperate closely with the monetary authority of the euro-zone. The closeness is, moreover, also built into the membership of the ESRB. The President of the ECB is the chair, and all 27 EU central banks are represented in its council. The function of the ESRB consists of monitoring and analyzing macroeconomic risks, issuing risk warnings and giving recommendations to all relevant authorities in the EU. In its deliberations and recommendations, the ESRB is independent. Thus, by creating the ESRB, the EU has accepted the request of the G20 to strengthen macro-prudential supervision, which had not been adequately represented in the set of existing institutions. At an international level, there is a well-intended correspondence between the European ESRB and the global Financial Stability Board.

The three European Supervisory Authorities are responsible for micro-financial regulation and supervision. Their specific functions consist of coordinating the work of the national supervisors in the different EU countries, advising the Commission, issuing standards for supervision that national supervisors have to follow and, most importantly perhaps, making decisions that have a direct influence

on what national supervisors have to do in special situations. For instance, the EBA has been responsible for designing the recent round of stress testing and to oversee the implementation of the stress tests in the different member countries. If there is a conflict between national supervisors or if there appears to be a breach of EU law, the European Supervisory Agencies can directly intervene and make decisions that are binding for national supervisors and in special cases even for national governments. This is what would have been needed during the crisis and what did not exist at that time.

In contrast to the supreme committees that had been put in place in accordance with the Lamfalussy Process some years ago, the three new ESAs modelled after the de Larosière proposal are endowed with decision making power, and this is a truly novel feature. However, this power is limited, since it is derived from the powers that the European Commission has. As an implication, the ESAs are not independent, which contrasts with the former supreme committees. Specific regulation defining the mandate and the rights of the European Supervisory Authorities has been adopted by the Ecofin in November 2010, just in time for the start of operations.

The negative experience of competences and information being too widely distributed in the case of struggling multi-country banks is probably the main reason why it turned out to be necessary - and why it was finally possible - to create a system of European supervisory bodies that have real decision making power. With these new institutions in place since the beginning of 2011, it can be expected that the response to future crises will be faster and more effective. Concentrating decision making power is particularly important in cases in which large and systemically relevant banks might be in serious difficulties.

In subsection V.B. below we argue that an alternative approach to increased centralization of regulation and supervision in Europe is to enforce a clear distinction, functionally and operationally as well as legally, between host country subsidiaries and branches in cross-border banking in order to maintain national responsibility for supervision and crisis management.

As emphasized in the introduction, a recurrent theme of this report is the question of how Europe's institutional diversity and complexity has influenced the outbreak of the crisis and crisis management reactions. In a very brief summary, one can say that diversity and complexity is likely to have contributed to the speed at which the crisis spread out. However, by and large these features of Europe as a political entity have not stood in the way of effective crisis management and, later on, of appropriate structural responses. But there is also the reverse question: has the crisis in any way altered the complexity and diversity in Europe and its, partly negative, implications? Our answer to this question is that the EU has seized the opportunity to achieve a higher level of integration and institutional coherence. Unfortunately, the way policy makers seem to handle the current sovereign debt crisis does not seem to merit an equally positive assessment.

D. Reforming prudential regulation in the EU through Capital Requirements Directive IV

In view of how long it took to adopt the international capital adequacy rules known as Basel I and Basel II, the financial crisis has evidently had the very beneficial effect of speeding up the overhauling process leading to Basel III. The Basel III accord was adopted by the Basel Committee on Banking Supervision in December 2010. The essence of the novel features of Basel III is a substantial increase of the required level of equity, a much tighter definition of what constitutes core capital, and new rules that aim at enhancing the liquidity of financial institutions. However, some of the features of Basel II that had been criticized, among others by the ESFRC, were retained. These include the focus on risk weights and the use of ratings and internal models for determining capital requirements. Moreover, Basel III has been widely criticized for the long time span allowed for the implementation of its provisions.

The EU has acted unusually rapidly in starting to transpose Basel III into European law through its new capital requirements proposals known as "CRD IV". However, at the time of writing, CRD IV is not yet in force. Most of the new requirements are contained in the

draft Regulation which must still be approved by the Member states in Council and by the European Parliament. Once this occurs, however, the requirements will be binding across all EU/EEA states and will impose a large degree of harmonization in the national practices with respect to capital and liquidity requirements⁶. It is widely expected that the adoption of what is currently a draft will occur fast. The draft of a transposition of Basel III into EU law is the first legislative effort by a major jurisdiction to implement the newly-adopted Basel III capital and liquidity rules into law. The European Commission considers the implementation of CRD IV to be an essential element in rebuilding the EU financial regulatory regime in the aftermath of the global credit crunch that began in 2007. Of course, CRD IV is not going to be a copy-paste adoption of Basel III. EU Member states will have until 2013 to implement the CRD IV's capital requirements, with extensions to 2015 for the liquidity coverage ratio and 2018 for the net stable funding ratio⁷.

This subsection examines some of the elements of CRD IV and the challenges it poses for European Economic Area supervisors with respect to effective implementation that achieves prudential regulatory objectives.

Basel III/CRD IV in brief

The new Basel III/CRD IV regulation includes, an increase in Tier 1 regulatory capital to 7.0% (including a capital conservation buffer); a tighter definition of core tier one capital (ordinary common shares only); an additional 2.5% countercyclical capital ratio (yet to be determined for implementation); and a higher capital charge for global systemically important financial institutions (SIFIs) of between 1% and 2.5%. Basel III/CRD IV also sets forth two types of liquidity requirements for banks that have to be implemented by 2017. The main liquidity requirements consist of a liquidity coverage ratio (LCR) and a net stable funding ratio (NSFR). The LCR requires

⁶ See European Shadow Financial Regulatory Committee, "Basel III: The Need for Simplicity in Capital and Liquidity requirements", Statement No. 33, January 2011 (<http://www.esfrc.eu>)

⁷ The decisions taken on October 27, 2011 by the Heads of State of the Euro-area countries will tighten some of these rules and also reduce the time allowed for implementing them.

banks to hold a certain ratio of high quality liquid assets (i.e., highly-rated government and corporate bonds) that can be sold in a stress scenario to cover a loss of funding for up to one year. The NSF ratio requires banks to maintain a positive ratio of incoming funds to outgoing funds over a period of time approved by the relevant supervisor. Another important requirement with respect to liquidity is that Basel III/CRD IV requires banks to limit their overall leverage to 3% or 33.5 to 1 (total leverage/total common equity). These requirements are generally expected to limit the ability of banks to excessively rely on short-term funding and, more generally, debt funding.

The legal features of CRD IV

CRD IV consists of one Directive and one Regulation. The Directive mainly addresses the Basel pillar II standards of corporate governance, counter-cyclical capital requirements and risk management, whilst the Regulation is direct EU law in force. It commits Member state authorities to determine capital and liquidity requirements for the institutions in their jurisdictions. The use of a Regulation to implement capital and liquidity standards is a significant change from past EU bank regulation practice, which relied exclusively on directives under which Member states had broad discretion regarding implementation into domestic law and regulation. This former approach led to practices in prudential regulation that allowed Member states to attract banking business to their respective country by imposing less stringent capital standards on banks in certain areas of risk measurement⁸ and invited banks to benefit from this “uneven playing field” by relocating certain activities to countries with less stringent prudential regulation and possibly also less rigorous supervision in order to have a competitive advantage over banks supervised more strictly in other EEA countries. These practices have made a substantial contribution to the severity of the financial crisis in Europe. The issue of how to implement the new capital and liquidity requirements has created political and diplomatic concerns in European capitals, especially in London. This is partly because large cross-border banks generally claim that the new Basel III rules

⁸ For example, the UK and Italy did not require banks to hold capital against risk-based assets they originated if the bank had shifted the asset off its balance sheet through securitization or some other type of risk transfer.

could substantially limit their ability to lend to small and medium size businesses in the EU markets. Moreover, there are fears that the EU could be put at a competitive disadvantage if other jurisdictions, such as the US, followed a more relaxed approach to Basel III implementation⁹.

Special features of CRD IV

The Commission's CRD IV proposals are not simply replicating the Basel III proposals into EU law. The Commission has adjusted CRD IV to take into account certain requirements of EU law and the particular institutional and legal frameworks in Member state jurisdictions. For instance, although the Basel Accord was originally intended only to apply to internationally-active banks, EU law has always applied it to all banks and investment firms, because its application to internationally active banks only would have created competitive distortions and the opportunity for arbitrage in the internal market. The Commission's CRD IV proposal therefore makes some adjustments to Basel III when transposing it into EU law. There are four main areas where there are important changes. First, the CRD IV Directive strengthens corporate governance arrangements and processes and introduces new rules that aim at increasing the board of director's oversight of risk management, strengthening the risk management function within the bank.

Second, Member state supervisors are required to impose administrative sanctions on banks and individuals if CRD IV or rules adopted by the European Banking Authority to implement it are breached. Fines and penalties must prove to be effective deterrents to CRD violations.

Third, banks are required to provide their supervisors with an annual supervisory review program, which must include greater and more systematic use of on-site supervisory examinations and forward-looking risk assessments.

Fourth, CRD IV aims at reducing reliance on external ratings. This

⁹ The European Banking Federation has also expressed its 'concern over the impact of the new [capital] requirements', and has raised even stronger concerns regarding the liquidity requirements.

is to be achieved in part by requiring all banks' investment decisions to also be based on their own internal credit opinion. In addition, banks with a material number of exposures in a given portfolio must develop their own internal ratings for that portfolio.

CRD IV and maximum harmonization

Under the current draft of a new Capital Requirements Directive, the European Commission is proposing to set a level of capital requirements to be applied uniformly by all EU/EEA states. This aims at maintaining, or even creating, a level playing field with common enhanced capital and liquidity standards. The European Banking Authority (EBA) will have responsibility for ensuring that Member state supervisors follow this "maximum harmonization approach" to regulating bank risk management and measurement practices, and the Commission has emphasized that the 'maximum harmonization' principle is a linchpin of the new supervisory framework. However, similar – and at the same time maximum – prudential requirements across the entire EU would seem to prevent some Member states from adopting more demanding capital and liquidity requirements, which they may, for various reasons, find appropriate. Notably the British government has raised criticism of the CRD IV draft because of this principle of maximum harmonization, which it finds counterproductive.

However, it currently is unclear whether the British opposition is indeed appropriate. Under the current CRD IV proposals, Member states can apply stricter requirements in some circumstances if these can be justified by national circumstances. For example, higher capital requirements can be imposed to address the danger of a real estate bubble. Such requirements would also apply to institutions from other Member states that do business in that Member state. In addition, each Member state is responsible for adjusting the level of its countercyclical buffer to its economic situation and to protect the economy/banking sector from any other structural variables and any other risk factors related to financial stability. The countercyclical buffer would allow regulators to require banks to hold additional capital during good times, both to slow the growth of credit and to

build reserves to absorb losses during bad times. Therefore, it is still an open issue whether the maximum harmonization principle will ultimately find its way into EU banking law.

The Commission has proposed to apply CRD IV to over 8000 deposit-taking banks and investment banks with headquarters or subsidiaries in an EU Member state. The cost implications for the banks' business will be significant. The Commission has estimated that EU banks will have to raise an additional 84 billion Euros of Tier 1 capital by 2015 and 460 billion Euros by 2019. These amounts are equivalent to just less than 3% of the industry's risk-based assets. It should be noted that the combined net profit of the EU's biggest 100 banks was 33 billion Euros in 2010.

As already indicated above, some Member states are concerned that CRD IV does not go far enough. Based on recommendations by the Independent Commission on Banking, the UK government is about to recommend additional measures. As it seems at the time of writing, it will propose that tier one capital requirements be increased to 10% including counter-cyclical capital buffers and that additional capital charges of between 1% and 2.5% would apply to globally systemic-important financial institutions (G-SIFIs). These requirements aim at increasing regulatory capital for ring-fenced banks, especially those with higher levels of risky assets¹⁰. The UK also seeks to protect taxpayers against direct bailouts of too-big-to-fail financial institutions by imposing a capital buffer on G-SIFIs that have a ratio of risk-weighted assets to UK GDP of more than 1%.

¹⁰ In addition to higher equity requirements for certain banks, the Independent Commission's financial stability proposals contain the following additional elements: a) a stricter leverage ratio than that in CAD IV; b) a bail-in rule that would grant the resolution authorities the power to impose losses on long-term unsecured debt in resolution, before imposing losses on other liabilities; c) a rule of depositor preference, which means that in insolvency or resolution, insured depositors should rank ahead of unsecured creditors, or creditors only secured with a floating charge. This list of proposals is not complete; see the ICB's final report, paragraph 5.95.

CRD IV and regulators outside the EU

Within the EU, Basel III requirements will be implemented through CRD IV. The European Commission has proposed that the capital requirements of CRD IV be implemented by member states in 2013 and institutions are expected to have adequate liquidity coverage by 2013 and to undergo a review and possible recalibration by 2015, while the deadline for the net stable funding requirement will be 2018. Assuming consistent implementation across EU countries, regulatory arbitrage for wholesale and investment banking may be less likely to be an issue. However, it is not clear that Basel III will be consistently implemented outside the EU, in countries that are not covered by CRD IV. There may, therefore, be potential for inconsistencies with countries outside the EU. This could in turn make it more difficult for wholesale and investment banks in the member states to compete in certain circumstances with wholesale and investment banking operations outside the EU.

E. “Ring-fencing” of commercial banking

The universal banking model is strongly associated with Continental Europe while the Glass-Steagall Act in the US prevented investment banking and commercial banking under one roof until 1999. American banks were able to conduct investment banking activities through foreign subsidiaries, however. Much of this activity went to London where commercial and investment banking became increasingly intertwined.

The financial crisis revived the debate about the separation of traditional commercial banking (deposit taking, conventional bank lending and payment services) from activities associated with “proprietary trading” wherein a financial institution takes risky positions in securities markets for its own account. In the US, the “Volcker Rule” aims at separating proprietary trading from banks, but the rule has so far not been implemented. In the UK the recently published report from the Independent Commission on Banking (2011) also called the “Vickers Report” has recommended “ring-fencing” of commercial banking from other types of financial activities which

to some degree require trading on the financial institution's own account. Ring-fencing requires the commercial bank to restrict its activities as mentioned and to keep more capital relative to assets than other financial institutions. The British government has endorsed the Vickers report and announced that it intends to carry out its recommendations.

The argument for ring-fencing is that the explicit subsidy to funding of banks through deposit insurance and implicit insurance through various forms of protection of banks' creditors in times of distress should not be used for proprietary trading and other risk-taking activities which are not essential for the payment system. Explicit and implicit protection creates incentives for shifting of risk to deposit insurance funds and tax payers. The Vickers report envisions that these incentives can be counteracted in investment banking by removal of implicit protection and, thereby, restoration of market discipline. Thus, the financial institutions involved in investment banking would be allowed to fail when insolvent with predictable consequences for creditors according to their priority. Commercial banks on the other hand may have to be bailed out and their creditors protected. Incentives for risk-shifting in these banks would be counteracted by high capital requirements and strong supervision.

There is compelling logic to the argument of the Vickers report. However, it requires that the removal of implicit protection from the investment banks is credible. In other words, the safety net from this part of the financial system must be credibly removed. There are strong reasons to doubt that investment banks will be allowed to fail without any aid from the public sector since contagion within the financial system goes through securities markets as much as through the traditional bank channels, as the downfall of the "pure-play" investment bank Lehman Brothers has demonstrated. The potential strength of the securities market channel for contagion was a major lesson of the financial crisis, wherein investment banks were the first financial institutions to fail and be protected in the US.

Another issue is whether there are costs of the ring-fencing in the form of reduced financial system efficiency. If the main motivation

for the formation of financial conglomerates has been to extend the subsidies implied by the safety-net to proprietary trading and other investment banking activities, efficiency losses of the reforms are likely to be small. On the other hand, if there are important information synergies between commercial banking activities and investment banking activities including proprietary trading, efficiency losses may be substantial. If, in addition, the reforms have little impact on the likelihood of a financial crisis, the main result will be a decline in competitiveness for UK financial institutions.

F. Executive compensation in European banks

In the wake of the financial crisis executive compensation schemes in large European banks, in particular, have been modified mainly along the lines recommended by the Financial Stability Board's Principles for Sound Compensation Practices from September 2009. The "2011 Thematic Review on Compensation" published by the FSB on October 7, 2011 reveals that the European countries covered in the review, i.e., France, Germany, Italy, the Netherlands, Spain and Switzerland, come second only to the US in terms of the strictness by which the Principles and Standards (P&S) outlined in the 2009 FSB Principles for Sound Compensation Practices have been implemented.

The European countries have decided to adopt the regulatory approach for practically all the P&S in the recommendation rather than the "softer" alternative of a supervisory approach. By contrast, in many non-US or European countries covered by the study, no decision has been taken and the principle or standard is under preparation or consideration. Of the 19 principles and standards, numbers 4 – 14 deal with pay structure and risk alignment.

With regard to the controversial issue of mandatory deferral of the performance-related part of the compensation package, P&S numbers 6 and 9, the UK tops the list with 84 % (compared to 76% for the US) of the variable part being deferred for a period of 3 years. Of the European countries separately covered in the review, Italy is the one that is in most in line with the rest of the world, with 47 % be-

ing deferred, but for a 4 year-period rather than the usual 3 year one.

V. Unresolved Issues and Work in Progress

A. Resolution of (large) financial institutions in trouble¹¹

Many banks still have a large amount of toxic assets (or “legacy” assets) from the financial crisis or dubious assets related to the current woes of European banks holding Greek and other peripheral EU countries’ sovereign debt. As a result, there is a real danger that financial markets will not return to normality for several years if bank losses are rolled over rather than written off, raising the specter of a repetition of Japan’s lost decade. With all the guarantees and deposit insurance now in place, the need to get an international standard on cross-border bank insolvency is urgent.

Without a clear and predictable legal framework in place to govern how a distressed financial institution will be reorganized or liquidated in an orderly fashion without undermining financial stability, authorities have little choice but keeping it alive by means of ad hoc measures. A variety of such measures were employed on both sides of the Atlantic during the financial crisis. This state of affairs implies great unpredictability about who will bear losses and, therefore, competing pressures from interest groups for protection.

When confronted with failed or failing banks, public authorities have several policy measures at their disposal: (1) the lender of last resort role of the central bank, both in the form of general market support and emergency aid to specific institutions; (2) deposit insurance schemes; (3) government policies of implicit protection of depositors and other creditors (guarantees, insurance or purchase of assets, recapitalization and other forms of support); (4) prompt corrective action, and other preventive measures, including macro and micro-prudential supervision and counter-cyclical regulation, and (5) insolvency laws (*lex specialis* for financial institutions or *lex generalis*).

¹¹ For an in-depth coverage of this topic see Rosa M Lastra (ed.), *Cross-Border Bank Insolvency* (Oxford: Oxford University Press, 2011).

If crisis management is complex on the national level bank, since it involves several authorities and the interests of many stakeholders, this complexity is far greater in the case of cross border bank crisis management, both at the regional (EU) level and at the broader international level. The field of cross-border bank insolvency is still in its infant stages. Some progress has been made with regard to conflict of laws or private international law rules (an example of which is the Directive 2001/24/EC on the reorganization and winding up of credit institutions) but so far there is no international substantive harmonized standard for banks. In the absence of an international insolvency legal regime, the solution to the liquidation of a bank with branches and subsidiaries in several countries needs to be based on national legal regimes and on the voluntary cooperation between different national authorities. This cooperation is often uneasy and the division of responsibilities between home and host country authorities remains a matter of great controversy.

Systemically important financial institutions or SIFIs are institutions that are so important for the functioning of the financial system that their problems (in particular, their failure) can trigger systemic risk. Though as individual institutions SIFIs may be subject to individual micro supervision, their systemic significance implies that they should also be subject to macro prudential supervision. The fact that most systemically significant financial institutions have a cross border dimension, calls for a cross-border solution, supra-nationally and/or internationally.

SIFIs and their resolution – the international perspective

On October 20, 2010, The Financial Stability Board (FSB) released a series of recommendations on 'Reducing the moral hazard posed by systemically important financial institutions'. The G20 Leaders at the Seoul Summit on 11-12 November 2010 endorsed the FSB's recommendations. Accordingly, FSB jurisdictions have agreed to put in place a policy framework to reduce the risks and externalities associated with domestic and global systemically important financial institutions in their jurisdictions.

As agreed in the Seoul G20 summit, the policy framework for SIFIs should combine a resolution framework and other measures to ensure that all financial institutions can be resolved safely, quickly and without destabilizing the financial system and exposing the taxpayer to the risk of loss; a requirement that SIFIs and initially in particular global SIFIs (G-SIFIs) have higher loss absorbency capacity to reflect the greater risks that these institutions pose to the global financial system; more intensive supervisory oversight for financial institutions which may pose systemic risk; robust core financial market infrastructures to reduce contagion risk from the failure of individual institutions and other supplementary prudential and other requirements as determined by the national authorities.

Additionally, home jurisdictions for G-SIFIS should enable a rigorous coordinated assessment of the risks facing the G-SIFIs through international supervisory colleges, make international recovery and resolution planning ('living wills') mandatory for G-SIFIs, negotiate institution-specific crisis cooperation agreements within cross-border crisis management groups, and subject their G-SIFI policy measures to review by a proposed Peer Review Council (PRC). This PRC will comprise senior members of the relevant national authorities having G-SIFIs operating as home or host in their jurisdictions. The FSB and national authorities, in consultation with relevant standard setters, will determine by mid-2011 those institutions to which the FSB G-SIFI recommendations will initially apply. The Peer Review Council will conduct its initial assessment of national G-SIFI policies by 2012.

The FSB consultation document "Effective Resolution of Systemically Important Financial Institutions" was published on July 19, 2011. There are two discussion notes annexed to the document. One sets out policy issues surrounding the ranking of creditor claims, the other discusses the conditions under which a temporary suspension of contractual early termination rights should apply to support implementation of certain resolution tools. The report of the Cross-border Bank Resolution Group (jointly chaired by Eva Hüpkes and Mike Krimminger) which takes stock of recent reforms in the area of bank resolution, was also published on July 19, 2011.

In the absence of an international legal regime, the solution to the cross border resolution of multinational banks and other SIFIs relies on different legal regimes subject to some international law principles and the often uneasy cooperation between different national authorities. Having effective resolution regimes at the national level and advancing towards some loss-sharing arrangements are steps in the right direction. But we still need convergence in critical areas at the international level (such as the triggers for the commencement of proceeding, the principle of non-discrimination of foreign creditors, early intervention and others) to achieve a coordinated solution. An IMF report from July 2010 recommends that key aspects, which it refers to as “Core coordination standards,” be harmonized to ensure a degree of convergence of bank insolvency regimes.

Developments in the EU

The relationship of the EU and the FSB framework presents a conundrum for regulators, policy makers and insolvency practitioners because of difficulties of simultaneously achieving financial integration and financial stability in the EU while keeping supervision and crisis management, as well as fiscal policy, under national control. In addition there is a dichotomy between EU and euro-zone Member States.

The EU insolvency regime is so far limited in scope. It consists of one regulation on insolvency proceedings (Council Regulation (EC) No. 1346/2000 of 29 May 2000) and of two directives: one on the reorganization and winding up of credit institutions (Directive 2001/24/EC of 4 April 2001), and one concerning that of insurance undertakings (Directive 2001/17/EC of 19 March 2001). The former Directive covers only the insolvency of branches of credit institutions in other Member States, but does not cover subsidiaries of banking groups in other Member States. This lack of a group-wide approach to winding up and reorganization could lead to the failure of subsidiaries or even the group, which could otherwise have been reorganized and remained solvent in whole or part. We return to the distinction between subsidiary and branch organization in subsection B.

Continued work on an insolvency regime in the EU is urgently needed, and it should naturally contribute to financial stability. Other objectives must be considered as well. One is the fair and equitable treatment of creditors amongst the various countries where a cross-border institution operates. The need for burden-sharing amongst countries affected by possible fiscal costs of recapitalization must also be considered as well as the imperative to minimize the costs to taxpayers.

B. Subsidiaries vs. branches in cross-border banking: Is the Single Banking License still relevant?¹²

The market share of foreign bank subsidiaries in Western Europe in terms of total assets is 15.2 percent vs. 5.7% for foreign bank branches. The corresponding figures for Eastern Europe are 34.8 and 4.7 percent. The number of foreign bank branches is actually larger than the number of foreign bank subsidiaries in Europe as a whole but the market share of cross-border branch banking is small. The branch organization seems limited to relatively small cross-border operations in spite of the vision of the EU Banking Directive offering banks the option to operate in branches across the EU under a Single License under home country control and supervision.

In common terminology a cross-border subsidiary is a host country legal entity with its own capital as a buffer against losses while a host country branch does not have its own capital. The distinction between branches and subsidiaries would be at its sharpest in times of distress. A subsidiary is in principle subject to insolvency law and procedures in the host country while a branch or other entity, which is not a legal person in the host country, is in distress only if the home country corporation is in distress.

In banking, in particular, the branch vs. subsidiary distinction is not as clear as suggested above. Subsidiaries can be operated as more or less closely integrated entities while branches can be required to

¹² This subsection is based on Angkinand, A.P. and C. Wihlborg, "Cross-border Banking in Subsidiaries and Branches; Organization, Supervision and Resolution" in G. Caprio (ed), *The Encyclopedia of Financial Globalization*, forthcoming 2011.

have capital set aside for them. Correspondingly, host country regulators, supervisors and central banks may claim some jurisdiction over branches and abstain from jurisdiction over subsidiaries in other respects. The strong concern with financial stability and fear of contagion from banks in distress has the consequence that international banks face scrutiny and possible involvement by more than one government in times of distress whether international operations are organized in branches or subsidiaries. Thus, politics of burden sharing in potential losses becomes a major concern.

Increasing internationalization of banking raises the issue whether the nationally oriented infrastructure for supervision and control, including crisis management, can be maintained without an increase in systemic risk as a result of contagion from the distress of a large bank or a large part of it.

There is little doubt that both branches and subsidiary organizations have important roles to play in international banking¹³. Is it possible under these circumstances to design an effective architecture with respect to supervision and crisis management based on national jurisdiction over domestically incorporated entities? Super-national supervision and crisis management are hardly realistic outside the EU and possibly quite distant within the EU as well. A decentralized, nationally oriented approach to the financial architecture seems to be a necessary starting point as long as fiscal policy remain a national responsibility. This approach does not preclude joint solutions for supervision and agreements with respect to crisis management. The following reform issues can be identified:

- (i) The functional ambiguity between branches and subsidiaries could be resolved by requirements that legally separate entities are functionally separate as well. New Zealand offers a model by requiring that foreign subsidiaries must be “operationally separable” essen-

13 Fiechter et al. (“Subsidiaries and Branches: Does One Size Fit All?”, IMF Staff Discussion Note, March 17, 2011) review advantages and disadvantages of branches and subsidiaries for different types of banking activities. Their main conclusion is that “one size does not fit all.” An efficient organizational structure depends on the nature of the business, economies of scale, risk considerations as well as regulatory considerations.

tially overnight in order to avoid contagion from distress in a foreign parent bank to spread to New Zealand¹⁴.

(ii) We have already emphasized the need for a *lex specialis* for bank insolvency on the national level. The laws need to specify credible, predictable and non-discriminatory procedures that enable even a large bank to fail without creating severe contagion effects domestically and abroad.

(iii) As previously noted, insolvency procedures need to be complemented with “structured early intervention” (SEI) allowing supervisors to intervene and restrict risk-taking well in advance of insolvency. Thus, to make cross-border banking in branches acceptable home countries must introduce credible SEI as well as insolvency law in order to earn trust as supervisors of large parts of host country banking systems¹⁵.

(iv) Differences in deposit insurance coverage between domestic and foreign banks operating in the same country could lead to politically unacceptable consequences in case a foreign bank with relatively low coverage fails. For home country taxpayers not to bear excessive risk for deposit insurance for large host country branches the deposit insurance system must be funded to such an extent that tax payers face little risk¹⁶.

(v) The allocation of LOLR responsibility needs to be clarified for cross-border subsidiaries as well as branches. A branch would in principle be part of the bank’s liquidity management and thereby subject to the home country’s LOLR operations. Liquidity is under the domain of central banks, however, and therefore directed at a country’s financial system that may include branches of foreign banks. LOLR operations easily become part of a bail-out policy with fiscal implications. Incentives to conduct LOLR operations to support banks with insolvency problems could be reduced if effective

¹⁴ Branches of foreign banks are not permitted in New Zealand.

¹⁵ Home country supervision need not imply that host country expertise is lacking. The home country supervisor can work with and rely on host country expertise to the extent it is needed to obtain appropriate information.

¹⁶ Spain is an example of an EU country requiring banks to obtain permission to set up branches abroad.

insolvency procedures were in place.

(vi) The recent crisis also demonstrated that systemic risk in the financial system arises through non-bank activities as well as through the traditional channels. Thus, parts of the crisis management architecture may appropriately apply to non-bank financial institutions as well. Financial services other than traditional banking are often offered cross-border in branches rather than subsidiaries.

C. International coordination beyond the EU - the macro-prudential dimension

The financial crisis has triggered intense efforts internationally to enhance the monitoring of systemic stability and to strengthen the links between macro- and micro-prudential oversight. As noted in Section IV C the European Systemic Risk Board has been charged with responsibility for macro-prudential oversight within the EU. The issues of oversight of macroeconomic developments and systemic risk go beyond the EU, however, and require broader international attention. In this context, a number of practical policy and legal issues arise that concern the operation of the newly created Financial Stability Board (FSB) and the need for it to coordinate macro-prudential financial policy and supervision with the International Monetary Fund. So far, one can say that the FSB has not yet demonstrated that it is a meaningful institution for enhancing the macro-prudential focus of international financial regulation.

The FSB is the institutional continuation of the former Financial Stability Forum. It was created in April 2009 by the G20 Heads of State as the international body that has the responsibility to develop international financial standards which serve to control systemic risk and provide more effective oversight of the global financial system. The FSB is part of the new crisis-inspired and certainly appropriate drive to devise more effective international regulatory frameworks that durably link micro-prudential supervision with broader macro-prudential systemic concerns thus constituting a clear break from the former one-sided micro-economic focus of regulation and supervision. The focus on macro-prudential regulation involves, among

other things, devising regulatory standards to measure and limit leverage levels in the financial system as a whole, requiring financial institutions to have enhanced liquidity reserves against short-term wholesale funding exposures, and, more generally, counter-cyclical capital regulation.

This move to a more macro-prudential regulatory regime implies that the FSB has to cooperate closely with the IMF. As a first result of this cooperation, FSB-IMF have undertaken collaborative early warning exercises in 2009. These exercises are aimed at providing policymakers with policy options and, as such, they add to the data-gathering, analysis and evaluation work and information sharing activity that the IMF already conducts with a view to preventing systemic risks. It is expected that the combination of the IMF's macro financial expertise with the FSB's regulatory perspective will provide an important link between the micro-prudential regulatory perspective and the macro-prudential supervisory perspective.

However, in spite of its early activities and results, the FSB/IMF collaboration in macro-prudential regulation raises concerns about the effectiveness, accountability and legitimacy of its standards and recommendations especially as far as they are expected to apply to countries that are not represented in the G20. For instance, Mervyn King, the Governor of the Bank of England, observed in a speech at the University of Exeter in January 2010 that "the legitimacy and leadership of the G20 would be enhanced if it were seen as representing views of others countries too". Close collaboration between the FSB and the IMF is a step towards addressing this concern. The involvement of the IMF still does not address fully the existing weaknesses in the international financial architecture because the IMF itself has been subject to extensive criticism on legitimacy grounds, most recently because of its allocation of Special Drawing Rights and the related allocation of weighted voting rights.

As an implication of these brief comments on some problems of international policy coordination one can only underline the widely held view that future international regulatory reform must be built on a more holistic approach to financial regulation and supervision

that involves linking micro-prudential supervision of individual banks with broader oversight of the financial system and to macro-economic policy and that it requires a firm and politically supported institutional basis. International regulatory and supervisory institutions should focus primarily on macro-economic factors and their micro-economic implications concerning liquidity risks and leverage requirements for banks and capital adequacy standards that have linkages and reference points in the broader macro economy.

D. The future of market discipline

Although substantial reforms with the objective of enhancing financial stability have been implemented or been proposed there are important gaps in the reform agenda. In particular, the regulatory agenda has shifted from viewing market discipline as an important part of the regulatory framework to more direct power for supervisors, regulators and central banks. This shift can be viewed as ironic in light of the failure of these bodies in the run-up to the crisis.

The absence of a focus on market discipline is particularly apparent in Europe. A few examples of regulation that could weaken the responsiveness of banks to market signals are short selling constraints, executive compensation policies and the inability to come to agreement on Structured Early Intervention and Restructuring and insolvency procedures. Expansion of deposit insurance schemes may reduce incentives to manage risk properly. There is also a danger that intentions to address the “Too Big To Fail” issue are more lip service than reality since increased regulatory complexity provides relatively large financial institutions with a competitive advantage.

It is not a controversial statement that market discipline on major financial institutions in the US and Europe failed in the run up to the 2007-2009 financial crisis and contributed to the depth of the crisis. A much harder question is why market discipline failed and what legal and regulatory reforms could improve market discipline in the future.

An important role of financial markets is to provide incentives for

investors to acquire and analyze information and for issuers of securities to disclose and signal relevant information. Most information production is costly and it affects the informativeness of securities prices with respect to risk-taking and factors influencing values¹⁷.

One puzzle is to determine why markets did not seem to provide sufficient incentives for high quality institutions facing funding liquidity constraints to reveal information that enabled investors to identify their quality. Other questions are why financial institutions before the crisis issued opaque securities that required enormous investments of time and knowledge to evaluate, and why investors bought them.

Viewing financial markets as sources of incentives to produce information it is possible to identify factors that may have created the failure of information incentives. Explicit and implicit protection of creditors is clearly one such factor. Furthermore, incentives for creating opaqueness are strengthened in times of systemic stress by policy measures implemented to dampen the consequences of failures of financial institutions, as well as by the regulatory framework for capital adequacy. For example, the financial institution disclosing low risk might not obtain the same kinds of subsidies that distressed financial institutions receive. The capital adequacy framework commits resources of financial institutions to formally satisfy the supervisory principles for risk evaluation while at the same time taking risks that produce higher returns. Resources are drained from more effective economic risk evaluation and, as a result, the main objective of information revelation becomes to demonstrate abidance by the regulation.

To enhance market discipline in financial markets regulators, supervisors and governments must pay attention to effects of regulation and intervention on incentives for information production and acquisition. Disclosure rules without incentives to acquire, analyze, disclose and signal relevant information are likely to produce infor-

¹⁷ This view of financial markets is discussed in Angkinand, A.P., C. Wihlborg and T.D. Willett, "Market Discipline for Financial Institutions and Markets for Information" in Barth, J., L. Chen and C. Wihlborg (eds), *Handbook on Research in Banking and Governance*, Edward Elgar, forthcoming 2012.

mation that is nearly impossible to comprehend. Without appropriate information-incentives financial markets prices may reflect freely available information but not information that can be made available only at a cost. Taking into account costs of analyzing and comprehending available data it is likely that most important information is costly to some degree.

VI. Additional Issues and Concluding Remarks

We conclude by briefly going beyond what we covered in the preceding sections. The perspective is expanded to include a few remarks about the real economy aspects of the financial crisis of 2007 to 2009 and about the ongoing government debt crisis which is linked in some ways to the recent financial crisis. Finally, we provide concluding comments focusing on the role of the EU's particular institutional mixture of integration and diversity in crises and their resolution.

A. A brief look at the real-economy aspects of the crisis

The financial crisis of 2007 to 2009 clearly has had very strong effects on the real economy in Europe as well as worldwide. One immediate effect was that international trade, investment activity and in some countries also private consumption shrank dramatically. Some European countries such as heavily export-dependent Germany experienced unprecedented declines of GDP; in Germany GDP fell by 5 percent in 2009. Obviously, this contagion from the real economy also had a strong negative feedback effect on the situation of the financial industry destabilizing it still further.

National governments reacted strongly in most cases, and this led to a recovery of the respective national economies. For instance in Germany, the federal government swiftly introduced some cuts of taxes and social security contributions and extended the time span for which firms could draw on public subsidies to compensate for underemployment. This policy kept employment on a relatively high level and thereby had a mitigating effect on the drop of household consumption that would otherwise have been expected. One policy measure seems to have been particularly successful: the substantial

financial support for the buyers of new cars who traded in their old cars. Many other EU governments introduced similar measures to stabilize the real economy and thus indirectly also protected their banking systems.

The recovery began as early as the last quarter of 2009 and gained momentum in 2010. However, the exit from the crisis was not the same in different parts of Europe. The recovery was strongest in Germany and neighboring countries in the north of Europe except those on the British islands. In Great Britain and in southern Europe it was weaker and took more time to have any substantial effect on GDP and employment. One cannot exclude the possibility that this difference between countries was in some way related to the different structures of the countries' financial sectors, their corporate governance regimes and their traditional business philosophies. This is a topic that would merit closer scrutiny in academic research and that may also have a longer-term effect on EU economic and financial sector policies in so far as it might support efforts and political tendencies to strengthen institutional diversity in Europe, including that of national financial systems, as has been mandated in the Lisbon Treaty but has in the past hardly shaped EU financial sector policies.¹⁸

B. Turbulence in the euro-zone – the Government debt crisis

When the financial crisis seemed to be more or less over and the countries in Europe were recovering from its consequences another finance-related crisis broke out: the government debt crisis. The essence of this crisis was, and still is, the danger that in some countries on the periphery of Europe the level of government debt had increased so much in recent years that these countries seemed unable to maintain their solvency and possibly also to ever pay back their government debts. Growing fears about the ability of Greece, Ireland and Portugal and, to a lesser extent, Spain and Italy to repay their loans made it ever more difficult for these countries to raise new

¹⁸ See the plea for a greater reliance on diversity in Europe in two volumes by Rym Ayadi et al. entitled *Investigating Diversity in the Banking Sector in Europe*, Centre for European Policy Studies, Brussels, 2009 and 2010.

capital in order to refinance government debt coming due, and raised the interest rates for newly issued government debt. Thus, the typical crisis scenario set in: highly plausible fears caused these fears to become even stronger and more reasonable. All those countries named above are members of the euro-zone, and therefore the evident and massive problems of at least three of them to service their debts pose a serious problem for the entire euro-zone.

Although the nature of the government debt crisis is quite different from that of the first crisis, the two are linked in several ways. The first link is that the rescue efforts undertaken in response to the first crisis have placed a heavy burden on government budgets and thus contributed to the over-indebtedness of some countries, notably that of Ireland. Second, the financial crisis has weakened many banks in Europe causing concerns that the possible insolvency of one or even several sovereign borrowers might threaten the very existence of banks. And finally, the experience of the financial crisis has made supervisors as well as investors much more conscious of possible financial difficulties of some important market participants and shaped their behavior accordingly.

One important aspect of the government debt crisis in Europe is that, as members of the euro-zone, the countries that are most severely affected cannot resort to what may appear as normal reactions to such a situation. They cannot print additional money since they have given up their monetary autonomy, and they cannot devalue their currencies in order to regain competitiveness. Thus the crisis is closely connected to the institutional features of the euro-zone. In the Maastricht Treaty, exit from the euro-zone is not foreseen, and it is even questionable whether a member country can unilaterally abandon the common currency. Thus the debt crisis of some countries threatens the existence and the coherence of the monetary union as a whole.

Since the spring of 2010 the debt problems of some European countries have become apparent. At several levels the search for a solution to the problems started. Policy makers initiated rescue packages to safeguard the solvency of the problem countries. The ECB tried

to calm unrest in the markets by buying government debt of these countries, a move that was severely criticized by some ECB board members and policy makers in some countries as being incompatible with the original mandate of the ECB and a threat to its independence. However, what the ECB has started to do are emergency measures that could be regarded as inevitable since there was at that time no European institution in place that would have been in the position to buy government debt in order to stabilize the markets.

For much too long, policy makers from different countries disagreed on what had caused the debt crisis in the first place, how serious it was, in what would constitute a solution to the debt crisis and what measures would have to be taken in order to achieve a solution. Of course, in some way “Europe” was called upon to act, but even if there had been agreement on the diagnosis and the cure, it would not at all have been clear which institution would have the mandate and the means to act, and in what way it would have had to act. Was the EU called upon to act, or the ECB or “the euro-zone” – whatever this might be as an institution - or the group of euro-zone countries? This is not the place to describe how the European government debt crisis developed over time, how the political debates raged, what measures were taken so far and how one can at least conceive of a consistent strategy of solving the problems in a strategic way.¹⁹ Suffice it to say that, at least in retrospect, the disagreements among the responsible decision makers were much too strong, the lack of decisive action lasted much too long, and the institutional inadequacy of “Europe” was, and possibly still is, much too serious. At least so far, Europe as an overly complex political entity does not deserve a good mark for how it handled the crisis both in the short-term sense of immediate crisis management and in the longer-term sense of providing adequate structural responses. Such structural responses can consist of better and more powerful centralized or harmonized institutions that could prevent such a crisis from occurring in the first place and permit fast and adequate responses to contain and end it. The road to more centralization of, for example, fiscal powers and

¹⁹ At their international meeting in October 2011, the Shadow Financial Regulatory Committees of Asia, Australia, Japan, Latin America, Europe and the United States have issued a joint statement which describes a possible strategy to overcome the European debt crisis. See www.esfrc.eu.

greater structural and institutional harmonization is fraught with political problems caused by popular resistance in individual member countries to relinquish sovereignty in important policy dimensions.

C. Concluding Remarks

The financial crisis of 2007 to 2009 and the ongoing European debt crisis serve as tests of how valuable and how dangerous the diversity and complexity of Europe as a political and economic entity is. A high degree of diversity may have been a reason why the financial crisis did not do too much damage in the first place. With less diversity, the crisis may have spread even faster and there may have been more contagion between the different countries and their financial systems.

The financial crisis was also a first test of how well the European political and financial system functions under stress. Were diversity and complexity factors that stood in the way of efficient and effective crisis management and appropriate structural responses? It is not easy to answer this question in a simple way. As mentioned above, intra-European cooperation during the financial crisis was not in all respects satisfactory. Coordination problems arose in the case of the imminent failure of some large banks that would have required a much closer and more effective coordination between the supervisory authorities and the governments of France, Belgium and the Netherlands, and behind closed doors there were many more problems resulting from divergent views and national interests. However, by and large diversity and complexity did not preclude a relatively well coordinated and consistent reaction to the crisis at the time it really reached its peak, that is, in the fall of 2008.

But the financial crisis has also taught the lesson that there were serious institutional deficiencies. The distribution of responsibilities for supervising banks that operate in different countries, and for supporting or resolving them in case of distress, had to be reconsidered and revised. At least to some extent, the EU has faced this challenge and made some progress towards a new institutional structure that might enable it to better deal with the next financial crisis that in

some sense resembles that of 2007 to 2009. Thus, diversity and complexity do not seem to have prevented substantial progress in the ability to reduce the probability and the severity of future financial crises.

In the debt crisis, the assessment can, as of today, not be equally positive. The cause of the debt crisis can be seen in the high level of diversity between the different European countries and the inadequacy of the overly complex and at the same time weak institutional and political structures in Europe. These two do not match: especially when the members of some union are vastly different in some important respects, the coherence and the stability of the union can only be safeguarded if the central institutions are simple, transparent and powerful while retaining a high degree of legitimacy across the Union.

The immediate response to the outbreak of debt crisis has been poor by all standards. Policymakers and existing institutions have not been up to the task of dealing with the crisis-related problems as they arose. It seems that too much diversity – between countries as well as between different institutions and policy arenas – and too much complexity may have prevented a more effective and more efficient crisis management. And what has occurred at the height of the debt crisis does not bode well for the next task, i.e. that of overhauling the institutional structures in Europe and of making it less complex and more effective. It may well be that institutional complexity is not a virtue but a negative side effect of “excessive” diversity. The verdict is still open.

Appendix: About the work of the European Shadow Financial Regulatory Committee

The European Shadow Financial Regulatory Committee (ESFRC) has published statements since June 1998 commenting on financial reforms in Europe and made proposals for reforms with the objective of increasing financial stability. The statements can be downloaded from the committee's website www.esfrc.eu. The following themes have been prominent in the statements of the ESFRC:

- (i) The Capital Adequacy Framework laid out in Basel II and III needs to be simplified, less subject to “regulatory capture” by financial institutions, and aim to enhance market discipline.
- (ii) Capital requirements need to be higher than those proposed in Basel II and III.
- (iii) Capital requirements should focus on a relatively simple leverage ratio.
- (iv) Capital requirements should be varied across financial institutions in proportion to their systemic importance.
- (v) Mandatory structured early intervention and restructuring (or prompt corrective action) at trigger capital ratios should be implemented in order to enhance financial stability and the buffer role of capital.
- (vi) *Lex specialis* specifying insolvency and closure procedures for financial institutions is needed with the objective of enhancing market discipline and reducing the systemic consequences of a bank's failure.
- (vii) Responsibilities within the EU with respect to deposit insurance, lender of last resort and supervision need to be clarified. “Constructive ambiguity” turns out to be counterproductive in times of financial distress.

Some of these proposals were met by great skepticism among regulators and supervisors in Europe at the time they were presented but all of them have come to the top of the reform agenda in the wake of the financial crisis. Some of the proposals have become part of recent reforms and others are being debated as shown in this paper.

4 Lessons from Japan's Shadow Financial Regulatory Committee

Japan in the Global Financial Crisis*

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Abstract

The financial crisis that started with the subprime loan crisis in the U.S. quickly spread to the rest of the world seriously impacting the

* This paper was prepared for the Joint Shadow Regulatory Committee Meeting at Washington DC in October 2011. A previous version of this paper was presented at Development Bank of Japan, Research Institute of Capital Formation, 22 September 2011. We thank seminar participants at the DBJ seminar for their comments. We also thank Yukio Egawa for information on securitization. The views expressed in the paper are those of the authors and do not necessarily represent those of Ministry of Finance.

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global economy. The Japanese economy also suffered especially from the decline of demand for its exports, but its financial system apparently escaped the damage. This chapter identifies five factors that contributed to Japan's financial stability: (1) expectation of yen appreciation, (2) improved financial supervision, (3) nature of funding in the market for securitized products, (4) absence of housing bubbles, and (5) ample public liquidity created by the Bank of Japan. The chapter also points out that Japan's financial stability is now jeopardized by the government policies in the aftermath of the crisis. The paper concludes by deriving several lessons for policy makers from the Japanese experience with the global financial crisis.

1. Introduction

The financial crisis that started with the subprime loan crisis in the U.S. has spread to the rest of the world and led to a global recession. The direct impacts on the Japanese financial institutions were limited, because Japanese banks did not have much exposure to the subprime-related securitized products. Nonetheless, the real sector suffered from the steep decline of external demand. The declines in GDP and stock prices following the global financial crisis were large for Japan. To save the sinking economy, the government expanded fiscal policy, as many other advanced economies did. Monetary policy was also loosened (again). The Financial Services Agency (FSA) relaxed the regulatory supervision to avoid credit crunch and encouraged banks to support small and medium enterprises in financial distress.

This chapter studies the Japanese experience of the global financial crisis and derives some lessons that policy makers can learn. Section 2 starts out by examining how the global financial crisis affected the Japanese financial system and the economy. We find that the Japanese financial system was not harmed very much directly by the crisis but the Japanese economy suffered a lot. Section 3 explores the reasons why Japan was able to maintain financial stability during the global crisis. Section 4 discusses the policies implemented by the government, the central bank, and the financial authority to respond to the recession caused by the global financial crisis, and argues these

responses has done more harm to the financial system than the global financial crisis. Section 5 concludes by pointing out several lessons that one can learn from the Japanese experience.

2. Impacts of the global financial crisis to Japan

2-1. Loss of value of securitized financial products held by banks

Japanese banks did not suffer large losses from securitized products unlike their counterparts in the U.S. and Europe. Table 2-1 shows that Japanese banks lost \$31 billion during the 2007-09 time period. This amount is much smaller than the loss reported by the US banks (\$709 billion) and European banks (\$847 billion).

Table 2-1: Losses caused by the subprime loan crisis

(unit: billion dollar)

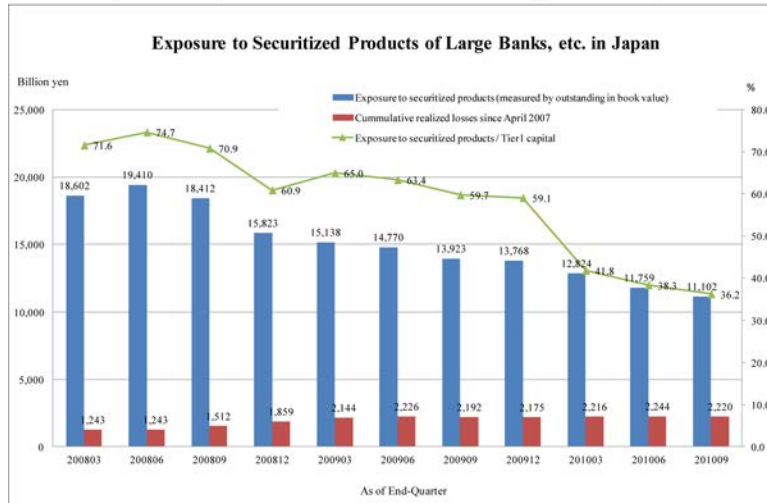
	Confirmed loss and reserve on disposal (2007:Q2-2010:Q2)	Estimated loss and reserve on disposal(2010:Q3-Q4)
Japan	31	n.a.
US	709	169
UK	375	56
EU countries	472	158
Europe except EU	82	74
Asia	23	92

Source: Oyama (2011)

Note: Japanese losses and reserves are based on interviews, others are estimates by the IMF

Figure 2-1 and Figure 2-2 report the exposure of Japanese banks to all kinds of securitized products, which include collateralized loan obligations (CLO), collateralized debt obligations (CDO), residential mortgage backed securities (RMBS), commercial mortgage backed securities (CMBS), and leveraged loans. Figure 2-1 shows that as of March 2008, total outstanding securitized products held by large Japanese banks was 18,602 billion yen in book value, which amounted to 71.6% of Tier 1 capital. Figure 2-2 shows that, compared to large banks, exposure of regional banks was small: only 1,897 billion yen or 14.7% of Tier 1 capital. The tables also report the cumulative losses banks incurred from these securities as of March 2010: 2,200 billion yen for large banks and 211 billion yen for regional banks, respectively.

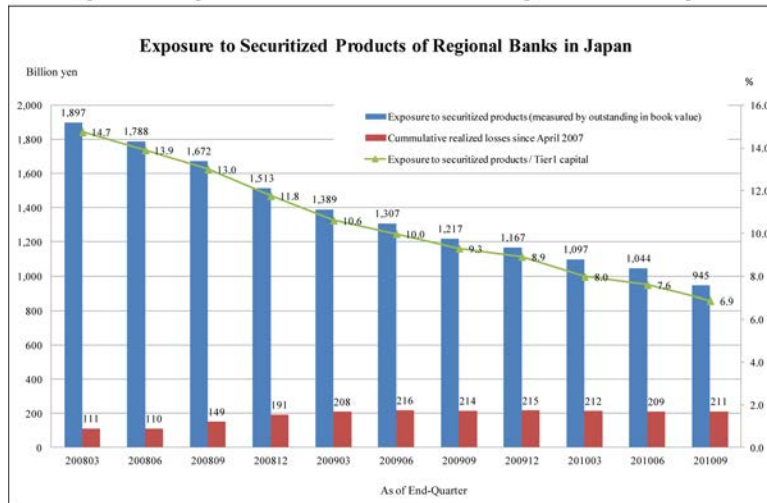
Figure 2-1. Exposure to Securitized Products of Large Banks in Japan



Source: Financial Services Agency "Exposures of subprime-related products ,etc" (<http://www.fsa.go.jp/en/regulated/subprime/index.html>)

Note 1: "Major Banks, etc" include major banks (Mizuho Bank, Mizuho Corporate Bank, Mizuho Trust Bank, Bank of Tokyo-Mitsubishi UFJ, Mitsubishi UFJ Trust Bank, Sumitomo Mitsui Banking Corporation, Resona Bank, Chuo-Mitsui Trust Bank, and Sumitomo Trust Bank), Norinchukin Bank, Shinsei Bank, Aozora Bank, Citibank Japan, banks of new type, foreign trust banks and others.

Figure 2-2. Exposure to Securitized Products of Regional Banks in Japan

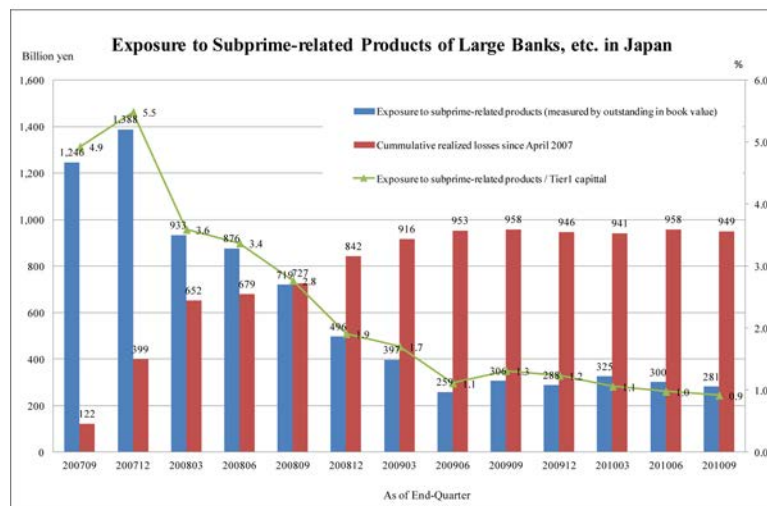


Source: Financial Services Agency "Exposures of subprime-related products ,etc" (<http://www.fsa.go.jp/en/regulated/subprime/index.html>)

Note 1: "Subprime-related products" are asset-backed securities (ABSs) backed by subprime loans or collateralized debt obligations (CDOs) and other financial products referencing these ABSs. The above figures do not include the exposures to subprime-related products through investment trusts.

The losses were small mainly because Japanese banks did not have much exposure to the type of the securitized products that lost values most in the global financial crisis: products that include subprime mortgages and its derivatives such as credit default swaps (CDS) arranged by U.S. financial institutions. Figure 2-3 shows the large banks held only 1,388 billion yen (5.5% of Tier 1 capital) of subprime related securitized products even at the peak in December 2007. Figure 2-4 shows that the regional banks held 115 billion yen (0.9% of Tier 1 capital) at most.

Figure 2-3. Exposure to Subprime-related Products of Large Banks in Japan



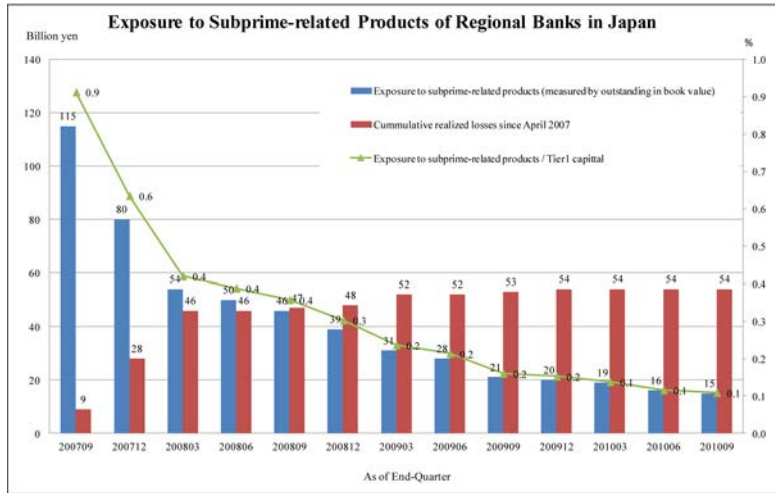
Source: Financial Services Agency "Exposures of subprime-related products .etc" (<http://www.fsa.go.jp/en/regulated/subprime/index.html>)

Note 1: "Major Banks, etc." include major banks (Mizuho Bank, Mizuho Corporate Bank, Mizuho Trust Bank, Bank of Tokyo-Mitsubishi UFJ, Mitsubishi UFJ Trust Bank, Sumitomo Mitsui Banking Corporation, Resona Bank, Chuo-Mitsui Trust Bank, and Sumitomo Trust Bank), Norinchukin Bank, Shinsei Bank, Aozora Bank, Citibank Japan, banks of new type, foreign trust banks and others.

Note 2: "Subprime-related products" are asset-backed securities (ABSs) backed by subprime loans or collateralized debt obligations (CDOs) and other financial products referencing these ABSs. The above figures do not include the exposures to subprime-related products through investment trusts.

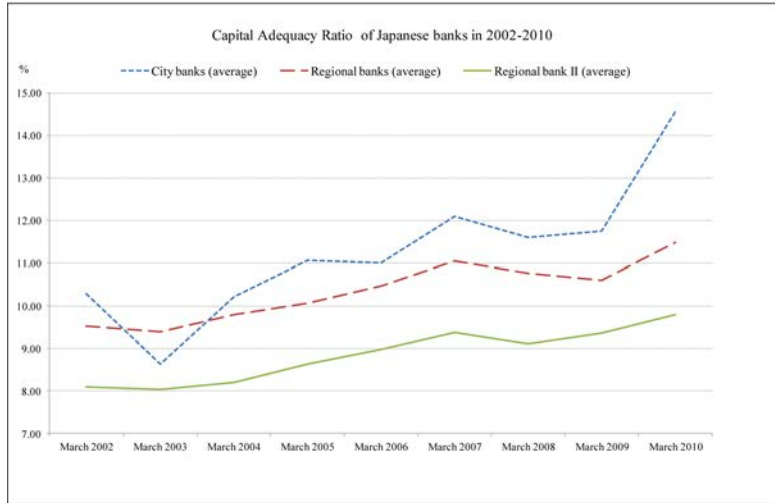
In short, compared with banks in the U.S. and Europe, the losses that Japanese banks sustained from holding securitized products were small. Capital ratios for Japanese banks did not show any significant decline during the financial crisis, as Figure 2-5 shows. Though the FSA changed the way of calculating risk weighted assets to reduce the reported amounts of risk weighted assets (as we discuss later), the banks would not have been able to avoid significant loss of capital if they had suffered large losses from the securitized products.

Figure 2-4. Exposure to Subprime-related Products of Regional Banks in Japan



Source: Financial Services Agency "Exposures of subprime-related products ,etc" (<http://www.fsa.go.jp/en/regulated/subprime/index.html>)
Note 1: "Subprime-related products" are asset-backed securities (ABSs) backed by subprime loans or collateralized debt obligations (CDOs) and other financial products referencing these ABSs. The above figures do not include the exposures to subprime-related products through investment trusts.

Figure 2-5. Capital Adequacy Ratio of Japanese Banks in 2002-2010

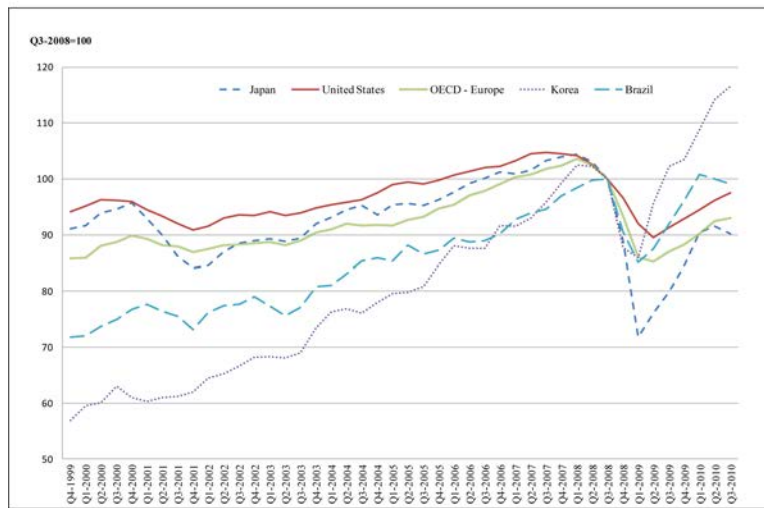


Source: Bankers Association of Japan, "Ratios related to Management by Bank" (http://www.zenginkyo.or.jp/stats/year2_02/details/account2008_terminal/index.html)

2-2. Collapse of Trade and Recession

Although Japanese financial institutions did not suffer from the global financial crisis very much, the economy did. Indeed the Japanese economy suffered even more than the U.S. and European economies. Quarterly real GDP decreased by 3% (11.6% at an annual rate) and 4.8% (18.0%) in the third quarter and the fourth quarter of 2008, respectively. As Figures 2-6 and 2-7 show, Japan's industrial production and real GDP dropped more than in any other country.

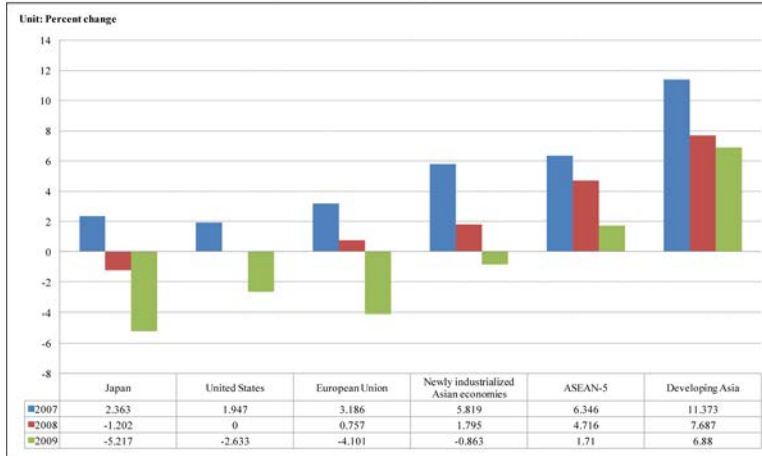
Figure 2-6. Indices of industrial production



Source: OECD Stat.
 Note: Data comprise Indices of industrial production (IIP) for total industry, manufacturing, energy and crude petroleum.

Why did the Japanese economy suffer so much while the financial system was largely unharmed? The most important reason was the decline of exports to the countries that were directly hit by the financial crisis. Figure 2-8, which plots the quarterly growth of main expenditure components of GDP, shows that the export fell by as much as 25% in the first quarter of 2009. The main cause for the decline was reduced demand from foreign countries that suffered from the crisis. The collapse of the import demand for durable goods was especially stark as the corporations and consumers abroad postponed expenditures on these items due to the increased uncertainty generated by the crisis.

Figure 2-7. GDP growth rates

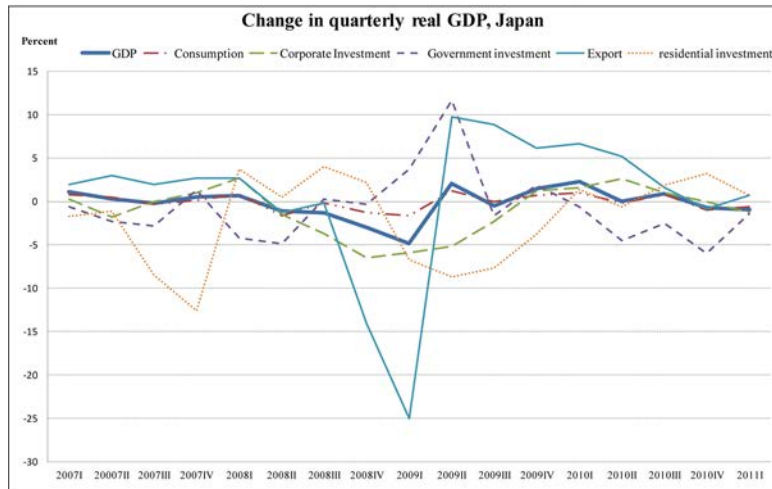


Source: IMF, World Economic Outlook Database, October 2010.

Notes:

1. Gross domestic product, constant prices (National currency).
2. Newly industrialized Asian economies are composed of 4 countries: Hong Kong SAR, Korea, Singapore, and Taiwan Province of China.
3. ASEAN-5 are composed of 5 countries: Indonesia, Malaysia, Philippines, Thailand, and Vietnam.
4. Developing Asia are composed of 26 countries: Republic of Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Fiji, India, Indonesia, Kiribati, Lao People's Democratic Republic, Malaysia, Maldives, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Samoa, Solomon Islands, Sri Lanka, Thailand, Democratic Republic of Timor-Leste, Tonga, Vanuatu, and Vietnam.

Figure 2-8. Change in quarterly real GDP: Japan.



The appreciation of the yen added to the problem, though the size of appreciation was modest, at no more than 10% during the first month after the bankruptcy of Lehman Brothers, as shown in Figure 2-9.¹ In addition, due to the contraction in trade credit, firms in importing countries (e.g., Asian countries) may have run out of US dollars required for the settlement of imports from Japan, which may have also led to the decline in Japan's exports².

Given the contraction in GDP, it is not surprising that Japanese stock prices also fell. Figure 2-10 shows that Japan's stock market lost at least as much as the stock markets in the US, Euro, and Asia. As Hosono et al. (2011) show, the main culprit was again the collapse of exports. Their study compares the stock market performances of firms with different characteristics.³ As a stock market performance measure, they show the cumulative return⁴ from the day of the bankruptcy filing of Lehman Brothers and the day before the U.S. Treasury announced that they planned to use the TARP money to inject capital into large banks.

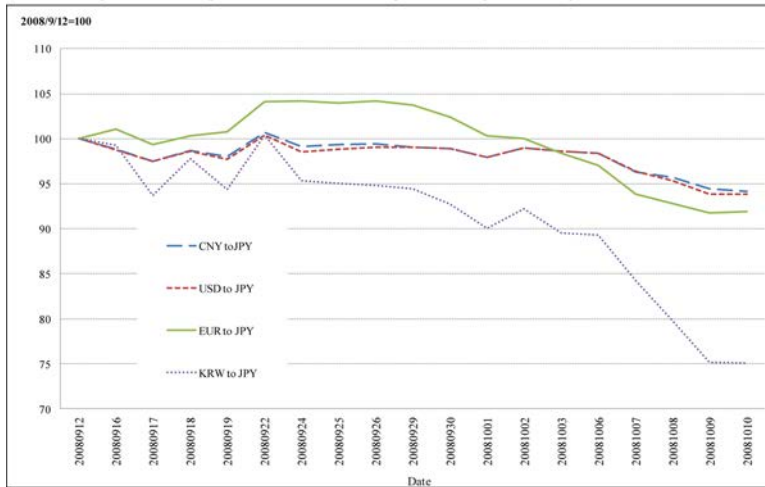
1 A notable exception is the exchange rate against Korean Won. Japanese Yen appreciated by 25% against Korean Won.

2 Ito, et.al (2010) report that almost half of Japanese exports, even in exports to Asian countries, was invoiced and settled in US dollar in the late 2000s. Though we have no direct evidence that the contraction of trade credit caused the decline in Japan's exports, Eaton et al. (2011) show that trade frictions significantly contributed to the decline in trade in Japan. The contraction in trade credit is a candidate of trade frictions during financial crises (Amiti and Weinstein, 2010; Manova, 2009).

3 For the stock return, they use Stock Price CD-ROM published by Toyo Keizai Shimpou-sha. Financial statements are obtained from NEEDS-CGES published by Nikkei Media Marketing and Corporate Financial Databank published by Development Bank of Japan. Information on firm activities, including exports, is obtained from Basic Survey of Japanese Business Structures and Activities (BSJBSA), published by Ministry of Economy, Trade, and Industry. The number of the stock return data we can obtain from Stock Price CD-ROM is 3215. After the stock return data is linked to the BSJBSA and Corporate Financial Databank to get information about firms' exports and financial statements, the size of the sample becomes 1841. The firm characteristics variables are as of the pre-crisis period, typically March 2008.

4 Hosono, et al. (2011) analyze the cumulative abnormal returns (CAR) as well, which is market-risk adjusted unlike CR.

Figure 2-9. Japanese Yen exchange rates against major currencies.



Source: oanda.com

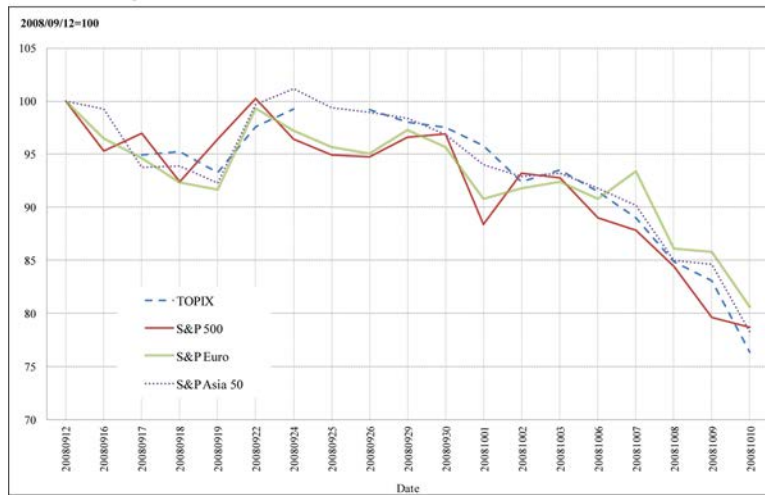
Notes:

1. Rates in home currency (inter-bank rates)

2. JPY, CNY, USD, EUR and KRW represent Japanese Yen, Chinese Yuan, U.S. Dollar, EURO and South Korean Won, respectively.

[KOI: We better replace Figure 2-8 to figure using Japan's effective exchange rate.]

Figure 2-10. TOPIX, S&P 500, S&P Euro, and S&P Asia 50.

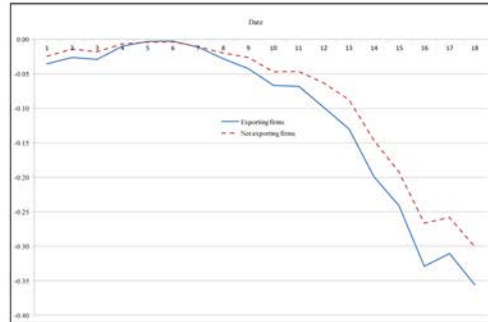


Source: Standard & Poor's

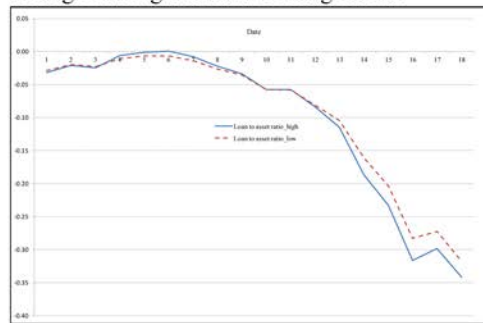
Figure 2-11A shows the cumulative returns of exporting firms and non-exporting firms.

Figure 2-11. Cumulative stock returns of Japanese firms

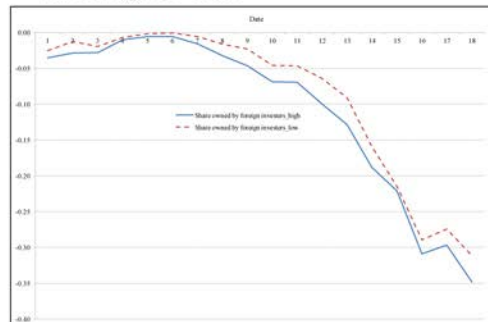
A. Exporting firms and Non-exporting firms



B. High leverage and low leverage firms



C. Firms with high foreigners' share and firms with low foreigners' share

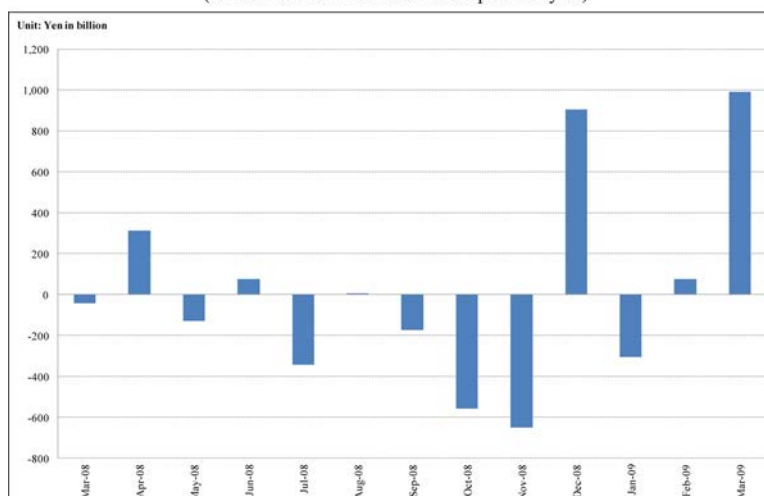


Note: Date 1, date 10, and date 18 are September 16, September 30, and October 10, 2008, respectively.
Source: Hosono et al. (2011).

Exporting firms performed worse than non-exporting firms, suggesting that the global crisis affected the values of Japanese companies through the decline in export demand.

In Figure 2-11B, the sample firms are divided based on the loan-to-asset ratio. It shows that high leverage firms performed worse than low leverage firms, suggesting that market participants worried about a potential credit crunch. The threat of credit crunch was real in late 2008 and early 2009. Figures 2-12 and 2-13 show the number of firms that temporarily faced difficulties in issuing corporate bonds and commercial papers (CPs)⁵. Figure 2-11C compares the cumulative returns of firms with different degrees of foreign ownership. It shows that firms owned more by foreign investors performed worse, suggesting that foreign investors who faced a liquidity shortage may have sold their holding of Japanese stocks⁶.

Figure 2-12. Amounts of corporate bonds issued in Japan
(Differences from the month of the previous year)



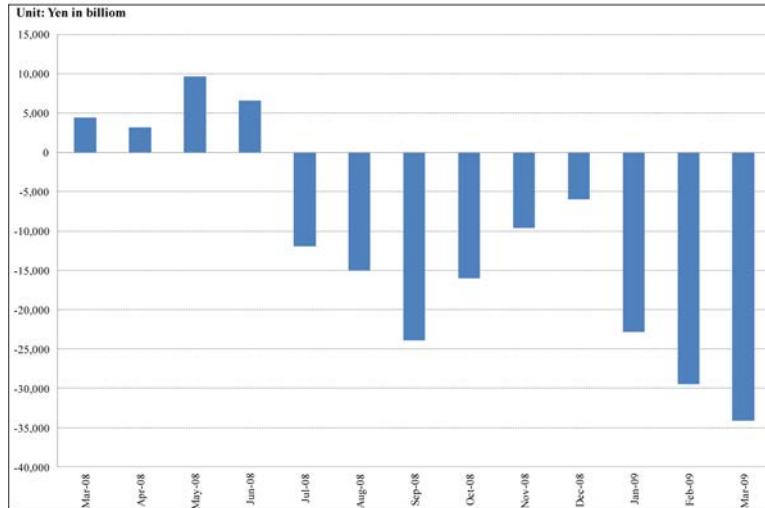
Source: Japan Securities Dealers Association

The funding difficulty that Japanese companies faced in the bond and CP markets, however, did not develop into a full blown credit crunch. As the companies lost funding in the market, the banks

⁵ Uchino (2011) analyzes impacts of turbulence of Japanese corporate bond market during 2008 on the funding patterns of large Japanese companies.

⁶ Hosono, et al. (2011) reports these differences are all statistically significant at the 1% level.

Figure 2-13. Amounts of commercial papers outstanding in Japan
(Differences from the month of the previous year)



Source: Bank of Japan
Note: Outstanding amounts of commercial paper underwritten by Banks.

stepped in and increased the loans. Figure 2-14 shows that bank loans for large manufacturers, which used bond and CP financing more, steeply increased after the bankruptcy of Lehman Brothers in September 2008. The increase in the bank loans resulted from an increase in new loans. This is a sharp contrast to the US, where the observed increase in the loans outstanding mostly comes from the draw downs of credit lines as Ivashina and Scharfstein (2010) showed. The provisions of new loans declined sharply in the U.S., causing a serious credit crunch. In Japan, the increase in the loans outstanding mostly came from the new loans. Figure 2-15 shows the number of customers who use commitment lines and the outstanding amount of commitment lines that has been drawn down in Japan. The outstanding amount of credit lines that has been drawn down increased by just 0.302 trillion yen during the period from the end of August 2008 to the end of March 2009, but in the same period, the total loans outstanding of Japanese domestic banks increased by 18 trillion yen. Expansionary monetary policy, including the money market operation to facilitate corporate financing announced on December 2, 2008, may also have contributed to avoid the credit crunch.

Figure 2-14. Loans originated by Japanese domestic banks
(average monthly balance)

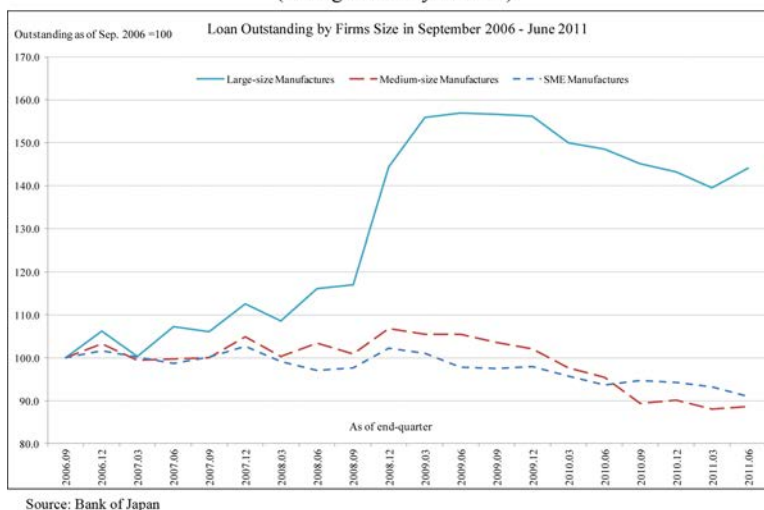
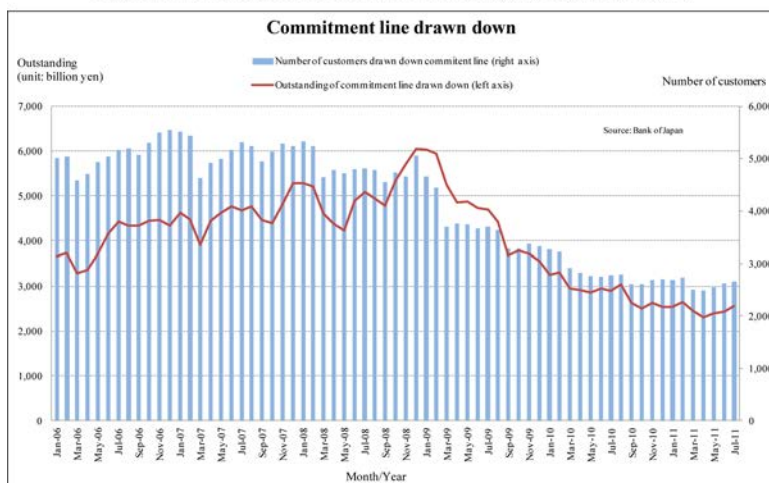


Figure 2-15. Commitment line draw downs by Japanese borrowers



Note: The figure is based on data of total amount of commitment lines extended by Japanese banks including city banks, trust banks, Saitama-Risona bank, Shinsei bank, Aozora Bank, Regional bank I and Regional bank II.

3. Why did Japan remain financially stable (so far)?

Despite the real difficulties experienced in the economy after the crisis, the Japanese financial system did not suffer very much. An obvi-

ous reason is that Japanese financial institutions did not have much exposure to toxic assets produced in the U.S. This does not mean that Japan was immune to problems in securitization per se. In fact, Japan also has had a growing market for securitized products, which looked similar to those in the U.S. at least on the surface. The U.S. financial crisis could have spread to Japan by undermining the burgeoning market for securitization. This section examines the reasons why Japanese financial institutions did not have much exposure to the toxic assets and why Japan's own market for securitized products did not collapse.

Five reasons are central. First, the expectation for the yen appreciation made Japanese banks reluctant to buy the financial products denominated in dollar. Second, Japanese financial regulators stepped up prudential regulation in the mid-2000s after a prolonged financial crisis that dated back at least to the mid-1990s. Third, the funding pattern of securitized products in Japan was quite different from that of the U.S. Fourth, Japan did not experience a housing bubble. Finally, the nature of liquidity in the Japanese financial markets was different from that in the U.S.

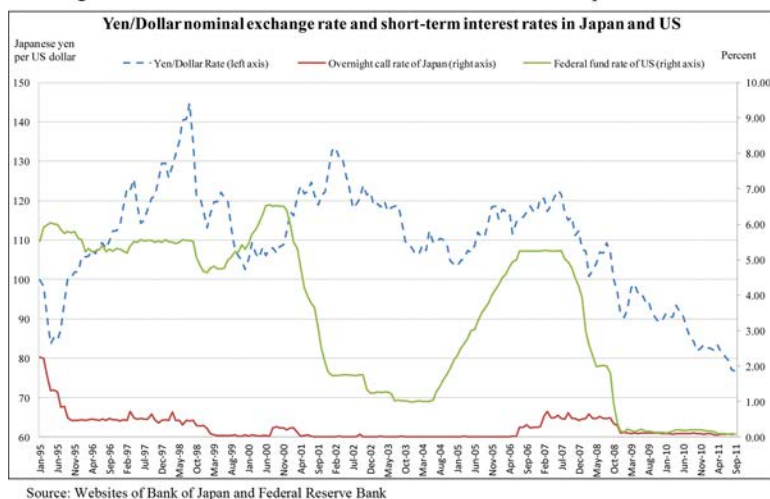
3-1. Expectation of Yen Appreciation

One reason why Japanese banks were reluctant in holding securitized products originated by foreign institutions or foreign securities in general lies in the exchange rate risk of holding such instruments. For more than two decades, the Japanese yen has been more likely to appreciate against the U.S. dollar. This experience seems to have led many Japanese banks to find investment in foreign securities unattractive. Even with the substantial interest rate gap between the U.S. and Japan, many financial institutions limited their exposure to foreign securities. They were generally averse to the yen carry trade.

When securitized products originated in the U.S. were sold to the rest of the world in the mid-2000s, however, the Japanese yen was actually depreciating against the U.S. dollar. Figure 3-1 shows the yen dollar exchange rate as well as the short-term rates for both the US and Japan. As of 2004, while the BOJ kept monetary easing, the US

changed the stance of monetary policy by raising the federal funds rate. The interest-rate gap suggests that investors had the expectation for the appreciation of the Japanese yen. Domestic investors expected the Japanese yen to appreciate and to incur capital losses from holding dollar-dominated security products.

Figure 3-1. Yen/Dollar rate and short-term interest rates in Japan and the US



3-2. Improved Prudential Regulation in the 2000s

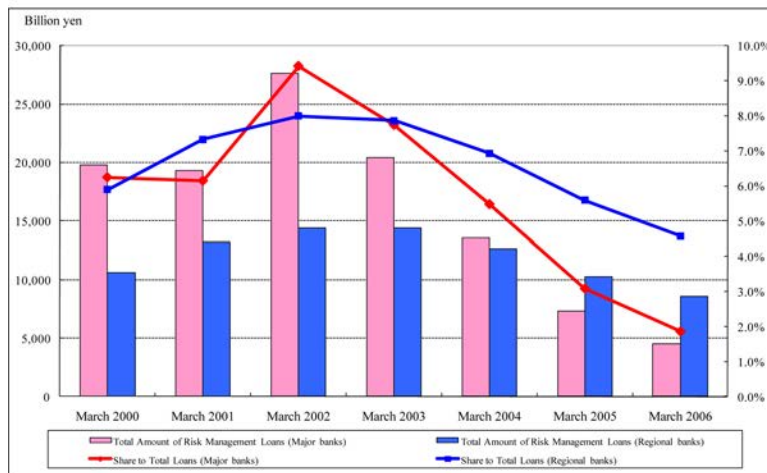
In the mid-2000s, the Japanese financial system was finally recovering from the domestic financial crisis that started in the 1990s. The Japanese government finally decided that nonperforming loans needed to be removed once and for all from the financial system. The financial regulators forced the major banks to get rid of the non-performing loans. Thus, when many U.S. and European banks started to invest in high yield securitized products, Japanese banks did not have an appetite for those risky investments.

At the end of November 2002, the FSA released the detailed schedule for reducing the non-performing loans to less than a half by the end of March 2005. The schedule consisted of three parts. First, the government requested banks to disclose the amount of nonperforming loans on a much stricter standard than before. Second, the government stopped a policy that allowed banks to engage in account-

ing discretion for meeting minimum capital requirements. Third, the government introduced a scheme for injecting public funds into weak but solvent banks in order to prevent a possible financial crisis (New Deposit Insurance Act, Article 102(1)).

Figure 3-2 illustrates the disclosed amount of nonperforming loans as a proportion of total loans outstanding for all banks. The figure shows a rapid decline of non-performing loans from 2002 to 2005. Although this used to be suspect, by 2004 the number was considered credible, because the FSA inspected all the major banks and checked the consistency between the bank's assessment and the FSA's own assessment. For example, at the end of September 2001 the total amounts of nonperforming loans according to the bank disclosures and the FSA inspection were 34 trillion yen and 47 trillion yen, respectively, with the gap being 35 percent. At the end of March 2004, however, those figures were 34 trillion yen and 36 trillion yen,

Figure 3-2. Non-performing loans in Japan



Source: Financial Supervisory Agency (<http://www.fsa.go.jp/>)

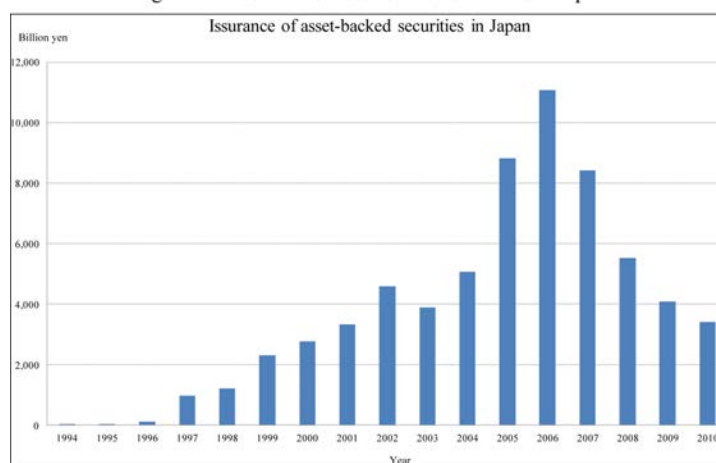
3-3. Japanese Market for Securitization

Japan also had growing markets for securitized products and Japanese financial institutions often invested in those products. Unlike the U.S., however, the securitized products in the Japanese market

did not experience fire sales and sharp price declines.

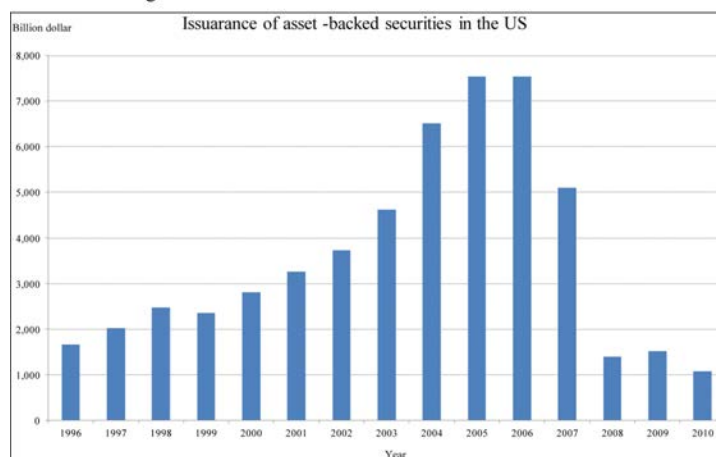
Figure 3-3 shows the amount of asset-backed securities issued in Japan. The Japanese securitization market started in 1994 but by 2006 new issued reached nearly 11 trillion yen, which exceeded straight corporate bond issues in the same year. Figure 3-4 shows the issuance of the asset-backed securities in the US. Comparing Figure 3-3 to Figure 3-4, we see the size of the Japanese market for securitization was about one ninth of the US market at its peak in 2006.

Figure 3-3. Issuance of asset-backed securities in Japan



Note) CDOs composed only of foreign assets and mortgages are not included in the figure.

Figure 3-4. Issuance of asset-backed securities in the US



The most important difference between the Japanese market for securitization and the U.S. counterpart is funding. Japanese banks use funds raised in the form of retail deposits to invest in bonds such as Japanese government bonds and securitized products as well as lending. This is in contrast to the U.S. where investment in securitized products was financed mostly by short-term liabilities such as repos.

Table 3-1 compares the bank funding of Japan, the US and the Eurozone. More than 70% of liabilities of Japanese banks comes from deposits while the proportions of deposits are 50-60% for the US and European banks. The proportion of wholesale debt funding for Japanese banks is less than 15%, but it is nearly 30% for the US and European banks.

Table 3-1. Bank Liability Structure of Japan, US and Eurozone

Bank Liability Structure of Japan, US and Eurozone									
Fiscal Year	Japan			United States			Euro Area		
	Deposits	Market Funds		Deposits	Market Funds		Deposits	Market Funds	
		Due to Other Financial	Wholesale Debt		Due to Other Financial	Wholesale Debt		Due to Other Financial	Wholesale Debt
2007	77.5%	10.6%	11.9%	54.4%	14.7%	30.8%	51.1%	19.7%	29.3%
2008	76.7%	9.4%	14.0%	60.2%	10.2%	29.7%	52.8%	19.5%	27.7%
2009	77.0%	10.0%	12.9%	61.7%	12.5%	25.8%	55.1%	16.9%	28.0%
2010	74.3%	12.9%	12.8%	61.8%	12.5%	25.7%	54.6%	17.4%	28.1%

Source: www.moodys.com

In the U.S., many banks financed their investment and trades in securitized products by raising short-term funds through repos using the securities as collateral. When the value of those securities became volatile, the banks had difficulty raising funds through continued repo transactions and were forced instead to fire sale some securities. The fire sale further depressed the value of collateral and intensified the liquidity crisis. Since Japanese banks used deposits that are much more stable than the short-term liabilities such as repos, the Japanese market for securitized products never experienced the downward vicious cycle experienced in the United States.

Table 3-2(A) and (B) show asset-backed securities issuance by class of asset in the US and Japan, respectively. Residential mortgage-backed securities (RMBS) were the most popular securitized assets in 2006, when more than half of securities were RMBS. The market shrank somewhat by 2010, but still the majority issued were RMBS. In contrast, US market for securities backed by home equity loans almost disappeared after the turmoil in 2007.

Table 3-2. US and Japan's asset-backed securities issuance by asset

(A) U.S. Asset-Backed Securities Issuance (Share to total issuance by asset class, %)

Year	Auto	Credit Cards	Equipment	Home Equity	Manufactured Housing	Other	Student Loans
1996	19.92	29.23	7.43	21.68	4.87	12.04	4.83
1997	18.03	20.08	4.12	32.53	4.74	14.28	6.22
1998	15.99	17.43	4.10	33.97	4.81	19.55	4.14
1999	18.21	17.23	5.31	31.69	6.36	16.51	4.70
2000	23.97	20.30	4.07	26.43	4.01	14.62	6.59
2001	21.51	21.04	2.61	34.40	2.19	13.69	4.56
2002	23.74	18.81	1.72	40.32	1.24	6.75	7.42
2003	16.46	14.46	2.05	49.63	0.09	8.00	9.32
2004	10.27	8.25	1.30	65.24	0.06	7.52	7.37
2005	11.27	9.00	1.39	61.11	0.06	8.77	8.39
2006	10.87	8.87	1.16	64.19	0.03	5.97	8.90
2007	14.54	19.53	1.13	42.55	0.08	10.13	12.04
2008	25.93	42.34	2.20	2.74	0.22	6.36	20.22
2009	41.58	30.54	5.07	1.37	0.00	6.79	14.64
2010	53.82	6.92	7.09	3.26	0.00	12.42	16.48

Source: Securities Industry and Financial Markets Association

(B) Japanese Asset-Backed Securities Issuance (Share to total issuance by asset class, %)

Year	Equipment Leases	Credit Receivables	Consumer Loans	Mortgages	Real Estate	CDO	Others
1994	49.66	50.34	0.00	0.00	0.00	0.00	0.00
1995	0.00	0.00	0.00	0.00	0.00	47.69	52.31
1996	18.02	27.03	0.00	0.00	12.34	22.07	20.54
1997	20.69	12.09	0.78	3.31	3.49	50.95	8.69
1998	28.01	23.46	1.80	0.00	4.95	36.04	5.73
1999	26.12	28.67	4.40	2.31	12.04	23.41	3.06
2000	23.33	16.62	2.50	15.84	20.99	4.56	16.16
2001	25.05	16.71	15.81	14.50	18.02	7.01	2.90
2002	20.28	10.86	12.13	22.32	12.85	15.30	6.26
2003	16.24	16.75	8.83	22.95	14.28	18.04	2.91
2004	14.99	7.71	6.83	45.57	14.07	7.20	3.63
2005	11.02	6.31	3.32	50.31	16.36	5.60	7.08
2006	7.22	3.67	1.62	51.89	13.57	4.41	17.61
2007	9.73	6.14	4.54	42.97	25.83	3.81	6.98
2008	13.30	8.31	9.69	45.85	12.47	6.49	3.90
2009	12.39	10.17	4.60	54.21	10.46	2.59	5.57
2010	5.22	12.54	6.77	50.72	5.87	6.62	12.27

Unlike the securitized products in the U.S., the Japanese products maintained high ratings even after the financial crisis. Table 3-3 shows the breakdown by rating for Japanese securitized products: 80% to 90% of products were rated AAA in 2005-2010. Securitised products in the US were downgraded quickly after the global financial crisis, but Japanese securitized products were seldom downgraded (Table 3-4 (A) and (B)).

Table 3-3. Issuance of Japanese Securitized products: breakdown by the initial rating
(Unit: percent)

Year	AAA	AA	A	BBB	BB
2005	84.3	4.8	6.3	3.1	0.9
2006	73.3	3.1	17.3	5.5	0.8
2007	82.4	4.6	8.5	3.7	0.8
2008	85.3	4.0	8.1	2.0	0.6
2009	86.3	8.6	3.9	1.3	0.5
2010	79.8	6.0	13.5	0.5	0.2

Source: Deutsche Bank "Securitization Market Japan" various issues.

Table 3-4. Rating transition matrices of structured finance in 2008 and 2009

(A) Structured Finance 12-month rating transition Matrices in 2008

US (unit: percent)

	Aaa	Aa	A	Baa	Ba	B	Caa or below
Aaa	72.59	7.50	6.76	5.61	3.04	1.82	2.68
Aa	0.92	51.37	7.66	6.29	5.24	8.90	19.62
A	0.19	0.83	54.33	8.30	5.42	7.34	23.60
Baa	0.02	0.06	0.77	50.08	5.41	6.97	36.69
Ba	0.02		0.06	0.55	49.90	3.41	46.06
B				0.09	0.09	44.30	55.51
Caa or lower						0.14	99.86

Japan (unit: percent)

	Aaa	Aa	A	Baa	Ba	B	Caa or below
Aaa	99.87	0.13				0.00	
Aa	3.91	96.09				0.00	
A	3.81	3.33	90.95	1.43	0.48	0.00	
Baa	4.50		2.00	89.00	3.50	1.00	
Ba		1.20			91.57	7.23	
B						87.50	12.50
Caa or lower							100.00

Source: Moody's Investors Services, "Structured Finance Rating Transitions: 1983-2008"

(B) Structured Finance 12-month rating transition Matrices in 2009

US (unit: percent)

	Aaa	Aa	A	Baa	Ba	B	Caa or below
Aaa	52.20	10.00	7.70	6.60	5.60	6.50	11.40
Aa	0.60	32.30	15.60	13.10	10.00	9.80	18.60
A	0.60	1.10	27.25	15.50	14.70	13.60	27.30
Baa	0.10	0.30	0.50	27.60	13.20	19.50	38.80
Ba	0.00	0.00	0.10	1.20	20.30	15.30	63.20
B		0.00	0.00	0.00	0.20	18.40	81.30
Caa or lower					0.00	0.00	100.00

Japan (unit: percent)

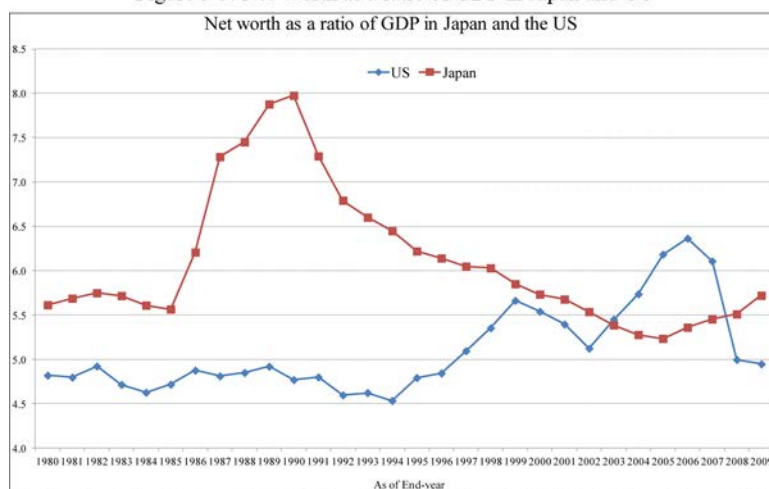
	Aaa	Aa	A	Baa	Ba	B	Caa or below
Aaa	89.80	8.80	0.90	0.30	0.10		0.10
Aa	1.60	87.30	9.50	0.80		0.40	0.40
A	0.55	1.00	73.20	18.10	4.40	1.00	2.00
Baa		1.00	1.00	52.60	27.80	11.30	6.20
Ba					34.40	51.00	14.60
B						28.60	71.40
Caa or lower							100.00

Source: Moody's Investors Services, "Structured Finance Rating Transitions: 1983-2009,"

First-of-the-year ratings are shown in the left vertical axis and ratings of the securities 12-months later are depicted in the upper horizontal

axis in Table 3-5. The ratio remaining at the same Aaa rating was 72.59% for the US and that of Japan was 99.87% in 2008.

Figure 3-5. Net Worth as a ratio of GDP in Japan and US



The data are from the flow of funds accounts of the U.S. Net worth is defined as total assets less total liabilities of three sectors, households & non-profit organizations, non-farm non-financial corporate business, and non-farm non-financial non-corporate business. Total assets include tangible assets and financial assets. Note that tangible assets include real estate at market value. Japan's data are from the national income accounts. Net worth is available from "Closing Stocks of Assets/Liabilities for the Nation" in the section "Supporting Tables".

3-4. The Absence of a Housing Bubble

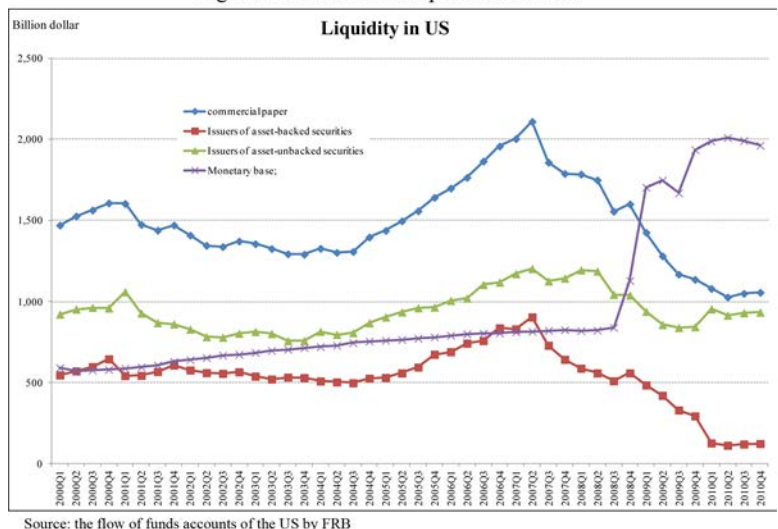
Another reason Japan did not have a financial crisis, while securitized products continued to be highly rated, is that Japan did not experience a housing bubble in the 2000s while the US economy had large housing bubble. (Figure 3-5) After the US bubble started to collapse in 2006, other advanced countries like UK, Spain, and Ireland, which were also experiencing housing price surges, suffered a steep decline of asset prices. Japan did not take a part in this worldwide housing boom in the 2000s.

3-5. Source of Liquidity

Finally, there was an important difference in the source of liquidity between Japan and the U.S. One of the distinct features of the US subprime loan crisis was the liquidity shortage caused by a collapse of short-term financial markets. Figure 3-6 shows the amount of privately issued liquidity, especially commercial paper, in the US.

The figure shows that CP began to increase rapidly after mid-2004. Privately issued financial claims rather than publicly provided financial claims (the monetary base) accounted for a large fraction of the increase in liquidity in the early 2000s. CP started to fall around mid-2007 when the market for asset-backed CP collapsed, and almost disappeared by 2010. In response to the crisis, the Federal Reserve provided ample public liquidity by creating a series of funding facilities. Public liquidity made up for private liquidity that dried up.

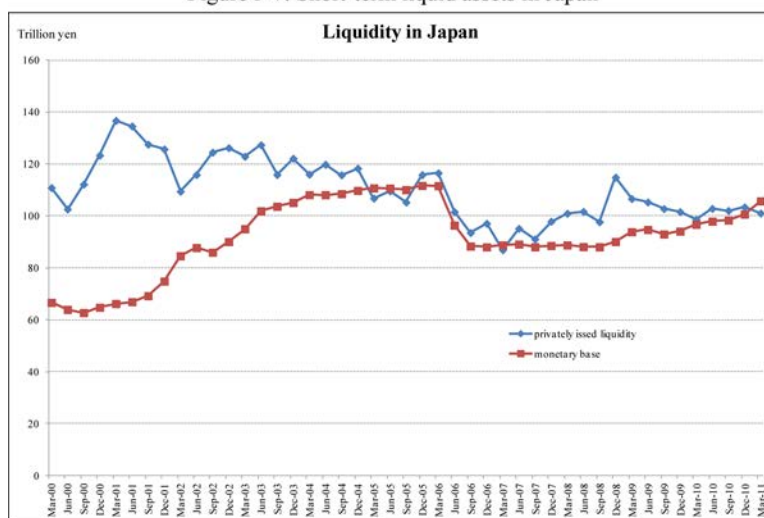
Figure 3-6. Short-term liquid assets in US



In contrast to the US, Japan had already ample public liquidity in the late 2000s because of the quantitative easing policy that the BOJ had adopted up until March 2006. Figure 3-7 shows the amount of private and public liquidities in Japan. Here the privately issued liquidity is defined as the sum of negotiable certificates of deposit, debentures, call money, payables under repurchase agreements, payables under securities lending transactions, bills sold, commercial paper, and trading liabilities. The figure shows the liquidity in short-term financial markets was supplied mainly by the increase in the monetary base coming from the quantitative easing policy. Neither privately nor publicly supplied liquidity showed an abrupt decline when the market liquidity was dried up in many countries during the global financial crisis. We interpret this as evidence that the Japanese

financial system already had ample public liquidity prior to the crisis and maintained it during the crisis.

Figure 3-7. Short-term liquid assets in Japan



Source: Financial and Economic Statistics Monthly, Bank of Japan

4. Consequences of policy responses to the global recession

The direct losses from the global financial crisis at the Japanese financial institutions were minimal, but the real economic activities in Japan declined at least as much as the other advanced economies. The government's response was the same as other governments: expansionary fiscal policy and (going back to) accommodative monetary policy.

As Ito (2011) documents, the government put together a series of supplementary budgets to stimulate the economy. During the two years from October 2008 to October 2010, the government passed five supplementary budgets and added the total of 42.7 trillion yen of new expenditures. The fiscal expansion may have helped prevent the economy from going into a deeper recession, but worsened Japan's fiscal situation that was already serious before the global financial crisis. Total gross government debt increased from 167% of GDP at the end of 2007 to 198% at the end of 2010. Even the net debt, which subtracts the financial assets that the government owns

from the gross debt, increased from 82% of GDP in 2007 to 114% in 2010.

The modest fiscal consolidation attempt that was started under the Koizumi government (2001-2006) seemed to have marked a good start for the long-run fiscal health of Japan. In 2006, the government proposed a fiscal reform plan entitled “Basic Policies for Economic and Fiscal Policy Management and Structural Reform” (Honebuto no Hōshin) and released a plan to attain a primary surplus by fiscal 2011. At that point, the Japanese government debt may have been borderline sustainable. For example, Broda and Weinstein (2005) found that the debt to GDP ratio for Japan can be stabilized with moderate tax increases. Sakuragawa and Hosono (2009) found that the debt-to-GDP ratio would be stabilized at a level lower than 200% if the government plan was followed through. After the run-up of the deficits after the global financial crisis, the government modified the plan. Under the new plan, the government would not achieve the goal of having primary surplus until fiscal 2021 at the earliest.

Many recent studies conclude that the fiscal situation in Japan is unsustainable. For example, Doi, Hoshi, and Okimoto (2011) conduct several tests for fiscal sustainability, and find the Japanese debt cannot be stabilized unless the government implements fiscal consolidation of unprecedented magnitude. Unless there is a credible plan for a drastic fiscal reform, Japan will experience a sovereign debt crisis sooner or later.

Monetary policy in Japan has been accommodative in the traditional sense (low policy interest rate) since 1995. When Japan was hit by the global recession, the Bank of Japan had already faced the zero nominal bound for the interest rate twice (February 1999 to August 2000, and March 2001 to July 2006) and tried with quantitative easing (March 2001 to March 2006). In December 2008, the Bank of Japan cut the target call rate to 0.1% and restarted the virtually zero interest rate policy, joining the Federal Reserve that lowered the target federal funds rate to 0.0% to 0.25% range a few days before. The Bank of Japan also provided emergency liquidity to the market, often in coordination with other central banks, during the finan-

cial crisis. In October 2010, the Bank of Japan further stepped up on the expansionary monetary policy by starting “Comprehensive Monetary Easing,” which includes (1) target call rate between 0.0% and 0.1%, (2) maintaining the near zero interest rate policy until the price stability is in sight, and (3) establishing a program to purchase assets including ETFs and J-REITs.

As we have been observing for countries in the Euro zone, any sovereign debt crisis applies pressure on the financial system. Japanese financial institutions hold a large amount of government bonds on their balance sheet. Thus, if the government bond yields start to go up, they incur huge capital loss. According to Bank of Japan (2010), 100 basis points increase in JGB yields is estimated to cause about 4.7 trillion yen of losses for Japanese banks collectively (BOJ 2010, Chart 3-2-3, p.39). This is about 11.7% of the Tier I capital at the end of March 2010 and about twice as much as the income before tax for the accounting year ending on March 31, 2010. Japanese bank interest rate risk as of March 2008 was estimated to be around 3.5 trillion yen. Thus, the fiscal expansion after the global financial crisis substantially increased the interest rate risk of the Japanese financial industry.

The policy responses after the global financial crisis also amplified the credit risk that was increased by the global recession. To help small and medium enterprises (SMEs) that went into financial trouble in the global recession, the FSA implemented a series of policies to relax bank supervision. In November 2008, the FSA announced the “measures to encourage loan restructuring for SMEs” and allowed the banks to classify restructured loans to SMEs into “normal” loans if those are accompanied by recovery plans to make the loans performing in 5 years. Before this, the loans had to be expected to become performing in 3 years.

In December 2008, the FSA changed the way the risk weighted assets are calculated. SMEs loan smaller than 100 million yen is assigned the risk weight of 75% instead of 100%. Before the change, the amount of loan for this calculation included the part guaranteed by the government owned credit guarantee associations. The FSA

changed the rule to allow the banks to exclude the guarantee part from this calculation, which effectively reduced the risk weights applied to many SME loans. This artificially boosted the capital ratio without improving the financial health of the banks.

In December 2009, the government passed the SME Financing Smoothing Act, which legalized the FSA's encouraging banks to restructure the terms of the SME loans when the borrowers ask for such rescheduling. The FSA revised the supervisory policy again and allowed the banks to exclude these restructured SME loans from the non-performing loans if they claim they plan to come up with restructuring plans that may make them performing in 5 years from the time they specify the plan. As a result, many loans that would have become delinquent were rescheduled and those are recorded as performing loans on the books of the banks.

Table 4-1 shows that SMEs asked banks to restructure about 42 trillion yen of loans during the period between December 2009 and June 2011, and about 39 trillion yen of those were restructured. Ignoring the requests that were later withdrawn or still pending as of June 2011, about 90% of SME loans that requested rescheduling were granted such rescheduling. This obviously helped the SMEs to stay in business.

Table 4-1. Status of rescheduling SME loans due to the SME Financing Smoothing Act

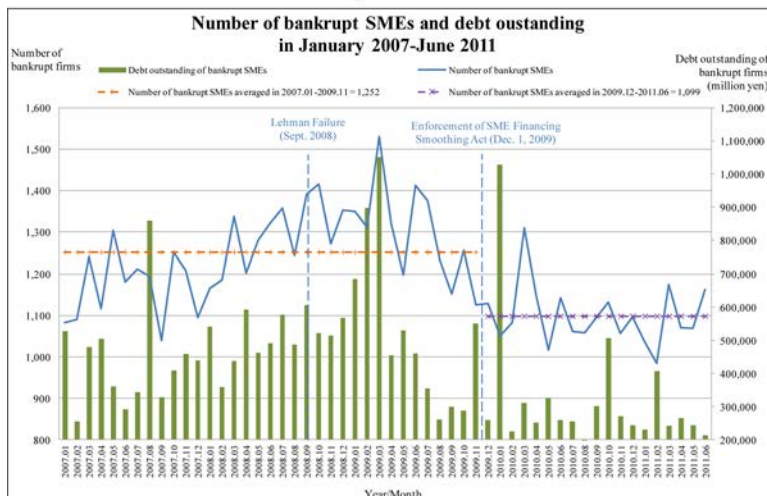
Since Dec. 2009 through	Cumulative number of rescheduling loans since Dec. 2009			Cumulative amount of rescheduling loans since Dec. 2009 (billion yen)		
	Requests (A)	Accepted (B)	Rate (B)/(A) (%)	Requests (A)	Accepted (B)	Rate (B)/(A) (%)
Mar. 2010	278,092	208,066	98.0	9,170	7,270	98.0
Jun. 2010	474,815	390,738	97.1	15,713	13,396	97.2
Sept. 2010	667,416	581,603	97.0	22,466	20,118	97.2
Dec. 2010	866,474	758,798	96.9	28,635	25,674	97.2
Mar. 2011	1,081,308	964,821	97.0	35,737	32,595	97.3
Jun. 2011	1,281,864	1,155,023	97.0	42,275	38,860	97.2

Source: Financial Services Agency (FSA)
 Note: Results are based on the questionnaire surveys on domestic banks conducted by FSA. Responded banks are total 146 banks including 11 major banks (Mizuho, Mizuho Corporate, Mizuho Trust, Mitsubishi-Tokyo-UFJ, Mitsubishi-UFJ Trust, Sumitomo-Mitsui, Risona, Chuo-Mitsui Trust, Sumitomo Trust, Shisei, and Aozora), 106 regional banks (Regional bank I&I and Suitama-Risona), and 29 other banks (domestic banks except major banks and regional banks).

Figure 4-1 shows that the number of SME bankruptcies declined substantially after the introduction of the SME Financing Smoothing Act. Because the restructured loans are not counted as non-performing, the disclosed amount of non-performing loans held by Japanese banks did not increase substantially after the global crisis,

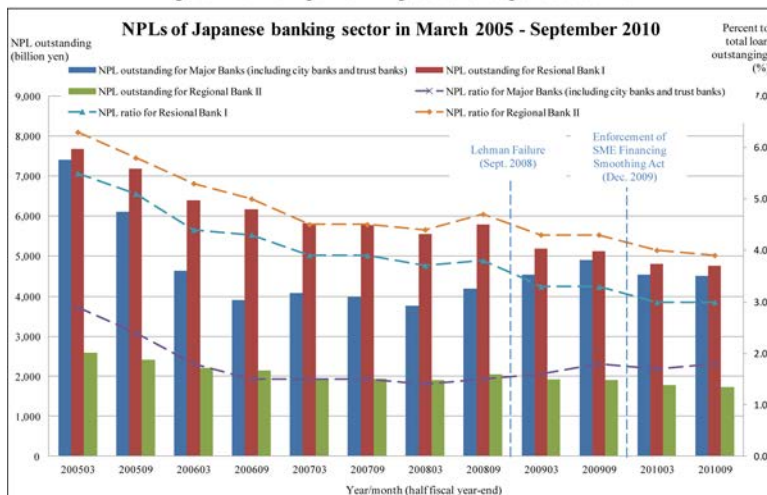
as Figure 4-2 shows. The absence of any increase in non-performing loans during a severe recession is highly unusual. For regional banks, the amount of non-performing loans fell after the global recession.

Figure 4-1. Number of bankrupt SMEs and their debt outstanding in January 2007-June 2011



Source: Zenkoku Kigyo Tosan Hakusho (White Paper for Bankrupt Companies in Japan) annually issued by Tokyo Shoko Research (TSR)
 Note: Following definitions in the Chusho Kigyō Kihon Hō (the SME Basic Act), the SMEs are defined companies with capital less than 300 million yen for manufactures & others, 100 million yen for wholesalers, and less than 50 million yen for retailers & service companies.

Figure 4-2. Non-performing loans of Japanese banks



Source: Financial Services Agency "Status of Non-Performing Loans" (<http://www.fsa.go.jp/en/regulated/npl/index.html>)
 Note: The figure reports amount of "Non-performing loan (NPL) outstanding" required Japanese banks by the Kinyū Saisei Hō (Financial Reconstruction Law). "NPL ratio" is defined NPL outstanding divided by total loans.

Without tying the rescheduling of SME loans to corporate restructuring to make the SMEs profitable, the rescheduled loans are likely to become non-performing eventually. Worse, allowing the non-profitable firms to continue to operate distorts the competition in product, labor and other markets to harm the profitability of healthy firms, as Caballero, Hoshi, and Kashyap (2008) pointed out. Here again the policy response to the global recession is likely to have increased the risk of the Japanese financial industry.

5. Lessons from the Japanese experience

The Japanese experience during and after the global financial crisis suggests several important lessons for responding to and preparing for a financial crisis. The first is the importance of traditional micro prudential policy. When the U.S. was enjoying a credit boom in the mid-2000s, Japan was recovering from its banking crisis that started in the mid-1990s. The Japanese government finally strengthened the financial supervision and the FSA forced the banks to get rid of the non-performing loans once and for all. Both Japanese regulators and Japanese banks did not want to repeat the financial crisis that they were at last getting out of. This limited the risk taking of the Japanese banks and limited the exposure to risky securitized assets.

Second, the Japanese experience after the global recession shows the difficulty of maintaining the standard of such micro prudential policy. The FSA relaxed the standard of bank supervision substantially, probably yielding to various political pressures. The FSA revised the supervisory manual and allowed the banks to exclude restructured SME loans from the disclosed non-performing. Thus, many loans that would have become delinquent were rescheduled and those are now recorded as performing loans on the books of Japanese banks.

The third lesson to be learned is the importance of stable funding sources for financial institutions. While many large financial institutions in the U.S. and Europe relied on short-term market financing, Japanese banks relied almost exclusively on core deposits. When the U.S. and European banks faced liquidity problem in the short-term financing, many of them were forced to fire sale the securi-

ties, which further reduced their values as collateral and worsened the liquidity problem. The Japanese banking sector did not have this vicious cycle. When Japanese industrial firms faced financial problems in the bond and CP markets, the banks were able to step in and increase their loans. Of course, the stability of deposits does not come free. Protection of deposits through deposit insurance or implicit government guarantees on banks themselves can exacerbate the moral hazard of banks and become a cause of a financial crisis. One needs to take the cost of protecting deposits into account before advocating more reliance on deposit financing to improve stability of the financial system.

Fourth, the Japanese experience shows the serious potential cost of fiscal expansion. Indeed high budget deficits and ever increasing government bonds have harmed the health of the Japanese financial system more than the global financial crisis itself. Fiscal expansion may cushion the cost of recession but can be a cause of new financial crisis.

Finally, Japan experienced its own financial crisis about 10 years before the global financial crisis. Although this paper does not discuss the Japanese experience with the crisis in the late 1990s, some lessons can be learned by comparing the two crises.⁷ Both crises were triggered by the burst of speculative bubbles. In the last couple of hundred years, we have observed (at least ex post) numerous episodes of speculative bubbles followed by serious financial crises. The mechanism of how the bubbles start, expand, and collapse is not fully understood, but we now know a number of potential warning signals for bubbles and crises that might follow. Those signals include continued low interest rates particularly relative to the economic growth rate, rapid growth of banks' balance sheets, and real estate boom. It is important to continue the efforts toward understanding, detecting, and responding to bubbles to avoid or at least to reduce the cost of any future financial crises.

⁷ See Hoshi and Kashyap (2010) and Hoshi (2011) for attempts to derive lessons from the comparison of the Japanese crisis in the 1990s and the global financial crisis.

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Lessons from the Latin American Shadow Committee

Learning from Past Mistakes: The Key to Latin America's Financial Systems Resilience to the Global Financial Crisis¹

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I. Introduction

There is a popular saying in Latin America: If the US catches a cold, Latin America gets pneumonia. For a (still reduced) number of countries in the region, this aphorism started to be questioned after the global financial crisis of 2007-09 that originated in the United States. Unlike in recent episodes of economic difficulties, such as the Asian and Russian crises of the 1990s and the oil price shock of the 1980s, in the 2007-2009 global financial crisis a core set of Latin American economies grew strongly and continued to display sound economic performance thereafter. Especially notable is the fact that

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financial systems in the region proved to be highly resilient to the external shock. For example, no country in Latin America suffered a significant loss of depositors' confidence nor had to face severe and systemic banking problems.

This does not mean that the external shock did not impact the region's financial systems. The drying up of liquidity that followed Lehman's collapse induced a sharp increase in investors' risk aversion and generated a reversal of capital inflows to Latin America and other emerging markets. Not surprisingly, currencies depreciated sharply in most countries. The tightening of financial conditions resulted in a reduction of liquidity in foreign exchange and domestic money markets. Moreover, trade finance plummeted reducing sharply the region's growth prospects and increased the ratio of non-performing loans. Facing large uncertainties, Latin American banks reduced the growth of credit to the private sector.

However, in contrast to developments in the United States and other advanced economies, the adverse effects of the external shock were short-lived. For example, while the international crisis began in August 2007, its impact started to be felt among most Latin American financial systems only after the bankruptcy of Lehman Brothers in September 2008. Furthermore, by early-2010, a number of Latin American countries had resumed the rapid growth path that had characterized the pre-crisis period. In the same vein, banks' real credit growth recovered and currencies began a renewed period of appreciation.

Indeed, by mid-2011, a major concern among Latin American central banks was once again the so-called *capital inflows problem*.² Encouraged by the good performance of Latin America during the crisis, and by the extremely low interest rates and sluggish growth prospects in advanced economies, capital inflows surged once again

² Latin America was once the preferred regions for international investors carry trade operations, by which investors borrowed at low interest rates in the advanced economies to buy emerging markets' assets yielding higher returns.

in the region.³

As recent as the early 2000s, Latin America had a strong reputation for being crisis prone. The recurrence and severity of banking crises supported such a reputation. The key to the strength of Latin America during the 2008-09 global crisis, to a significant extent, was that a number of core countries in the region had learned from their own previous catastrophic experiences. In our view, in spite of sharp differences in the degree of financial development, these lessons can be very useful to a number of advanced economies currently facing enormous financial and fiscal challenges.

This paper argues that there were two key factors behind the resilience of Latin American financial systems during the crisis. The first was the initial conditions that a number of countries in the region faced during the pre-crisis years. Sound macroeconomic policies and highly improved financial regulations were in place at the time the crisis erupted. This meant that banks and other financial institutions stood on a good footing when the external shock hit. The second factor (highly related to the first one) was the appropriate response of policymakers in several countries in the region to deal with the impact of the shock. In particular, and departing from previous crisis episodes, a set of Latin American countries were in a strong position to implement counter-cyclical monetary (and some even fiscal) policies that minimized the contraction of credit growth to the private sector and contributed to a rapid economic recovery.

A third factor, not discussed in this paper, but well documented elsewhere (see Izquierdo and Talvi, 2008) is that the region also benefited from some doses of good luck. The external environment remained friendly to Latin America on two counts. First, following the initial impact effect from the collapse of Lehman, the response from the

³ In the period from early 2010 to mid-2011, these large inflows induced pressures toward excessive currency appreciation (that is, well beyond what could be justified by fundamentals), fueled the formation of asset inflation and credit booms. Based on past experiences, central bankers from Latin America feared that a significant proportion of these inflows were transitory and, hence, could be destabilizing if a sudden reversal in capital flows were to occur. These fears have started to materialize since July 2011 when new turbulences in international capital markets associated with sovereign debt sustainability concerns in the US and Europe exacerbated.

US Federal Reserve Board was to lower the Fed funds rate sharply and keep it low, which eased the external financing conditions to the region. Second, supported by the high growth of Asia (especially China), the prices of commodities exported by the region recovered in 2009 and, though they have been quite volatile, have remained quite high since then. Thus, in the assessment of Latin America's performance during and after the crisis it is only fair to conclude that the role of improved macro/financial regulatory conditions was facilitated by a combination of low interest rates in industrial countries and favorable terms of trade.

A caveat needs to be made. Latin America is not a uniform region, neither economically nor politically: High growth economies such as Peru co-exist with the stagnant economies of Central America. Democracies, such as Chile, Colombia and Brazil, share the same region with dictators such as Venezuela's Chavez. In this paper, our analysis centers mostly on a core set of countries: Brazil, Chile, Colombia, Mexico and Peru. These five countries share a similar monetary policy framework: they have all chosen to increase the flexibility of their exchange rate policies in the context of an inflation-targeting regime.⁴

Notwithstanding this caveat, references to the rest of the major countries in the region will also be included in the discussion. In particular, Argentina displayed one of the better performances in response to the crisis even though its economic policy framework evidenced notable weaknesses in comparison with the above-mentioned five countries.⁵ Among these, the relatively high rate of domestic inflation and, closely connected, the lack of flexibility in its exchange-rate policy clearly stand out.

The rest of this paper is organized in two sections. Section II describes the channels of contagion through which the external shock affected local financial systems in Latin America. This section also discusses

⁴ As will be discussed below, greater exchange rate flexibility does not mean pure flexibility since these countries have recognized the importance of accumulating large amounts of foreign exchange reserves as a self-insurance mechanism against adverse external shocks.

⁵ See Talvi and Munyo (2011).

the behavior of central financial variables during the crisis. Section III focuses on the reasons explaining the resilience of local financial systems. After discussing the key initial conditions, both in terms of macro and financial policies, the section analyzes the monetary and fiscal responses during the crisis. Particular attention is given to the mechanisms used by central banks to provide liquidity.

II. Contagion from the International Shock: The Channels of Transmission and the Impact of the Shock on Latin American Financial Markets

A large number of Latin American countries are highly integrated with the global economy. Although significant differences exist across countries and institutions, banks, government and corporations all finance themselves in the international capital market. Also, exports are a key driver of growth in many countries in the region. Thus, not surprisingly, the global financial crisis of 2008-09 affected Latin American financial systems through both financial and trade channels.

A. The Channels of Transmission

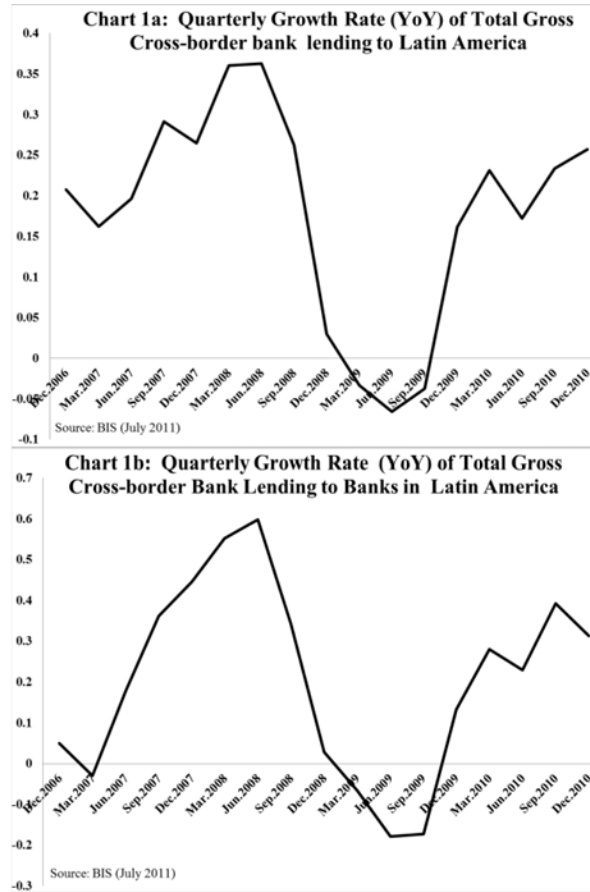
After a period of large and increasing capital inflows to Latin America that started in 2003, private capital inflows declined briefly during the financial turbulence of August 2007 (the first phase of the global financial crisis). The very limited effects on the availability of external sources of finance to Latin America and other emerging market economies during the first phase of the global financial crisis led a number of analysts to assert that growth prospects and financial systems in a number of emerging market economies had decoupled from developments in the advanced economies.

This view, however, proved incorrect following the collapse of Lehman Brothers. In the face of (a) enormous uncertainties regarding the quality of assets held by financial institutions in the United States and other advanced economies, and (b) the lack of confidence about the US regulators' capacity to resolve the financial crisis, a sharp increase in credit risk ensued. This resulted in a flight to quality towards as-

sets considered liquid and safe, such as US Treasuries and gold, and a severe credit crunch that extended across all types of credit markets. For emerging markets in general, and Latin America in particular, these developments translated into sudden stop (and in some cases a reversal) in capital inflows, and into a sharp increase in the cost of external financing. On an annual basis, total private inflows to Latin America in 2008-09 amounted to only one third of the level attained in 2007, notwithstanding the resilience of foreign direct investment that remained the least volatile source of external funding. In contrast, net portfolio equity flows became negative in 2008 while cross-border bank lending collapsed altogether in 2008-09.

Charts 1a and 1b illustrate the behavior of cross-border bank lending to Latin America during the crisis. The quarterly rate of growth of total cross-border financing to Latin America (measured on a year over year basis) by BIS-reporting banks declined sharply following Lehman's collapse and entered negative territory from early 2009 to the third quarter of that year (Chart 1a). However, after displaying a negative growth rate of about -8 percent, cross-border bank lending started to recover at the end of 2009 and by end-2010 it was growing at rates comparable to the pre-crisis period.

Consistent with the collapse of global interbank lending, cross-border bank lending to Latin American banks was more affected than total cross-border bank lending to the region. As shown in Chart 1b the quarterly rate of growth (year-over-year) of cross-border interbank lending became slightly negative in early 2007 (the beginning of the first phase of the global crisis), only to increase sharply until the second quarter of 2008, when it exceeded 50 percent. However, following Lehman's collapse, the rate of growth of cross-border interbank lending dropped dramatically and became highly negative from early 2009 to the third quarter of that year. While all countries were affected, cross-border interbank lending to Argentina suffered the largest contraction (almost -55 percent at the trough) and took the longest time to recover (six quarters). With a growth rate of about -40 percent at the trough, Colombia and Peru followed.

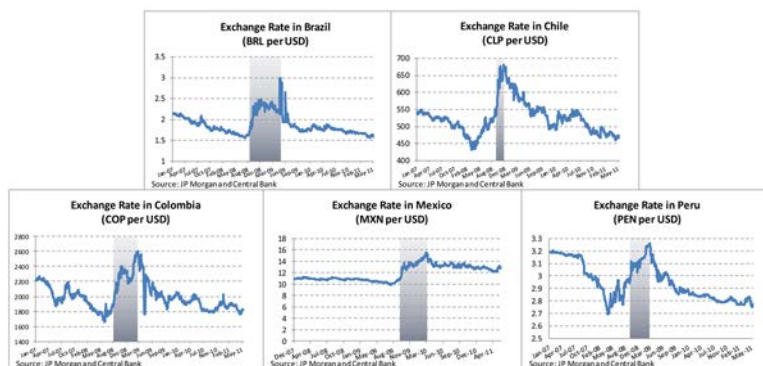


Just as the volume of external financing plummeted, the cost of credit in international capital markets skyrocketed. The increased global risk aversion translated into a sharp rise in Latin America's EMBI+ spread, a measure of riskiness of sovereign bonds. After fluctuating at around 200 basis points over the yield of US Treasury bonds in the pre-crisis period, the Latin America EMBI+ spread climbed to over 800 basis points at the peak of the crisis. However, even at the peak of the crisis, markets distinguished between emerging market regions. For example, the increase in EMBI+ spreads in Eastern Europe was much larger and lasted for a much longer period of time than that observed in Asia and Latin America. As is well-known, Eastern European countries were encountering significant macroeco-

conomic and financial weaknesses of their own at the time the global crisis erupted.

The reversal of capital inflows brought about a sharp depreciation of most currencies in the region. As shown in Chart 2, the currencies of Brazil and Mexico depreciated the most (around 30 percent) during the peak of the crisis (September 2008-February 2009), followed by Peru.⁶ However, as noted in Rojas-Suarez (2010), in sharp contrast with previous episodes of contagion (like those arising from the Russian or Asian crises), this time around the global crisis did not result in exchange rate or financial crises in Latin America. As will be discussed in Section III, the adoption of increased flexibility in exchange-rate management by most Latin American countries in the late 1990s and early 2000s was a key factor helping to explain the good performance of Latin American financial markets during the crisis. Departing from the past, this time around central banks did not need to increase interest rates to defend a pre-established peg when the global crisis hit. Thus, central bankers were well positioned to adopt counter-cyclical monetary policies.

Chart 2: Exchange Rate Behavior in Latin America: 2007 - 2011 (*)



(*) The shaded area covers the period from september 2008 to the months of maximum currency depreciation

A second but related channel of transmission of the global crisis to Latin American countries took place through trade flows. The global financial crisis and the associated global credit crunch generated a recession in the advanced economies and a sharp decline in the global demand for goods and services. Moreover, among credit flows, trade

6 In the graphs, an increase in the exchange rate denotes currency depreciation.

finance was the most affected. Exporters from Latin America and other emerging market economies faced significant difficulties in rolling over credit lines for trade finance. In this context, the rate of growth of export volumes from the region contracted severely (see Chart 3). Mexico and Brazil were the most affected countries, well beyond the rest of the region. The former suffered because of its close trade relations with the US while the latter was affected because the crisis hit the balance sheets of export-oriented corporations that had taken short US-dollar positions in the pre-crisis period (more on this below).



Facing adverse external conditions both in terms of sources of funding as well as in terms of the aggregate demand for export products, real economic growth in Latin America contracted in 2009. With the exception of Colombia and Peru, most other middle-size and large Latin American countries experienced a negative rate of growth in 2009. However, for reasons to be discussed in Section III, Latin America had recovered by 2010 and resumed growing at a healthy annual rate of 6 percent.

Having specified the global financial shock's channels of transmission, we now turn to its impact on domestic financial systems.

B. The Impact of the Global Shock on Domestic Financial Systems

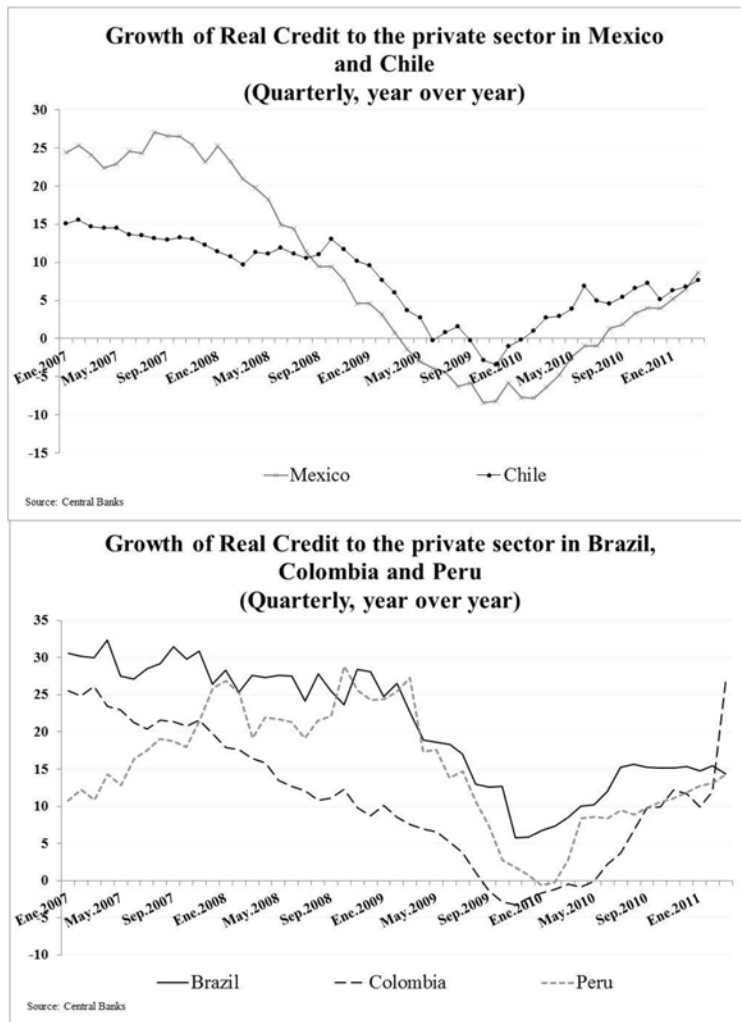
The global liquidity squeeze that ensued after the Lehman episode affected banks and corporations in Latin America as both the costs of external and domestic financing increased sharply. As reported by Jara, Moreno and Tovar (2009) some examples in the region include: (a) in Chile, the spread between US dollar rates implied by the foreign exchange swap market jumped to over 500 basis points over Libor (this spread had been less than 100 basis points in the pre-crisis period); (b) in Peru, the spread of the 90-day prime rate in foreign currency to the interbank average interest rate in foreign currency widened drastically to over 400 basis points; (c) in Mexico, the commercial paper market dried-up and commercial paper rates increased sharply; (d) in Brazil, the domestic interest rates for small and medium-sized banks increased significantly as local asset managers transferred their deposits to larger banks, considered safer. Moreover, dollar-denominated credit lines used by small banks to finance exporters dried up in a number of countries.

The behavior of bank credit in Latin America in the period around the crisis is illustrated in Chart 4, which shows the rate of growth of real credit to the private sector in a selected number of countries. A common characteristic is that, with the exception of Mexico, real credit growth recovered quite rapidly after the sharp drop experienced during the international financial crisis, and by early 2011 there were even concerns about the potential buildup of *credit booms* in some of these countries.

Notwithstanding the similarities, there were also significant differences among Latin American countries. For example, Brazil and Peru stood out as the countries where the reduction in real credit growth associated with the crisis lasted the shortest period of time. Moreover, Brazil's real credit growth did not enter into negative territory during the crisis, and Peru displayed negative growth rates for only two months. At the opposite end, Mexico's decline in real credit growth started in early 2008, recorded negative growth rates for 15 months and became positive only in August 2010. Mexico's strong

financial and trade relations with the United States exacerbated the initial impact of the shock.

Chart 4



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Of course, the observed behavior of real credit growth at the regional level and the differences displayed across countries reflected not only the impact of the external shock, but also the strength of the financial systems at the time the shock hit as well as the authorities' policy responses. While these issues are dealt with in the next section, it is important to stress here that a contributing factor to the resilience of Latin American banking systems during the crisis was the source of credit funding. Domestic bank credit in Latin America was (and still is) largely funded from domestic sources which, to a large extent, took the form of deposits (although the issuance of securities as a source of bank funding had been increasing).

Table 1 shows two sources of banks' credit funding in 2007: deposits and short-term international bank claims in three regions of the developing world. As has been established in the literature, domestic deposits tend to be a more stable source of bank funding than short-term international liabilities. On average, Asia and Latin America looked quite similar in that the ratio of bank deposits to credit was quite high, while the reliance on short-term international loans to fund domestic credit was quite low. This contrasted with Emerging Europe, which on average had a lower reliance on bank deposits and a higher dependence on the more volatile short-term international loans to fund credit.

The importance of these features becomes even more apparent when one takes into consideration the large participation of foreign banks in Latin America. Measured by the participation of assets in the total banking system, by 2007 foreign banks accounted for over 50 percent of bank assets in Mexico and Peru; followed closely by Chile. But in sharp contrast to countries in Eastern Europe, the largest foreign banks established in Latin America funded themselves with local

Table 1: Funding Bank Credit in Selected Countries - 2007

	Bank Deposits / Bank Credit to the private sector	Short-term International bank claims / Domestic credit to the private sector (In percent)
Latin America (Average)	112.0	19.3
Argentina	161.6	32.8
Brazil	138.7	8.7
Chile	73.1	13.7
Colombia	53.2	14.1
Mexico	123.1	13.7
Peru	122.1	32.8
Emerging Asia (Average)	129.1	21.2
China	125.6	3.0
Chinese Taipei	80.0	5.6
Hong Kong SAR	210.6	31.1
India	134.3	12.2
Indonesia	147.1	25.7
Korea, Rep.	59.4	11.3
Malaysia	110.3	10.5
Philippines	196.5	26.2
Singapore	120.7	81.7
Thailand	106.1	4.4
Central Europe (Average)	80.7	35.0
Bulgaria	93.2	35.1
Czech Republic	134.1	20.4
Estonia	48.6	26.7
Hungary	75.0	29.1
Latvia	41.8	39.2
Lithuania	61.1	20.9
Poland	104.2	14.9
Romania	87.5	93.9

Sources: IMF, Bankscope, national data

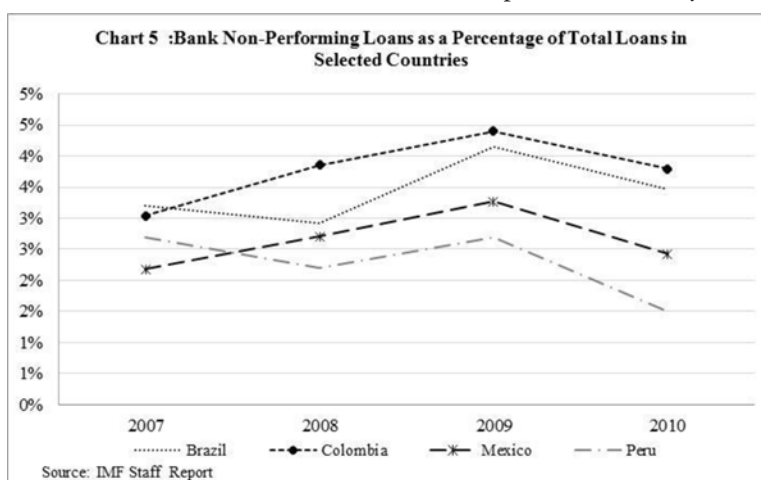
deposits. These banks, mostly of Spanish origin, operate at the retail level and, for all practical purposes, function similarly to domestic banks. That is, the numbers presented in Table 1 for Latin American countries are representative of both domestic and foreign banks.⁷

Legislation in Latin America has facilitated the similarities in behavior between domestic and foreign banks. In most countries in the region, foreign banks are required to operate either as subsidiaries or as independently capitalized branches. This Latin-made concept of branches blurs the distinction between subsidiaries and branches. In all cases, local supervisors treat domestic and foreign banks equally,

⁷ See Galindo, Izquierdo and Rojas-Suarez (2010) for a formal analysis on the behavior of domestic vs foreign banks in Latin America in the presence of external shocks.

including when dealing with bank restructuring or failures.

Better banking regulation and supervision also significantly reduced currency and maturity mismatches in Latin American banks' on-balance sheets. In the past, these mismatches had proved to have pernicious effects on the stability of financial systems in the presence of an adverse external shock. In particular, given the high degree of liability dollarization, a sharp depreciation of the currency resulted in a sharp increase in non-performing loans since debtors with income flows denominated in local currencies could not make good on loans denominated in dollars. As shown in Chart 5, this was not the case during the global financial crisis. While the ratio of non-performing loans to total loans increased in all countries in the sample in 2008-09, these ratios had started to return to their pre-crisis levels by 2010.



Interestingly enough, currency mismatches severely affected the profitability of some corporations (rather than banks) in Brazil and Mexico. The observed trend towards nominal appreciation of the Brazilian real and the Mexico peso in the years before August 2008 led a number of large local corporations to bet against a depreciation of their local currencies. To this end, these corporations expanded their off-balance sheet foreign exchange exposure through derivative contracts arranged with international banks (selling foreign exchange options in the offshore market). The sharp currency depreciation observed in Brazil and Mexico after the Lehman's collapse resulted

in huge derivative losses (around US\$4 billion in Mexico and over US\$20 billion in Brazil).⁸ To a large extent, these developments surprised local authorities who since then have started to reassess the benefits and risks associated with the development of unregulated derivative markets.

III. What Explains the Resilience of Latin American Financial Systems during the 2007-09 Global Financial Crisis? Prevention and Responses

In order to understand the better performance of Latin American financial systems during the crisis and afterwards, two principal factors need to be considered. First, Latin American economies had significantly strengthened their macroeconomic and policy frameworks in response to the financial crises faced in the previous decades. Hence, the region displayed significantly better initial conditions than in past experiences. Second, and partly because of such improved initial conditions, the policy response to the recent (and still ongoing) international financial crisis has been stronger and more flexible than in previous occasions. This section deals with the region's initial conditions and the policy response in some detail.

A. Strong Initial Conditions: Lessons Learned from Previous Experiences

The strong initial conditions that allowed Latin American economies to perform well in the wake of the international financial crisis can be characterized by the following five principal factors: 1) ample external liquidity in the form of large stocks of international reserves; 2) flexible exchange rates and, in some economies, the presence of a tested inflation-target monetary framework operated by an independent and professional central bank; 3) adequate fiscal management leading to sustainable or declining public debt to GDP ratios; 4) strong financial systems, well regulated and supervised, and largely disconnected from the international capital markets; and (5) expanding domestic capital markets underpinned by the growth of

⁸ See Jara et al (2009), Mesquita and Toros (2010) and Sidaui et al (2010) for a more detailed explanation of these events.

private pension funds.

Ample external liquidity in the form of large stocks of international reserves

One of the most significant lessons learned by emerging market economies from the financial crises of the 1990s has been the importance of counting on external liquidity as a means of reducing vulnerability to sudden shifts in investor sentiment as well as to contagion in the international capital markets.

The traditional role played by multilateral institutions, especially the IMF, had been one of providing official emergency assistance to governments in the midst of balance-of-payments crises. However, the financial crises that took place in emerging markets in the 1990s generated demand for emergency assistance far larger than what could be handled with the traditional IMF programs. This is why in the 1990s governments of the advanced economies had to step in with bilateral official loans that complemented IMF lending to the emerging market economies in crisis.

Hence, the era of mega packages of liquidity assistance was born. In order to ensure that these funds were used effectively to deal with systemic risk, the Group of Twenty (G-20) was created as a body that explicitly recognized the new reality: in addition to the G-7 economies, a number of emerging market economies were added because they were implicitly at least recognized to be “systemically important” for the world economy.

Notwithstanding the progress made by the international official community in terms of governance as well as in terms of strengthening the IMF's capacity to respond to international financial crises, from the emerging market economies' perspective it soon became clear that volatility in the capital market and the presence of sudden stops in capital flows had become a permanent feature of the external environment. Moreover, it became clear that the IMF's strengthened toolbox was insufficient to prevent volatility hitting hard the shores

of emerging market economies.⁹

The traditional thinking about fiscal sustainability could no longer be centered solely on the concept of solvency (in the sense of governments meeting an inter-temporal budget constraint). Rather, in a world where liquidity constraints appeared suddenly in response to the change of mood of international investors, the concept of “inter-temporal solvency” can very quickly be devoid of any practical meaning. In reality, solvency and liquidity considerations are closely intertwined.

As a result of the greater awareness about the importance of liquidity considerations, the objective of building up their own external liquidity cushions became central to policymakers in many emerging market economies. For instance, the so-called Guidotti-Greenspan rule developed in 1999 called for building up international reserves so as to be able to fully service at least the short-term public debt coming due in one year.¹⁰

In addition, Guidotti (2003) emphasized the fact that capital market crises can affect the stability of the banking system and disrupt the financing of corporations. Hence, the development of a liquidity management strategy in emerging market economies eventually extends beyond the realm of the public debt and should explicitly recognize the contingent short-term liabilities arising from the private bank and non-bank sector.

Own external liquidity is perceived as complementary to potential

⁹ Guidotti, Sturzenegger and Villar (2004) document the main characteristics of sudden stops over the period 1974-2001. In their paper, a “sudden stop” in capital flows is defined as an episode where there is a contraction in the capital account of at least 5% of GDP and at least beyond two standard deviations—following Calvo et al. (2003), and an improvement in the current account of at least 2% of GDP in that year, the following year, or the 2-year period. Between 1974 and 2001, the paper documents over 250 episodes of sudden stops around the world. For Latin America, these events implied on average a contraction in the capital account of 13.3% in GDP, an improvement in the current account of 9.9% of GDP, with severe consequences on economic activity.

¹⁰ See Guidotti (1999), Greenspan (1999), Guidotti (2003), and Guidotti (2007).

IMF financing, and could not be substituted by it. A large stock of international reserves together with a debt management strategy that lengthens the maturity structure of the public debt (hence, reducing the amount of short-term debt in the Guidotti-Greenspan rule) provides emerging market economies with a genuine and unconditional, “fire power” to respond to capital market volatility, as it endows governments with financing autonomy; namely, the ability of “staying out of the market” in turbulent times. In the Guidotti-Greenspan rule the minimum financing autonomy is one year.¹¹

Grounded on this “self-insurance” concept, Latin American economies (as other emerging market economies) began building up their stocks of international reserves. This process was facilitated by the boom in commodity prices that took place in the present decade up to the outbreak of the crisis in 2008, as a number of Latin American economies run current account surpluses. Table 2 illustrates the growth of international reserves for the largest economies in the region in the years preceding the international financial crisis.

Table 2: Foreign Exchange Reserves (in USD billion)

	2002	2007
Argentina	10.4	44.2
Brazil	37.2	179.4
Chile	14.8	16.7
Colombia	10.2	20.1
Mexico	49.9	86.3
Peru	9.3	26.9
Uruguay	0.8	4.1
Venezuela	8.0	23.7
Total	140.6	401.4

Source: IMF International Financial Statistics

11 Jeanne and Ranciere (2006) find that the Guidotti-Greenspan rule is a good approximation for the optimal amount of international reserves rule in a stochastic simulation model.

For the group of countries in the Table, the stock of foreign exchange reserves almost tripled between 2002 and 2007, increasing from US \$140 billion to US \$401 billion. The buildup of international reserves was particularly important in Argentina, Brazil, Peru, Uruguay, and Venezuela. By the end of 2007, Brazil's foreign exchange reserves amounted to almost US \$200 billion. Although there were hardly any gains in Chile's reserves, Chile's sovereign wealth funds rose substantially during this same time period.

Some authors have argued that the rapid growth in international reserves across emerging market economies reflects a process of self-insurance that is inherently inefficient.¹² We dispute this. In our opinion, because there are a number of structural weaknesses across emerging markets, a self-insurance strategy based on accumulating external liquidity is called for. The recent experience suggests that such strategy has indeed proven to be successful in maintaining the confidence of investors and bank depositors during the height of the international financial crisis.

Among the above mentioned structural weaknesses, a particularly relevant one is the inability to issue hard-currency; that is currency that is internationally traded (see Rojas-Suarez, 2003 and 2011). This, coupled with a limited capacity to resort to public debt issuance implies that governments in emerging markets are not able to provide a fully credible deposit insurance that effectively prevents the occurrence of bank runs. Thus, in order to enhance their credibility governments need to accumulate large stocks of international reserves in order to be able to respond to potential shifts in bank deposits without inducing large swings in their nominal exchange rates. The notable stability of bank deposits across Latin America during the 2007-2009 international financial crisis supports the view that, by and large, the region's central banks have been perceived by the public as being well equipped to respond to financial volatility.

¹² See, for instance, Lane (2009).

Flexible exchange rates and, in some economies, a tested inflation-target monetary framework operated by an independent and professional central bank

In the early 1990s, most Latin American economies functioned under fixed or pegged exchange-rate regimes. Such a situation resulted from the fact that most countries in the region had entered that decade after many years of living with high inflation. Moreover, the 1980s had been also marked by a protracted external debt crisis. At the beginning of the 1990s, the advent of globalization—as well as the Brady plan—allowed governments to access the international capital markets as a means of financing.

A direct result of governments returning to international debt markets was that the link between fiscal deficits and money creation by central banks was broken. Hence, many central banks in the region gained a functional independence that allowed them to pursue anti-inflationary strategies more successfully than before. As in many other emerging and developing regions, most Latin American countries were indeed able to bring down inflation to industrial countries' levels. Instrumentally, most governments relied on fixed or pegged exchange-rate regimes as the most effective policy framework to diminish expectations about future inflation.

However, while these exchange-rate regimes worked well in the initial phase of inflation stabilization, they encountered serious problems later in the 1990s when the Tequila, Asian, Russian, and Brazilian financial crises took place. Moreover, the financial crises in emerging markets combined with two additional real shocks that placed significant strain on economies that were pegging the domestic currency to the US dollar: falling commodity prices throughout the second half of the 1990s, and a significant strengthening of the US dollar relative to other major currencies, in particular the Euro. Fixed exchange rates, low external liquidity, and increasing (external) public debts made up a dangerous cocktail for countries facing severe and unprecedented financial and real external shocks in the second half of the 1990s. Fixed exchange rates are particularly problematic during periods of financial volatility since central banks might face contradictory goals during such times: defending the peg might call

for increasing interest rates at times when fragilities in the banking system call for a reduction in the rates.

A major element that weighs heavily on central banks' dilemma is the degree of dollarization of the economy and the financial system in particular. In this respect, it is well known that years of high inflation and of pegging the domestic currency to the US dollar had fostered dollarization in many countries in the region.

With the obvious exception of Chile, which had attained already a notable stability and was effectively de-dollarized, the largest Latin American economies faced significant strain as a result of the financial crises of the second half of the 1990s. Hence, one after the other they were forced to abandon their pegged or fixed exchange-rate regime in the midst of balance-of-payments crises (Mexico in 1994, Brazil in 1999, and Argentina in 2002). Latin America was not an exception though, as similar situations also occurred in the Asian economies where fixed exchange-rate regimes collapsed in South Korea, Indonesia, and Malaysia.

As a result of the 1990s experience many countries in the region adopted monetary policy frameworks grounded on the principles of exchange rate flexibility and central bank independence. In particular, a number of central banks in the region turned to inflation targeting regimes. Following the successful footsteps of Chile, the central banks of Brazil, Colombia, Mexico, and Peru also adopted inflation targeting as their monetary policy framework. The presence of flexible monetary arrangements and central bank independence in most Latin American economies proved a significant asset in terms of the economy's ability to withstand the effects of the 2007-09 international financial crisis. In the following section we will describe the main features of the central bank response to the crisis.

Adequate fiscal management leading to sustainable or declining ratios of public debt to GDP

Independent of the monetary policy framework in place, no emerging market economy is likely to weather successfully the consequenc-

es of a global financial crisis if its fiscal position is weak or unsustainable.

In this respect, Latin America has a long history of fiscal mismanagement that lies at the root of the many economic crises that occurred in the region in the past decades. During previous experiences, fiscal policy played two undesirable roles.

First, in a number of crises in the region, the large stocks of public debt fueled by unsustainable fiscal positions were the direct cause of economic crises. Such crises often sparked or were accompanied by debt defaults. For instance, the 1980s decade was labeled as the “lost decade” as economic growth remained flat as several countries had fallen into default.

Second, on other occasions, large public debts constrained the government’s ability to undertake much needed counter-cyclical fiscal policies at times when economic growth slowed down. The clearest example is provided by the financial crises of the 1990s where countries were required (by the IMF) to respond pro-cyclically with fiscal adjustments to a worsening external environment.

Perhaps because of such a history of instability, policymakers in Latin America have increasingly become aware of the importance of prudent fiscal management. This awareness has also been reflected in a better understanding in the profession of the interaction between fiscal sustainability and capital market volatility. In particular, while traditional measures of fiscal sustainability were based almost solely on the concept of inter-temporal solvency, the financial crises of the 1990s have brought to the fore the importance of liquidity constraints. In the presence of liquidity constraints, the concept of fiscal sustainability is significantly more stringent, and measures of sustainable public debt levels tend to lie in the range of 25 to 30 percent of GDP.¹³

This greater awareness about the importance of fiscal prudence, reflected in the adoption of fiscal responsibility laws, has stimulated a significant strengthening of fiscal policy frameworks in several Latin

13 See Guidotti (2007), and Reinhart, Rogoff, and Savastano (2003).

American economies that translated into declining debt to GDP ratios in most countries. The reduction of public debt to GDP ratios during the current decade resulted from three main factors: a) improved primary fiscal positions; 2) improved economic growth as a result of a more favorable external environment; and 3) lower interest rates and risk spreads reflecting the sharp decline of international interest rates.

Tables 3 and 4 summarize the changes in main fiscal indicators—the primary fiscal balance and the gross public debt in proportion of GDP—in the major Latin American economies during the years preceding the outbreak of the global financial crisis.

	2003	2007
Argentina	143.0	64.3
Brazil	63.5	67.9
Chile	36.7	19.6
Colombia	55.7	43.0
Mexico	24.3	22.6
Peru	46.5	33.0
Uruguay	83.7	68.5
Venezuela	36.7	23.8

Source: IDB Latin Macro Watch Database

	2003	2007
Argentina	0.7	3.5
Brazil	2.3	3.1
Chile	-0.1	8.4
Colombia	0.8	3.5
Mexico	1.6	2.5
Peru	-0.1	4
Uruguay	0.2	3.3
Venezuela	3.7	0.5

Source: IDB Latin Macro Watch Database

As can be observed in Table 4, all of the major Latin American economies, with the exception of Venezuela, had strengthened significantly their primary fiscal position in the years preceding the global financial crisis and, by 2007, displayed large primary surpluses by historical standards. Particularly impressive is the case of Chile, where the primary fiscal surplus reached 8.4 percent of GDP, reflecting the fact that the budget process in that country contemplates fiscal objectives that are computed on an adjusted basis on account of the economic cycle as well as the international price of copper.

As a result of the improved fiscal positions and the strong economic growth experienced in the first two-thirds of this decade, most countries in the region reduced their public-debt-to-GDP ratios during the first part of the decade. In the case of Argentina, Brazil, and Uruguay, however, the stock of debt-to-GDP was in 2007 still higher than what could be considered safe in the event of serious disruptions in the international capital markets, despite the fact that all three countries had a primary fiscal surplus in excess of 3 percent of GDP.

Strong financial systems, well regulated and supervised, and largely disconnected from the international capital markets; and expanding domestic capital markets underpinned by the growth of private pension funds.

A “costly” but “welcomed” effect of previous banking crises was that new and effective bank regulatory frameworks were put in place across Latin America. In addition, bank supervision was significantly strengthened along with the introduction of international prudential standards. In fact, the region’s supervisors became very conservative (much more than their industrial countries’ counterparts), as reflected in higher bank capital requirements and, in some cases, the imposition of explicit liquidity requirements on financial institutions.

Moreover, banks in Latin America have traditionally faced important restrictions relating to operations in foreign countries or in holding significant foreign credit risk exposures. This enforced isolation from the rest of the world (as regards the banks’ asset side) worked

to the benefit of the region, however, when the global financial crisis erupted. The region's banks had little or no direct exposure to the type of structured products ('toxic' assets) that were at the heart of the US subprime mortgage crisis.

Mexico provides a clear example. As mentioned in Section II, most of the banks in Mexico are subsidiaries of large foreign financial institutions. However, legislation set prior to the international financial crisis set strict credit limits on related parties. This greatly limited the liquidity that these subsidiaries were able to offer their parent banks. Side by side with the strengthening of bank regulation and supervision, the region also benefitted from two additional and interrelated important developments in their financial markets: the decline in dollarization and the development and growth of the domestic capital market.

The phenomenon of dollarization that had become endemic in several Latin American economies after decades of high inflation began to subside in the current decade. Dollarization usually was pervasive in the financial system, at the level of bank loans and deposits as well as in terms of domestic public debt issuance. Examples of the decline in deposit dollarization are Argentina, where it fell from over 50 percent in 1998 to about 10 percent in 2007, and Peru, where it fell from about 71 percent in 1998 to below 63 percent in 2007. As discussed in Section II, this sharp decline in banks' liability dollarization contributed to the stability of banking systems during the global crisis. Table 5 illustrates the change in the level of dollarization of the public debt between 1994 and 2005 in four of the traditionally dollarized economies of the region.

As can be seen in the table, dollarization of the domestic public debt fell sharply or has been virtually eliminated in Argentina, Brazil, and Mexico, while it is in a process of steady decline from very high levels in Uruguay.

Moreover, it is notable that the decline in dollarization was accompanied with a maturity shift—from short-term to long-term—in the issuance of domestic public debt. For instance, in the case of Mexico

and Uruguay, the share of short-term debt declined, respectively, from 78.6 and 40.7 percent in 1994 to 16.7 and 20 percent in 2005.

Table 5: Public Debt Dollarization (in %)

	1994	2005
Argentina	65.8	28.1
Brazil	44.3	0.6
Chile	0	0
Colombia	n.a.	n.a.
Mexico	54.9	0
Peru	n.a.	n.a.
Uruguay	98.3	71.7
Venezuela	n.a.	n.a.

Source: IDB "Living with Debt", 2007

These developments were the reflection of a larger change in the region's capital markets. The development of domestic capital markets across the region has been a policy objective for a long time but it started to gather steam as a consequence of significant institutional changes. The most significant occurrence was the privatization of social security systems—moving from pay-as-you-go to individual capitalization systems—in several countries. Social security reform allowed for the birth and development of private pension funds in Argentina, Brazil, Chile, Colombia, Mexico, and Peru. Regrettably, Argentina reversed its social security reform by nationalizing and confiscating existing private pension funds in 2006.

The growth of private pension funds as institutional investors was accompanied by the flourishing of insurance companies, mutual funds, and investment companies. Although there exist varying quantitative restrictions across countries on the type of assets that these

institutional investors are allowed to hold, the trend has been one of increasing relaxation of such restrictions going forward.

As a direct consequence of these institutional changes, the private sector in most Latin American countries has been provided with new, non-bank, financing options which tend to be stable and longer-term in maturity. Thus, the strengthening of bank regulation and supervision, combined with the development of the domestic capital markets played a significant role in improving the region's ability to cope with the effects of the global financial crisis.

B. Adequate Policy Responses

As described in Section II, the global financial crisis affected Latin America mainly through two channels: finance and trade. These channels manifested themselves with high intensity especially after the collapse of Lehman Brothers and in some instances were intertwined, as exemplified by the sudden drop in trade credit that took place at that time.

Monetary Policy Response

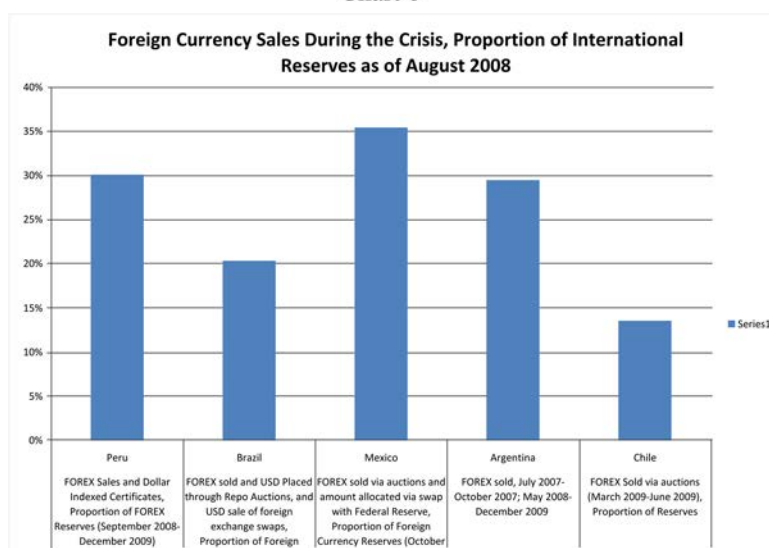
The main policy response in the region after the crisis was primarily centered on monetary policy. Especially after Lehman's fall the region's central banks faced a significant increase in the demand for liquidity both in local currency as well as in foreign currency (US dollars). As discussed in Section II, the increase in the demand for US dollars created a pressure in foreign exchange markets towards depreciation of the domestic currencies.

Contrary to past experiences—in which foreign-exchange market pressures induced significant uncertainty and financial instability—this time around the response was very different because central banks had flexible exchange rate regimes in place and counted on ample stocks of international reserves to be able to respond to capital market shocks. Moreover, most central banks in the region had allowed their domestic currency to strengthen in nominal and real terms during the previous years of rapid economic growth. There-

fore, in response to the shock generated by the collapse of Lehman, most central banks in Latin America allowed their domestic currencies to depreciate (Chart 2).

In addition, central banks provided significant external liquidity to the market through foreign exchange intervention. Chart 6 shows the sale of foreign exchange (in some cases through auction programs) in the major Latin American economies. These sales varied significantly, from 8% to 32% of the pre-Lehman stock of foreign exchange reserves.¹⁴ Such a move was important because as the foreign reserve market dried up, economic agents were becoming more vulnerable to sharp swings in exchange rates. This was particularly true in Brazil and Mexico, which, as mentioned earlier, had speculated against their local currencies and had suffered huge losses with the Lehman crash. Interestingly, as can be seen below, Chile and Colombia placed the burden of adjustment on their exchange rate and sold a much lower percentage of their reserves.

Chart 6



A central and distinctive feature of the recent response of central banks, as compared to past crises, was that the combination of weak-

¹⁴ Both Chile and Mexico sold foreign exchange through auctions

ening currencies and foreign exchange intervention was not taken by the public as a signal that the objective of price stability was in danger. In fact, unlike past experiences in which similar conditions translated into interest rate hikes, this time around the policy response took place under virtually unaffected or declining market interest rates. The combination of central banks responding to the global crisis with a pro-active liquidity provision and, at the same time, maintaining their credibility in financial markets is yet another manifestation of the maturity acquired in the past decade by a number of the region's central banks.

The ability of Latin America's central banks to provide external liquidity at times of crisis was enhanced in some instances by the setting up of ad-hoc swap arrangements with foreign central banks. In the case of Brazil and Mexico, in particular, the central banks established a US \$30 billion swap arrangement with the US Federal Reserve. In a similar vein, Argentina's central bank established a US \$10 billion swap arrangement with the central bank of China. Moreover, in the case of Colombia and Mexico, governments were among the first countries to apply and qualify for the newly created IMF's Flexible Credit Line for amounts equivalent to US \$10.4 and \$31.5 billion, respectively.

While central banks of the major advanced economies "discovered" the advantages of "unconventional" or "heterodox" monetary policy in the midst of the global crisis, Latin America's major central banks already had vast experience with such policy instruments from past experiences. Hence, measures such as quantitative easing, asset purchases, changes in maturity and collateral requirements associated with liquidity provisions were all part of the arsenal of the region's policymakers.

In particular, the notion that the target rates used by central banks during normal times may turn out to be quite ineffective during times of unusual financial turbulence was well imbedded into the framework of monetary policy and many central banks in the region knew perfectly well that they needed additional, and quantitative, instruments to enhance the effectiveness of their policies during cri-

sis times. For this reason, a number of the region's central banks had imposed reserve or liquidity requirements on banks that could be used counter cyclically to enhance bank liquidity.¹⁵ To be clear, the reduction in policy rates was part of the policy response but the additional and complementary measures were central to the success of the overall response.

As shown in Appendix I, the central banks of Argentina, Brazil, Colombia, and Peru all relaxed liquidity/reserve requirements in the aftermath of Lehman as a means of injecting liquidity into the banking system. The Appendix also shows that, in the cases of Argentina, Chile, Mexico, and Peru, central banks relaxed the amount, collateral requirement, and maturity of their repo and swap lines with the banking system. In the case of Mexico, the central bank implemented new swap lines with commercial and development banks, denominated in US dollars and funded with the swap line established by the Mexican central bank with the US Federal Reserve. Additional swap lines with the banking system were also implemented in Argentina and Brazil; in the latter case, a swap line was established especially for trade credit.

In sum, the policy response in Latin America resorted to a wide array of instruments that emerged from previous experiences of crisis management, and benefitted from the ample foreign-currency liquidity accumulated by central banks in previous years, from exchange-rate flexibility, and the credibility of the monetary policy frameworks in place.

Fiscal Policy

Monetary policy actions were complemented in some cases by countercyclical fiscal policy. However, unlike in the advanced economies, many Latin American countries were cautious as to how much of a fiscal stimulus to implement, having learned from previous crisis that such an action could have long term public debt affects. Nonetheless, many Latin American countries did pursue some level of fiscal

¹⁵ See Guidotti (2003) for a conceptual discussion on the use of liquidity requirements as a preventive measure for systemic risk.

stimulus. Brazil and Chile, for instance, implemented targeted fiscal stimulus packages in response to Lehman's collapse in the order of 0.9 and 2.9 percent of GDP, respectively.¹⁶

In Argentina, Brazil, Chile Mexico, and Peru the temporary fiscal measures adopted in response to the global crisis included spending in infrastructure investments, implementation or expansion of various support programs for small and medium enterprises, strengthening of social programs, and targeted tax reductions. Moreover, in the case of Argentina, Brazil and Chile, governments stepped up the role of public banks in the provision of credit to the private sector as a means to counteract the reduction in external financing and the sharp reduction in the rate of growth of private credit to the private sector (Chart 4).

As noted earlier, the region's ability to respond to the crisis with some countercyclical fiscal policy was unprecedented, and it reflected the progress made in previous years in terms of strengthening fiscal policy and reducing public debt burdens. Nevertheless, the role of fiscal policy in the region in response to the global crisis was clearly secondary to that of monetary policy, as governments in Latin America were much more conscious than their counterparts in the advanced economies of the limits of fiscal policy and the future risk of running excessively large budget deficits.

¹⁶ See the IMF's May 2009 Regional Outlook for the Western Hemisphere.

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Appendix I

Response to the Crisis: Latin American Central Banks' Provision of Liquidity during the Global Financial Crisis

Country	Measures taken to provide Liquidity	Notes
Argentina	FX intervention: Injected liquidity through the market for central bank bills and notes	(At the onset of the crisis; Involved issuing notes when the peso supply was high; reducing it when needed)
	Relaxation of minimum liquidity requirements for foreign currency denominated deposits	Allowed for an increase in lending in foreign currency for trade operations
	Liquidity Windows: Additional windows established (had non-traditional collateral)	Public Banks, domestic private banks, foreign institutions—all have maintained high liquidity levels
	Refined discount Window: Changes implemented included pre-assessments of collateral and enhanced access to all funding sources)	
	Larger facilities on Repo Market	New lines in domestic and foreign currency
	Auctioning Repo Options	
	Anticipated buyback of central bank bills and notes	(secondary market, automatic facility, and put options)
	OMO became more flexible (more types of government bonds eligible as collateral)	
	Support to interbank lending in local currency (much of which occurred through changes or intervention in the repo market)	Measures taken included: BCRRA decided to issue domestic LEBACs and NOBACs, which could only be traded locally. Scheme to offer liquidity at fixed and variable interest rates. Central bank securities coming due were renewed only partially; some securities with near-term maturities were repurchased BCRA—unified the financial institutions' minimum cash requirements for June and July 2007/2008 in a single bi-monthly term. Repo interest rates were modified several times. Auctions of put options on LEBACs and NOBACs. Fixed repo line was expanded to \$10,000 million from the previous \$3000 million dollars.
	Measures taken (by the BCRA) to support foreign currency refinancing of banks/Corporations	Limits to operate in futures markets (for BCRRA and some of its counterparties). Reference rate for futures and forwards between BCRA and counterparties allowed to settle by the Emerging Market Trades Association. Mechanism developed to supply US dollar-denominated repos. BCRA participation in NDF market. Auctions of US dollar repos with pre-established interest rate directed to the financial system institutions that had previously increased their loans in US dollars to the export sector and that had suffered a drop in US dollar deposits.
	Adjustments to cash requirements	
	Currency Swap arrangements	With the People's Bank of China (will provide 70 billion CNY/38 billion ARS). Effective period of three years Currency Swap arrangement with Brazil
	Interest Rate Swap Auctions established	

Peru	Measures taken to provide Liquidity	Notes
(Pre-Lehman Phase)	Higher Reserve Requirements	domestic and foreign currency
	Marginal Reserve Requirement	
	Sterilized FX intervention	Purchases of 8.4 billion USD
	Policy rate increase by 200 bps to 6.5 percent	
Post Lehman Phase Sept. 2008-Dec. 2009	Reduction of Reserve Requirements (domestic and foreign currency)	(25 to 6 percent for domestic currency) (49 to 30 percent in foreign currency)
	Increase in Central bank's REPO (amount and maturity)	
	Public sector bought Central bank's Treasury bills in the capital markets	Implemented to preserve the market liquidity of the system in order to maintain collateral value of the assets for the money market operations and to act as a benchmark for longer term bank lending operations.
	New Central bank Swap Facility	
	Sterilization Instruments: (Reduction of the stock of)	
	FOREX intervention (Sale of 6.9 billion USD)	
	USD indexed certificates issued	
	Reduction of monetary policy rate to 1.25 percent: 525 basis points (February to August 2009)	
	External Credit Lines: Exempt from reserve requirements since October 2008	
Colombia (pre and post Lehman)	Marginal Reserve requirements: Introduced in May 2007.	
	Reduced Reserve Requirements (4th quarter of 2008)	
	Authorities introduced a new liquidity risk management system	Early 2009
	Remuneration of Reserve Requirements reduced in January 2009 and eliminated in July 2009	
	Repo operations (permissible assets broadened)	As a result of a Financial Reform Law approved on July 15
	Open market operations conducted.	
Sources (IMF 2009; 2010)	Policy Rate lowered by 50 basis points	12/1/2008 (Done after a long period of tightening by 400 basis points)

Brazil (Post Lehman)	Measures taken to provide Liquidity	Notes
Providing dollar liquidity (as noted by BIS paper)	Spot sales of USD	14.5 billion USD sold. (7 percent of total reserves)
	Repo Auctions (USD auctions)	11.8 billion USD placed through repo auctions
	New Lending Window for Trade Finance	(Foreign exchange reserve lending) Program reached 12.6 billion USD. (9 billion targeted at ACC market)
	Providing liquidity via action in the derivatives markets: (specifically the foreign exchange swap market : BCB started to unwind its reverse swap position	From the beginning of October, it began to sell traditional swaps
	Foreign currency swap arrangement with Federal Reserve	BCB did not use the facility, but noted as easing expectations of volatility. Swap arrangement could reach 30 billion USD.
	Sold Foreign Exchange Swaps	Announcement that the BCB would sell up to 50 USD billion worth (which was worth up to 25% of pre-crisis reserves); actual sales only reached 12 billion USD.
Providing real liquidity (as noted by BIS paper)	Reserve requirements: Reached 250 billion reais in the immediate pre-crisis period.	Total reserve requirements released: 116 billion reais (4 percent of GDP at 2009 prices) (Reserve requirements would have reached 295 million reais by end of August 2009 (based on simulations); instead, they actually reached 179 billion reais.
	Reserve requirement rebates: Used to spread liquidity. Achieved through incentives for the use of released funds in the acquisition of small and medium sized banks.	Specifically, authorities introduced deductions on deposits from leasing companies and on time deposits subject to restrictions.
	Reserve requirement rebates: Also directed at USD purchases to offset effects of USD sales by the BCB on local currency.	Measures related to circulars issued in October 2008 and December 2008
	Discount Window	Operations could have tenor up to 359 days; Change in the criteria for the acceptance and pricing of banks' assets; BCB could impose corrective actions on institutions that relied on the window. With the exception of ordinary intraday loans, Discount window not actually used during crisis. (fear of stigma.)
	Deposit Guarantee Fund (FGC)	Enhanced ability to buy assets from banks. Introduced a program of bank certificate purchases. Introduction, in March 2009, of the Guaranteed Time Deposits (DPGE) backed by the FGC. (tenors from 6 to 60 months). Deposits limited to R\$20 million per account per bank and required that the issuing banks increase their contributions to the FGC. Issuance of guaranteed time deposits (DPGE): noted as contributing to the revival of issuance among smaller institutions. Amount of time deposits rose by around 24 percent between March and May 2009.

Mexico (Post Lehman)	Mexico not affected greatly up until September 2008.	
	Extraordinary Auctions (US currency sold directly in the market)	October 2008: Total Amount sold: 11 billion USD (purpose to provide liquidity in order to meet demand for USD)
	Restored in early 2009.	(1.83 billion sold during restoration period in early 2009; Carried out through February 2009)
	Daily Auctions (3 times a day)	October 2008: 400 million USD in total. Minimum price 2 percent above the exchange rate. 4.18 billion USD sold via this auction mechanism.
		October 2008-February 2009: 28 billion USD sold via both extraordinary auctions and daily dollar sales.
	Remuneration of USD deposits at the central bank.	Paid US overnight interest rate minus 1/8.
	Foreign Currency Swap Line With the Federal Reserve	Up to 30 billion
	Federal Reserve Swap Line	April 2009: Bank of Mexico carried out a USD swap for commercial and development banks; using dollars from the swap line. 4 billion USD auctioned in total; Only 3.2 billion allocated
	IMF Flexible Credit Line	IMF approved Mexico's access; 31.5 billion in SRDs for 1 year.
	New liquidity facility established: (range of assets accepted as collateral broadened; lowering of applicable IR.)	
	Changes to auction schedule for government bonds by federal government and deposit insurance agency (IPAB)	Last quarter 2008: Federal government reduced issuance of fixed rate securities; increased issuance of short term bills so that total net domestic funding remained (unchanged) IPAB: reduced issuance of its paper.
	Interest Rate Swap Auction program	Program for a total amount of MXN 50 billion for domestic financial institutions; MXN 4.40 billion total amount allocated.
	Program to repurchase long term government bonds in secondary market	(for up to 40 million MXN) Bonos: 33 billion MXN Only 4.34 billion were allocated. Udibonos: 6.95 billion (only 2.95 allocated)
	Repurchase of Securities issued by IPAB	
		Domestic financial markets and policy response ((p. 291)) insert.
	October 2008: Bank of Mexico establishes new liquidity facility established that expanded range of eligible assets to be used as collateral. (291)	

Chile		
	Policy rate raised by 50 basis points (to 8.25 percent)	September 4, 2008
	Suspends Reserve Accumulation Program	6 billion (May-September 2008)
Measures taken after September 2008	Repo and Swap lines implemented	Maturity of repo operations was extended (BIS)
	Measures taken to flexibilize liquidity management for financial system: Includes extension and broadening of FX swap program and repos in pesos, and accepting of bank deposits as collateral for repos (noted below as well)	FX swap program extend to 180 days through end December 2008; Liquidity management measures eventually extended through end 2009. In January 2009, a new mechanism that includes government securities and bank deposits as collateral is implemented. (goes to June 2009)
	BCCh auctions government deposits	
	Collateral Requirements eased	Maturity of eligible collateral was expanded. (BIS)
	Liquidity requirements extended	Eventually through the end of 2009.
	Shifting of deposits held abroad to domestic banks	In October 2009; (1 billion USD)
	BCCh initiates FOREX sales auction program	May 2009: 50 million USD daily
	Establishment of bank deposit auctions of US dollar holdings	
	Monetary policy rate: lowered from 8.25 percent in January 2009 to .75 percent by June 2009	
(Source for Chile: IMF 2009 Article IV; Financial Stability Report, First Half 2009)		

6 The Global Financial Crisis and Financial Regulation In The Antipodes

A Report by the Australia-New Zealand
Shadow Financial Regulatory
Committee*

I. Introduction and Summary

The Australian and New Zealand financial systems are closely linked by the dominance of the four major Australian banks in both markets. Their economies also displayed a number of common features prior to the Global Financial Crisis (GFC).¹ These included: long periods of economic expansion and government budget surpluses and consequently low government debt/GDP ratios; long histories of

* Prepared for the Joint International Meeting of Shadow Financial Regulatory Committees in Washington October 22-24. Authors of this Chapter are: Christine Brown (Monash University), Kevin Davis (University of Melbourne), Mervyn Lewis (University of South Australia), and David Mayes (University of Auckland). Appendix 3 contains a glossary of acronyms used.

¹ They are both relatively “small” economies. In 2007, according to the IMF World Economic Outlook database, the Australian population was 7 per cent and its GDP (on a Purchasing Power Parity Basis) 5.7 per cent of that of the USA. For New Zealand the comparable figures were 1.4 and 0.8 per cent.

current account deficits and consequently substantial private sector overseas net debt positions; elevated housing prices and high household indebtedness; bank balance sheets marked by significant use of international capital market borrowings and a concentration of assets in residential mortgage loans; concerns over inflation and improving terms of trade due to world commodity price movements.

Partly reflecting these commonalities and linkages, the experiences of both financial sectors and economies during the GFC were quite similar, despite some differences in economic fundamentals and quite different regulatory approaches. As well as different allocation of responsibilities between regulatory authorities as shown in Appendix 1, the New Zealanders placed much more emphasis on disclosure and market discipline than common elsewhere.

In both countries the banking systems escaped substantial dislocation, partly aided by liquidity support measures and government guarantees. But strong underlying bank profitability, relatively low reliance of the major banks on income from trading and dealing in complex products and markets, and tough supervision by the Australian regulator (APRA) were all relevant factors. Also important (as argued in the case of Canada by Bordo, Redish and Rockoff (2011)) may have been the historical evolution as financial systems dominated by a concentrated banking sector within which sources of systemic risk were internalized and better subject to regulatory oversight and management. Either way, Australian and New Zealand banks did not lower their credit risk standards as much as was experienced in a number of other countries. Significant failures of financial firms outside of the prudentially regulated sector did occur (although in the case of NZ this was the continuation of a domestic problem involving finance companies, rather than GFC related), and some weaknesses in the regulation of corporate finance and capital markets in Australia were exposed.

Luckily, failure management powers over prudentially regulated institutions, where previously noted deficiencies had not been fully rectified, were not put to the test, while introduction of deposit guarantees gave weight to the widely held public view that no explicit de-

posit insurance really meant implicit deposit insurance. Despite that, and reduced faith in the effectiveness of disclosure, NZ is planning a return to a *caveat emptor* approach to bank depositor protection, and focusing upon strengthening “open bank resolution” powers. In contrast, Australia has made its deposit guarantee scheme a permanent feature of the financial regulatory architecture, and has rectified major gaps in APRA’s intervention and failure management powers. Both approaches seem likely to entrench the dominant position of the four major Australian banks as domestic SIFI’s which the respective governments would be unwilling to let fail. Structuring regulatory arrangements to reflect that situation and reduce the potential systemic risks and competitive imbalances it creates remains a work in progress. Also underway is a shift in investor/consumer protection arrangements in the non-prudentially regulated sector, where recent experiences have shown up deficiencies in the *caveat emptor* approach reliant upon disclosure, education and advice.

In the following sections while reviewing experiences and regulatory reactions to the GFC we attempt to address the questions of:

- Why did Australia and NZ emerge relatively unscathed?
- Do concentrated, dominant, banking sectors aid effective prudential supervision and management of systemic risk?
- What lessons can be learnt about the optimal design of, and allocation of responsibilities to, regulatory agencies?

II. The Timing and Evolution of the Crisis

A. The Economic Underpinnings

Prior to the GFC the financial systems of Australia and New Zealand looked relatively similar.² Bank credit dominated debt financing of households and business with very high concentration of bank assets in residential mortgages. Even though the financial sectors had grown significantly (and in Australia contributed around 10 per cent of GDP) their asset holdings relative to GDP were small compared

² Bollard, Drage and Orr (2007) provide an outline of the key characteristics of the NZ financial sector, including some comparisons with Australia. Davis (2011) provides an overview of the Australian financial sector in the 2000s. See also Ryan and Thompson (2007).

to many other bank-dominated financial systems. Bollard, Hunt and Hodgetts (2011) note that in 2007 financial sector assets/GDP for NZ was 242 per cent (and for Australia was around 340 per cent) compared to corresponding figures for Iceland, Ireland, Switzerland, Hong Kong and Singapore of between 873 and 1129 per cent.

Government debt outstanding was relatively low (due to long periods of government budget surpluses), as shown in Table 1, with much held by overseas investors. Domestic corporate bond markets were small (except for issues by banks and, in Australia, securitization). Foreign issuers of both AUD and NZD denominated bonds were significant. Relatively high interest rates in both countries had led to significant “carry trade” transactions by foreign investors. In both countries, the share of non-bank financial intermediaries (finance companies, investment and merchant banks etc) was relatively small.

Table 1: Gross Government Debt to GDP (%), Selected Countries, 2007 and 2010

Country	2007	2010
Australia	9.5	21.9
New Zealand	17.4	31.0
United Kingdom	43.9	76.7
United States	62.1	92.7
Japan	187.7	225.9
France	63.8	84.2
Germany	64.9	75.3
Italy	103.5	118.4
Japan	187.7	225.9

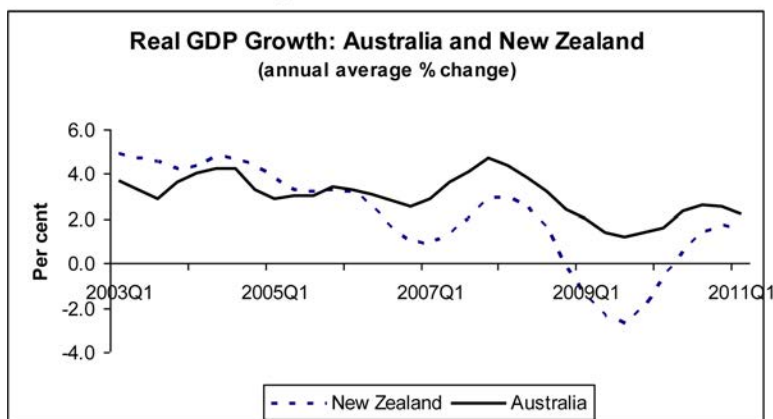
Source: IMF WEO Database (WEO Subject Code: GGXWDG_NGDP)
<http://www.imf.org/external/pubs/ft/weo/2010/02/weodata/index.aspx>

Differences were primarily ones of degree, with NZ having (for a developed economy) a relatively underdeveloped capital market. Stock market capitalization was around 150 per cent of GDP for Australia, but less than 50 per cent for New Zealand. Securitization had grown substantially in Australia but relatively little in NZ. Australia's compulsory superannuation system had spawned a large funds management sector, but (reflecting the absence of such a system) the funds management industry was relatively small in NZ.³ Derivatives markets (other than for foreign exchange and interest rate swaps) were relatively underdeveloped in NZ.

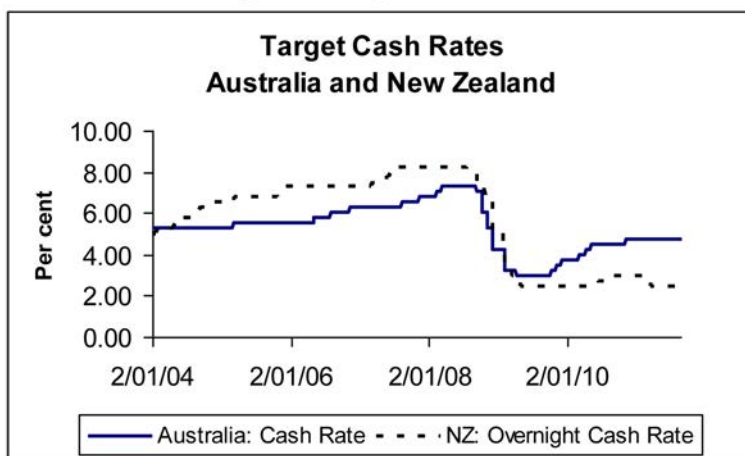
In the years prior to 2007, the Australian and NZ economies had experienced a sustained period of strong economic growth (Figure 1) and relatively high credit growth. There were few signs of substantive declines in bank credit standards, and relatively little (albeit increasing) use of "low-doc" or "non-conforming" loans. In February 2007, S&P upgraded the four major Australian banks (which accounted for over 2/3 of domestic deposit and loan markets in both countries) from AA- to AA. Household leverage had also increased substantially. Outside the banking sector, lending standards in the non-prudentially regulated finance company sector in NZ had declined, while some financial and business companies in Australia had adopted highly leveraged balance sheets financing holdings of illiquid financial and real assets.

Strong output growth in both countries was accompanied by significant improvements in the terms of trade, and with inflation a matter of concern, both central banks had been gradually increasing their target cash interest rates as shown in Figure 2.

³ New Zealand introduced its own voluntary superannuation scheme, known as Kiwisaver in 2007, along with a sovereign wealth fund, NZ Superannuation Fund, set up in 2001.

Figure 1 : Real GDP Growth

Source: RBNZ, <http://www.rbnz.govt.nz/keygraphs/fig2.html>

Figure 2: Target Cash Rates

Source: RBA and RBNZ

Despite long standing government budgetary surpluses, low household saving and high investment were reflected in ongoing current account deficits. For Australia the deficit had been around 5 per cent of GDP for the five years to 2008 while the deficit for NZ had increased from around 4 per cent in the earlier part of the decade to around 8 per cent immediately preceding the crisis. In both countries a significant part of the resulting capital inflow occurred through bank borrowings in international wholesale capital markets.

There was significant asset price inflation reflected in equities and housing prices, and low credit spreads.

B. Transmission of the Crisis into the Antipodes⁴

It is common to differentiate two types of crisis transmission. The first, ‘spillovers’ or ‘contagion’ occur when sequential causal connections result in events in one economy or financial market affecting another (Stevens, 2008)). This occurs either through real economy effects such as international transmission of aggregate demand and trade flow effects from the impact of the crisis in one country on another, or through the interconnectedness of global equity and debt markets (Didier, Paolo and Schmukler, 2007). The second mechanism of transmission reflects the extent to which countries experience the same shock.

There were three areas in which Australia and NZ might have been seen to be sufficiently vulnerable as to be dragged under quickly by the global forces. These were in terms of (1) the structures of the economies, (2) the diversity of the financial system, and (3) the banking system. The first is relevant for ‘real economy’ spillovers, such as the international transmission of aggregate demand and trade flow effects, while the other two have significance for interrelationships with global debt and equity markets.

The economy

Potential vulnerability came from a number of features:

- As “small open economies” (with exports accounting for around 25 per cent of GDP) foreign trade multiplier effects from a world downturn might be expected to depress exports.
- Persistent current account deficits since the Second World War have financed domestic investment-savings imbalances, but mercantilist views persist and deficits are often seen as bad and current account surpluses as good⁵, with deficits

⁴ For more detail see Brown and Davis (2008, 2010).

⁵ See Debelle (2011) for a robust counter argument to this view from an Australian perspective.

seen as making countries reliant on capital inflows and exchange rates sensitive to the mood of the markets.

- Capital inflow was being substantially intermediated through bank balance sheets, with short-term borrowings transformed into longer-term loans (albeit at variable interest rates), particularly for housing, where prices were viewed by many to be significantly inflated. Much the same transformation brought the United States undone.
- The size of the current account deficits might also have been viewed with concern. A deficit of around 5 per cent of GDP has typically proved to be the threshold or tipping point at which reversals frequently follow (Iley and Lewis, 2007).

Financial system

There were aspects of the Australian financial system that rendered it vulnerable to developments in global markets, although these were of limited relevance for NZ.

- There was a large securitization market (comprising 78 per cent residential mortgage backed securities and 8 per cent asset backed paper) and Australia was ranked as the second largest issuer (outside the United States) of asset backed securities in 2007. However, these securitizations did not include exotic products.
- The funds management sector (driven by compulsory employer pension contributions) was the fourth largest in the world, with \$1.2 trillion in funds under management (and 30 per cent invested internationally) at 30 September 2007.
- Australia had the largest hedge fund sector in Asia which was subject to no special regulation and able to market its offerings to retail investors. A large range of hedge funds and credit linked products were listed on the Australian Securities Exchange and available to retail investors (including self managed pension funds).
- Australian corporate bond issuers were more dependent on international than domestic debt markets.

Banking system

Despite the appearance of profitability and safety, there were some worrying features.

- With an average total capital to risk-weighted assets in 2007 of 9.9 per cent (Australia) and 10.1 per cent (NZ), the Australian banks seemed well capitalized. However, this figure was well below the 13.3 per cent for 2007 of the 46 economies that were surveyed by the BIS (Cecchetti, King and Yetman, 2011).
- The loan to deposit ratios for Australian (NZ) banks at 166.6 (145.1) per cent in 2007 were much higher than the 97 per cent average for the BIS sample.
- Private sector credit in Australia (NZ) in 2007 relative to GDP at 117.3 (140.7) per cent was higher than the 96.7 per cent for the other countries in the BIS sample.
- There was heavy reliance on both offshore and domestic wholesale funding relative to domestic retail deposits. At 30 June 2007, the retail domestic deposits of the biggest four banks accounted for only 18.4 per cent of assets of their Australian books, and 40% of the funding of NZ banks came from offshore, while retail deposits were 21% of funding in 2007.

As it turned out, the experiences of both economies during the GFC were quite similar, and ultimately its economic impact relatively slight compared to other advanced economies of the Northern Hemisphere. In fact, Australia did not experience recession in 2008/9. New Zealand however experienced a number of quarters of negative economic growth as shown in Figure 1 (although some part of the downturn was due to the consequences of drought rather than GFC related). The Governor of the Reserve Bank of Australia, Glenn Stevens, has been reported (Uren, 2010) as observing that from the Reserve Bank's perspective the global financial crisis was a 'five minute wonder' (although it must be said that it did seem like a long five minutes at the time). Governor Stevens told the Australian House of Representatives Economics Committee in 2010.

'It was really only a global crisis for six to eight weeks, I think. The rest of it is mainly a North Atlantic story...Whereas many of the North Atlantic economies had their worst recession since World War II, we had probably our smallest.'

The New Zealand authorities have been less sanguine. Recovery has not been strong and ultimately New Zealand has received a sovereign downgrade from AA+ to AA from two of the main rating agencies. Transmission of the financial crisis to both Australia and New Zealand occurred primarily through the re-pricing of risk including the increase in bank funding costs in international markets, dramatic falls in equity prices, and the increased level of uncertainty induced in domestic financial markets. While both Australia and New Zealand were at the higher end among developed economies with negative net international investment positions at the end of 2006, relatively lower "leverage" of the external accounts (gross size, ie assets plus liabilities) of external balance sheets moderated the impact of international asset price movements (Bedford (2008)). Much of the foreign debt on issue represented bank borrowings denominated in foreign currencies but these were generally completely hedged, removing FX risk. For NZ banks, a significant part of those borrowings was from their Australian parents.

From the middle of 2007, banks in both countries experienced significant increases in funding costs in international markets, and in the case of NZ the relatively short maturity structure of debt saw average costs increase relatively quickly. In both countries bank deleveraging in conjunction with reduced demand for credit saw the rate of credit growth decline from around the start of 2008. Complementing this was the marked downturn in the domestic equity markets, with wealth effects on domestic investors (and increased uncertainty) inducing an increase in savings rates, and lower corporate valuations adding to funding problems for leveraged businesses. Another channel of impact ensued when the global increase in risk aversion hit the 'carry trade' (unhedged long AUD or NZD and short Yen, or other low interest rate currency, positions) which had helped finance Australian and NZ current account deficits. The revision of risk saw large swings in the Australian dollar and the NZ

dollar, and the decline in the exchange rates in 2008-9 moderated the real effects of global recession on the respective economies and current account deficits.

C. Initial signs of the impending crisis

Recognition of the impending problems in the US sub-prime market and global under-pricing of risk were regular features of official commentary from late 2006. But disruption to the domestic financial sectors was not anticipated, and there was little evidence of stress until mid 2007.

(a) Initial signs of stress - Institutions

The first signs of stress⁶ involved failures in July 2007 of two unlisted hedge funds with large CDO exposures (Basis Capital and Absolute Capital) and a reasonable number of retail investors. Next to fall was RAMS Home Loans, a large mortgage originator and securitizer with half of its funding from US extendable commercial paper which it was ultimately unable to roll over.

While banks in both countries found funding costs increasing and increased nervousness in domestic interbank markets leading to increased credit spreads and demand for precautionary liquidity balances at the Reserve Banks, banking markets were not unduly disrupted. Possibly the largest disruption to the Australian financial market was in the domestic securitization market. New issues ceased in August 2007 and funding for ABCP programs was shifted back from offshore to domestic markets. Despite a slight recovery during the remainder of 2007, the market effectively dried up during 2008.

From December 2007 through March 2008 a number of companies faced serious difficulties in rolling over debt particularly with their equity market valuations declining markedly. MFS, City Pacific, Centro and Allco Financial Group were all highly leveraged with complex corporate structures involving purchase of illiquid real

⁶ Failures of domestic financial institutions had occurred in New Zealand (finance companies commencing in 2006) and a small number of property/finance companies had failed in Australia in 2005.

(and financial) assets for onselling into managed fund vehicles and/or holding on balance sheet. With declining asset prices and short term debt, financing problems led to their demise (see Table 2).

Regulatory weaknesses in securities markets were exposed when short selling, margin and securities lending and financial advisory practices came under scrutiny during the prolonged bear market. Some Australian broking firms had built substantial businesses based on securities lending (where legal ownership was transferred to the provider of cash). Tricom Securities caused considerable stock market disruption and settlement delay in January 2008 from delay in regaining title to stock it had on-lent. The combination of company insiders having large stock holdings highly leveraged through margin loans (structured on a securities loan transaction), together with inadequate reporting of short sale transactions led to major problems for other companies. In a number of cases speculation that margin calls on executives and directors would be triggered unleashed a wave of short selling, hastening the demise of companies such as ABC Learning in February 2008.

The failure of the broking firm Opes Prime in March 2008 highlighted problems with margin-lending and investor protection arrangements. Because ownership of the securities provided as collateral was transferred under the securities lending model used for margin lending (and seized by the bank financiers of those failed institutions), borrowers from the failed firms faced substantial losses as unsecured creditors. Banks faced significant reputational damage from their funding (and enforcement of security in failure) of such non-prudentially regulated financial institutions whose activities led to significant losses for households. Negotiations and court actions for compensation from the banks has been a long drawn out affair involving some negotiated settlements, class actions and court action by ASIC. In the same period in New Zealand the only obvious problems were the continuing stream of finance company failures catalogued in Appendix 2, whose origin was largely domestic. Most of these would probably have occurred without the problems elsewhere.

Table 2: Crisis Headline events - Australia: July 2007 - August 2008

July 2007	Hedge funds Basis Capital and Absolute Capital announce suspension of withdrawals.
Aug 2007	RAMS Home Loans announces exposure to rollover risk in US XCP market.
Dec, 2007	Centro Property announces difficulties in rolling over debt and suspends redemptions from two managed funds. Share price drops from \$6.20 to \$1.36.
Jan, 2008	Announcements by fund manager MFS and Allico Finance Group of financial problems. Tricom (broking firm) unable to settle trades on ASX on time due to inability to regain shares lent out via securities lending arrangements
Feb, 2008	Failure of large child care centre operator ABC Learning.
Mar, 2008	Fund manager City Pacific freezes redemptions in its mortgage trust. Broking firm Opes Prime enters administration. Shortfalls in accounts discovered, and borrowers face loss of collateral because margin loan business based on a securities lending model.
	National Australia Bank announces provisions for losses on holdings of CDOs
Apr, 2008	Margin lenders Lift Capital and Chimaera Capital fail.

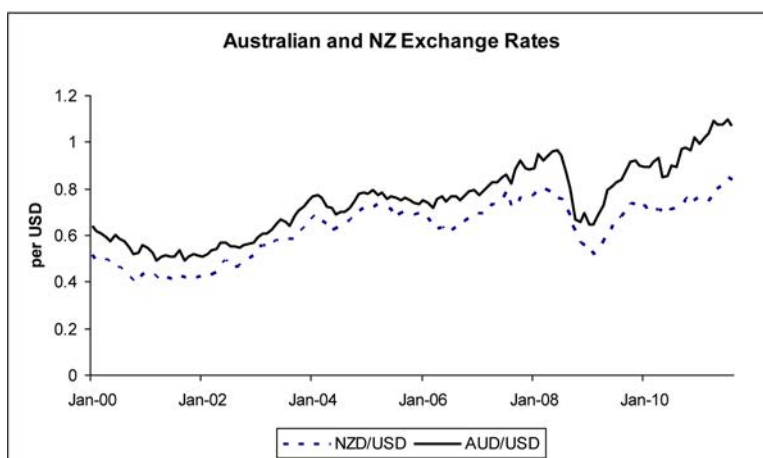
Note: Sykes (2010) provides case studies of a number of these and later failures.

(b) Initial signs of stress – Market Indicators

Credit spreads had been at low levels for several years, and volatility in equities and foreign exchange markets had also been relatively low. The Australian and NZ dollars had shown modest appreciation over the several years leading up to mid 2007 (See Figure 3). While there were some signs of increased volatility, it was not until much later in the crisis (Sept 2008) that exchange rates exhibited major fluctua-

tions. The Australian share market had increased by some 17 per cent in the year to April 2007 (and by 32 per cent in the preceding year).

Figure 3: AUD and NZD exchange rates



Source: RBA and RBNZ

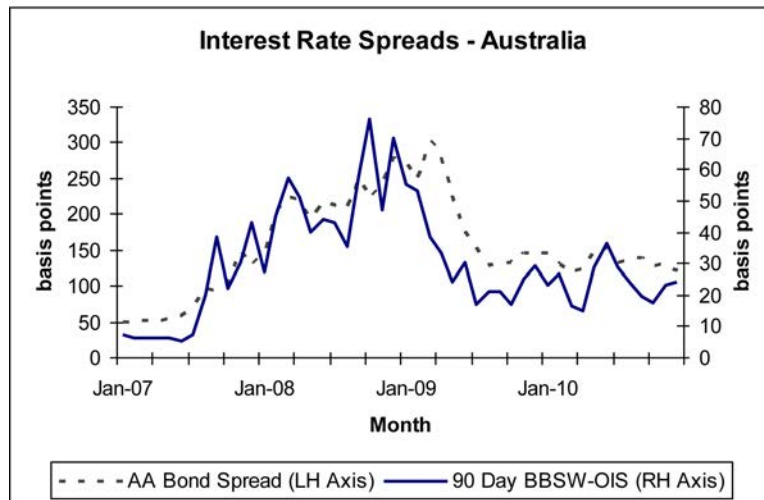
Credit spreads reacted rapidly to the disruption in international financial markets, as shown for Australia in Figure 4, and increased borrowing costs were amplified by increases in official cash rates (until mid 2008).⁷

The principal sources of balance sheet exposure uncertainty in the Australasian economies were of three types. One was bank reliance on international capital market funding to finance asset portfolios dominated by residential mortgage lending at a time of elevated housing prices. This was noted by the IMF in its 2006 FSAP report on Australia (IMF, 2006), although stress testing by APRA had indicated the ability of banks to withstand substantial property price falls (reflecting relatively conservative lending strategies), while the predominant use of variable rate loans meant that changes in funding costs could be passed onto borrowers. The common practice of banks

⁷ In both Australia and NZ, the key short term money market instruments are bank bills, with the bank bill swap rate being a key market indicator rate and indicative of bank short term funding costs prior to the crisis. Monetary policy has operated by setting of overnight cash rate targets, and increased perceptions of bank risk are reflected in increased spreads between bill rates and the overnight indexed swap (OIS) rate.

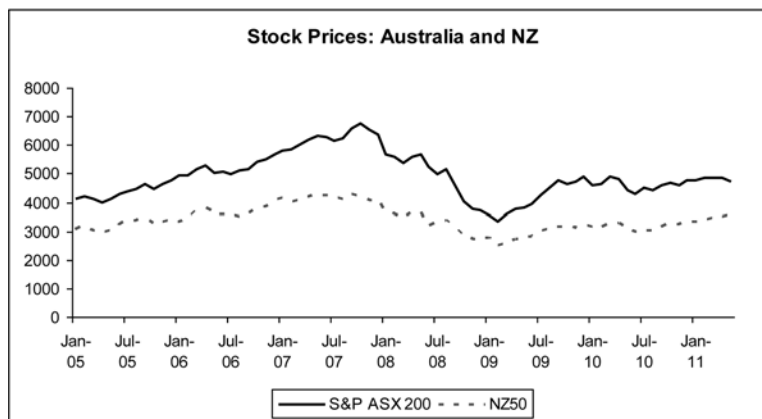
hedging currency exposure from international borrowings removed foreign exchange exposure concerns, but correspondingly large AUD and NZD exposures of international investors (some involved in carry trade positions) created potential for shifts in international sentiment to impact rapidly on exchange rates.

Figure 4: Interest Rate Spreads – Australia^a



(a) The AA Spread is for 1-5 year bonds over the government rate. BBSW is the bank bill swap rate and OIS is the overnight indexed swap rate.
Source: RBA Bulletin.

The Australian stock market collapsed after November 2007, initially stabilizing at around 70 per cent of that peak in mid 2008 (before subsequently falling to less than 50 per cent of that peak in February 2009, and remaining a relative underperformer internationally over the following three years). The New Zealand index exhibited similar behavior, falling by some 40 per cent from its peak in November 2007 in the 16 months to March 2009, and was still 15 per cent below the November 2007 value when it peaked in May 2011.

Figure 5: Australian and NZ Stock Indices

Source: RBA and Yahoo Finance

(c) The nature of balance sheet exposure uncertainty

The principal sources of balance sheet exposure uncertainty in the Australasian economies were of three types. One was bank reliance on international capital market funding to finance asset portfolios dominated by residential mortgage lending at a time of elevated housing prices. This was noted by the IMF in its 2006 FSAP report on Australia (IMF, 2006), although stress testing by APRA had indicated the ability of banks to withstand substantial property price falls (reflecting relatively conservative lending strategies), while the predominant use of variable rate loans meant that changes in funding costs could be passed onto borrowers. The common practice of banks hedging currency exposure from international borrowings removed foreign exchange exposure concerns, but correspondingly large AUD and NZD exposures of international investors (some involved in carry trade positions) created potential for shifts in international sentiment to impact rapidly on exchange rates.

The second concern was the historically high level of household indebtedness and leverage, partly resulting from housing affordability issues, but also reflecting a growing trend for use of leverage to finance financial assets and investment properties – strategies which

provided significant tax advantages in periods of rising asset prices.⁸ While banks could generally pass on increases in funding costs to borrowers, the potential existed for increased loan losses if recession emerged and housing prices collapsed.

The third form of exposure was the use of highly leveraged (and complex) structures by some non-prudentially regulated financial firms and businesses engaged in managed, and property, investments. For the corporate sector as a whole, however, leverage was relatively low by world standards, reflecting the lower interest tax-shield associated with the dividend imputation tax system, and banks appeared well secured for loans made to highly leveraged borrowers.

(d) What drove any counterparty risk uncertainty?

The Australian banks were not heavily reliant on trading income, and figures for risk weighted assets associated with market risk and credit risk in trading books prior to the crisis suggests that counterparty exposures from these activities were relatively low.⁹ Nor was there a perception of any significant exposures arising from investments in “toxic products”. It was not until March 2008 that NAB announced a provision for a relatively small exposure to CDOs in an offshore conduit.

D. Later phase of the crisis

Although the equity markets in Australia and NZ had been affected quite rapidly, the real economies were buffered for some time by improved terms of trade associated with a resources boom driven by exports to China.

⁸ Australia has a concessional capital gains tax and tax deductibility of interest expense (against other income) on investments, although the family house is not subject to capital gains tax (and interest expense not tax deductible). New Zealand has no capital gains tax. Household debt in NZ increased from 58% of disposable income in 1991 to 153.8% in the first quarter of 2008 and then plateaued before falling slowly from the second half of 2010.

⁹ At end 2010, traded market risk accounted for only 2 per cent, and credit risk from off balance sheet activities accounted for 14 per cent of risk weighted assets (Gorajek and Turner (2010)).

While the Lehman's collapse triggered increased uncertainty about counterparty risk in domestic banking markets, raised concerns about bank access to international funding and led to increases in credit spreads and liquidity holdings, the banks (aided by massive government responses) survived this period of stress. But from September 2008 onwards, there were more failures of non-prudentially regulated financial firms in Australia. While their collapses were noteworthy and affected many investors, they constituted a relatively small proportion of the financial sector. Table 3 provides an outline.

Major collapses of highly levered finance/investment companies in Australia in 2009 included global investment and advisory firm Babcock and Brown which managed a number of infrastructure managed investment schemes. It entered administration in March 2009 after a loss of around \$5.6 billion in 2008 (one of the largest in Australian corporate history). Two large companies, Timbercorp and Great Southern which accounted for around 60 percent of the market in agribusiness managed investment schemes failed in April and May 2009 respectively,¹⁰ exposing deficiencies in the single responsible entity model for management of such schemes introduced in the Managed Investments Act 1998 (Brown, Davis and Trusler, 2010).

Table 3: Australian Financial Failures: September 2008 onwards

Oct2008	Mortgage/Property Trust redemption freezes
Jan 2009	Storm Financial (financial adviser/fund manager) placed in administration
Mar 2009	Babcock & Brown (investment bank) placed in administration
Apr 2009	Timbercorp (Agribusiness MIS manager) placed in administration
May2009	Great Southern Plantations (agribusiness MIS manager) placed in administration
Dec 2009	Trio/Astarra (fund manager) placed in administration

In January 2009, a large financial planning firm, Storm Financial, entered administration and ultimately failed, with many clients suffering major losses from highly leveraged investment portfolios.

¹⁰ D'Alosio (2009) provides more detail on the extent of corporate failures and outlines responses by the securities market regulator (ASIC) to the market failings uncovered by the GFC. Great Southern and Timbercorp had over \$3 billion in funds under management (Brown, Davis and Trusler, 2010).

Major banks again suffered reputational damage because of their funding arrangements with that company, and this event prompted a parliamentary inquiry (Ripoll, 2009) leading subsequently to significant changes to investor/consumer protection legislation.

Australia had a growing CDO market (with Lehman's being a significant provider), but the Australian banks had little exposure to the US sub-prime market or other "toxic assets". The quality of the Australian assets underlying asset-backed securities had remained high (D'Aloisio, 2010), but the Australian securitisation market froze in mid-2008, paralleling experiences elsewhere.

In the last quarter of 2008, in the wake of government guarantees provided for bank deposits, retail investors further accelerated redemptions from mortgage/property trusts with many freezing redemptions around October 2008, and access to redemptions improving only slowly through 2009.¹¹ Another source of investment losses for the household sector was the superannuation (pension fund) sector. Compulsory superannuation resulted in funds under management reaching \$1.2 trillion before the crisis. At December 2008 this figure had dropped to \$1.05 trillion (which includes additional contributions), reflecting falling asset prices (and a loss of value on investments of around 25 per cent).¹²

In New Zealand, retail investors were also affected by the collapse of around fifty finance companies, beginning in 2006 and continuing with the collapse of South Canterbury Finance in August 2010, costing the taxpayer \$1.6 billion up front before recoveries. The overall impairment of over NZD 8 billion affecting well over 100,000 investors was not directly a result of the GFC but arose from scandals such as related party lending fraud, lax lending standards and misrepresentation of risks to retail investors. Most of the finance company sector failed and the share of all non-bank lending institutions in total financial sector assets fell from 10.5% in 2006 to 6% in 2010. These organisations were not prudentially regulated and operated under a Trustee governance model. Oversight by the Securities Com-

11 Around \$22 billion of retail investor funds were frozen.

12 Some superannuation funds with illiquid asset portfolios were granted an exemption by APRA from having to meet portability requirements.

mission extended only to checking compliance with the trust deed and even there powers of enforcement were very limited (Wilson, Rose and Pinfold, 2010).

III. Central Bank, Fiscal and Regulatory Agency Responses to the Crisis

A The Early Phase of the Crisis

(a) Initial views on the Crisis

In its May 2007 Statement on Monetary Policy, the RBA noted “uncertainties over the US outlook, particularly relating to developments in the sub-prime mortgage market, but the indications to date are that the spillover from the housing downturn has been limited”. By its August 2007 Statement, the Bank was noting that there had been some flow-on to credit markets, but appeared to view this as primarily a return to more realistic pricing of risk, albeit one creating difficulties for those who had adopted high leverage. Speaking at an RBA Conference in August, the APRA CEO John Laker commented that “Based on traditional indicators, the financial condition of banking institutions, generally speaking, has arguably never been better nor the quality of risk management higher” (Laker (2007, p315)). The Treasury Secretary, Ken Henry later commented in reference to Reserve Bank Board discussions that “Every month we came to the conclusion that Australian financial institutions had minimal exposure” (Taylor and Uren, 2010, p15).

The RBA’s November 2007 Statement on Monetary Policy (finalized on 8 November) noted that despite some increased volatility, widening of spreads, uncertainty and need for temporary liquidity injections by the RBA “[d]omestically, credit market conditions have generally been less affected throughout the episode, and recently have improved by at least as much as in other countries”. While Australian major bank CDS prices increased substantially in late 2007, they were significantly less than those of US and European banks. Throughout the remainder of this first phase (until September 2008), most emphasis in Australian and New Zealand policy discussions was upon the impacts of a global economic slowdown

and “deleveraging” upon the economy, offset by improving terms of trade, rather than upon financial sector stability concerns. In the first phase of the crisis it appeared to those concerned that the problems were manageable though difficult.¹³

(b) Central Bank Monetary and Liquidity Policy

Despite international financial developments, macroeconomic conditions led the RBA and RBNZ to maintain somewhat restrictive monetary policy stances until mid 2008.¹⁴ Increases in target cash rates occurred (to a peak of 7.25 per cent for Australia in April 2008 and maintained until August 2008, and a peak of 8.25 per cent for NZ in July 2007 maintained until July 2008). Borrowers were also faced with increased funding costs from the transmission of increased bank funding costs in international wholesale markets into lending rates as well as the general increase in credit spreads in financial markets. Between June 2007 and June 2008 the spread on AA (1 – 5 year maturity) bonds over government rates in Australia increased from 58 to 216 basis points, while from early 2008, the Australian banks increased the margin between variable housing loan interest rates and the cash rate, breaking a constant link which had persisted since the late 1990s.

The heightened uncertainty in the interbank market first arose in August 2007, as can be seen from Figure 4 showing the BBSW – OIS spread and Figure 6 which shows the increase in Exchange Settlement Account (ESA) balances at the RBA. A generally similar pattern of variability can be seen in NZ in interbank spreads and Settlement Balances at the RBNZ (Cassino and Yao, 2011). With increased precautionary demand for reserves, in order to maintain the cash rate at its target rate, the RBA found it necessary to expand the supply of reserves. In doing this it conducted repo operations primarily using bank paper as collateral such that the share of government debt as collateral in the RBA repo book fell from around 70 per cent to

13 In New Zealand, Bollard and Gaitanos (2010) while offering a very popularized view does not suggest any particular concerns until September 2008 and the May 2008 Financial Stability Review by the RBNZ is largely benign in its conclusions.

14 In fact the RBA even increased the target cash rate during the Australian election campaign in November 2007.

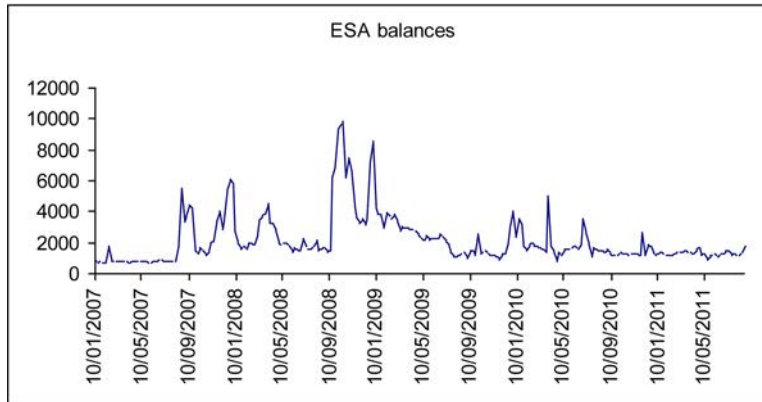
around 20 per cent, while the average repo term was expanded considerably (Battellino, 2007). Similar changes occurred in NZ with the share of government debt in collateral falling from 100 per cent in 2006 to 58 per cent in 2007 (with the remainder being bank bills) and to 12 per cent in 2008 with RMBS accounting for 48 per cent and CP for 38 per cent (Cassino and Yao, 2011).

Because repo operations in Australia are conducted via separate tender processes for general (government) collateral and private collateral, the repo rates can vary, and with the larger spread on private paper available in the market, rates on repos using private collateral increased relative to those on general collateral.¹⁵ The RBA also reduced its FX swap position to further increase domestic liquidity.

On September 7 2007 the RBA announced an expansion in the range of securities which would be accepted in repurchase agreements to include high-rated short term paper and AUD bonds of ADIs and high-rated AUD securities and commercial paper backed by prime domestic full-doc residential mortgages (see Table 4). As can be seen from Figure 6, this expansion in eligible securities appeared to temporarily reduce the demand for central bank ESA balances, but it started to climb again towards the end of 2007 when international market conditions again became somewhat unsettled, before receding (with some temporary spikes) to closer to its earlier average level until September 2008.

New Zealand did not take any action until May 2008 when it extended the range of government related AA securities that would be acceptable in repos and also added AAA NZ securities including RMBS as from the following month.

¹⁵ NZ also used separate operations with corporate and eligible asset-backed securities being accepted on Tuesdays, the Term Auction Facility operating on Wednesdays and ordinary OMOs on the other three days of the week.

Figure 6: Exchange Settlement Account Balances - Australia

Source: RBA Bulletin Table A1

(c) Fiscal Responses

The strength of the domestic economies and absence of problems in the prudentially regulated sector meant that fiscal policy played a minor role during this phase of the crisis. In May 2008, the Australian and NZ Government Budgets for 2008-9 were presented. The Australian budget, the first of the new Rudd Labor Government elected in November 2007 and seeking to build a reputation for responsible economic management, envisaged a continuation of fiscal surpluses with a projection of a surplus of 1.8 per cent of GDP for the coming year. The NZ budget envisaged a modest decline in its surplus. Recognition of the effects of the financial crisis on the economies of the Antipodes at that stage were primarily limited to the effect of slower world economic growth. With 2008 being an election year in New Zealand, some modest optimism in budgetary forecasting could be expected despite limits entailed by the Fiscal Responsibility Act. As the crisis unfolded it became clear that the optimism had been considerable and substantial retrenchment once the immediate crisis was past would be required by the incoming government.

Table 4: Australian and New Zealand Monetary and Fiscal Responses pre Sept 2008

Response Type	Australia	New Zealand
Monetary Policy – change in target interest rate	100 bp increase from 6.25 per cent in June 07 to 7.25 per cent in March 08 (maintained until Sept 08)	Maintained at 8.25 per cent from July 07 until reduction by 25 bp in July 08
Fiscal Policy	May 2008 Budget announcement of planned budget surplus for 2007-8 of 1.4% of GDP	May 2008 Budget announcement of smaller budget surplus for 2007-8
Liquidity Assistance (local currency)	Expanded range of eligible securities (highly rated bank and private paper and some CP backed by prime residential mortgages) for Repos (Sept 07)	Bank bills accepted as collateral in overnight repo facility Introduction of tiering regime for settlement balances (reducing amount on which full OCR rate paid, brought forward (Aug 07)
Deposit Guarantees	No explicit deposit insurance scheme (although introduction of Financial Claims Scheme under discussion)	No explicit deposit insurance scheme

(d) An Evaluation

The main issue for the Australian and New Zealand banking sector in the initial phase of the crisis was the increased risk aversion shown in interbank markets. The expansion of system liquidity by the RBA and RBNZ and expansion of eligible collateral enabled that problem to be readily met. Moreover, by providing certain private sector securities with eligible collateral status, their secondary market liquidity was enhanced. Also important was the mechanics of operation of liquidity arrangements with use of auction arrangements reducing the chance of “stigmatism” of those accessing liquidity from the RBA.

Some shortcomings in financial regulatory arrangements were noted in the Australian budget statement. “While the current regulatory system has done well in the recent financial market turbulence,

changes are required to ensure the integrity and stability of our markets” (Australian Government, 2008, p30), but these were limited to ensuring increased transparency of covered short selling and reviewing improved disclosure arrangements for equity derivatives. There was thus no atmosphere implying regime change outside financial markets.

B Later Phase of the crisis (post September 2008)

(a) Views on Challenges

The extreme disruption in international financial markets in September 2008 prompted rapid responses from the Australian and New Zealand authorities. In particular, the introduction of government guarantees of bank debt in several (ultimately 19 other) countries created concerns about the ability of Australian banks (and their NZ subsidiaries) to maintain funding. In Australia there was some nervousness amongst domestic depositors with smaller banks and signs of investors in managed investment schemes seeking to shift funds to safe havens. There were substantial concerns about disruption to financial markets, and a concern that an impending world recession would be transmitted into the domestic economy.¹⁶

(b) Central Bank monetary policy and targeted Liquidity Facilities in the later phase

Both the RBA and RBNZ acted rapidly to take action to enhance the functioning of financial markets (see Table 5).

On September 24 the RBA announced the signing of a foreign exchange swap facility with the US Federal Reserve (initially for \$10 billion and expanded to \$30 billion on 29 September). This enabled the RBA to provide USD funding to domestic financial institutions via

¹⁶ Taylor and Uren (2010, Chapter 4), review the policy formulation process, based partly on interviews with major individuals involved, and highlight Labor Government fears of recession, concerns about bank access to funding in international markets, and potential risks of runs on smaller banks (including comment on TV to that effect by Prime Minister Rudd after announcement of the guarantee package).

repos using AUD securities as collateral. The RBNZ FX swap facility was arranged in October 2008, but (unlike the Australian facility) was ultimately not used. Also announced was the introduction of domestic term deposit facilities at both the RBA and RBNZ available to domestic institutions seeking longer term liquidity reserves, which were operated by an auction system.¹⁷

Further enhancements to liquidity facilities followed rapidly. On October 8, the RBA announced that eligible collateral for repos would include “self-securitisations” of RMBS and ABCP.¹⁸ There was a consequent increase in the number of RMBS created and held internally by banks as precautionary balances for possible use in repos. The RBA also announced the offering of 6 month and 1 year term repos and removal of restrictions on substituting private sector for government securities as repo collateral (subject to changes in margin requirements etc).

A third set of changes was announced on November 6, with further expansion of eligible repo collateral to include high rated CP, high rated ABCP, and AAA AUD debt securities. The RBNZ did not add to its May 2008 measures until November 7, when it announced a (sterilized) Term Auction Facility. This was followed on 12 December by the announcement of an increase in the range of eligible securities in liquidity operations, including NZD corporate securities with a rating of BBB- or better high quality asset backed securities. By October 2009 these facilities were already being removed (whereas the Australian facilities have remained in place).

Reflecting the deteriorating state of the economy (and an increase in credit spreads), the RBA cut its target cash rate by 100 basis points on October 7, 2008. Between September 2008 and May 2009 the target cash rate was reduced from 7.25 per cent to 3.00 per cent. In NZ the corresponding changes were from 8.25 in July 2008 to 2.50 by May 2009. The difference in the range reflects the higher inflation

¹⁷ The NZ Term Auction Facility offered up to \$2bn for terms of approximately 3, 6 and 12 months each week. Reserve Bank Bill tenders to sterilize the injections followed on the same day.

¹⁸ Previously only securities issued by non-related parties had been eligible for use in repos.

fears in New Zealand at the beginning of the period and the clearly weaker economy in New Zealand by the end.

Governmental fiscal responses

The Australian Government had been poised to introduce legislation in the week commencing October 12, 2008 for its Financial Claims Scheme, effectively creating an ex post funded deposit guarantee scheme offering protection up to a cap of \$20,000. However, in response to the announcement of bank debt guarantees by several other countries, it hastily changed gear and announced on October 12 the introduction of (initially) unlimited guarantees over deposits (to be maintained in place for three years) and a planned guarantee scheme for new bank wholesale funding. On October 24, the deposit cap was reduced to \$1 million (to be reviewed by October 2011), with protection for amounts above that cap available for fees equivalent to those announced at the same time for bank wholesale funding guarantees. The fee structure was at the lower end of international schemes, being 70 bp for AA ratings, 100bp for A, and 150 bp for BBB and unrated institutions for maturities up to 5 years. The guarantee scheme was eventually closed to new applications in March 2010 at which time guaranteed liabilities had reached a peak of almost \$170 billion and a number of banks were finding it more cost effective to issued non-guaranteed debt.

New Zealand reacted contemporaneously with Australia, but with some significant differences in the nature of government support. First, the Crown Wholesale Funding Guarantee was on less favourable terms involving premia of 85, 145, 195 bp pa for <1 year maturity; 140, 200, 250 bp pa for >1 year but < 5 year maturity for ratings AA- or above, A- to A+, and BBB- to BBB+ respectively, and limited to total amount of up to 125 per cent of the prior amount on issue. It was closed on 30 April 2010 at which time there had been guarantees issued over \$10.3 billion of debt issues. The Crown Retail Deposit Guarantee introduced in October 2008 (in response to the Australian scheme introduction) was available to banks, and also non-bank deposit takers, on an opt-in basis for a period of two years (but subsequently extended until December 2011). A fee of

10 basis points was charged where (and only on) guaranteed deposits exceeded \$5 billion, while for non-rated deposit takers, a fee of 300 basis points on any increase in their deposit book was charged. Reflecting competitive neutrality concerns, a fee for smaller deposit takers was introduced ranging from 10 to 100 basis points linked to credit ratings.

The NZ scheme had all the signs of a rushed job and it was amended twice in October 2008 alone. The RBNZ Governor's own description of the period (Bollard and Gaitanos, 2010 pp.60-66) shows how unprepared they were. The Auditor-General's highly critical report on the scheme was laid before Parliament on 5 October 2011.¹⁹ The scheme itself encountered several difficulties. With no supervisory processes in place for the non-banks it was difficult to establish whether an institution was eligible and hence it took some months to process the applications. If there had been any real fear of a run this would have been disastrous. The first failure (Mascot Finance) in March 2009 occurred before the process of admission was complete.²⁰ There was no scheme in place for repaying depositors rapidly despite interest being payable by the Guarantee Scheme after failure. Hence in the case of South Canterbury Finance (SCF) in August 2010 it was decided to pay out all creditors immediately in full so that the Crown could take over the resolution without needing to consult other parties. One of the key problems was that on the issuance of the guarantee, companies were able to raise more deposits and rather than taking this opportunity to reduce risk it is clear that many, SCF included, used it to take on even more risky lending.²¹

Noting the disruption in the non-prudentially regulated sector, the Australian Government announcement of October 12 also signaled an examination of problems arising from the freezing of redemptions in a number of mortgage and property trusts, and fund raising difficulties for other financial institutions. One action had already been

19 Available at <http://www.oag.govt.nz/2011/treasury>.

20 The schedule of the nine failures under the scheme is shown in Appendix 2

21 The scheme was only introduced with a two year life and was closed down in October 2010 for all but the remaining non-bank entities by then down to only 6, for whom it was renewed until the end of 2011 under less favourable terms. Deposit coverage was capped at \$250,000 and a rating of at least BB was required.

announced in earlier statements – that of government investment in new RMBS issues from ADIs (other than the four major banks) and non-ADI lenders. On September 26, 2008 it was announced that the Australian Office of Financial Management (AOFM) would become a cornerstone investor in up to \$4 billion of new RMBS issues (selected by a tender process) and this amount was increased on October 12 to \$8 billion. Subsequent allocations brought the total to \$20 billion by 5 April 2011 at which time the AOFM had invested \$12.5 billion in issues totaling \$28.5 billion by 18 lenders.

A further response to the disruption in financial markets was the introduction of bans on short selling in Australia. ASIC initially introduced a ban on “naked” short selling on September 19, following revelations that most market participants had effectively disregarded requirements to advise the ASX of short sale transactions. Subsequently, a total ban on short selling was introduced on September 21, limited to financial stocks on November 19 and ultimately lifted on May 25, 2009. New Zealand did not follow suit, to some extent because short selling was not widely practised and problems in markets had not been obvious.

Specific fiscal policy responses aimed at preventing recession reflected the advice of Treasury Secretary Ken Henry widely reported as being to “go early, go hard, go households” (Taylor and Uren, 2010, p78) in response to the worsening international economic situation. On October 14, 2008 a fiscal stimulus was announced (of \$10.4b, approximately 1% of GDP)²² followed on February 3, 2009 by a second fiscal stimulus package amounting to \$42 bill.²³ The New Zealand Government also announced a major fiscal stimulus pack-

22 This included direct cash payments to seniors and others in December, an increased First Home Owners Grant. In December, the Government announced the bringing forward of infrastructure spending plans and the planned (but ultimately scrapped) introduction of an “Ozcar” fund to replace the exit of GMAC and GE from auto financing in Australia.

23 This “National Building and Jobs Plan” included schools expenditure, housing, a home insulation program, cash bonuses to low/middle income individuals and a “Jobs Skills Program”. Also, on February 19, the minimum drawdown for account based retirement pensions was halved for 2008-9 (and several subsequent years) reflecting the decline in asset values, and with the objective that lower withdrawals would allow account balances to recover more when (if) asset markets recovered.

age on 27 November.

Table 5: Australian and New Zealand Monetary and Fiscal Responses post September 2008

Response Type	Australia	New Zealand
Monetary Policy – change in target interest rate	425 b.p. reduction between 2 Sept 08 and 7 April 09 to 3.00 per cent (subsequent increases from Sept 09)	575 b.p. reduction between 25 July 08 and 30 April 09 to 2.50 per cent, maintained until increases in mid 2010
Fiscal stimulus	1% of GDP announced Oct 08, 4% of GDP announced Feb 09	4% of GDP announced 27 Nov 08
Liquidity Assistance (local currency)	Increased use of long term Repos (Oct 08) Accept “self-securitisations” in repos (Oct 08) Broader range of private repo-eligible securities (Nov 08) Term deposit auction facility introduced (Oct 08)	Extension of eligible collateral for term repos (bank bills, ABS)(Sep 08) Term auction facility introduced (Nov 08) Graduated haircut regime for broadened range of repo eligible securities (Dec 08)
Government securities markets	Recommencement of issuance of Treasury Notes	Reintroduction of central bank bills (Nov 08)
Liquidity Assistance (foreign currency)	FX Swap facility with US Fed (\$10 b, then \$30b, Sept 08)	FX Swap facility with US Fed (\$15b, Oct 08)
Deposit Guarantees	12 Oct 08 - Unlimited Deposit Guarantee; 28 Nov 08 -reduced to \$1m cap – uncharged, larger guarantee available for fee	12 Oct 08 – unlimited (opt-in, fee based) retail guarantee, 22 Oct 08 reduced to \$1m cap. Available to finance companies
Wholesale Bank Funding Guarantee	12 Oct 08 Debt Funding Guarantee to be available (70-150 bp fee, 5 year maturity maximum)	1 Nov 08 Guarantee available (fee based)
Other Guarantees	25 Mar 09 fee based guarantee for State government debt	
Support for Equity	19 Sep 09 ban on naked short, 21	

Source: <http://www.bis.org/repofficepubl/arpresearch200908.2.pdf> and authors

(d) Evaluation

While it is difficult to specify the counterfactual, there seems little doubt that the liquidity measures undertaken by the RBA and the RBNZ contributed to ensuring that short term money markets functioned adequately during the financial crisis and enabled banks to meet enhanced precautionary liquidity needs. Econometric analysis by Cassino and Yao (2011) for New Zealand and by Kearns (2009) for Australia indicates that the various actions had the effect, at least temporarily, of modestly reducing spreads (as measured by the difference between the bank bill rate and the OIS).

The most dramatic response during the latter stage of the crisis was the introduction of deposit and wholesale debt guarantees in both countries, which prior to that time had been the only G30 countries without explicit deposit insurance. The NZ scheme, for which fees were paid, will result in a net loss to the taxpayer as a result of the nine failures of non-banks (up to 2011). This will be quite substantial as the loss for SCF alone is predicted to be around \$1.2bn. While one might attribute this loss in part to the weaknesses in the design of the scheme, the experience has helped confirm the wish by the NZ authorities not to have deposit insurance in normal times.²⁴ In contrast, the Australian budget had received over \$3 billion in guarantee fees by August 2011, with virtually no risk of any payouts being required. Arguably, however, the under-pricing of the guarantee relative to market conditions and other international schemes, and substantive usage involved significant subsidies to the Australian Banks. Those initiatives created substantive longer run policy issues. First, there was the need to transition deposit guarantee arrangements to-

²⁴ The picture has been confused by the Christchurch earthquakes on September 4 2010 and February 22 2011. SCF, based further south in Timaru, had already failed but AMI, one of New Zealand's main insurance companies is based in Christchurch and the extent of the exposure means it has been given a \$500million government guarantee, which looks increasingly as if it will be used, as the expected costs of the rebuilding mount. New Zealand has extensive compulsory earthquake insurance, which was well funded. Although this funding will be exhausted this means that the fiscal cost to the government will be considerably lower than it would have been without such a fund. Although the earthquakes have led to some reduction in output by those directly affected, as rebuilding starts it will provide a stimulus to the economy because of its scale.

wards some more suitable long term arrangements (see later). Second, it can be argued that perceptions that depositors might suffer losses in a failing bank have disappeared in Australia, such that reliance upon market discipline of banks as a prudential force is undermined, and the competitive position of banks (and other authorized deposit-taking institutions) vis-a-vis other non-prudentially regulated fund raisers is advantaged. Despite the fact that depositors in New Zealand can expect to participate in the losses should a bank fail there is no obvious belief that such losses will actually occur.²⁵

The introduction of the RMBS investment program by the Australian government provided support to some securitisers (and was a definite improvement over many suggestions from the industry for introduction of a government guarantee scheme for RMBS). While the securitization market is recovering and the program can be wound down, the industry remains exposed to disruption should there be substantive shifts in credit spreads in wholesale funding markets. This arises because banks, as on-balance sheet lenders, are able to price variable-rate mortgage loans at average cost (which adjusts gradually to changes in marginal cost of funds) whereas securitisers must price at marginal cost.

IV. Approaches to Resolution of Troubled Institutions Exposed by the Crisis

Domestic, Non-Cross Border Institutions

Australia and New Zealand experienced (with one minor (non-bank) exception) no failures of prudentially regulated institutions during the financial crisis. Consequently resolution of other troubled financial institutions has involved standard insolvency procedures. Without provision for Chapter 11 type bankruptcy, and potentially severe penalties for directors for trading while insolvent, troubled companies will generally be placed into voluntary administration in Australia, with administrators often working in conjunction with receivers appointed by secured creditors. In New Zealand the more likely

²⁵ It is expected that small banks will be placed in normal insolvency while systemically important banks will remain open and be subject to Bank Creditor Recapitalization.

solution is the imposition of statutory management. In the absence of ongoing viability, liquidators will be appointed. Given the often complex arrangements of failed companies, these processes can take substantial time, and are often complicated by class actions mounted for investors by litigation funders.²⁶ Non-prudentially regulated, open-ended, mortgage and property trusts facing runs by investors avoided failure by freezing redemptions.

In NZ, the significant numbers of failures of finance companies have involved similar processes, although arrangements for moratoriums on repayments have also been used. Under the NZ Securities regulations, private trustee companies were responsible for the protection of the interests of depositors with finance companies, and for triggering insolvency arrangements. The deficiencies in this approach have led to substantive changes (discussed later).

International institutions

The main cross-border issue facing regulators in Australia and NZ has been the potential for problems of one of the four major banks in either country to affect its operations and financial stability in the other nation. The NZ authorities had reacted to this potential problem by requiring that the Australian banks' activities in NZ be by way of a separately incorporated and capitalized subsidiary.²⁷ Such subsidiaries must, by what is described as the 'outsourcing policy', be capable of running themselves within the value day in the event of the failure of the supplier of any critical services.²⁸ While this in practice includes the parent, it also includes other local services that might be subject to earthquake or other operational risk. This approach is combined with a possible, but yet to be tested, failure resolution process, labeled Bank Creditor Recapitalisation (BCR), dis-

²⁶ Another complication in Australia was the "Sons of Gwalia" judgment in 2005 which allowed investors who became shareholders shortly prior to a failure to file claims for compensation from the assets of the company due to inadequate disclosure by the company, and rank equal to unsecured creditors.

²⁷ Technically it is that all foreign-owned systemically important banking operations have to be conducted through an NZ subsidiary with its own capital. Hence most of the Australian banks also have other operations in New Zealand run through branches of the parent.

²⁸ 'Outsourcing Policy', BSN11, RBNZ, January 2006.

cussed later, which would enable systemically important institutions to be resolved by the authorities within the value day so that there is no break in any of the core functions.

In Australia, the majority of foreign bank activities are by means of branch, and legislation effectively precludes such branches from taking domestic retail deposits. However there are a number of foreign banks operating as separately incorporated subsidiaries, and thus subject to regulation and supervision by APRA. Several foreign banks operate both a branch and a subsidiary in Australia, as well operating non-prudentially regulated financial subsidiaries such as money market corporations. There have been no failures, and any exits such as the sale of BankWest, a subsidiary of HBOS, to CBA have been voluntary.²⁹

However, a number of international entities, such as Lehman Bros, operated non-bank financial subsidiaries in Australia, and substantial complications have arisen in the Lehman's liquidation.³⁰ Australia had passed the Cross-Border Insolvency Act on 1 July 2008 incorporating the UNCITRAL Model Law allowing a stay of local insolvency proceedings once foreign proceedings of the parent were recognized, and claims by domestic investors in Lehman CDOs remain to be settled.

There has been substantial ongoing cooperation between the Australian and NZ authorities not just on a bilateral basis but through the Trans-Tasman Council on Banking Supervision, set up in 2005 by the respective governments. Legislation³¹ passed in 2006 explicitly required APRA to take into account implications of actions for NZ prudential regulation and financial stability and consult with NZ authorities. Reciprocal provisions are in the RBNZ Act.

²⁹ CBA has chosen to operate BankWest under its own separate banking licence.

³⁰ Overseas Lehman companies, who were creditors of the Australian subsidiary, in conjunction with its Australian administrator attempted to prevent Australian creditors and claimants from accessing assets of the international group by executing a Deed of Company Arrangement which was ruled invalid by the Australian courts. (Harris, 2010).

³¹ Financial Sector Legislation Amendment (Trans-Tasman Banking Supervision) Act 2006.

Domestic organizational complexities and impediments to orderly resolution

The powers of Australia and New Zealand regulators to effectively resolve failing banks or other prudentially regulated institutions have faced few tests over recent decades. At the start of the 1990s a financial crisis in Australia involved the failure of two State Government banks. Existing State government guarantees over deposits and other liabilities prevented significant disruption and enabled open resolution by division into “good” and “bad” banks and sale of the former to other major banks.³² (A building society failure at the same time was resolved by (a messy) introduction of a State Government guarantee of deposits).³³ Deficiencies in division of responsibility between State and Federal Governments for prudential regulation and resolution of troubled financial institutions were rectified over the following decade, but actual powers available to implement an open resolution remained unclear. Subsequently the failure of a very large insurance company (HIH) in 2001, and ex post compensation of policy holders by the Federal Government, led to increased attention being paid to resolution powers although little legislative progress had been made prior to the GFC.

V. Reforms that have been adopted

In the years leading up to the GFC, there had been an ongoing process of regulatory change in Australia. One element was a continuing shift of regulatory responsibilities from the States to Federal Government, with consequent harmonization of regulation and its implementation. A second element was development and implementation of prudential standards (including Basel II) by APRA, although limitations on APRA’s failure management and resolution powers which had been noted in the Study of Financial System Guarantees (Davis, 2004) and in the IMF’s FSAP for Australia in 2006 (IMF, 2006), had not been acted upon. The GFC has prompted introduction of enhanced powers for APRA, and has had particular impact upon areas such as consumer/investor protection, implementation

³² Management and wind-down of the “bad bank” remained the responsibility of the State Governments.

³³ Kane and Kaufman (1993) provide an overview.

of international regulatory agendas (such as Basel III), and increased attention to management of systemic risk weaknesses which were identified by the GFC. In New Zealand there had been only limited change since the introduction of the disclosure based regime in 1996 although plans to extend regulation to the non-bank deposit-taking sector were agreed in 2006. Basel II was adopted promptly but did not come into force until the problems were already underway.

Reforms to financial market structures and mechanisms

Reflecting concerns about bank funding risk an amendment to the Banking Act in 2011 means that Australian ADIs will be allowed to issue covered bonds up to a limit of 8 per cent of assets in Australia.³⁴ Covered bonds have also been permitted by the RBNZ up to a maximum of 10 per cent of total assets and the first such bonds were successfully issued by BNZ in June 2010. In both countries there is also official interest in changing funding patterns by promoting development of corporate bond markets – although with little progress to date.

Responsibility for stock market supervision was transferred to ASIC in 2010 from the ASX prompted by the planned entry of a competing trading platform (Chi-X), and removing any ambiguity over responsibility for enforcement.³⁵

In New Zealand, the Financial Markets Authority Act 2011 established the Financial Markets Authority which replaced the Securities Commission and took over some regulatory roles from the Ministry of Economic Development. In 2008, the RBNZ was given responsibility for the prudential regulation of non-bank deposit takers (the troubled finance company sector), but with Trustee Companies remaining as the front line supervisor. The RBNZ has also taken over responsibility for prudential regulation of insurers.

³⁴ Assets in the cover pool backing the covered bonds held in a Special Purpose Vehicle are carved out from the depositor preference arrangements.

³⁵ Subsequently legislation to allow ASIC to recoup supervision costs from fees imposed on market operators was introduced. Initially wholesale markets (such as Bloomberg and YieldBroker) are exempt from ASIC supervision.

Potential reforms to clearing and settlement arrangements in Australia are under consideration by a working group established in April 2011 by the Council of Financial Regulators to examine financial market infrastructure issues such as crisis management and supervision and oversight of market operators and clearing and settlement systems.

Resolution authority reforms

Australia and NZ were the only G30 countries without some form of explicit deposit insurance prior to the GFC, and the introduction of guarantees has required a focus upon transitioning to new arrangements. Notably, the countries have gone in different directions as discussed below, although both have continued to emphasize rapid access to funds for depositors of troubled institutions rather than insurance per se (ANZSFRC (2006)). Also important has been the perceived need to improve resolution powers.

APRA's intervention powers have historically included: investigation, directions, enforceable undertakings, licence qualifications, appointment of an external manager.³⁶ Consideration of enhancements to resolution powers, particularly allowing earlier intervention, had been in progress in the years leading up to the GFC, although there had been little legislative action or, luckily, cause for use of such powers.³⁷

The October 2008 legislation introducing the Financial Claims Scheme³⁸ enhanced APRA's ability to deal with failing institutions, particularly general insurers, which previously had to be administered under the Corporations Act with the administrator acting in

³⁶ Davis (2004) Appendix 3.3 provides an overview.

³⁷ One exception was the failure in 2011 of the fund manager Trio/Astarra which operated a number of APRA regulated superannuation funds. Losses to members of those funds (of approximately \$55 million) have been compensated under legislation giving the Treasurer discretion to approve compensation and for it to be funded by levies on other superannuation funds. However, owners of self-managed superannuation funds which had made investments in Trio's other managed funds were not eligible for compensation.

³⁸ Financial System Legislation Amendment (Financial Claims Scheme and Other Measures) Act 2008.

the interests of creditors or members. Under the new arrangements, APRA can appoint a judicial manager, who can undertake the administration with the interests of policy holders and financial stability considerations taken into account. Also in (September) 2008, the Council of Financial Regulators agreed on a memorandum of understanding setting out responsibilities and information sharing arrangements for dealing with distressed financial institutions and financial stability issues (CFR, 2008).

Under the Financial Legislation Amendment (Prudential Refinements and Other Measures) Act of 2010, APRA's powers were strengthened in a number of ways including:

- Having power to issue directions to an institution which APRA views may be likely to suffer a material diminution of its financial position;
- Increased APRA's power to issue directions to a foreign ADI (ie a foreign bank operating in Australia as a branch) to prevent inappropriate inter-entity transfers of assets and liabilities between the Australian books and the parent books;
- Enhanced powers to take control of an ADI (either directly or by appointment of a statutory manager) if it is believed that it will be unable to operate its affairs consistently with interests of depositor or financial stability considerations, rather than when it is unable to meet its obligations;
- Powers to direct a troubled entity to undertake a recapitalization by issue of shares or other capital instruments;
- Improved powers for collection of data from financial sector entities

The Act also reaffirmed depositor priority in wind-up and made explicit the next senior status of the RBA or funds which had been advanced under any industry support arrangements.

In September 2011, the Treasurer, in announcing that the \$1 million deposit insurance cap applying since October 2008 under the Financial Claims Scheme will be reduced to \$250,000 from February 2012 signaled legislation to enable the activation of the Financial

Claims Scheme, subsequent to appointment of a statutory manager by APRA, but prior to a determination that the entity was insolvent. Coupled with the 2010 changes this provides the potential for APRA to provide funding to facilitate acquisitions and open resolution of troubled institutions.

NZ is eschewing deposit guarantees from end 2011 and relying on BCR, now known as Open Bank Resolution (OBR). As described by Bollard, Hunt and Hodgetts (2011) under “OBR, the creditors of a distressed bank, including its depositors, would face a ‘haircut’ of their funds based on initial estimates of the shortfall in the bank’s capital position. Access to their remaining funds would be supported via a government guarantee.” Under BCR, a statutory manager (SM) (the equivalent of a receiver) is appointed on failure. The SM is then expected to make a summary valuation of the loss, erring on the side of caution, and all the bank’s creditors will be written down in order of priority until the bank is adequately recapitalized again under the prevailing rules. This is effectively a debt for equity swap as the creditors will receive an equity claim on the new bank in proportion to the value that has been written down. It is important to note that this will include the depositors as they are not insured and unlike Australia do not have preference and remain junior creditors in the insolvency. It is expected that the new bank will need to receive a government guarantee against further loss if it is to avoid a further run but the whole scheme is still hypothetical in the sense that it has never been applied in practice (and is unlikely to be so given the strength of the Australian banks) and that the detail and necessary control of computer systems to be able to write down depositors and divide their accounts into frozen and unfrozen parts within the day is yet to be implemented (Harrison, Anderson and Twaddle, 2007). The RBNZ produced a consultation paper on the topic in March 2011.³⁹

While the Australian FCS is a closed resolution, ex-post funded scheme, concerns about an absence of ex-ante risk based pricing are

³⁹ ‘Consultation Document: Pre-positioning for Open Bank Resolution (OBR)’. Such consultation was restricted to registered banks, which is an unwelcome restriction on the activities of independent analysis such as by Shadow Financial Regulatory Committees.

arguably misplaced. First, it is highly unlikely that APRA will not use the powers available to it to effect an open resolution of a troubled institution – although details about pre-insolvency activation of the FCS which might allow any funding necessary to support a transfer of business are yet to be made public. Second, even if the scheme is activated, APRA's position at the most senior claimant on the remaining assets of the failed entity (for compensation paid to insured depositors) make it highly unlikely that it would suffer a shortfall and need to impose an ex-post levy on other institutions.

Arguably, the Australian approach tilts the competitive playing field for retail investments in favor of prudentially regulated institutions, particularly given the absence of any ex-ante fee for deposit protection. At the same time, however, substantial tax advantages exist for many other investment options (notably superannuation) available to retail investors. In New Zealand, the OBR approach seems likely to create less distortion to competition – but there is little in the way of competitors to banks and finance companies covered by the policy in existence. Also of concern is whether the GFC experience of provision of government guarantees means that depositors (or other creditors) will not believe that uninsured funds are truly at risk – with the moral hazard problems thus created requiring attention. As ex-RBNZ Governor Don Brash recently noted “in a systemic crisis ... it would almost inevitably be necessary to throw a comprehensive guarantee across all deposits, at least all deposits at systemically important institutions” (Brash, 2010).

Prudential regulation reforms

In its June 2009 Annual Report APRA noted that given the performance of Australia's financial system during the crisis “APRA does not envisage any fundamental overhaul of Australia's prudential framework in response to the global financial crisis”, although amendments would be likely given global regulatory developments.

At the start of 2008, Australian banks adopted Basel II,⁴⁰ and the Basel II framework was introduced in NZ in early 2008. APRA had

⁴⁰ Basel II, Pillar 3, disclosures commenced in September 2008.

used national discretion to amend various features of the framework, particularly the treatment of some risk weights, but also limiting the scope for users of the internal models approach to gain substantial reductions in required capital.⁴¹ Five Australian banks were accredited by APRA to use the internal models approach. Based on its PAIRS assessment and review of the institution's Internal Capital Adequacy Assessment Process (ICAAP), APRA may set a capital requirement above the regulatory minimum. On July 1, 2008 APRA introduced a capital charge for interest rate risk in the banking book (ARRBB) for banks using the internal models approach. Basel II has compelled the New Zealand authorities to become more prescriptive and to take a closer look at the banks under the requirements of Pillar 2.⁴²

APRA has moved rapidly to introduce Basel reforms. The amendments to Basel II involving improved coverage of risk associated with complex products and securitization, and higher capital requirements for market risk are to apply from January 1, 2012. In September 2011, APRA released its plans for accelerated implementation of Basel III capital requirements involving January 1, 2013 implementation, and introduction of capital conservation buffers to follow on January 1 2016. APRA is also examining how to best regulate conglomerates on a consolidated basis with the objective of preventing spill-over across prudentially regulated components. The "Level 3" requirements are for the conglomerate group to hold enough capital to ensure viability of prudentially regulated subsidiaries, and draft standards are to be released in 2011.

A major potential weakness in the Australian and NZ banking systems exposed by the GFC was the liquidity risk of banks arising from their significant dependence on international capital markets funding. Consequently, the longer term agenda has involved finding ways to reduce bank short term funding exposures to international capital markets – including lengthening of funding ("terming-out") consistent with the introduction of the Basel Net Stable Funding Ratio (NSFR) requirement. In September 2009, APRA released a consul-

⁴¹ A 10 per cent maximum reduction in regulatory capital was prescribed, and a minimum loss given default for residential mortgages set at 20 per cent.

⁴² In most respects Pillar 3 involved less disclosure than was already required of New Zealand institutions.

tation paper on liquidity requirements, but following the release of the Basel committee proposals in December 2009 this was shelved, and plans developed for implementing the Basel III approaches involving the Liquidity Coverage Ratio (LCR) and the NSFR. Those plans included an alternative approach for countries (such as Australia) unable to meet the LCR requirement because of a shortage of government securities to be used as liquid assets. That solution involves allowing some part of liquidity requirements to be met by having in place a fee based liquidity facility at the RBA.

The RBNZ acted rapidly to bring in new liquidity requirements independently of (but similar to) the Basel initiatives. In April 2010 a liquidity requirement was introduced (having been outlined in November 2008) requiring banks to hold eligible liquid assets sufficient to meet one week and one month mismatch requirements. A Core Funding requirement was also introduced requiring at least 65 per cent (75 per cent by July 2011) of funding to be met by customer deposits and capital market funding of more than one year maturity.⁴³ At 85% this core funding ratio would be equivalent to the 100% Net Stable Funding Ratio proposed under the Basel III framework to be brought in progressively over the present decade.

Reflecting the increased international focus on governance and remuneration in financial institutions, regulators in both countries have announced revisions to existing prudential standards. APRA's stated view⁴⁴ is that design of remuneration policy is the responsibility of Boards, but if thought likely to encourage excessive risk taking and inconsistent with long run financial soundness, APRA will consult with the institution (with a view to achieving changes) and may intervene via adjusting capital adequacy requirements. "Fit and proper" requirements for directors and senior management had been in place since 2005 following legislation in 2003⁴⁵ which increased the range of directions which APRA could give to regulated institutions, provided it with increased powers to obtain information from their external auditors (and remove auditors), and enhanced powers

⁴³ These two requirements are detailed by the RBNZ in "Liquidity Policy", Prudential Supervision Department Document BS13, March 2011.

⁴⁴ In Prudential Standard APS 510 (which came into effect in April 2010).

⁴⁵ Financial Sector Legislation Amendment Act (No. 1) 2003.

to disqualify individuals from roles in prudentially regulated institutions. In 2008 APRA's disqualification powers were further enhanced⁴⁶, and legislation passed requiring that foreign insurers' operations in Australia must be authorized and supervised by APRA.⁴⁷

The RBNZ released corporate governance requirements for overseas owned registered banks in 2010 aimed at ensuring that they operate in ways consistent with NZ systemic stability. The RBNZ also reviewed its disclosure requirements for banks, originally introduced in 1996, and modified the level and type of disclosures required, including dropping the Key Information Summary aimed at non-sophisticated investors, with the new disclosures focused more upon sophisticated market participants. Bollard, Hunt and Hodgetts (2011) also note that the RBNZ adjusted its approach to bank supervision "from a high reliance on market disclosures, to one that uses more private reporting". Underpinning this change in approach is the recognition that public disclosures are generally too delayed and too general to be helpful in anticipating stress vulnerability. The response to finance company failures has been a complete reorganization of the regulation of the sector. The RBNZ has now assumed prudential responsibility for non-banks and for insurance companies, although trustees will still be the primary supervisor.

Prior to the GFC the New Zealand approach had been based upon disclosure and market discipline, with an aversion to deposit insurance, greater emphasis on bank director responsibilities and potential liabilities, absence of on-site supervision and a narrow definition of what constitutes a bank. That disclosure-based regime has received a considerable shock during the last seven years, only partly due to the GFC and as a result supervision has become somewhat more intrusive, macro-prudential supervision has been bolstered in the RBNZ and the coverage of the whole financial sector outside banks has been

⁴⁶ Previously APRA could administratively disqualify an individual indefinitely who had the right of appeal to the Administrative Appeals Tribunal. Since then APRA applies to the Federal Court which determines a disqualification for a specified time.

⁴⁷ Fit and Proper requirements were an integral part of the New Zealand regime introduced in 1996. Combined with the greater liability of directors, this would have been one of the stronger regimes in this respect at the time.

completely revamped. The new Financial Markets Authority much more closely resembles ASIC than its light touch predecessors with limited powers. The RBNZ now has prudential powers over the rest of the non-bank sector, although this is now of small proportions and may well become smaller as the stronger deposit takers seek to become banks.⁴⁸ It might appear that the RBNZ has been able to live off the more traditional extensive supervision of the Australian banking groups, in which the New Zealand subsidiaries are consolidated. It is not clear that the New Zealand authorities view it that way but with the operational consolidation of the institutions it is likely that Australian practices will be followed as long as they are consistent with the NZ framework. As time passes it is likely that the closer integration between the two countries, enshrined in the Closer Economic Relations (CER) agreement, will be extended in the field of financial regulation, aided by bodies such as the Trans Tasman Council on Banking Supervision. In practice this will mean New Zealand becoming more like Australia.

Consumer protection reforms

A major focus of legislative and regulatory action prompted by the exposure of undesirable business practices by the financial crisis (such as Opes Prime and Storm) and other home grown problems have been in the area of investor/consumer protection. Both Australia and New Zealand have tended to approach the protection of investors from a caveat emptor perspective, premised on ensuring that there is adequate disclosure, adequate financial education and literacy, and availability of financial advice. There has been a substantive rethinking of the merits of that approach, reflected in an active program of legislative and regulatory changes, not to mention the implications of the introduction of deposit guarantees and the subsequent changes to those arrangements.

In Australia the Federal Government has introduced (or is introducing) a number of legislative changes, including tighter regula-

⁴⁸ The scale of change was such that it required amendments to the Reserve Bank Act and not just an exercise of the Reserve Bank's regulatory powers.

tory requirements on margin loan providers.⁴⁹ In New Zealand the principal change in addition to the setting up of the FMA and the extension of prudential supervision has been the closer regulation of financial advisors, requiring all those who wish to offer advice to become registered, qualified and to make it clear for whom they are working and whether they receive commissions (Financial Advisors Act 2008).⁵⁰ It also lays down requirements for care, diligence and skill in the conduct of their operations.

A major set of reforms, prompted by the Ripoll Senate Committee Inquiry (Ripoll, 2009) are related to the Future of Financial Advice (FOFA). Announced in late 2010, these reforms involve the following: introduction of a fiduciary duty requirement for financial advisers; banning of commission or sales linked payments from financial product providers such that adviser income is solely from customer fees; restricting customer fees to amounts related to customer equity (not levered assets); and a requirement that clients opt-in to continuation of arrangements (and fees) with advisers every two years.

A second set of reforms is associated with the introduction of the National Credit Code which, commencing in 2008, replaces previous State government based cooperative arrangements. As well as requiring lenders to be members of an external dispute resolution scheme, a major change is the introduction of a “responsible lending” requirement which places the onus of ensuring suitability of a credit product for a client upon the lender/adviser. While “unconscionable conduct” legislation previously existed, this requirement goes further and effectively involves a shift from a disclosure regime (where the client was responsible for determining whether a product was suitable) to one where onus of proof of suitability is upon the provider. A further legislative change involves the banning of unsolicited credit card limit-increase offers and bans on “over-the-limit” credit card

49 In the Corporations Legislation Amendment (Financial Services Modernisation) Bill 2009, margin loans were listed as a financial product bringing providers under licensing, conduct, and disclosure requirements and ASIC supervision and enforcement, and introducing responsible lending requirements and margin call notification requirements.

50 <http://www.legislation.govt.nz/act/public/2008/0091/latest/DLM1584202.html>.

fees unless customers have opted into an agreement for the card issuer to meet over-limit payments which would incur such fees.

A third set of initiatives under the “Competitive and Sustainable Banking System” reforms includes the banning of retail mortgage exit fees (except for break fees on fixed rate loans), based on both consumer protection considerations (of uninformed borrowers) and the impediment which such “switching costs” create to competition in the housing loan market.

Also relevant is the introduction of “Simpler, Stronger, Super” reforms announced in September 2011, aimed at improving returns to pension fund members by enforcing improved governance, more efficient operations, and provision by superannuation funds of lower cost “default fund” investment options for disinterested members, by superannuation funds. Given the (primarily) defined contribution nature of Australia’s compulsory superannuation system, poor returns are a significant concern and the GFC has brought into focus the inadequate attention paid to date on the impact of fund governance, costs and incentive arrangements on returns.⁵¹

In New Zealand the Financial Services Providers Act 2008 requires financial advisers to be registered and introduced statutory obligations for acting with care, diligence and skill.

The Australian securities and markets regulator, ASIC has been particularly active in implementing new requirements for financial product and service providers. Among its concerns have been consumer literacy regarding non-standard financial products (such as structured products, Contracts for Difference (CFDs), margin loans etc) and aggressive marketing of such products to retail investors. In particular, it has adopted a strategy of imposing “If not, why not” disclosure requirements upon certain types of financial institutions. Commencing with finance companies issuing debentures to retail investors, the requirements are that deviations from a template style “good business model” (such as maximum leverage, no related party

⁵¹ In September 2011 APRA released a discussion paper proposing new prudential standards addressing these and other risk management issues.

lending etc) be regularly disclosed with explanations as to why they exist. Subsequently, ASIC has expanded such requirements to CFD providers.

The frenetic activity of Australian legislators and regulators in the investor/consumer protection space has created concerns about over-regulation and unwarranted intrusion into business practices of financial institutions. And while that may be the case, experiences of the GFC have highlighted the large gap between financial product sophistication and general financial literacy standards, and the challenges that creates for the prior caveat emptor approach relying on disclosure, education and advice.

VI. International and Domestic Coordination and Regulatory Responsibility

One important perception from the crisis experience of Australia and New Zealand is that supervision is at least as important as regulation in preventing and managing financial system risk. There is a general consensus that the prudential regulator in Australia (APRA) adopted relatively “tough” approaches to the supervision of financial institutions, including applying some regulatory standards at higher levels than elsewhere. In Australia, APRA had for some years been applying its PAIRS and SOARS approach for identifying financial institution risk levels and the level of supervisory oversight and intervention deemed warranted.⁵² It had also implemented Basel II capital requirements in such a way (via calculation of eligible regulatory capital etc) that reported risk-weighted capital ratios of Australian banks were substantially (over 1 percentage point) lower than if the approach adopted by overseas regulators (such as the UK’s FSA or Canada’s OSFI) was used. While it might be argued that the New Zealand supervisor took a less interventionist role, the dominant role of Australian banks meant that APRA’s supervision of consolidated

⁵² APRA also produces an annual regulatory agenda, and in 2010 APRA released its APRA Supervision Blueprint outlining its approach to supervision based around its PAIRS and SOARS framework, which was being reviewed in 2010. PAIRS stands for Probability and Impact Rating System and SOARS stands for Supervisory Oversight and Response System.

activities had implications also for the New Zealand subsidiaries.⁵³

One important difference between the regulatory structures of the two countries lies in the allocation of regulatory responsibilities – with prudential regulation being the province of the RBNZ, whereas in Australia it is the domain of an integrated prudential supervisor (APRA) separate from the RBA. In both countries there is a separate capital markets regulator (ASIC in Australia, and the Financial Markets Authority (formerly the Securities Commission) in NZ). While there is continual debate about the optimal structure of regulatory arrangements for achieving benefits of specialization and coordination of regulation and supervision across the whole of the financial sector, both approaches appear to have worked well. Simplicity of regulatory structure and formal and informal mechanisms for coordination between the regulatory authorities (and the Treasury and other relevant government departments) have been important in this regard.

One lesson coming out of the GFC experience has been the need for improved financial market monitoring, giving increased importance to the “financial markets intelligence function” and sharing of such information between central banks, government, regulators and market supervisors. For some time the Trans-Tasman Council on Banking Supervision (APRA, RBA, RBNZ, Australian Treasury, NZ Treasury) has been active, and involves information sharing and cooperation and crisis-response planning and guides policy advice to respective governments.

Cooperation between the Australian and New Zealand authorities has extended beyond banking, involving measures which increase financial sector integration. These include:

- Trans-Tasman Mutual Recognition for Securities Offerings implemented in 2008 enabling securities to be issued in both countries if meeting regulatory requirements of one jurisdiction.

⁵³ APRA also undertook on-site reviews of credit management of Australian bank subsidiaries in NZ, while APRA and RBA and RBNZ collaborated on stress testing in 2009.

- Australia-NZ mutual recognition of accreditation requirements in one jurisdiction for applications for financial advising licensing in the other, since end 2010 (D'Aloisio, 2010).

Beyond the Trans-Tasman arrangements, there has been interest in developing a regional “passport” for marketing of managed investments, similar to the European UCITS scheme. At a less general level, Australia and Hong Kong have had mutual recognition of cross-border offering of collective investment schemes since 2008. In banking, APRA has formed supervisory colleges for large internationally operating financial institutions headquartered in Australia.

VII. Conclusion

(a) Why were the Antipodes less affected?

The limited effect of the GFC on economic growth can be traced to several factors – only one of which is the relative resilience exhibited by the financial sectors. Equally important was the rise of Asia, not only China but also India, Korea, Singapore, Taiwan, Malaysia and Indonesia as part of a transformation of the world order (Iley and Lewis (2011a, 2011b), with the emerging markets becoming the sole engine of global growth during the crisis.

Going into the crisis, the Asian economies’ exceptionally sound initial conditions – structural budget surpluses, large current account surpluses, substantial foreign exchange reserves, lower and more stable inflation, lower corporate leverage and frequently robust bank balance sheets – afforded Asian policy makers hard won policy flexibility historically only enjoyed by the West. Their policy reactions achieved greater bite than those of the developed economies, producing a more rapid and more significant monetary boost.

These developments have augured well for Australia and New Zealand, which no longer suffer from the ‘tyranny of distance’, and (particularly in the case of Australia) have seen exports sucked into Asia. For New Zealand, the strong role of trade with Australia also generates indirect effects.

The question then becomes one of why the Antipodes were able to take advantage of the ‘decoupling’ of Asia (ex Japan) and the developing world from the rest, a development producing an increasingly tilted and lop-sided two-speed global economy – fast growing, higher interest rate Asian economies versus sluggish zero interest-rate ‘developed’ economies. In answer, we look back to features of the Australian and NZ economic and financial systems outlined earlier.

The structure of the economy

A number of characteristics are relevant.

- Australian exports did not decline markedly due to the “Asian connection” and were not tied closely to the underperforming US economy.
- In general, commodity exports (particularly coal and iron ore) have suffered less than manufactured goods. Increasingly, Australian exports form a two commodity (coal, iron ore), two country (China, Japan) pattern, with Korea and India expanding their demands.
- The mining industry accounts for nearly 10 per cent of GDP and contributes most to Australian exports.
- Commodity prices for Australian exports have held up.
- New Zealand benefitted from the improvement in commodity prices for its exports and from the stronger growth in Asia and Australia but its general economic position has been clearly weaker, with a recovery path rather more like the less affected European countries.

Past government policies

- Healthy fiscal positions in Australia enabled strong fiscal stimulus (among the largest internationally) without greatly expanding government budget deficits and government debt. New Zealand while having low initial debt has been somewhat more constrained and is unlikely to get back towards balance until 2014-15.

Central Bank actions

- Policy interest rates (cash rates) were lowered by markedly more than in most other nations but were not pushed down to zero, allowing savers some ‘reasonable’ return. Indeed Australia was the first country to raise rates again after the crisis and by 2011 was in a relatively neutral stance compared to the firmly loose policy that has been largely maintained in New Zealand where interest rates are still at their lowest in late 2011.

The banking sector

A number of features have contributed to the stability of the Australian banking systems.

- Substantial use of the debt guarantee schemes overcame the vulnerability from reliance on short-term international wholesale funding, while rapid expansion of system liquidity facilities prevented amplification of liquidity problems.
- Largely domestic orientation, with profitable intermediation opportunities involving borrowing in international markets and lending into domestic housing markets, meant little exposure to CDOs and other ‘toxic’ products.
- High concentration has been accompanied by ‘healthy’ returns on equity (ROE).
- Under ‘flexi-rate’ adjustable mortgages, the banks’ higher borrowing costs in international markets were passed on to borrowers, who experienced little difficulty in servicing debt.

(b) Lessons for Financial Regulation

Although approaches to financial regulation and supervision differed considerably, the regulatory structures of both countries had some common features relevant for thinking about desirable institutional design. First, there were a relatively small number of regulatory institutions with well-defined mandates reducing overlap, inconsistencies, and gaps. In Australia’s case this was the outcome of an ongoing

process to transfer regulatory responsibilities from the State governments to the Federal level. Second, a single purpose prudential regulator (APRA) was able to focus exclusively on its mandate, avoiding distractions, and implement relatively tough supervision. Third, Brown (2010) argues that the housing of prudential regulation of a range of different types of institutions (with divergent interests) in the one specialist regulator (APRA) may reduce the potential for regulatory capture – although “capture” can occur within specialized divisions of the regulator.

Of course, significant failures of non-prudentially regulated financial firms did occur, with investor losses and hardship leading to a tightening of oversight by securities market regulators. The nature of those experiences suggests that oversight was inadequate and took too little account of the consequences of imperfect information inherent in (particularly retail) financial markets. However, one consequence of the sharp boundaries drawn for prudential regulation, and a caveat emptor approach beyond, was that (until Crown Guarantees in NZ were extended to finance companies) there was little expectation of government compensation of loss.

Maintaining such a distinction is increasingly difficult with bank involvement in those non-regulated areas (including financing of other lenders and financial product and service providers) increasing. This creates the risk that implicit guarantees for SIFIs (the major banks) will spill over into those areas, creating moral hazard and undermining competitive ability of other institutions. Whether such dominance of the financial sector by a small number of major banks enhances financial stability by internalizing interdependencies and facilitating effective supervision, or exposes it to larger (and perhaps common) disruptive shocks remains an unanswered, but critical, question.

With many features of a single financial market it is inevitable that approaches in the two countries will converge, principally by New Zealand converging on Australian standards.

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APPENDIX 1

The Structure of Financial Regulation in Australia and New Zealand									
	Australia				New Zealand				
	Treasury	Reserve Bank (RBA)	Australian Prudential Regulation Authority (APRA)	Australian Securities and Investment Commission (ASIC)	Treasury	Reserve Bank (RBNZ)	Securities Commission (till May 2011)	Ministry of Economic Development	Financial Markets Authority (from May 2011)
Fiscal Policy	✓				✓				
Monetary Policy		✓				✓			
Financial Stability		✓				✓			
Payments System		✓				✓			
Prudential Regulation of Banks and other ADIs			✓			✓			
						✓ <input type="checkbox"/> from 08*			
Non-bank deposit takers						08*			
Insurance			✓			✓ <input type="checkbox"/> from 08		✓ pre 08	
Superannuation			✓						
Supervision of Securities Markets				✓			✓ <input type="checkbox"/>		✓ <input type="checkbox"/>
Companies				✓			✓ <input type="checkbox"/>		✓ <input type="checkbox"/>
Investor Protection				✓			✓ <input type="checkbox"/>		✓ <input type="checkbox"/>
Council of Financial Regulators (Australia)	✓	✓	✓	✓					
NZ Council of Financial Regulators (Since Sept 2011)					✓	✓		✓	✓
Trans-Tasman Council on Banking Supervision	✓	✓	✓		✓	✓			
Trans-Tasman Mutual Recognition for Securities Offerings	✓			✓	✓		✓		✓

*Trustees retain the primary responsibility for ensuring compliance with the trust deed and are hence the primary supervisor.

APPENDIX 2: New Zealand Finance Company Failures

	Institution	Date failed	Status at October 2008)	Deposits at risk (\$m)
1	National Finance 2000 Limited	May 2006	receivership	25.5
2	Provincial Finance Limited	Jun 2006	receivership	296.0
3	Western Bay Finance Limited	Jul 2006	receivership	48.0
4	First Step Trusts	Nov 2006	closed	457.0
5	Bridgecorp Limited	Jul 2007	receivership	458.7
6	Bridgecorp Investments Limited	Jul 2007	liquidation	29.0
7	Nathans Finance NZ Limited	Aug 2007	receivership	174.0
8	Chancery Finance Limited	Aug 2007	liquidation	17.5
9	Property Finance Securities	Aug 2007	moratorium	80.0
10	Five Star Consumer Finance Limited	Aug 2007	receivership	54.0
11	Antares Finance Holdings Limited	Aug 2007	liquidation	3.2
12	Five Star Finance Limited	Jun 2008	liquidation	43.0
13	LDC Finance Limited	Sep 2007	receivership	22.0
14	Finance & Investments	Sep 2007	receivership	16.0
15	Clegg & Co	Oct 2007	receivership	15.1
16	Beneficial Finance Limited	Oct 2007	moratorium	12.7
17	Geneva Finance NZ Limited	Oct 2007	moratorium	51.0
18	Capital + Merchant Finance Limited	Nov 2007	liquidation	167.0
19	C&M Investments Limited	Nov 2007	receivership	1.5
20	Numeria Finance Limited	Dec 2007	receivership	6.7
21	OPI Pacific Finance Limited	Mar 2008	liquidation	335.0
22	Boston Finance Limited	Mar 2008	receivership	24.0
23	ING funds x2	Mar 2008	suspended	520.0
24	QED. Limited	Mar 2008	liquidation	4.5
25	Lombard Finance & Investments Limited	Apr 2008	receivership	111.0

	Institution	Date failed	Status at October 2008)	Deposits at risk (\$m)
26	Kiwi Finance Limited	Apr 2008	receivership	1.7
27	Tower Mtg+ Fund	Apr 2008	closed	242.0
28	Cymbis / Fairview	May 2008	receivership	6.9
29	Belgrave Finance	May 2008	receivership	20.5
30	IMP Diversified	Jun 2008	moratorium	15.8
31	Dominion Finance	Jun 2008	liquidation	232.0
32	North South Finance	Jun 2008	receivership	100.0
33	St Laurence	Jun 2008	receivership	253.0
34	Dorchester	Jun 2008	moratorium	176.0
35	Canterbury Mtg Trust	Jul 2008	closed	250.0
36	Hanover Finance	Jul 2008	moratorium	465.0
37	Hanover Capital	Jul 2008	moratorium	24.0
38	United Finance	Jul 2008	moratorium	65.0
39	Guardian Mtg Fund	Jul 2008	closed	249.0
40	Totara Mtg Fund	Jul 2008	closed	60.0
41	AMP NZ Property Fund	Aug 2008	suspended	419.0
42	AXA Mtg bonds	Aug 2008	closed	117.0
43	Strategic Finance	Aug 2008	liquidation	391.0
44	St Kilda	Aug 2008	receivership	6.9
45	Compass Capital	Aug 2008	receivership	15.0
46	Waipawa Fin	Aug 2008	liquidation	20.0
			Total	6,102.2

Failures following the implementation of the Crown Deposit Guarantee Scheme

Company	date of failure	payout \$mn	depositors
Mascot Finance Limited	2 March 2009	70.0	2,494
Strata Finance Limited**	23 April 2009	0.5	17
Vision Securities Limited	1 April 2010	30.0	967
Rockforte Finance Limited	10 May 2010	4.0	66
Viaduct Capital Limited	14 May 2010	7.6	88
Mutual Finance Limited	14 July 2010	9.2	329
Allied Nationwide Finance Limited	20 August 2010	131.0	4,094
South Canterbury Finance Limited	31 August 2010	1,580.3	30,404
Equitable Mortgages Limited	26 November 2010	140.2	3,852
TOTAL		1,972.8	42,311

Source: The Treasury (drawn from <http://www.oag.govt.nz/2011/treasury>)

APPENDIX 3 Glossary

ADI	Approved Deposit-taking Institution
ANZSFRC	Australia and New Zealand Shadow Regulatory Committee
APRA	Australian Prudential Regulation Authority
ASIC	Australian Securities and Investment Commission
ASX	Australian Securities Exchange
BBSW	Bank Bill Swap Rate (the short term swap rate)
BCR	Bank Creditor Recapitalisation
BNZ	Bank of New Zealand
CBA	Commonwealth Bank of Australia (one of the 4 major banks in Australia)
ESA	Exchange Settlement Account
FCS	Financial Claims Scheme
FMA	Financial Markets Authority (replaced the Securities Commission in NZ)
NZ50	Market-capitalization weighted stock market index of the top 50 stocks listed on the NZX
PAIRS	Probability and Impact Rating System (APRA)
RBA	Reserve Bank of Australia
RBNZ	Reserve Bank of New Zealand
RBS	Royal Bank of Scotland
S&P ASX 200	Market-capitalization weighted stock market index of the top 200 Australian stocks listed on the ASX
SOARS	Supervisory Oversight and Response System (APRA)
UNCITRAL	United Nations Commission International Trade Law
