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50 years

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Introduction

Christopher Kent and Michael Robson

Around the globe, economies and policy frameworks have changed significantly since the Reserve Bank of Australia commenced operations in 1960. In most countries, the role of the government in product and labour markets has declined, trade barriers have been reduced substantially and there has been extensive liberalisation of financial systems. There have also been substantial changes to the framework for monetary policy and the way in which it is conducted. Along the way, policy-makers have faced numerous challenges, and while there have been occasional setbacks, significant progress has been made. The occasion of the 50th Anniversary of the Bank provided an opportunity to take stock of what has been learned over the past five decades, and to assess what needs to be reconsidered. To that end, the Bank held a one-day Symposium in Sydney, gathering a large number of leading central bankers, academics and business people from Australia and around the world.

The Symposium was organised around several topics of critical importance to central banks, with papers commissioned to examine each. The first topic was the conduct of monetary policy – its objectives, means of operation and its role in promoting macroeconomic stability. The second was the future shape of financial regulation, including the role played by international institutions and intergovernmental bodies. The third topic was supply-side issues – those factors influencing economic development and an economy's productive capacity and flexibility. In addition to keynote speakers, a number of distinguished panellists offered their views on the issues. This volume provides a record of the Symposium papers, the panellists' views and a summary of the associated discussions.

Monetary Policy Issues

In 1960, the global economic framework was one of tight constraints. Under the Bretton Woods regime of pegged-but-adjustable exchange rates and restricted capital flows, monetary policy typically took a back seat to fiscal policy in managing the macroeconomy. Banks were highly regulated and, in many countries, interest rates on loans and deposits were controlled, while product and labour markets were subject to extensive regulation and public sector involvement. In addition, some countries occasionally pursued direct controls of prices and wages as a way of combating inflationary pressures. Fifty years later, the economic framework looks quite different: the major currencies of developed economies are freely floating; capital flows are largely unencumbered in many parts of the world; and widespread structural reforms have led to more liberalised financial, product and labour markets. As the constraints were eased, monetary policy came to play an increasingly prominent role in the management of the macroeconomy.

The first paper of the Symposium, presented by Glenn Stevens and co-authored with Adam Cagliarini and Christopher Kent, discusses this transformation, draws out some lessons

learned along the way and highlights some of the key future challenges. Perhaps the most critical lesson they highlight is simply that monetary policy matters – that high and volatile inflation is detrimental to growth and that sound monetary policy is a prerequisite for low and stable inflation. These ideas gained widespread acceptance following the global experience of high inflation in the 1970s, after which central banks adopted various approaches in an attempt to control inflation. An important lesson to emerge from this episode was the need for central banks to strike a balance between rules and discretion: rigid rules are impractical given economic uncertainty and ongoing structural change, yet too much discretion can make it difficult to establish a consistent and credible approach. The need for predictable behaviour and a strong commitment to long-term stability, while also allowing for some short-term flexibility, has led to a wider appreciation of good institutional design over more recent decades. Foremost here is the need for central banks to have a clear public mandate for maintaining price stability and the operational independence to achieve this objective. In return, this demands greater accountability and transparency on the part of central banks than had been the norm.

Another lesson that has gained wider acceptance of late is that financial stability is both very important for the smooth functioning of the economy and inherently difficult to maintain. While many countries experienced episodes of financial instability soon after the liberalisation of capital flows and of the financial system, financial stability has proven hard to come by even well after such transitions. The authors argue that a way needs to be found to improve the stability of the financial system while avoiding the inefficiencies and significant costs of the extensive regulation of earlier times. They observe that while much of the debate about the role of monetary policy in this arena focuses on asset prices, the broader concern is with financial imbalances, which tend to be associated with large increases in both asset prices and credit, especially when combined with a substantial decline in lending standards.

Just how monetary policy might contribute more effectively to avoiding such imbalances is one of the key challenges for central banks. The authors suggest that the chastening experience of the global financial crisis has led to a shift of opinion in favour of monetary policy giving greater weight to the containment of financial imbalances. While acknowledging that it is desirable to have a range of policy tools at hand, they argue that monetary policy needs, at the very least, to be careful to avoid contributing to the build-up of financial imbalances when interest rates are unusually low.

A second issue discussed in the paper is the interplay between monetary and fiscal policies. For some years now, the conventional wisdom has been that monetary policy was the more effective discretionary means of managing cyclical swings in the economy. In the recent crisis, fiscal policy was eased significantly, not least to provide direct support to distressed financial systems in a number of countries. This raises a set of issues that had been at the fore of policy-makers' minds in earlier times. These include the scope for fiscal policy to manage the business cycle and how this ability is influenced by the initial state of public finances. There are also the issues of the best way to balance the contributions of fiscal and monetary policies, and the costs and benefits of coordinated responses.

Financial Sector Issues

The issue of how risks can be managed more effectively in market-based financial systems is addressed in the paper by Jaime Caruana. His paper starts by noting that periods of financial instability are not confined to episodes of substantial financial deregulation. Rather, they are tied to the ongoing difficulties associated with measuring and responding to systemic risks in a liberalised environment, as clearly demonstrated by the global financial crisis. Accordingly, he sets out the case for an overhaul of the regulatory system to ensure that all types of risk are measured and accounted for appropriately. At the same time, he recognises the need to balance reforms with efficiency concerns, favouring strategic improvements over the type of blanket government controls that prevailed before deregulation.

In the paper, Jaime Caruana argues that risk-based capital requirements are a necessary part of the regulatory framework but that improvements are needed to account for risks more comprehensively and to improve the quality of capital. He also notes that it will be important to ensure that capital is built up in good times so that there are larger buffers to draw upon in bad times. While these improvements would go some way towards addressing the inherent procyclicality of the financial system, a more rigorous approach to supervision, with stronger enforcement of existing regulations, is also needed. Further, in line with the sentiment of Cagliarini *et al*, an argument is made for monetary policy to assist other arms of policy to 'lean against' emerging financial imbalances by pushing up the cost of leverage across the whole economy. In addition, Jaime Caruana suggests that central banks will need to find a way to influence macro-prudential settings but notes that, in some cases, changes to their mandates, resources and governance, among other things, may be required to achieve this end.

Turning to the issue of how to deal with the contribution of especially large or complex individual financial institutions to systemic risks, the paper reviews a number of policies that have been suggested, which include: developing schemes for an orderly resolution of such intermediaries; improving market infrastructure to reduce the risks associated with interconnectedness; taxing larger and more complex intermediaries; or going a step further by directly limiting the structure of firms or the scope of their activities. In weighing up these various options, Jaime Caruana largely dismisses this latter strategy – the 'narrow-banking' solution – on the grounds that stability requires a sustained supply of credit, not just secure deposits and a reliable payments system. A key limitation of the narrow-banking model is that it would simply push credit provision and risk-taking outside of the home country's regulatory net. Indeed, he argues that in a world in which national boundaries are becoming increasingly blurred for financial intermediaries, more needs to be done to build on existing institutions, such as the Financial Stability Board, to enhance international coordination across regulators, supervisors and those that set standards.

Andrew Crockett also deals with this theme in a paper on the evolution of the international financial architecture, presented in the lunchtime address to the Symposium. The paper outlines how the move towards more flexible economies allowed central banks and other supervisory authorities to take a more active role in economic management. The need to coordinate these increasingly important domestic institutions at an international level resulted, over time, in the strengthening of institutions such as the Bank for International Settlements and led to the formation of the G7. For a long time, these institutions oversaw international economic

relations and helped to foster an environment of relative stability. However, he suggests that the subsequent proliferation of international bodies – including of various regulators and standard setters – led to a number of new problems.

In particular, Andrew Crockett argues that the diffuse system of international committees made it difficult to develop a coherent approach to managing the system as a whole, leading to regulatory blind spots in which risks accumulated and calls of concern went largely unheeded. The global financial crisis exposed the consequences of such oversights and provided a sobering lesson about the importance of widespread international collaboration. Current attempts to strengthen the regulatory framework are intended to remedy such weaknesses, with Andrew Crockett arguing that sustaining the momentum behind these efforts is critical to establishing a more flexible and resilient international financial system.

Supply-side Issues

Supply-side considerations are also important for monetary policy given their influence on an economy's productive capacity and its flexibility in response to unexpected developments. Anne Krueger's paper examines policies that affect the supply of factors of production and overall productivity and provides an overview of how the understanding of economics and the approach to economic policy-making has evolved over the past half century. She begins by highlighting the importance of supply-side reforms, arguing that they have accounted for much of the substantial rise in global living standards over this period. Fifty years ago, policy-makers' primary focus was on the goal of full employment; if this could be achieved, the notion was that longer-term economic growth would follow of its own accord. At the time, many thought that full employment could not be guaranteed by private markets left to their own devices, a view that emerged from the experience of the Great Depression and a general sense that individuals were not particularly responsive to incentives and price signals. This supported a strategy of strong government regulation, control and ownership affecting most aspects of economic life.

Anne Krueger then compares the policy experience of developed and developing economies in the post-War era. There were similarities in the overall approach, but the degree of public intervention was typically much greater in developing economies. Despite the potential for these economies to have grown more rapidly given the scope for their productivity and living standards to catch up, their growth tended to be below that of the developed world up to the early 1970s. She contends that this failure to catch up was a key factor leading economists to recognise the importance of private incentives and the problems of suppressing free-market outcomes. This was reinforced by increasing evidence of the high costs and limited benefits of trade protection and import substitution policies, as well as the expansion of the informal and unregulated sectors that prospered in an environment of excessive government regulations, taxes and bureaucratic inefficiencies. Around the same time, the benefits of alternative development strategies were being demonstrated by a handful of countries, most notably in east Asia, which were abandoning price controls, adopting outwardly orientated trade strategies, pursuing tax and other structural reforms to encourage private business activities, and supporting public investment in education and infrastructure.

The paper concludes with a discussion of some of the key challenges regarding structural reforms. Most notably, Anne Krueger supports calls for reforms to the global decision-making framework to give a stronger voice to developing economies, which now account for a larger share of global economic activity. She also argues that more needs to be done to foster institutional development in the least developed countries where living standards have not improved much, if at all, over the past 50 years.

Conclusions

One of the most important changes in the economic policy arena over the past 50 years has been the increased reliance placed on the price mechanism and on private markets more generally. This change built gradually across a number of fronts with the recognition of the costs of excessive government intervention and regulation, and the benefits of allowing prices to move in response to shifts in demand and supply. The integration of global markets for capital, goods and services, the liberalisation of financial, product and labour markets, and the greatly diminished role of the public sector in these markets helped to spur substantial gains in economic welfare around much of the world over the past half century. Progress in the area of monetary policy has also been substantial and been strongly influenced by these trends in the broader economic landscape. Most significantly, monetary policy frameworks are now geared towards ensuring low and stable inflation. This is important in a world where individual prices are more flexible, since overall price stability makes it easier to identify movements in relative prices, which in turn act as signals to reallocate scarce resources. Despite monetary policy frameworks differing in a number of respects across countries, there was considerable agreement among participants at the Symposium about the set of core ingredients required for price stability, including a central bank with a strong public mandate and operational independence, that behaves in a predictable and transparent way, but with room for some discretion.

While there has been considerable progress on many policy fronts, policy-makers continue to face difficult challenges. Three of these received particular attention during the Symposium. First, the scope and prospect for further supply-side reforms was discussed at some length. It was widely acknowledged that progress here is critical to support productivity growth over the longer term. There was, however, some concern about the difficulties of making progress, particularly at a time when supply-side reforms might be overlooked in light of what appear to be more immediate concerns associated with weaker near-term growth prospects across much of the developed world.

A second challenge that received considerable attention was the interplay between fiscal and monetary policies. This was at the forefront of the policy debate five or so decades ago, and has re-emerged in light of the substantial use of stimulatory fiscal policies around the world during the financial crisis and when interest rates were at, or very near, the zero lower bound in a number of countries. Views on how the interaction between these two arms of policy will play out varied, but most participants agreed on the need for substantial fiscal consolidation in countries with especially high levels of public debt.

A third challenge discussed at length was the need to enhance the stability of the financial system. Symposium participants supported calls for reform of the regulatory framework,

pointing to the need to strengthen some regulations, encourage a more proactive approach to supervision in some jurisdictions, and develop new macro-prudential tools to help counter the procyclical tendencies of the financial system. There were, however, some concerns about how these changes would be achieved in practice, whether such changes would be sufficient to reduce systemic risks, and the potential for reforms to have an adverse impact on the efficiency of the intermediation process. Some thought that the process of reform would benefit greatly from a common approach across countries, but it was widely acknowledged that it is difficult for the international financial architecture to adapt to keep pace with innovations in increasingly globalised financial markets. On the scope for policies to 'lean against' emerging financial system imbalances, there was a fairly broad agreement that regulatory and monetary authorities both have some role, although there was debate about the right mix of these two types of policies and how vigorously this approach should be pursued.

In summary, the Symposium provided a forum for participants to review developments in economic policy over the past 50 years and a timely opportunity to discuss the challenges that lie ahead. In contrast to the concerns that dominated thinking 50 years ago, foremost among the challenges today is the need to enhance the stability of financial systems and to continue to improve the supply side of economies. There was considerable agreement about the need to strengthen prudential regulation and find ways to moderate cycles in the financial system. There was also agreement that central banks can make a valuable contribution by maintaining the hard-won price stability that has been achieved over the past couple of decades.

Opening Remarks

Ric Battellino

Good morning everybody.

I would like to welcome you to this Symposium which is being held to mark the 50th Anniversary of the establishment of the Reserve Bank of Australia as Australia's central bank. Thank you very much for joining us today, particularly those of you who have travelled a long distance. We know that many of you have very full schedules, so we very much appreciate that you have made time to be with us today.

We thought this would be a good occasion to look back to see what policy-makers have learned over the past 50 years, what has worked and what needs to be reconsidered.

The Symposium has been structured around three sessions. There will be two sessions in the morning: the first will deal with monetary policy issues; and the second session will deal with financial sector issues.

Over lunch, Andrew Crockett has kindly agreed to discuss the lessons that have been learned about the international financial architecture in the past five decades. The third and final session of the Symposium will deal with supply-side issues.

Each session will start with a presentation from a lead speaker, followed by remarks from three panellists. Thereafter, there should be plenty of time for discussion.

I would like to spend a couple of minutes introducing the three people who will chair today's sessions.

Working backwards through the day, Professor Ross Garnaut will chair Session 3 on supply-side issues. Ross's long list of achievements makes him well known to academics and policy-makers alike around the world. He is one of Australia's most distinguished academics. He is also active in the business world, chairing a number of international companies and research organisations. His most recent work is the Garnaut Climate Change Review commissioned by the Australian Government.

The Chair for Session 2 is Ian Macfarlane. He too is well known to this audience. He was of course the Governor of the Reserve Bank of Australia for the 10 years before Glenn Stevens. During his term as Governor, Ian successfully guided the Australian economy through some significant global financial and economic shocks. Ian always gave a lot of weight to financial events in his thinking about monetary policy, so it is only fitting that he is chairing today's discussions on financial sector issues.

Now I would like to welcome Professor Janet Yellen as the Chair of the first session.

Janet also needs no introduction to this group. As President and CEO of the Federal Reserve Bank of San Francisco, and a voting member of the FOMC in 2009, Janet was at the heart of US monetary policy-making during the period when the Federal Reserve carried out unprecedented programs to restore financial stability and economic growth. Janet has an extensive background in US economic policy, including terms as a Member of the Board of Governors of the Federal Reserve System and as Chair of the Council of Economic Advisors. She also has extensive academic experience.

I think you will all agree that it would be hard to find somebody better qualified to chair this first session on what we have learned about monetary policy over recent decades.

Thank you Janet.

Fifty Years of Monetary Policy: What Have We Learned?

Adam Cagliarini, Christopher Kent and Glenn Stevens*

1. Introduction

Over the past 50 years, views about the role and conduct of monetary policy have evolved considerably. The development of economic ideas, the changing state of the world, and experience – at times favourable, but for a significant portion of the period under review, unfavourable – have combined to change the environment in which central banks operate. In the process, a number of basic principles for good monetary policy seem to have been reasonably settled, but one or two remain very much debated.

This paper provides an account of this evolution.[1] It starts with an overview of the central banking world in 1960, as Australia's new central bank opened for business. Section 3 reviews some of the lessons learned since then about principles for good monetary policy. Section 4 then considers future challenges for policy-makers. Section 5 draws together some brief conclusions. For local readers, we emphasise that the paper **is not intended to provide any particular message about current issues for monetary policy in Australia.**

2. Fifty Years Ago

The world of central banking 50 years ago was quite different from that of recent years. For a start, the role of monetary policy was far less prominent than it would later become. In part this was because it was constrained by the Bretton Woods exchange rate regime, in which currencies were pegged to the US dollar. For most countries, this imposed considerable discipline on monetary policy, and provided the *de facto* nominal anchor which would later, in a world of flexible exchange rates, have to be supplied by credible national commitments to price stability. The regime was supported by a system of capital controls, designed to allow some room to pursue other, domestic economic objectives. Nonetheless, for many countries, especially small ones, the system served to constrain policy choices.

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1 For a comprehensive review of the evolution of central banking see Capie, Goodhart and Schnadt (1994), Siklos (2002), Goodfriend (2007), Herrmann (2009) and Laurens, Arnone and Segalotto (2009). For recent Australian perspectives see Macfarlane (2006) and Cornish (2010).

Price stability was of course recognised as a key objective, especially among central bankers and the international institutions.[2] The German tradition gave particular emphasis to it, driven by the searing experience of hyperinflations earlier in the 20th century. But in the English-speaking world, the dominant event affecting national economic psyches was typically the deflation and mass unemployment of the 1930s. The pressure on resource availability and prices after World War II did not really shake this. The possibility that a persistent upward trend in the price level was actually becoming entrenched had not fully registered, let alone the possibility that it could become a problem in itself. So in 1960, the pursuit of full employment was in many ways the more prominent goal of public policy in much of the world. For small economies like Australia, probably the only goal which could rival full employment in the policy ordering was external sustainability.

Monetary policy, moreover, played only a supporting role in managing the macroeconomy.[3] In the context of lengthy debates over the question 'does money matter?', fiscal policy was much more prominent (Ackley 1961). Liberated by the version of Keynesian economics that was to become fashionable in the 1960s, Anglo-Saxon policy-makers started to become more ambitious in their aspirations for managing aggregate demand. The putative inflation-unemployment trade-off became more prominent in intellectual circles as a possible choice set for policy. Governments began seeking to limit shortfalls in demand more systematically, to run economies at a rapid pace more of the time. A corollary of this was that, for a time, they would give somewhat less attention to older notions of long-run budget constraints.

Central banks certainly were engaged to some extent in countercyclical monetary policies,[4] but they also were required to have a strong focus on enforcing the system of tight controls on capital markets and banks, helping manage their respective government's financing activities, and generally keeping interest rates low. Rigid restrictions and prescriptions for banking helped to maintain prudential standards, and provided a means to direct certain banking activities and sometimes a captive market for government securities.[5] This system also provided, at least

2 For instance, at an International Monetary Fund (IMF) conference in 1959, there was general concern about the adverse effects of high inflation and some agreement that monetary and fiscal policy should 'lean against the wind'. Interestingly, the very first *IMF Staff Paper* (Bernstein 1950) was focused on the problems associated with inflation, while Bernstein (1993) later recounts that he cited inflationary pressures when asked in 1946 by the Managing Director of the IMF about the most pressing post-War economic issues.

3 See Capie *et al* (1994) and Siklos (2002) for a discussion of this point.

4 Capie *et al* (1994) have a general discussion of such policies. The use of contractionary monetary policy to 'restrain inflationary tendencies' in the United States from 1956–1957 is outlined in statements to Congress by Chairman Martin (1957, 1958). When it was clear the 'downward adjustment was setting in', the Federal Reserve moved policy to a more expansionary setting (Martin 1958). Chalmers (1968) describes how, in West Germany, the Bundesbank tightened policy in order to 'check the observable acceleration in the rate of inflation' in late 1959. In a 1960 speech, the Governor of the Bank of England, Cameron Cobbold, suggested that monetary policy in 1958 and 1959 had been directed towards 'countering a mild recession', and then tightened in 1960 to combat the dangers of demand running too fast (Cobbold 1960). In the early 1970s, examples from speeches given by central bank governors to the annual meetings of the IMF show how their policies were configured to address inflation; Karl Schiller from West Germany remarked how 'strong anti-inflationary policies [have] pushed interest rates on our money and capital markets up to the highest levels in 40 years'. For a time, the then Central Bank of Ireland *Quarterly Bulletin* provided an ongoing summary of these and other key policy decisions affecting interest rates, credit and reserve requirements for a wide range of central banks.

5 Vittas *et al* (1978) provide an overview of regulation and intervention in the banking sector across Europe, Japan and the United States. For specific remarks on the United States, see Wood (2005); for the United Kingdom, see Sayers (1957); and for Canada, see Neufeld (1958). Information on Australian banking regulations is available in Grenville (1991) and Schedvin (1992).

notionally, instruments that could be adjusted in a countercyclical fashion when required – central banks influenced the quantity, price and direction of credit via reserve requirements, regulation of certain interest rates and other directives.[6] However, the use of interest rates as an instrument was limited. Credit rationing was probably the major channel of transmission for monetary policy, since political pressure was strong to keep interest rates as low as possible for key sectors, such as housing and the government itself;[7] although, towards the end of the 1960s there was an increasing willingness to allow interest rates to adjust (Capie *et al* 1994). There was also, by today's standards, little communication from central banks regarding policy initiatives.

Of course, finance was not the only tightly regulated sector. Labour and product markets were also highly regimented and occasional use was made of direct controls over wages and prices in a number of countries, often with the explicit aim of reducing inflation.[8] In many developed economies, the trend after World War II had been to extend labour market controls and regulations in one way or another, although the extent and exact nature of these varied somewhat across countries.[9] Product markets were also heavily regulated and lacked flexibility: international trade was still limited by tariffs and quotas (though there were steps under way to reduce these); substantial parts of the communications, utilities, transport and banking sectors[10] were under public control; and restrictions on entry and tight licensing requirements were pervasive across many sectors (Megginson and Netter 2001; Nicoletti and Scarpetta 2003).

This, then, was the world of 1960. Some harsh lessons of experience lay ahead. It is to these that we now turn.

3. Some Lessons from the Past 50 Years

Here we present some conclusions reached over the past 50 years, roughly grouped under five banners: the importance of monetary policy and its objectives; the importance of flexibility on the supply side; the balance between discretion and rules; principles of good institutional design; and the significance of financial system imbalances for central banks.

While these lessons are generally taken to be accepted wisdom today (though with still considerable debate on the last one), they were hardly mainstream 50 years ago. Some only

6 Wood (2005) describes the use of these instruments in the United States and the United Kingdom, Grenville (1991) does this for Australia, while Holbik (1973) describes the various methods applied by a number of central banks during this period.

7 LK O'Brien (1964), the Deputy Governor of the Bank of England, gives a feel for this view in a speech in which he mentions that the central bank was 'preoccupied … with the problems of financing the Government's new borrowing on reasonably advantageous terms' (p 28). In a similar vein, HC Coombs, the first Governor of the Reserve Bank of Australia, remarked: 'We may need to be bolder in seizing opportunities to reduce interest rates if our development is not to be hindered by excessive capital charges' (Grenville 1991, p 9).

8 For example, direct wage and price freezes implemented in the United States in 1951 to fight inflation that rose at the onset of the Korean War seemed to have worked, while the wage and price controls implemented in 1974 were broadly applauded by professional economists at the time. Numerous policies of price and wage controls were used in other developed economies, including Australia, Austria, Canada, Japan, the Netherlands, Norway and the United Kingdom. For details see Braun (1975, 1986), Rockoff (1984) and Graham and Seldon (1990).

9 For example, in the United States, regulatory changes saw the coverage of minimum wages rise from 56 per cent of workers in 1947 to 79 per cent in 1968 (Freeman, Dunlop and Schubert 1980). For an overview of similar trends in European countries, see Siebert (1997). Australia had a highly centralised labour market structure, with a quasi-judicial compulsory arbitration commission at the heart of the system (OECD 2001).

10 Public ownership of banking was a strategic policy objective in a number of countries and complemented the goals of banking regulation; see La Porta, Lopez-de-Silanes and Shleifer (2000).

became clear after previous policy approaches were found wanting, while others emerged as the structure of economies and financial systems changed. This is not to say that they were not apparent to a number of policy-makers of the time; indeed, it is easy enough to find public statements to that effect.[11] But they were not widely understood.

It is tempting to try to present each of these five sets of lessons as corresponding to a calendar decade. The flow of events and ideas is never quite that neat, however much we might like to impose such order retrospectively. Nonetheless, in what follows, these lessons are organised roughly according to the period or events that brought about their wider recognition among policy-makers and informed observers around the world.

3.1 The importance of monetary policy and its objectives for expectations – the 1960s and 1970s

By the end of the 1960s, the apparent stability of the Bretton Woods system was under serious pressure, and this would have profound implications for monetary policy. The system of fixed exchange rates provided a nominal anchor, so long as the country at the core – the United States – maintained low and stable inflation.[12] Meanwhile, fiscal policy took centre stage when it came to dampening the business cycle.

But for various reasons, which have been extensively documented,[13] the United States was not prepared to subordinate certain policy objectives to the requirements of maintaining the US dollar's purchasing power in terms either of other currencies or of gold (whose price of US$35 per ounce had been set by President Roosevelt during the Great Depression). By the early 1970s, then, the system which anchored the global price level, through a non-inflationary US monetary policy and the link of other currencies to the dollar, was on the brink of breaking down; the anchor was starting to drag.

Inflation rose gradually towards the end of the 1960s, before it increased sharply in the mid 1970s at the time of the first oil price shock (Figure 1). Through the 1960s, American policy-makers had become more confident in their ability to operate a 'high-pressure economy'[14] – to be closer to full employment, more of the time, and to avoid damaging recessions by using activist policy measures. By the end of that decade some economists were proclaiming the death of

11 For example, Wilhelm Vocke (1952), President of the Bank deutscher Länder (the precursor to the Bundesbank), expressed clear concerns about high inflation, the need for independent central banks focused on controlling inflation, and the dangers of unfettered fiscal policies. These views are perhaps not surprising given the experience of the Weimar Republic hyperinflation. Some similar points were made by William Martin, Chairman, Board of Governors of the Federal Reserve System, in his testimony to Congress in February 1959 (Martin 1959).

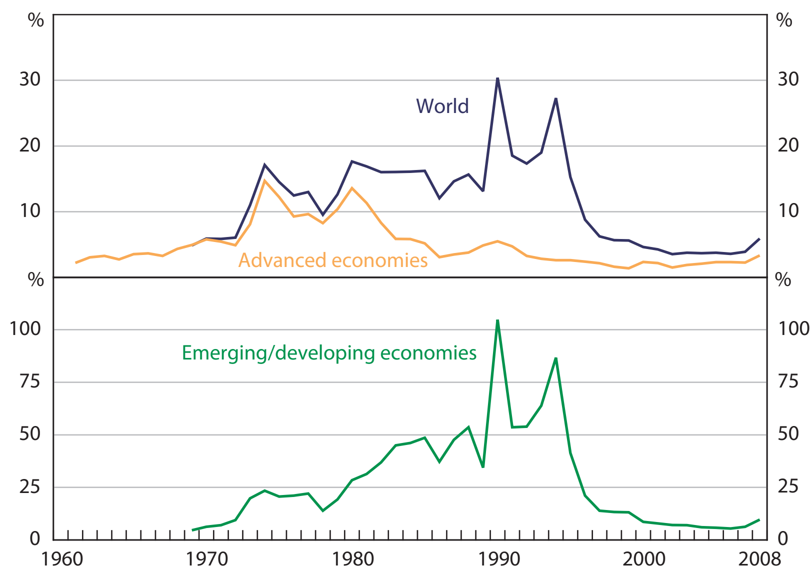
12 Participating countries were required to declare the par value of their currency to either gold or the US dollar and to maintain that value within a 1 per cent margin. Exchange rates were allowed to change to correct for persistent balance of payments disequilibria, although any change greater than 10 per cent required IMF approval. Capital controls were used by countries to limit balance of payments pressures. Quantitative restrictions were generally imposed and administrative regulations were used to increase the cost of capital flows. For more details, see Bordo (1993), while Wyplosz (2001) and the OECD (2002) provide an overview of the types of capital controls.

13 Laidler (2009) gives an overview of the tension between US domestic policy goals and the Bretton Woods system. Capie *et al* (1994) characterise US policy as pursuing both 'guns and butter'. See also Matusow (1998).

14 Okun (1973).

the business cycle,[15] while other observers were busy re-defining recession to be a period of below-trend growth, as opposed to the more usual definition (which was shortly to come back into use) of an outright decline in economic activity.

Figure 1: Annual CPI Inflation



Sources: IMF; World Bank; authors' calculations

The fact that the United States was running its economy strongly, providing a higher net supply of dollar liquidity to the rest of the world, relaxed the balance of payments constraint on other countries. This did not stop some of them getting into trouble but it generally provided a more permissive environment globally.

The build-up in inflationary pressure did not go unnoticed. There was considerable debate about the reasons for it.[16] Particularly popular in some quarters was the notion that inflation was caused in large part by 'cost-push' effects – with less blame attributable to the role of monetary policy and 'demand-pull' factors more generally. Policies geared towards addressing those pressures via controls on prices and wages attracted some prominent supporters.[17] On the other side of the debate, Friedman (1968) was a prominent advocate for the idea that inflation was

15 For example, Bronfenbrenner (1970). Also see Solomou (1998), who notes that similar claims about the death of the business cycle had been made in the 1920s.

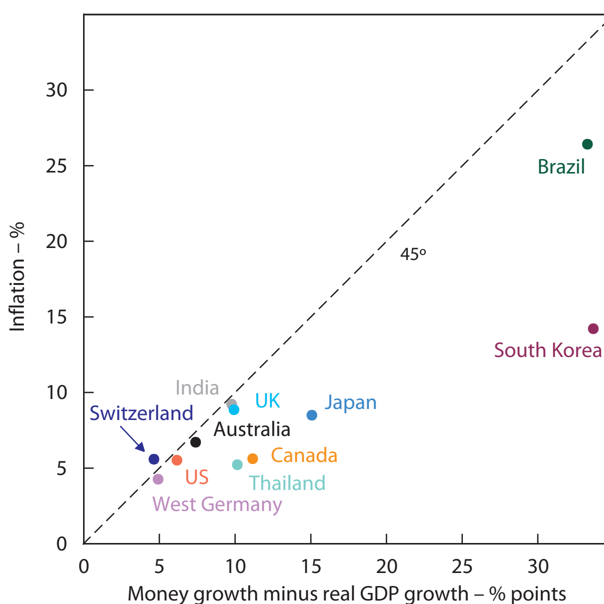
16 Okun and Perry (1978) and the papers cited therein give an interesting feel for this debate at the time and the prescribed policy responses to inflation. Meiselman and Laffer (1975) and Dawson (1992) also present the different interpretations of causes of inflation during this period.

17 In 1971, Arthur Burns, Chairman of the Federal Reserve, endorsed a price and wage review board and remarked that monetary and fiscal policies were inadequate to reduce the inflation of the late 1960s and early 1970s. Also, the Managing Director of the IMF, Pierre Paul Schweitzer, stated at the IMF annual meeting in September 1969 that:

> … incomes policy, comprising a wide range of measures that might be used to influence the movement of prices and incomes … may be particularly useful in dealing with continuing cost-push forces at a time when fiscal and monetary policies have stamped out excess demand and the economy is operating below capacity. (Central Bank of Ireland *Quarterly Bulletin*, Winter 1970, pp 36-37)

a monetary phenomenon. By the early 1970s, 'monetarism' was gaining increasing acceptance within the academic community (for example, Laidler 2009 and references therein), helped in part by the close association between inflation and money growth that was apparent in the data (Figure 2[18]; see McCandless and Weber 1995 for a more comprehensive coverage of countries over a longer sample).

Figure 2: Money Growth and Inflation
Annual average, 1966–1975



Sources: IMF; World Bank

Even if it was accepted that monetary/demand factors were ultimately the main reason for the rise in inflation, the environment was not especially conducive to a decisive central bank response. The general commitment to full employment (interpreted with increasing ambition as time went by), the prevailing wisdom in many quarters that monetary arrangements could be essentially accommodative to other concerns without there being adverse consequences, and the under-appreciation at that time of building problems on the supply side were among the constraints. The supply-side issues included the rise in inflation expectations (which would invalidate the notion that the Phillips curve offered a durable menu of choice for policy-makers), the strengthened bargaining position of labour in a world of full employment and changing political tides, the ossification of product markets under the burden of regulatory constraints, public ownership and protection, and the stronger and more organised position of the oil producers – which would be demonstrated in spectacular fashion in 1973. Particular problems

18 For all countries shown in Figure 2 except the United Kingdom and West Germany, money growth is based on money and quasi-money (M2) as defined by the World Bank. For the United Kingdom, money and quasi-money is used, as defined by the IMF. For West Germany, M1 as defined by the IMF is used. For all countries except Brazil, inflation refers to consumer price inflation; for Brazil, it is the GDP deflator. GDP and inflation series are sourced from the World Bank (except for West German inflation, which is from the IMF).

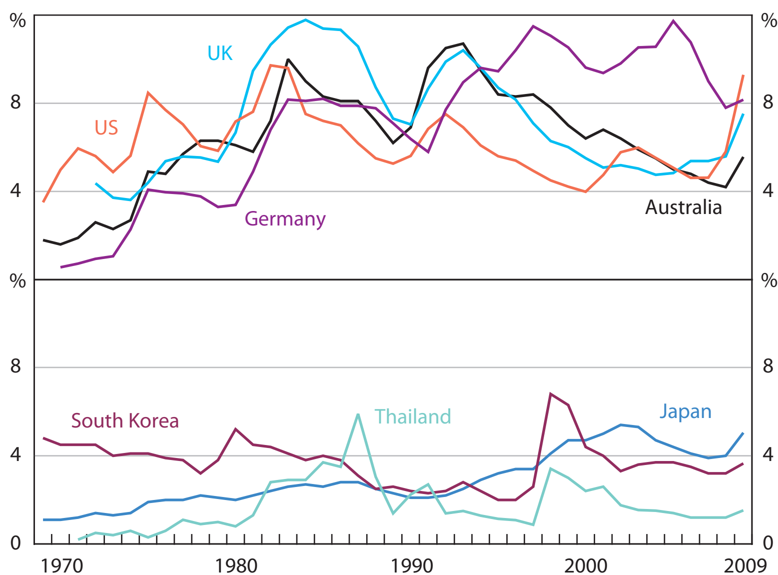
with regard to the oil price shock were both the lack of experience of such an event and uncertainty regarding its likely persistence.

A further constraint for many countries was the exchange rate regime. Disquiet had grown in countries that were receiving capital inflows as a result of expected dollar weakness and that were finding it difficult, given the obligations of the fixed exchange rate, to maintain domestic financial conditions that suited their own preferences for price stability. Measures of money growth were ballooning. After the move to flexible exchange rates eventually came, countries such as Germany and Switzerland were therefore quick to use the freedom to chart their own course. These countries would come through the 1970s with less damage to inflation performance than most, but even there inflation rose substantially between the mid 1960s and the mid 1970s, and reducing it came at considerable cost.

More generally, though, it seems that not many countries were adequately prepared to run monetary policy independently without the exchange rate anchor. To do so calls for a strong domestic framework, whose elements need to include, *inter alia*, a clear idea of monetary policy goals, adequate instruments and sufficient political scope for the decision-maker to act. These were not always in place.

Not surprisingly then, the 1970s was a particularly poor decade for macroeconomic performance, in virtually every country, on just about every metric: growth, inflation, budget positions, productivity and unemployment (Figure 3) all deteriorated.

Figure 3: Unemployment
Selected countries



Note: Prior to November1991, West German data are used for Germany

Sources: International Labour Organization; Thomson Reuters

After the dust had settled somewhat, it is fair to say that the lesson had been absorbed that 'money did matter'. At the time, the academic community saw this issue in terms of the empirical relationship between money and prices, as summarised by Friedman's claim that '… inflation is always and everywhere a monetary phenomenon …' (Friedman 1991, p 16). This took some time to become widely accepted among policy-makers (Bernanke 2003). But given the positive relationship between the growth rate of monetary aggregates and inflation across countries, as illustrated in Figure 2, and within countries in the lead-up to and during the outbreak of inflation in the 1970s, this debate moved in favour of the monetarists.[19] Even though the Lucas critique suggested that structural relationships can change under new policy regimes, the problems of instability in the demand for money were not yet obvious (Friedman 1988; Guttmann 2005) and the 'case of the missing money' (Goldfeld, Fand and Brainard 1976) was only just beginning.

Perhaps the deeper conclusion though was that monetary policy generally – the whole framework, including objectives and instruments, rather than any particular measure of money – really did matter a lot. It mattered because inflation, after all, was important: a little more inflation became quite a bit more as expectations of inflation increased and affected behaviour, and it did not give any lasting gains in employment. There was no long-run trade-off between inflation and unemployment;[20] in fact by the end of the 1970s many would be prepared to conclude that high inflation, which invariably was also volatile inflation, was detrimental to growth. Since monetary arrangements could end up contributing to instability, they could not be left just as a passive add-on, accommodating other goals, no matter how worthy those might be. A country needed a credible monetary framework and a workable set of instruments and institutional settings that would anchor inflation expectations, to provide a degree of stability that was a necessary (though not sufficient) condition for a market economy to generate sustainable growth. Moreover, the influence of monetary policy increased relative to fiscal policy as a result of the move to flexible exchange rates, a standard result of the Mundell-Fleming open economy model.

3.2 The supply side matters – 1970s onwards

The realisation that more attention had to be given to expectations was a belated recognition of the importance of the supply side. However, the supply side of the economy also mattered in other ways, and needed reform – another lesson of this period.

Those of a Keynesian persuasion had tended to argue that market failures during the Great Depression had demonstrated the weakness of free markets: the economy was not, in some circumstances, necessarily capable of adjusting automatically through price flexibility. There was a need on such occasions for effective demand to be increased by policy action to deliver a high-employment equilibrium.

19 Figure 2 presents a cross-country comparison of the relationship between money and inflation and does not account for the timing of the relationship.

20 As inflation becomes built into expectations, the Phillips curve shifts up, with unemployment returning to its natural rate over time; in the long run, unemployment is unchanged while the inflation rate is higher. Phelps (1967, 1968) and Friedman (1968) discuss this in the context of adaptive expectations while Lucas (1972) was the first to explain this idea in a model with rational expectations. See Gruen, Pagan and Thompson (1999) for a discussion of the evolution of the thinking within the RBA and evidence for Australia on the Phillips curve from the 1970s onwards. For measures of inflation expectations, see Dewald (2003), who analyses long-term bond rates for 13 major industrialised countries and finds that inflation expectations averaged across these countries trend up from around 2.5 per cent in the mid 1960s to over 10 per cent in the early 1980s.

While Keynesian demand management enjoyed a measure of success in avoiding deep, protracted downturns coming from the demand side, it could not prevent weak growth when things on the supply side started to go wrong in the mid 1970s. While perhaps not clear at the time, it now seems obvious that adverse supply developments were always going to make the choices for demand management policy more difficult in the 1970s. Moreover, in the face of shocks to relative prices, rigid labour and product markets in developed economies, combined with relatively fixed exchange rates, increased real adjustment costs. The main thing that was needed in the face of such shocks was flexibility in the economy.

In developed economies, a degree of freedom was conferred once exchange rates could move. This can be helpful in circumstances where the nature of shocks (for example, to the terms of trade) or domestic policy imperatives differ between countries.[21] Against that, exchange rate volatility can be problematic for small and very open economies to manage, so this remains a difficult issue.[22] In any event, more domestic flexibility is still desirable under any exchange rate regime.

In much of Asia, flexibility in labour markets tended to be the norm (Manning 2001). Later, and more gradually, most developed economies began a deliberate process of reform aimed at achieving more supply-side flexibility, with the Organisation for Economic Co-operation and Development (OECD) playing a key role in pursuing this agenda. Eventually, this led to significant structural reforms, removing many regulatory impediments to flexibility and competition in product and labour markets, as well as in financial markets (Conway and Nicoletti 2006). Arguably these reforms helped to make the task of monetary policy easier in at least some respects.[23]

But we will say no more about the supply-side issues here, as this is the subject of a separate paper at the Symposium. It suffices to say that monetary policy's role in supporting the supply side came to be seen as providing an environment of more stability in the general price level, allowing relative price signals to be seen more clearly. An important part of that would be anchoring inflation expectations.

3.3 Rules and discretion – the 1970s and 1980s

If it was clear by the mid 1970s that monetary policy did matter, and that inflation expectations were very important, the broader question of how to construct a framework for the conduct of monetary policy that incorporated those lessons remained.

Even if policy-makers had understood the weaknesses of the previous arrangements, the credibility of any new arrangements had to be established. Unconstrained discretion was unlikely to be fully credible; anti-inflation discipline was clearly needed.[24] It is not surprising that

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21 For a discussion of Australia's experience with flexible exchange rates see Caballero, Cowan and Kearns (2005).

22 For a discussion regarding exchange rate interventions, see Humpage (2003).

23 For example, Kent, Smith and Holloway (2005) provide some evidence of the significance of product market as well as labour market reforms in reducing output volatility.

24 The difficulty here is one of time inconsistency (Barro and Gordon 1983, for example). Policy-makers may accept the fact that there is no long-run trade-off between inflation and output/employment yet still be tempted to exploit a trade-off over the shorter term. Such a trade-off exists since some prices, wages and/or other nominal contracts are slow to adjust. If the public believe that the central bank is likely to attempt to exploit this trade-off to bolster employment, they will raise their expectations for inflation, thereby reducing the ability of policy to bring about stronger employment outcomes. Of course, this problem also makes the task of disinflation more costly than otherwise.

monetary targets became fashionable, with the Chicago school having gained the ascendancy in the debate about the importance of money and monetary policy and shown the apparent empirical reliability of the demand for money, and with a shift in the conservative direction politically after the economic problems of the 1970s.

Strictly speaking, these were in most cases not really an application of the Friedman '*k*-percent rule' which, by advocating a constant growth rate of money, was designed to avoid monetary policy itself being a source of instability. While the intellectual basis of the targets clearly rested on the quantity theory of money, and the targeting approach at least had the appearance of limiting the discretion of central banks (which may have been one of its attractions to some in the political realm, and certainly in the academic community), their actual application was very pragmatic virtually from the start. Central banks retained considerable discretion over the short term to miss targets if deemed appropriate for broader reasons (including the potential to smooth the business cycle).[25] They periodically changed the aggregates for which targets were to apply, invented new aggregates and 'de-emphasised' others. Nonetheless, the use of quantitative targets obviously owed a good deal to the idea that credibility required a shift towards the 'rule' end of the 'rule-discretion' spectrum.[26]

There was also perhaps more than a little of the 'heat shield' phenomenon articulated by Blinder (1999, p 29): money growth targets provided a rationale to move interest rates higher, ostensibly as a result of 'market' forces. In some countries, a broad money target was also partly a device to impose some discipline on government borrowing; this certainly seemed to be so in Australia.

Yet by the mid 1980s, most central banks had abandoned numerical targets – or, in the celebrated words of Gerald Bouey, the Governor of the Bank of Canada of the time, 'We did not abandon M1, M1 abandoned us'.[27] This followed significant instability in the relationship between measures of money and nominal income – as seen in both the trends and year-to-year variability in the velocity of money (Figure 4). In many cases, this was a consequence of financial innovation, often associated with deregulation. Even those countries with the strongest anti-inflationary credentials, like Switzerland and Germany, reduced the extent of their focus on monetary aggregates, in practice.

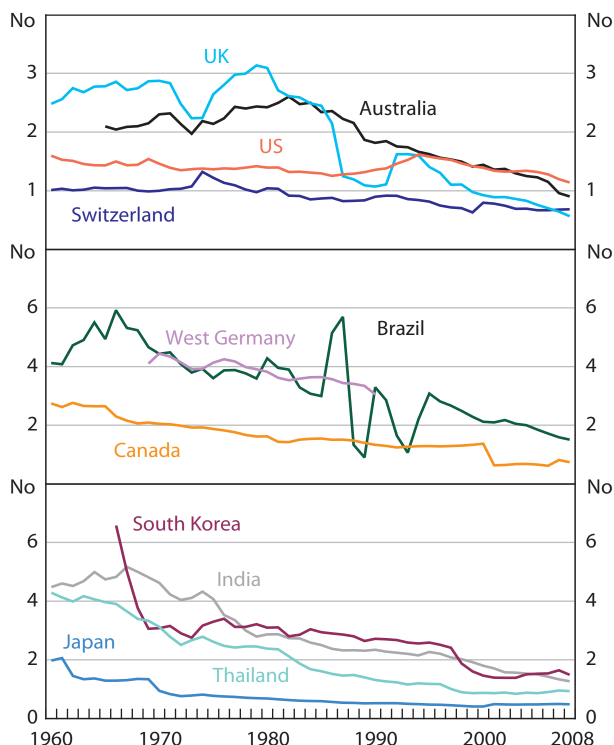
What 'rule' then could replace monetary targeting? Answers to that question differed. In the United States, the answer was fairly discretionary policy, without hard rules but nonetheless with a clearly understood policy reaction function which would contain inflation (while remaining consistent with the employment part of the Fed's 'dual mandate'). This might be described as 'rule-like behaviour' in that the simple rule for the setting of the overnight interest rate popularised by John Taylor seemed a reasonable description of the Fed's behaviour, and the response to inflation was high enough, at least by the early 1980s, to ensure that the inflation rate would be kept within reasonable bounds (Judd and Rudebusch 1998). Of course, by the mid 1980s, a considerable degree of anti-inflation credibility had been re-established as a result of the

25 Svensson (1999) argues that even the Bundesbank during the 1970s and 1980s was at times content to set aside its money growth targets, albeit in preference to inflation objectives.

26 Monetary targets also helped to promote the idea that objectives should be explicit rather than vague, thereby helping to set the scene for the introduction of inflation targets later on.

27 House of Commons Standing Committee on Finance, Trade and Economic Affairs (1983, p 2).

Figure 4: The Velocity of Money



Notes: The velocity of money is defined as nominal annual GDP divided by the money stock (as per footnote 18). For West Germany, M2 as defined by the IMF is used.

Sources: IMF; World Bank

'Volcker disinflation'. This had been achieved at significant cost. (This, incidentally, was another lesson: despite the possibility in theory of low-cost disinflation if sufficiently credible announcements could be made, no-one managed it in practice. It was always costly.[28]) Despite some critics later suggesting that US policy could be improved by an explicit inflation target, US policy would eventually receive more criticism – rightly or wrongly – on financial stability grounds than over general inflation. This is taken up later.

In Europe, the instinct for rule-like behaviour was, for historical and cultural reasons, stronger. The monetary policy framework of choice for most countries was a commitment to the European exchange rate mechanism. This meant giving up policy sovereignty in order to get the benefits of the existing credibility of the Deutsche Bundesbank, which retained its long-established 'stability culture', strong political independence, and an eye on money growth, although, as noted above, the Bundesbank itself retained a fair degree of discretion. The various incarnations

28 One later RBA Governor would say 'No country has reduced inflation by incantation' (Fraser 1993). Of course, countries with extremely high inflation can find it close to costless or even beneficial in terms of output to introduce stabilisation policies (see Dornbusch and Fischer 1986 for an account of a number of countries coming out of hyperinflations).

of the European system were subject to periodic crises, but generally continental Europe moved progressively towards integration, culminating in the single currency and the establishment of the European Central Bank (ECB) in the late 1990s. From the outset, the ECB, like the Bundesbank, had a strong anti-inflation focus and an eye on monetary quantities, in the form of its 'two-pillar' approach. More countries subsequently saw advantages in taking on euro area monetary arrangements.

In Asia, countries generally continued the practice of closely linking their exchange rates *vis-à-vis* the US dollar, accepting the cost of holding large – and after 1998, *very* large – dollar assets as part of the bargain. At least for a time, countries in Latin America also relied on fixed or closely managed exchange rates, and like a number of Asian countries in the 1990s, they too suffered from bouts of balance of payments and banking crises (Kaminsky and Reinhart 1996; Edwards 2007, 2008). Unlike the Asian financial crisis, however, Latin American crises were more likely to be associated with lax fiscal policies, which inevitably proved inconsistent with fixed exchange rate regimes, and in a number of cases led to episodes of very high inflation and even some hyperinflations.

For some other countries where the monetary quasi-rules had ultimately proved unsatisfactory, but fixed or managed exchange rate regimes were also infeasible, the search for a credible framework was arguably more difficult. Perhaps it is no surprise that in this group were to be found the pioneer inflation targeters, New Zealand and Canada, and subsequent adopters such as the United Kingdom (from late 1992), Australia (from 1993) and a number of others in later years, including in Latin America and south-east Asia.[29]

Inflation targeting is a framework of constrained discretion. It is not for everyone – very small countries which are very open often cannot accept the flexibility of the exchange rate that medium-sized, less open, economies find they can live with. But for those who can accept the set-up, the nominated target provides a useful organising device for decision-making, communication and accountability. This can help with expectations (though a period of good inflation performance is also always required to anchor expectations). Well-designed inflation targeting can also combine adequate flexibility in the short term with medium-term discipline, so offering policy-makers a reasonable chance of achieving a good combination of inflation and output variability.

Judging by behaviour, then, policy-makers took away from the experience of the 1970s and 1980s two key notions: that hard rules in most cases were not really practical,[30] but that since credibility mattered, neither was unfettered discretion. Some combination of predictable behaviour, strong commitment to long-term stability, and short-term flexibility was needed for a viable framework. Different countries have different emphases in implementation, but there is a good deal of commonality in the 'model of the world' beneath those differences.

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29 Truman (2003) provides an extensive study of inflation targeting up to 2002. A more recent update is provided by Roger (2009).

30 The most successful application of a 'hard rule' may be Hong Kong's convertible currency fixed to the US dollar, backed by very large foreign exchange reserves. This has been in place for over 25 years and has withstood serious pressure on numerous occasions. The domestic flexibility of the Hong Kong economy in terms of prices and wages, which is a necessary condition for this system to be feasible, is of course matched in few other cases, if any.

However, putting all of this together – getting the right amount of 'constrained discretion' – still requires a sound organisational design for the central bank. This is another of the lessons of the period, one which came much more into focus in the 1990s.

3.4 Principles of institutional design – the 1990s

By the middle of the 1990s, monetary policy-makers in most places could claim success in reducing inflation. The Volcker period had broken serious inflation in the United States and the subsequent mild recession in the early 1990s saw it decline further. Europe was able to return to its traditional position of very low inflation once the re-unification of Germany had run its course, and laggard countries (including Australia) had finally reduced inflation.

This was all at considerable cost, however. For the benefits of price stability to be enjoyed with a full recovery of economic activity, a way of anchoring expectations was needed, which could also, in time, give central banks a measure of short-term flexibility in occasional efforts to lessen the severity of downturns. Statements of intent or formal targets can be helpful but an emerging literature focused on the incentives facing central banks to renege on such promises, which raised the question of how those incentives might be changed. The idea had also emerged from the 1970s that central banks which were most independent of the day-to-day political process seemed to be associated with better inflation performance.

In recognition of these sorts of factors, the 1990s saw quite a pronounced focus on design issues. Some of the more exotic ideas were never implemented in practice and indeed the precise formulations have been tailored to country-specific factors.[31] However, some important principles have come to be generally accepted.

Perhaps the most important principle is that a central bank should be independent, with a mandate to pursue low and stable inflation and the ability to set instruments of its choosing without outside interference. There was considerably more emphasis on this by the end of the 1990s, though with the objectives of policy usually still set by the legislature or executive branch.

Of course, a key precondition for independence is that public financing is placed on a sound footing, thereby removing any temptation for money-financed deficits. This can be reinforced by statutory means, by restricting the ability of the government to use the central bank to finance expenditure, or by granting the central bank some measure of legal independence, which in turn indirectly imposes a degree of discipline on fiscal authorities.[32] The task of monetary policy is certainly made easier if governments are willing and able to seek finance from the private sector on commercial terms in the market place.

Ultimately, independence requires widespread public acceptance of the objectives of low and stable inflation and of the central bank's operational independence. Hence independence comes

31 Laurens *et al* (2009) provide a comprehensive review of relevant literature as well as a quantitative cross-country assessment of the different aspects of institutional design for central banks, such as independence, transparency and accountability.

32 On this latter point, Germany's experience is relevant (see Vocke 1952, for example). More broadly, Laurens *et al* (2009) identify legal approaches to limiting central bank involvement in public financing – in particular, restricting the central bank from lending to the government but, if needed, only at market rates – and label this as a key principle for the governance of central banks. Cukierman (2009) provides an overview of the means by which countries have established central bank independence, while Capie *et al* (1994) discuss the relationships between central banks and fiscal authorities across a broad sample of countries.

with accountability, and a higher requirement for transparency in the form of published reports and analysis, open Parliamentary scrutiny, publication of minutes of meetings and so on.

As institutions that had historically emphasised secrecy, central banks in some cases probably found this initially somewhat confronting. Disclosure cuts both ways, however, and in some respects is advantageous to the central bank. Certainly its opinions and decisions are known with much greater clarity – including when they turn out to be wrong. This concentrates the mind. Clarity also aids the conduct of policy, and not only through the conditioning of expectations. It reduces the opportunity for governments to put behind-the-scenes pressure on monetary policy decisions and makes more explicit where the impacts of other policies are making the job of monetary policy more difficult.

A further area of clarity by the 1990s was over the question of what the monetary policy instrument really was. Academic tradition held to the notion that some monetary quantity, exogenously set by the central bank, was the policy instrument. The transmission mechanism was typically explained in terms of money multipliers and broader money concepts, with interest rates endogenously adjusting. In fact, what policy-makers actually did was to set the price of very short-term borrowing, with the quantity of central bank money accommodating that operational objective in the short term – but in the heyday of monetary targets it was unacceptable to admit to that in polite conversation. However, by the early 1990s, most central banks had openly embraced the overnight interest rate as the standard instrument of choice. Among other things, this had the benefit of tight control and provided a means to clearly communicate the stance of policy.[33] It also helped central banks to clearly distinguish between the instrument, intermediate or indicator variables, and the final objectives.

3.5 Financial stability is difficult to maintain – the 1980s, 1990s and 2000s

For some time after World War II, concerns about financial system stability tended to be in the background in developed economies. There were periodic crises in the 1960s and 1970s, but these generally could be dealt with by standard policy tools. Given the regulatory regimes in place in most economies, and the restrictions on capital flows across borders – all responses, one way or another, to the events of the 1930s – this is not altogether surprising. From an international perspective, balance of payments crises, usually associated with macroeconomic factors in the context of fixed exchange rates, tended to be of greater concern. In some cases these involved banking crises, though the origins of those events were closely intertwined with the macroeconomic and exchange rate environment of the countries concerned.

However, this state of the world was never likely to be permanent. The attempt to control financial systems through extensive regulation had its own problems. Apart from potential dead-weight losses associated with regulation, there was the associated decline in financial dynamism in the regulated sector and a consequent incentive for growth of the unregulated sector. Domestically, non-bank financial institutions tended to become bigger; internationally, the euro markets

33 Prior to this, central banks tended not to publicise changes in the overnight cash rate; colloquially the practice of unannounced policy initiatives in this regard was known as 'snugging'. Such behaviour generated public confusion at times (for an example of this in Australia, see Bell 2004).

became larger. The unregulated sector, in some cases, became large enough to pose significant risks to the total system, and in any event the regulated sector could not easily sit by and see growth opportunities go to unregulated competitors. That is why, in Australia at least, banks were one of the very few industries to volunteer for deregulation; in contrast, in most industries, regulation (at least of that era) typically favoured the incumbents and regulatory reform had to be achieved against their wishes.

There was also a global philosophical shift away from state intervention in economies, which gathered momentum from the second half of the 1970s. With all those factors, it is hardly surprising that financial liberalisation came on to the agenda.

In a number of countries, including Australia, Japan and in Scandinavia to name a few, the financial deregulation of the 1980s appeared to be associated with a degree of subsequent instability. This might be seen as a problem of transition from one state of the world to another – perhaps once things had settled, an efficient financial sector with strong prudential oversight, combined with sound macroeconomic policy frameworks, would play its part in fostering economic growth and stability.

It is probably as well to record, in the current climate, that substantial efficiency gains were enjoyed in many cases. Yet financial crises continued to occur. Contrary to what we may have hoped a decade or two ago, it cannot be assumed that an environment of macroeconomic stability will obviate financial instability; if anything, an argument can be made that the 'Great Moderation' encouraged, in some respects, the risk-taking behaviour that helped to visit extreme instability on many North Atlantic countries in the past couple of years. In fact, it may be unrealistic to think that the financial system will ever settle into a steady state, since innovations, including new types of financial institutions and new ways to take on risks, will probably continue to be the norm.

Again, it is not as though policy-makers had failed to notice the potential tensions. The publication of 'financial stability reports', parallel to, but separate from documents covering the general macroeconomic situation, began in the mid 1990s with the Bank of England's *Financial Stability Review*. This set a trend that many others followed. Even a fairly casual reading of many of those documents, as well as numerous speeches of central bankers, bank supervisors and others, shows that many observers conveyed increasing unease and concern about developments ahead of the US sub-prime crisis which broke in 2007. The question is what can be done about a situation in which financial system imbalances can emerge even when monetary policy settings appear to be appropriate according to standard measures of macroeconomic performance, such as inflation of the prices of goods and services.

The issue is often presented as the question of what, if anything, monetary policy should do in response to significant changes in asset prices. Some writers have tended to frame the debate around the question: should monetary policy try to 'burst bubbles'?[34]

In some respects, this use of language is unfortunate because it tends to divert attention to questions of whether we can recognise bubbles in a timely way (or even the prior question of whether bubbles can actually exist). In fact the issue is not 'bubbles', or even asset prices

34 See Cecchetti (2006) for a review of the relevant literature as it stood prior to the recent crisis.

per se. The issue is the potential for damaging financial instability when an economic expansion is accompanied by a cocktail of rising asset values, rising leverage and declining lending standards. Add substantial liberalisation, deregulation and/or financial innovation and the risks get larger again, given the potential vulnerability of new systems/products/institutions that are as yet untested by a period of economic weakness.

In the debate about what pre-emptive monetary policy response may be appropriate to try to avoid such circumstances, the arguments are by now fairly well rehearsed. If a credit-financed boom is occurring and the likelihood of a subsequent bust poses the risk of a serious medium-term downturn in the economy, some argue that the best approach is to run monetary policy tighter than otherwise in the boom phase, in order to forestall a bigger downturn later. In this view, the cost of an asset price and credit collapse is potentially so large that it must be worth paying *some* short-term cost in lost economic activity to avoid or at least contain it. At least some proponents of this view believe that existing frameworks need not be abandoned, merely augmented and interpreted a little more flexibly, over a longer horizon, to take account of cycles in asset prices and credit (Bean 2003, 2004), though there are others who argue for an aggressive policy with a view to ending the boom: there are various degrees of 'leaning against the wind'.[35]

The counter-arguments are essentially that:

- asset price changes may be fundamentally based and higher leverage sustainable, in which case policy should not resist them;
- even if an asset price and credit boom is thought with some confidence to be not well based (a 'bubble'), countering it effectively with monetary policy may take a very aggressive use of the instrument and therefore the cost to the other, non-bubble sectors of the economy will be too high;
- the use of monetary policy for this purpose is very hard to explain, given central banks' current mandates, if ordinary CPI inflation is not excessive and other policies could be better used to target asset price and credit build-ups;
- by trying to end an asset price boom late in the piece, tighter monetary policy might actually make the ensuing downturn deeper rather than shallower; and therefore
- it is better to leave asset prices and credit alone, and to continue to focus on demand and prices, including of course any expansionary or contractionary macroeconomic impacts of the asset price cycle. Given the usual asymmetry of these cycles, this mainly amounts to 'cleaning up' the fall-out after the boom has collapsed.

35 Borio and White (2004) describe the notion of 'leaning against' asset prices, while Bordo and Jeanne (2002) discuss the circumstances in which some pre-emptive policy may be warranted in response to rapid asset price appreciation. (See Bernanke and Gertler 2000 and Borio and Lowe 2002 for further discussion.) There are few if any examples though of practical experience of such policies. The Australian experience with house prices between 2002 and 2004 is quoted by both proponents and opponents of responding to house prices. It was certainly an example of a case in which the central bank clearly articulated its views, in a series of speeches and other official communications, that prevailing *growth rates* of house prices and housing credit were unsustainable and potentially a danger to financial stability. There was a modest tightening in monetary policy – which was justified on the basis of general macroeconomic grounds, but also highlighted the rapid growth of household credit – as well as a tightening of some relevant policies by the regulatory and tax authorities. There followed a relatively smooth, though significant softening in the housing market, with nominal price falls in many parts of the country (Bloxham, Kent and Robson 2010). The Swedish experience around 2005 is another example (Nyberg 2005).

Until recently, the 'clean up after' view was in the ascendancy. In the earlier rounds of debate around the turn of the century, the 'leaning against the wind' argument did not get enough traction – probably because growth in the United States was fairly easily restarted after the shallow recession of 2001 that followed the 'dot-com' bust.

While it may sometimes be possible for policy-makers to achieve this benign outcome, if asset price falls in the presence of substantial leverage lead to the failure of financial institutions, a freezing-up of financial markets and a substantial loss of confidence in the financial system, it is much more likely that the standard monetary policy tool, the overnight interest rate, could become ineffective due to the zero lower bound. Once thought to be a problem isolated to Japan, this is now seen to be a more common affliction. In other words, cleaning up the mess afterwards is very difficult if the mess is too big for the tools at hand. So debate on these issues has been rejoined. Finding a consensus on this issue is one of the major challenges for the period ahead, to which we now turn.

4. Challenges for the Next Decade or so

There are many ongoing debates about institutional design and optimal monetary policy frameworks.[36] But there are two quite pressing issues which, in our view, are likely to demand attention in the period ahead.

The first is the problem of how to best ensure financial stability, and what role monetary policy should play in this regard. The second issue – born out of the response to the crisis, particularly of fiscal policy – is the interaction between fiscal and monetary policies.

4.1 Financial imbalances and monetary policy

As outlined above, there remains considerable debate about the role of monetary policy in responding to risks to financial stability. A degree of caution is certainly warranted – monetary policy cannot resolve every problem and central banks must always be wary of burdening policy with multiple goals (especially given the limited instruments at hand).

The real question, however, is simply whether monetary policy can plausibly escape any responsibility for a significant rise in financial system risk associated with large increases in asset prices and credit, and reduced lending standards. After all, the price of short-term borrowing is controlled by the central bank. Granted, in many countries long-term borrowing costs are more important for end-borrowers, but the short rate may still be an important driver of the behaviour of financial intermediaries and other actors in markets (Adrian and Shin 2008). In that sense,

36 For example, there are questions about the appropriate degree of flexibility in monetary policy frameworks – such as the optimal horizon for hitting an inflation target. There is a set of questions surrounding whether, and if so how, policy-makers should reveal the expected future path of the interest rate instrument, and whether there are occasions when it might be optimal to make commitments regarding such a path. Other topics of interest are: how to deal with uncertainty that we face across many dimensions; how to characterise risk and preferences regarding risk; and whether robust policy rules can be formulated to help deal with uncertainty. On institutional design, there are many questions about the details of central bank governance, and the extent and nature of communication.

monetary policy does have a role in conditioning the environment under which asset and credit booms occur.[37]

Many of the arguments against responding to financial imbalances – that it is difficult to know if the growth of asset prices, credit and risk-taking have been excessive,[38] that the responsiveness of these developments to monetary policy changes is uncertain and may be small, and that policy responses would be hard to explain – are not that different from the difficulties monetary policy routinely faces in judging the risks to inflation and output.

It is undoubtedly desirable to have other tools with which to respond to excessive risk-taking and rapid credit growth – the much touted 'macro-prudential' policies. But people are sometimes vague about what these tools will be, and more importantly, often unclear about how they will be effectively applied.[39] To the extent that there are specific proposals – for countercyclical capital requirements for example – all the same issues of rules versus discretion, judgment of when to make discretionary changes and of explanation, will come up as for monetary policy changes. Moreover, the ongoing limitations of regulatory policy remain, not least: the potential for credit to be provided outside of the regulatory net; and the difficulties for supervisors of responding quickly enough to financial innovations that allow for leverage in untested and complex ways to build up within the net.

So while it is important for the development of these tools to continue, we need to be realistic about how quickly this can be achieved and how long it will take to gain experience in using them. In the end, of course, if the root of the problem is simply that interest rates are too low, experience suggests that efforts to handle the problem by regulations aimed at constraining balance sheet growth will not work for long.

In our view, probably the most compelling argument against a monetary policy response in the face of asset and credit booms is the possibility that the dynamics of these episodes are simply so unstable that action against financial imbalances *late in the cycle*, rather than lessening the

37 There may be something of an analytical impediment here. The conventional macroeconomic analysis takes place, roughly speaking, in a Phillips curve/IS-LM setting. While very useful, much more work is required to adequately capture the role of the financial sector in this framework. The financial sector itself may be a source of shocks to the economy, not just a passive part of the structure accommodating the needs of commerce. In addition, if, as suggested in some recent literature, the financial sector's risk-taking behaviour is affected by the level of short-term interest rates, then the financial sector's propensity to be a source of shocks is a function of, among other things, the setting of monetary policy. If so, then the debate about appropriate responses to asset price and credit developments is often conducted on rather narrow foundations (although we note that of late there has been a resurgence of effort to develop models to address these issues).

38 This view was expressed eloquently by Cecchetti, Genberg and Wadhwani (2003, p 441):

> … we are not persuaded that one should ignore asset price misalignments simply because they are difficult to measure … If central bankers threw out all data that was poorly measured, there would be little information left on which to base their decisions.

For similar arguments see also Cecchetti *et al* (2000) and Bordo and Jeanne (2002).

39 Obviously, where it makes sense, the scope, nature of, and compliance with regulations for financial institutions and markets need to be improved (although care needs to be taken not to merely add to regulatory burdens). It also makes sense to attempt to address underlying distortions that may encourage over-investment, speculation and excessive lending in some sectors. However, it is unrealistic to think that these sorts of changes will eliminate cycles in risk-taking and finance, and so it is worth focusing attention on the potential for cyclical policies.

extent of the ensuing downturn, will actually make it worse.[40] This is a sobering argument for care once a boom has worked up a head of steam. However, it also amounts to an argument to avoid having the boom get to that point and to err on the side, much earlier in the process, of not keeping interest rates unusually low. The potential instability of a well-developed boom means that for policy-makers, the least-harm policy is to make sure that their settings are not inadvertently fuelling the build-up.

It is unlikely that we will ever overcome the problems of uncertainty to a degree that warrants aggressive 'popping' of asset price bubbles. But, to repeat, couching the debate in those terms is potentially misleading and quite unhelpful. The problem is not one of asset prices *per se*: it is one of risks and imbalances building in the financial system, as often indicated by a *combination* of rapidly rising asset prices and credit, and falling lending standards. In any event, there is a large distance on the spectrum between passively accepting asset and credit developments and aggressively seeking to reverse them. Even with the development of other tools, it is unlikely to be credible for central banks not to move, in the next decade, at least somewhat in the 'responsive' direction.

4.2 The role of fiscal and monetary policies

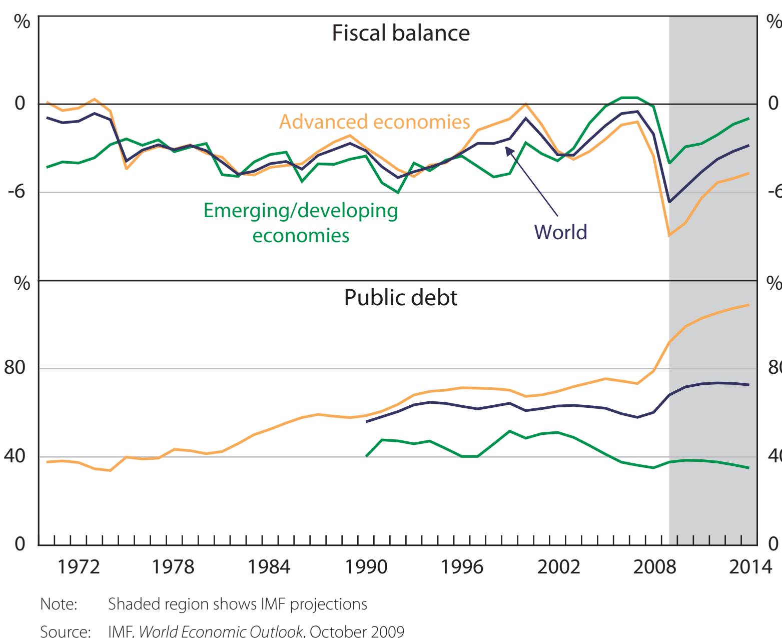
By the end of the 1990s, monetary policy had tended to become the main tool of countercyclical policy in many countries. The arguments for why fiscal policy may not be well suited to managing normal business cycle fluctuations are well known: it can take some time for fiscal policy to be enacted and implemented, at which point the circumstances that warranted the fiscal response may have subsided; it can be (politically) difficult to remove certain discretionary measures; and fiscal policy can introduce distortions that might be counterproductive. In addition, the build-up of public debt in some countries has led to a greater focus on long-term fiscal sustainability.

So by the 1990s, fiscal policy in major countries had become less concerned with stabilisation of the economy. More attention was being given to improving microeconomic efficiency and, more recently, to fiscal challenges that are expected to result from demographic change.

But the recent crisis marked a shift to fiscal activism. Following the collapse of Lehman Brothers in September 2008, governments around the world responded with one of the largest peacetime fiscal expansions in history, much of which was of a discretionary nature (Figure 5). In doing so, countries were following the strong advice of the IMF, which found itself, unusually, urging substantial, coordinated, discretionary fiscal expansion.

This is understandable in the context of a very deep recession in major countries, associated with a set of concerns last seen in the 1930s. A large-scale deleveraging, with weakened banks and a massive shock to confidence which saw a dramatic slump in the demand for durable goods, meant that in the countries most adversely affected, the conventional response of lowering

40 Gruen, Plumb and Stone (2003) make this point in discussing asset price imbalances. They go so far as to argue that there may be a case to ease policy in anticipation of an imminent bursting of an asset price bubble, given the lags with which policy affects activity. However, this may simply be a case of 'adding fuel to the fire'. If asset prices and credit have been growing rapidly for some time, policies that enable a continuation of credit on relatively easy (or even easier) terms may make financial imbalances worse. The problem is that at this late stage there is already an excess of finance and investment being directed to the 'bubble-like' sectors, and encouraging that in any way will not provide a cushion for the economy when asset prices head down.



Note: Shaded region shows IMF projections

Source: IMF, *World Economic Outlook*, October 2009

nominal interest rates ran out of steam as short-term rates reached the effective zero bound. These developments amounted to the classic 'liquidity trap' scenario in which expanding aggregate demand with fiscal policy is the textbook response. With investment weak and long-term interest rates falling, there was little near-term risk of crowding out private borrowers. Even in countries where interest rates were still a good distance above the zero bound, governments heeded the admonition to err on the side of stimulus, given the apparent threat to global demand.

Where central banks had run up hard against the zero lower bound, some moved to expand their balance sheets by buying up government as well as privately issued securities. This has blurred, for the time being, the earlier clear distinction between fiscal and monetary policies. Indeed an aspect of the policy responses to the financial crisis has been the heightened degree of apparent cooperation – intended or not – between monetary and fiscal authorities.

All of this is, to repeat, understandable. Moreover, these measures appear to have been effective in numerous countries in freeing up financial markets and supporting demand at the time of the greatest downside risks.

The revived fiscal activism does raise some important questions, however.

First, is the recent set of events a one-off response to a once-in-a-lifetime event, or will fiscal policy authorities, perhaps emboldened by this experience, continue more active attempts at stabilisation policy in the future? There may or may not be good reasons to do so, but should it occur then the ground rules for the conduct of monetary policy over the business cycle will presumably be somewhat different to the ones generally in place prior to 2008.

Second, and perhaps more pressing over the next few years: will governments be able to match their expansionary fiscal activism with a corresponding degree of discipline to restore budgets to sustainable positions? It is noteworthy that for a number of developed countries, debt-to-GDP ratios have tended to trend up since the 1960s; certainly, the pattern among developed economies overall has been one of periods of rough stability, followed by a further increase in the next recession (Figure 5). There are exceptions to this, with Australia being a particularly striking one, where the debt ratio actually does have a cycle around a stable mean, and many Asian countries have traditionally had strong fiscal discipline. Even so, there are plenty of examples of the other pattern.

Third, if governments do respond to the debt trends by fiscal consolidation at some point, this may well inhibit growth for a time. How should monetary policy be conducted in that period? The straightforward answer is presumably that it would remain more accommodative than otherwise.

There may well be attractions for fiscal authorities in committing to a path of relatively rapid fiscal consolidation, thereby allowing monetary policy to be more accommodative than otherwise. This would have the advantage of keeping down the costs of servicing public debt in the meantime. It would also reduce the potential for the 'crowding-out' of private investment normally associated with high fiscal deficits and upward pressure on interest rates, particularly once central bank purchases of government debt cease, as eventually they must.

Such an outcome could also mean, of course, a lengthy period of rather low short-term interest rates. If that continued after the financial sector repair had largely been completed, it would raise its own set of questions about financial stability.

Some commentators have suggested that central banks should temporarily allow inflation to be above what they would be comfortable with over the longer term in order to help inflate away the public debt.[41] Successful pursuit of this very discretionary proposal – and it should be clear the present authors do not propose attempting it – would be no small feat, given the risks. If temporary inflation became built into expectations, it would not reduce the cost of servicing public debt (assuming that it is not all long-term at fixed nominal rates); it may even increase interest rates, since it could increase the inflation risk premium. Second, it has usually proven difficult to ensure that inflation stays high only temporarily, so such a strategy risks higher interest rates in the future to bring inflation back into line, thereby pushing up the costs of servicing debt down the track. Closely related to this is the potential loss of credibility, not just for monetary policy, but also for fiscal authorities.

The main point here is that, in a number of countries, recent events have combined to bring fiscal policy into much more prominence as a countercyclical tool than it has had for a long time, even as questions of debt sustainability continue to increase and, in some cases, the dividing lines between fiscal and monetary policy have become less clear. Discussion about fiscal and monetary policy coordination will probably come back into vogue, since both policies will want to exit from extraordinary settings without cutting short economic recovery, but also without

41 Kenneth Rogoff recommends an inflation target of 6 per cent 'at least for a couple of years', while Greg Mankiw suggests the Federal Reserve attempt to generate 'significant' inflation (Miller 2009).

impairing the long-run credibility of either.[42] At the very least, all of this could well mean that, one way or another, the conduct of monetary policy has an additional complication over the next decade.

5. Conclusions

Looking back over 50 years, it is apparent that there has been a good deal of change in the world of monetary policy. It certainly seems fair to say that the economics profession and the policy-making community have learned a lot about the conduct of monetary policy.

Much of that has arguably been re-learning old lessons (sometimes by absorbing lessons learned by contemporaries in other parts of the world). As we tell the narrative, anyway, the importance of monetary policy – or more correctly the monetary policy framework of a country – was not fully appreciated at the beginning of our five-decade history. The build-up of inflation pressures and the tensions generated by somewhat differing policy objectives across countries helped to set the scene for instability in the 1970s, and for a re-evaluation of the importance of monetary arrangements – perhaps restoring them to the prominence that earlier generations might have given them all along. There followed a long and pretty painful period of restoring price stability, of searching for a robust framework (or a set of possible frameworks), and of constructing strong institutional arrangements for central banks.

By the end of the 1990s, most central bankers would have said that things were in pretty good shape. It was understood (again) how important monetary policy was. Our thinking about instruments and objectives had been clarified, and institutional arrangements had been established which enabled central banks to do their job effectively.

Some far-sighted individuals might also have said that the danger inherent in the 'Great Moderation' was that assumptions about what monetary policy could deliver were getting too comfortable. For if we learned from the 1970s how important monetary policy and its objectives were, and we learned from the 1980s and 1990s the importance of strong, credible policy and institutional frameworks, the past few years have reminded us of the importance of financial stability, and of the limitations as to what monetary policy alone can achieve. Price stability and general macroeconomic stability, to which sound monetary policy surely contributed, did not guarantee financial stability. It may even have inadvertently helped to foster the risk-taking that ultimately brought things undone. Moreover, in the face of an eventual deflationary shock of large magnitude in some key countries, limitations to monetary policy, at least in its conduct via nominal interest rates, became all too clear.

Not only has this ushered in a new period of fiscal activism, whose full dimensions as yet remain unclear, it has – appropriately – reignited the debate about the role of monetary policy in fostering financial stability. Some have argued that the problem was that the apparent success of policy-makers in smoothing the near-term outlook for inflation and economic activity came

42 Blackburn and Christensen (1989) give an overview of the literature examining the coordination of monetary and fiscal policy. Nordhaus (1994) shows that coordination between the fiscal and monetary authorities is desirable during periods of fiscal consolidation; however, he does not address the potential effect of cooperation on central bank independence.

at the cost of allowing the build-up of financial imbalances, which impaired the achievement of these macroeconomic objectives down the track.

It is of course impossible to predict how that debate will be resolved, but it surely has to be resolved, one way or the other, in this cycle. We cannot yet know how challenges in other policy areas – think of climate change for example – will impinge on the conduct of macroeconomic policies.

It is always the tendency – the conceit perhaps – of the current generation to think that we have faced more complex challenges, crafted more ingenious responses, implemented more far-reaching reforms, and established a more enduring framework than did our forebears. The financial crisis of 2008 certainly taxed the capacities of the current generation of policy-makers. Perhaps the challenges of this crisis were greater than those of the past 75 years or so – although those who worked to build the post-War international architecture in the 1940s, or those who had to respond to its demise in the 1970s, or who had to confront the 'great inflation', or various regional crises in the 1980s and 1990s, or who had to build a market economy after the demise of communism, might beg to differ.

Having read some central banking material from the early 1960s in the preparation of this paper, we are struck by the similarity of the language used in those discussions of the macroeconomy to that of today. Perhaps there is an argument to be made that 'plus ça change …'. Or perhaps the main lesson to take from 50 years of history is simply not to forget the old lessons. They have a habit of re-emerging.

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Panel Discussion

1. Stanley Fischer

This paper states its conclusions modestly. It concludes that we have learned a lot in the past 50 years – particularly that monetary policy is important and needs to be institutionally based. Despite the enviable record the RBA has developed in the past two decades as a pragmatic flexible inflation targeter, there is no ringing call for everyone to join the club. And at the end we are reminded that we had better not forget the old lessons, that is, we should not get carried away by how much better we understand the way that monetary policy works than did our predecessors. The RBA's call for modesty is not only characteristic of its own behaviour, it is undoubtedly appropriate in general, especially after the events of the past two years.

Let me start with the 'constrained discretion' flexible inflation-targeting approach. The flexibility in that approach implies that the central bank takes account of short-run output effects in deciding how rapidly to try to return inflation to its target level. But if in the short run the central bank is targeting both inflation and output (growth), what does inflation targeting buy us? The answer – visible in the stability of inflation expectations for five years and more in most inflation-targeting countries – is *stable long-run inflation expectations*, which means confidence in the real value of the currency. That is no small thing; indeed it is essential to the stability of the macroeconomy and it is the essential achievement of the inflation-targeting approach.

I would like to talk about four more – interrelated – topics, on which our central banking community has been known to pronounce, sometimes with more certainty than may be warranted:

- the one-instrument, one-target story about money and inflation;
- the no-long-run trade-off story that morphs into a no-short-run trade-off story;
- the problem of the exchange rate for small, open economies; and
- asset prices, financial stability and macro-prudential supervision.

1.1 One instrument, one target

Not infrequently we hear central bankers say something like: 'We have only one instrument – money growth (or the interest rate) – and so we can have only one target, inflation'. This view may be based on the targets and instruments approach of Tinbergen, of over 50 years ago, the general result of which was that you need as many instruments as targets. That view is correct if you have to hit the target exactly.

But it is not correct if the problem is set up as is typical in microeconomics, where the goal is to maximize a utility function subject to constraints, in a situation where for whatever reason it is not possible to hit all the targets precisely and all the time. Among the reasons we may not be able to hit our targets precisely and all the time is that there may be more targets than instruments,

for instance when the central bank's maximand is a function of output and growth. In that case we have to find marginal conditions for a maximum, and to talk about trade-offs in explaining the optimum. So it is *not* generally true that because the central bank has only one instrument, it can take into account only one target – unless the instrument has no effect on any variable other than the target.

That brings us to the nature of the impact of monetary policy on the economy.

1.2 Long-run and short-run trade-offs

To a first approximation the long-run Phillips curve is vertical, and there is no long-run trade-off between inflation and output, and/or unemployment. More than once it has been argued that because there is no long-run trade-off, monetary policy should not be used to try to affect both output and inflation in the short run.

This argument is invalid unless there is no short-run trade-off – a position that was argued early in the development of the rational expectations approach to monetary policy. But that is generally not correct, except perhaps in a hyperinflation.

The truth is that the long run is a succession of short runs, and that at every moment the central bank has to take the short-run trade-off into account.

How to combine the no-long-run trade-off view with the existence of a short-run trade-off? The best way devised so far is the flexible inflation-targeting approach. The RBA's version is that it should aim to attain the inflation target on average over the cycle, which is analytically clear, but may be practically hard to define in a country that has not suffered a recession for almost two decades. An alternative version, adopted by most inflation-targeting central banks, is that they should operate in a way that when inflation diverges from target, policy should aim to bring it back to target over the short run, typically defined as one to two years.

1.3 The problem of the exchange rate for small open economies

No small open economy can be indifferent to the behaviour of the exchange rate, which vies with the interest rate for being the most important relative price in the economy. (Of course, the word 'real' could be inserted twice in the previous sentence.)

The exchange rate issue comes to the fore when a country experiences an unwanted real appreciation as a result of capital inflows – as is happening at present in several developing and emerging market countries that have emerged from the recession more rapidly than the major industrialised countries and which have had to raise their interest rates to deal with inflation. Provided the resultant appreciation is modest, it may be possible simply to accept it as part of the international adjustment mechanism. But if it becomes too large, the country will want to take action to keep the real appreciation from doing serious damage to growth.

The textbooks say that fiscal policy can be tightened to reduce the interest rate and thus reduce the incentive for capital inflows. That is a good story, which is valid in many circumstances. But usually fiscal policy has enough of a problem in managing government spending and its financing without being burdened with having also to take responsibility for the exchange rate – and so the question returns to the central bank and to tools other than fiscal policy.

One strategy is for the central bank to intervene, buying foreign exchange and sterilising the purchases by offsetting sales of domestic assets. It is frequently said that foreign exchange intervention does not work – that the monetary authority cannot stand against the market forever. That is certainly true when the pressures are in the direction of a depreciation of the currency, for then the central bank has only limited access to the asset the market wants to buy – foreign exchange. It may be able to offset temporary pressures to depreciate, even those resulting from a capital outflow; some of the reserves will be usable for this purpose, and the country may also have access to foreign loans. But the country cannot stand against the market forever in this case.

However, the case of capital inflows, which we are discussing, is different. In that case, the central bank has the capacity to supply what the foreign exchange markets want – domestic currency. And provided the central bank is willing and able to sterilise the foreign exchange purchases, there need be no consequences for the inflation rate. The process can continue as long as the country is willing to continue to acquire reserves – and in recent years several countries have been willing to increase reserves by far more than anyone would have expected just a few years ago.

Full consideration of the decision of whether to intervene by increasing reserves in the face of an undesired capital inflow would involve calculating the costs of the appreciation and the consequences for current and future exchange rates of the intervention, along with the costs and benefits of holding additional reserves.

What if the country decides not to continue intervening? It is then driven to consider controls on capital inflows, a topic on which the IMF has recently pronounced more favourably than in the past. Controls are typically awkward, inefficient, inconsistent with a general pro-market approach, may discriminate against small- and medium-sized enterprises, and are frequently associated with corruption. In short, capital controls have very little to recommend them other than that they may be better than the alternatives. Policy-makers should make every effort to avoid using them – but central bankers should never say never.

1.4 Asset prices, financial stability and macro-prudential supervision

The authors do an outstanding job of discussing the asset bubble problem. They explain why we should not pose the problem as being 'should the central bank try to prick bubbles?', rather it is whether the central bank should take asset prices and the state of asset markets into account in setting monetary policy. The answer to this question is yes.

In the run-up to the current financial crisis, in the United States, the United Kingdom, Spain and other countries, the bubble and its consequences were concentrated in the housing market and its financing, direct and indirect. In many countries, housing prices enter the price index in one way or another, so an inflation-targeting country would have reason to react to rapidly rising house prices.

More generally, the central bank might want to react to rising asset prices to an extent which is different to that implied by their direct current contribution to the consumer price index. We

are dealing here with the issue of *macro-prudential supervision*, and the question arises of what instruments the central bank can use to that end.

The obvious answer is to use regulatory instruments, such as mortgage terms, and possibly countercyclical capital and maybe liquidity ratios. This can be done, and will have to be done if we are to avoid another crisis like that of 2007–2010. However, the official community is still far from having an agreed approach to the issue, including that of where the responsibility should be located. The tendency is to place the responsibility with the central bank, but until the issue of the tools it has to deal with the problem is clarified, it will not be clear whether the responsibility can be efficiently exercised. This issue is under active consideration in the BIS, in other fora, and in individual countries, and we need to make progress on it soon.

1.5 Final comment

At the end of their paper, Cagliarini, Kent and Stevens remind us not to forget the past. These comments seem to take their reminder very seriously – for I have discussed short-run output-inflation trade-offs, foreign exchange market intervention, capital controls, the use of supervisory tools for macro-prudential supervision, and other approaches that until recently seemed to be part of history. So is it the past that lies ahead of us? No. The situation is different now, because we have inflation targets and the inflation-targeting approach, better institutional arrangements, much more sophisticated financial markets, more flexible exchange rates, much more open economies on both the real and especially the financial sides, a different evaluation of the costs of inflation and the nature of output-inflation trade-offs, and so on. Still, the choices facing policy-makers are not very different from those with which they have had to contend over the past 50 years, and that they doubtless will have to struggle with over the next 50 years and beyond.

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2. Jean-Claude Trichet

It is a great pleasure to be here in Sydney today to celebrate the 50th Anniversary of the Reserve Bank of Australia. My pleasure is all the greater for having this opportunity to discuss – on the basis of an excellent paper by Governor Stevens and his colleagues – the lessons to draw from central bank experience over the past half century.

Given the many common challenges that we have faced in the central banking community over this period, it is perhaps unsurprising that I find myself in large agreement with the paper's main arguments.

Looking back over recent decades, I would highlight many of the same lessons for monetary policy-making that Governor Stevens and his co-authors identify: recognition of the fundamentally monetary origins of inflation; appreciation of the importance of expectations in the inflation process; the consequent centrality of central bank credibility; and the resulting significance of the institutional arrangements surrounding monetary policy-making, especially central bank independence. Such considerations were central to the design of the European Central Bank (ECB) and to its monetary policy strategy, which guides our monetary policy decisions today.

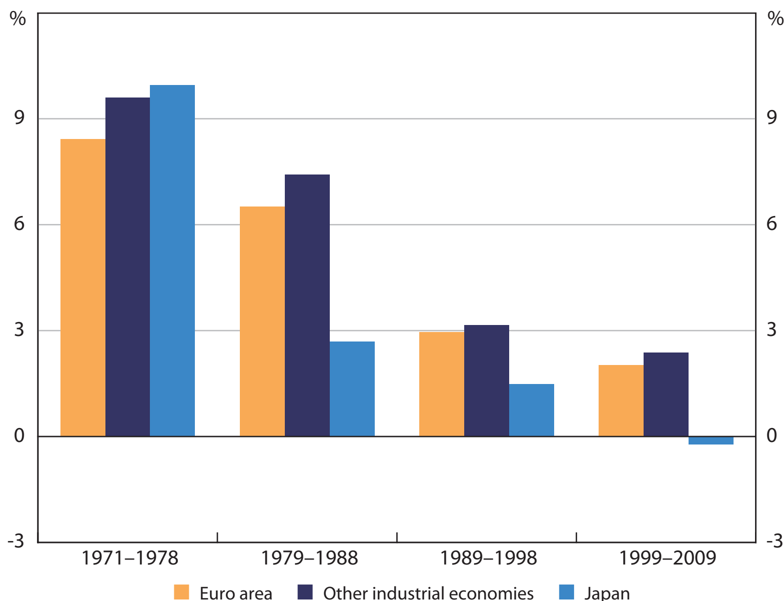
I would also identify many of the same challenges for monetary policy in the coming years. Against a background of recent financial crisis, the role of central banks in containing financial imbalances and asset price misalignments clearly warrants further attention. And I agree that the future interaction between monetary and fiscal policies is likely to be complex in many parts of the world, given the considerable increase in public deficits and debt levels.

Notwithstanding this high level of agreement, in the interest of promoting discussion I will focus the remainder of my remarks on bringing a 'European perspective' to the debate. In the monetary policy-making community, we should always strive to learn from each other – a process which naturally implies a focus on differences in approaches across central banks. Yet we should be careful not to over-emphasise these differences, which are often only subtle or rhetorical in nature. Surely the main feature of the past half century of monetary policy-making – and perhaps especially of the most recent decades – is a convergence of central bank practice around three elements: a focus on price stability as the objective of monetary policy; a public quantification of that objective, supported by greater transparency of decision-making; and greater central bank independence.

And, notwithstanding the substantial challenges we currently face, convergence around these three elements has produced impressive results. After the poor experience of the 1970s, inflation was reduced and a prolonged period of price stability established (see Figure 1). In the countries which would be part of the euro area as of January 1999, average inflation stood at over 8 per cent in the 1970s and 6 per cent in the 1980s, but has fallen to 2 per cent since the

Figure 1: Inflation Developments in Industrial Economies

Average year-ended rate of inflation



Note: 'Other industrial economies' denotes the (equally weighted) average of CPI inflation rates in Australia, Canada, the United Kingdom and the United States

Sources: ECB, Euro Area-Wide Model database; OECD

introduction of the single currency. The establishment of price stability has contributed to the creation of an environment conducive to greater economic prosperity.

2.1 A rule-based approach versus constrained discretion

The increased credibility of central banks has been central to achieving this success. Since price-setters are forward-looking, the evolution of price developments depends crucially on their expectations of future inflation. Anchoring private inflation expectations at levels consistent with price stability is therefore essential. This requires central banks to be credible. They must conduct monetary policy within a framework that convinces price-setters that they will act in the future as necessary to maintain price stability.

In principle, central banks could offer an exhaustive list of how they would respond to any future eventuality. But in practice, it is impossible to foresee all future contingencies. I agree, in that regard, with John Taylor,[1] according to whom recent experience in the money markets has demonstrated that it is possible to observe 'black swans' – even in places other than Australia!

Central banks therefore need to adopt a framework which attempts to strike a balance between: on the one hand, application of a specific rule, fostering predictability; and, on the other, a completely discretionary approach offering flexibility in the face of unforeseen circumstances.

The inflation-targeting strategy adopted in Australia is one attempt in this direction. Governor Stevens describes this as a framework of 'constrained discretion'. The ECB's monetary policy strategy is another. We have often described our approach as being *'rule-based, but not rule-bound'*.

Is there a fundamental difference between 'rule-based' behaviour and 'constrained discretion'? I do not think so. Rather, the differences of language reflect different historical experience and cultural norms. In Europe – which has historically experienced high levels of inflation, and even hyperinflation – throughout the past 50 years there has been a preference for rules to constrain policy-makers, so as to avoid previous mistakes. Australia's experience, which is in line with the experience of English-speaking countries, has been different.

2.2 Medium-term orientation and monetary analysis

Whether characterised as 'constrained discretion' or 'rule-based, but not rule-bound', modern monetary policy frameworks accord central banks a certain 'degree of freedom' in their decision-making. To what ends should this freedom be put?

To be clear, it is crucial that price stability is maintained over the medium term. But it is neither feasible nor desirable for inflation to be targeted on a short-term basis. Within the academic literature, this is recognised in the so-called *'flexible inflation-targeting'* framework (Svennson 1998). This framework explicitly foresees the use of monetary policy to smooth developments in economic activity over the business cycle, while anchoring longer-term inflation expectations at levels consistent with price stability.

From the outset, such considerations were also recognised in the ECB's strategy. We have always acknowledged the need to avoid excess volatility in output and nominal interest rates, which

1 See Taylor and Williams (2009), for example.

would have resulted from excessive 'fine tuning' (ECB 1999). Our approach is characterised by a *medium-term orientation*, which recognises that – given lags in monetary policy transmission and the inevitable short-term shocks to price developments – we should not attempt to 'micro-manage' price developments. Rather, we evaluate risks to price stability at the medium-to-longer-term horizon.

The literature has focused on the use of monetary policy to smooth output in the relatively shorter run. But the flexibility accorded by a 'rule-based, but not rule-bound' approach can be oriented in other directions. For example, it can be used to contain financial imbalances, by applying the same approach as we adopt when facing other sources of inflationary pressure. If the slow accumulation of financial imbalances poses a threat to macroeconomic and price stability over the longer term, then we can respond to it in a commensurate manner, even if this response implies tolerating some inflation volatility in the shorter run.

At the ECB, we emphasise one tool which we believe helps us maintain a medium-term orientation: *monetary analysis*.

This is perhaps the most clearly recognisable distinguishing feature of the European approach. European central banks have always given prominence to assessing monetary dynamics and asset prices when preparing monetary policy decisions. At the ECB, we have always foreseen that the close monitoring of monetary and credit developments would provide important elements of a framework for addressing asset price misalignments.[2]

One particular focus of our monetary analysis is the low-frequency trend in money and credit developments, which is associated with the emergence of imbalances. This focus allows us to both assess risks to price stability in the medium to long term and, simultaneously, lean against excessive money, credit and asset price growth in our interest rate decisions. Such considerations influenced our interest rate decisions in 2004 and 2005. These decisions were criticised at the time by a number of observers, including governments and the International Monetary Fund. With the benefit of hindsight, the decisions appear to have been particularly well-judged. Certainly, this approach has helped to create greater symmetry in our response to asset price developments, and it was an important ingredient in the decision at the time.[3]

2.3 Global developments matter

The importance of monitoring money and credit developments is beginning to be more recognised by academics, as well as in the policy debate. For example, leading academics have argued in favour of defining and monitoring new monetary indicators to detect the build-up of leverage within the financial sector (Adrian and Shin 2008).

Of course, recognising the importance of monetary analysis does not necessarily simplify the task of interpreting monetary and financial developments. Experience has shown that ongoing financial innovation makes the interpretation of the monetary data particularly challenging. Therefore, we are continuously seeking to sharpen and deepen our understanding of monetary and financial developments.

2 See European Monetary Institute (1997) and Issing (2002), for example.

3 See in particular Trichet (2009).

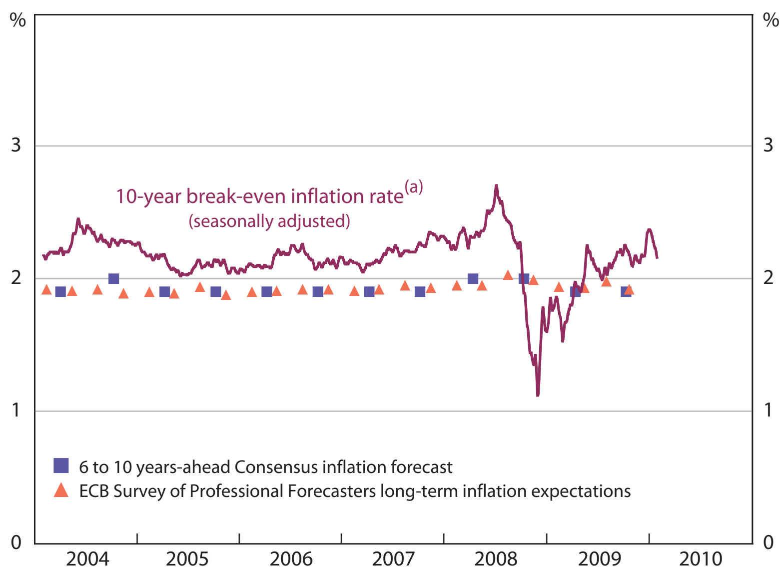
One result derived from this ECB research relates to the identification of the *global nature* of asset price boom-bust cycles and associated financial crises. This suggests that there should be global concern over the monetary and credit developments that underpin these episodes. Not surprisingly, recent ECB research suggests that global variables – rather than only national or regional indicators – can enhance our ability to identify a build-up of financial imbalances.[4] I take this opportunity to raise awareness in the central banking community of the importance of monetary analysis and its implications, both for economies individually and globally.

2.4 Concluding remarks

We are emerging from the uncharted waters navigated over the past few years. But as central bankers we are always faced with new episodes of turbulence in the economic and financial environment. While we grapple with how to deal with ever new challenges, we must not forget the fundamental tenets that we have learned over the past decades. Keeping inflation expectations anchored remains of paramount importance, under exceptional circumstances even more than in normal times. Our framework has been successful in this regard thus far (see Figure 2).

Figure 2: Measures of Longer-term Inflation Expectations in the Euro Area

Year-ended



Note: (a) Five-day averages of daily data

Sources: Consensus Economics; ECB; Thomson Reuters

4 See Alessi and Detken (2009).

The RBA has operated through 50 turbulent years of monetary policy-making. As recent experience has shown, there will be a need for innovation by central banks to meet novel challenges. But the lessons of the past 50 years – and, in particular, our success in anchoring inflation expectations – should remain uppermost in our minds.

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3. Joseph Yam

I would like first to add my congratulations to the Reserve Bank of Australia on its 50th Anniversary. As a retired person I feel particularly honoured to have been invited to the celebrations. I wish the RBA continued success in the performance of its central banking functions for many more years to come.

On the subject matter of this session of the Symposium, I find it difficult to add anything meaningful to an excellent paper by Governor Stevens and his colleagues and after the distinguished speakers before me. What I can do is address the subject matter from an emerging market perspective, conveniently using, where appropriate, the framework of the excellent paper in front of us.

3.1 Monetary policy in emerging markets

I think it is fair to say that monetary policy in emerging markets has generally benefited from the experience of the developed markets. For the minority of emerging markets that import

monetary policy from the developed markets through maintaining a stable exchange rate, the success of monetary policy in delivering currency stability is readily felt. For the majority of emerging markets that subscribe to the basic principles for good monetary policy described in the paper, the credibility of monetary policy and of central banks has been enhanced. Indeed, the need 'for a strong domestic framework', where there is 'a clear idea of monetary policy goals, adequate instruments and sufficient political scope for the decision-maker to act' (p 15), is increasingly understood and accepted, even at the political level. This is manifested in the increasing focus among the majority of emerging markets on price stability as the primary role for monetary policy.

Nevertheless, it is still a fact that central bank mandates in emerging markets generally contain a broader spectrum of social and economic goals. Specifically, in most emerging markets, central banks are also in charge of prudential regulation and therefore, explicitly or by implication, have responsibility over the maintenance of financial stability. Fortunately, however, the mainstream views of the developed world hitherto have been that financial stability is difficult to maintain, as articulated in Section 3.5 of the paper, and that realistically the 'cleaning up the mess afterwards' argument has more support than the 'leaning against the wind' argument. Thus the broader objectives of emerging-market central banks have been such that they have not led to an inordinate degree of political interference in the conduct of monetary policy, which might otherwise have hindered the establishment of credibility.

But these mainstream views seem now to be changing, obviously as financial instability inflicted tremendous pain in the developed markets and interestingly as 'the mess' proved to be 'too big for the tools at hand' to clean up. The politics is also such that more central banks are likely to be given explicit responsibility over the maintenance of financial stability. Where financial stability is already the responsibility of central banks, there will likely be greater importance attached to this objective, reflecting greater expectations from the people. This distinct shift of sentiment is regardless of the limited tools available to central banks and the fact that the principal tools for the control of the supply or the price of base money have hitherto been firmly oriented towards delivering the monetary policy objective. I fear, therefore, that we may be entering a period in which there is significantly greater risk of erosion of the hard-earned independence and credibility of central banks, and the ability of the central banks to achieve their established monetary policy objective, not just in emerging markets but in other jurisdictions as well. This risk must be prudently managed, particularly in cases where explicit responsibility for the maintenance of financial stability is to be given to the central bank.

3.2 The toolbox

An essential way of managing the risks is to ensure that the central banks have the necessary tools in place for the job. Specifically, to safeguard the effectiveness of monetary policy, there may be a need, in normal times, for at least giving monetary policy the clear priority in the use of the policy interest rate, or imposing the requirement that the use of the policy interest rate for other purposes should not undermine the effectiveness of monetary policy. In crisis situations, as has been the case in the past couple of years, where inflation was not a concern and when it was clearly in the wider public interest and in the interest of nursing the financial system back to health to keep interest rates low, there is definitely a need for greater flexibility.

The policy interest rate, obviously, should not be the only tool in the toolbox. There is a need for other tools, for use in a non-crisis environment, for moderating credit cycles and lessening the extensiveness of asset price bubbles, which usefully limit the adverse impact of bubbles on financial stability when they burst. Simple prudential tools do work well to make leverage in housing and other asset markets suitably costly. Simple prudential tools would have prevented sub-prime mortgages from coming into being and their derivative products from being created. Less simple prudential tools, but certainly well within the technical capability of supervisors to design and use at the appropriate time, are perhaps needed to ensure that such financial innovation as securitisation and credit risk transfer would not distort incentives and encourage the serious erosion of credit standards that we saw. There is simply the need for the legal authority and the willingness to do so, although we should not underestimate the domestic political resistance to reform, given the strong political lobby of financial intermediaries. We also should not underestimate the difficulties in the effective application of reforms on an international scale, given the globalised environment within which financial markets now operate.

3.3 Capital flows and monetary policy

A different issue that has been presenting challenges to the conduct of monetary policy, particularly for emerging markets, is the huge amount of international capital flowing around. This had been the case even before almost everybody resorted to quantitative easing as one response to the current financial crisis. With quantitative easing, these challenges have intensified. Whether a jurisdiction is targeting inflation or maintaining a stable exchange rate, volatile and voluminous capital flows are very difficult to cope with. For those focusing on inflation, many argued that the exchange rate could serve as a shock absorber. This argument ignores the reality that large exchange rate fluctuations can be destabilising, both to the economy and to the financial system. It also ignores the reality that the foreign exchange market is far from efficient in discovering a price that reflects economic fundamentals. Exchange rates, more often than not, overshoot. With an estimated 95 per cent of foreign exchange turnover generated by position-taking, some highly speculative in nature, and only 5 per cent representing the need arising from international payments, the price discovered reflects more the sentiment of those playing the market for a living rather than anything else. And we know how fickle their sentiment is and how they love volatility.

3.4 Solutions for emerging markets

Yet there are not many safe options for emerging markets to deal with volatile and voluminous capital flows while maintaining the integrity of monetary policy. Again for those focusing on inflation, the options are to allow some movement in the exchange rate, conduct some sterilised intervention and impose possibly temporary restrictions to capital flows. For those maintaining fixed exchange rates, the options are even more limited. And all these options can be quite costly. Furthermore, one often has to contend with the condemnations of those who dogmatically wave the free-market banner in response to any market intervention by the authorities and the damage such irresponsible comments inflict on credibility. Hong Kong had its unfair share of these in 1998. In the current turbulent times in global finance, with a lot of liquidity overhang waiting to be withdrawn, I fear that the difficulty in the conduct of monetary policy in emerging

markets may intensify. I just hope that this does not mean the eruption of financial crises among them. Many have taken the advantage of large inflows in recent years to accumulate more foreign reserves. This is wise as I am quite sure that these reserves will prove helpful in coping with the possibly more difficult times ahead.

For the longer term, there is always the option for emerging markets uniting themselves, in one way or another, to form a critical mass that is large enough to absorb the voluminous and volatile capital flows without causing difficulties that are otherwise beyond their individual capacities to cope. That means individual jurisdictions of that relevant group conceding their sovereign rights over monetary policy to a multinational central bank, in other words, the creation of another monetary union, following the example of the euro area. Alternatively, the market may, in the fullness of time, produce an anchor currency in a particular region with close economic interests to which other currencies in that region could choose to be pegged to, in whatever firm or loose way they wish to do so in order to suit their own circumstances. Perhaps then the international financial system, with the benefit of an additional leg to stand on, could become more stable for the benefit of all.

4. General Discussion

Two main topics received considerable attention in the discussion in this session. The first concerned the future of prudential supervision and regulation. The second was how central banks should respond, if at all, to developments in asset markets. Other topics that were touched on included the relevance of recent events to: central bank communication; the transmission of monetary policy; and monetary policy under fixed exchange rates.

Discussion began with the panel being asked whether or not prudential supervision should be conducted within the central bank. One panellist noted that a separate supervisory authority often leads to a situation in which the central bank lacks important information, although another suggested that this could be overcome by sufficient cooperation between the central bank and a separate supervisor. One panellist expanded on this point, describing how it could be very useful to have the bank supervisor present at monetary policy discussions during times of financial instability. Another suggested that it is difficult to draw strong conclusions as to whether prudential supervision should be inside or outside the central bank, noting that there had been divergent experiences over recent years across countries with similar institutional frameworks; what seemed clear though to this panellist was that the existence of multiple supervisors is problematic. On the issue of the future of prudential regulation, one panellist raised the benefits of using macro-prudential policies to deal with cycles, but acknowledged that gaining political support for such measures is not straightforward. As a conclusion to this thread of discussion, one panellist warned of a regulatory over-reaction to recent events, with the potential for excessively tight regulations to unduly inhibit the availability of credit.

The appropriate response by central banks to asset price developments was discussed at length. The issue was initially broached by one of the panellists, who indicated that they were open to re-thinking how monetary policy should respond to asset prices, but doubted the strength of the empirical relationship between interest rates and asset prices. In contrast, another panellist argued that monetary policy should be assumed to have an important influence on

asset prices, even if it is difficult to measure these effects accurately. Other panellists agreed that the appropriate response of monetary policy to periods of emerging financial imbalances warranted further examination. In this regard, one panellist argued that monetary policy should take account of a broad range of variables, including monetary aggregates, and regardless of the precise approach, monetary policy should always be directed towards medium- to long-term outcomes. The Australian experience of a boom in the housing market from 2002 to 2003 was cited as a period of particular interest given that at the time the Reserve Bank of Australia made public its concerns regarding risks associated with rapidly rising house prices and housing credit, and raised interest rates a little earlier than otherwise in light of these concerns. Even so, one panellist noted that the level of house prices had moved higher since the end of that boom. In response, another panellist expressed the view that the RBA's approach had been a modest success, helping to 'ring the bell' on the boom in late 2003 and demonstrating that house prices do not always rise.

Reacting to these views, one participant aired their concern that if central banks around the world attempted to 'nip the next asset price boom in the bud', they would limit the scope for unemployment to fall from its current high levels. Two panellists responded by saying that they viewed current central bank policy as having done very little in response to rising asset prices. It was also suggested that while maintaining a credible commitment to medium-term price stability was important, the very high unemployment and weakened fiscal positions currently affecting much of the developed world may require monetary policy to remain accommodative for an extended period.

During the discussion regarding whether monetary policy should respond directly to emerging financial imbalances, one participant suggested that having multiple goals for monetary policy may complicate the task of communicating the central bank's policy framework to the public. This led to a broader discussion of central bank communication, with panellists agreeing that it was a critical tool for central banks to manage expectations. The practice of providing some indication of the likelihood of future monetary policy moves was viewed by one panellist as being a valuable way of reducing the scope for disruptions in financial markets. It was also noted that there was scope for policy messages to be tailored to different segments of the public, adjusting the complexity of statements appropriately.

One of the participants raised the issue of whether the recent experience of financial and economic instability offered some lessons regarding the transmission of monetary policy. Particular reference was made to the implications of the variation of credit spreads and liquidity premia over time, as well as the implications of the existing procyclical prudential regulations. In response, panellists noted that the recent use of unconventional monetary policy instruments by many central banks had helped to reduce liquidity premia to more reasonable levels. In addition, it was agreed that credit and risk-taking behaviour should be better incorporated into macroeconomic models, and that the Phillips curve and output gap frameworks on which most economists currently rely (either explicitly in models, or via more heuristic means) are missing an adequate treatment of the financial system. Also, on this issue, it was noted that the financial system, rather than just amplifying shocks, was a source of shocks itself.

Finally, the scope for central banks to manage the business cycle within a fixed exchange rate regime was raised by a participant. One panellist responded by saying that in this situation it was even more important to ensure that financial institutions have a large enough 'cushion' (of capital) in order to deal with cycles. They also described the value of other (non-interest rate) tools that can be used to dampen business cycle volatility, such as changes in loan-to-valuation ratios and variable capital adequacy requirements.

Financial Stability: Ten Questions and about Seven Answers

Jaime Caruana

I am very pleased to have been invited to speak at the Reserve Bank of Australia's 50th Anniversary Symposium. Before I embark on my assigned topic, permit me to extend my congratulations to the RBA. This is a central bank with a consistently strong voice in international forums. The Bank for International Settlements (BIS) has benefited from the Reserve Bank's presence as a shareholder since 1970, and has profited immensely from the contribution of a succession of Reserve Bank visiting economists, both in Basel and in the Representative Office for Asia and the Pacific. Let me take this opportunity to express my appreciation of the strong record of collaboration between our two institutions and my hope for an ever stronger relationship.

I have turned my assignment into 10 questions about financial stability. Let me admit at the outset that I have answers, of varying certainty and clarity, for only about seven of them. I owe this format to Alan Blinder, who set out 16 questions and 12 answers on monetary policy at the Bank of Spain in 2006 (Blinder 2007). His ratio of answers to questions was higher than mine, as one would expect of a professor of economics at Princeton University speaking on a more settled subject. So I hope that you will accept my seven or so answers and allow me 70 per cent as a passing grade.

1. Are Financial Booms and Busts Inherent in a Market-based Economic System?

Unfortunately, the answer is yes. Financial markets are not intrinsically stable. However, I would like to add a nuance to this answer. Before this crisis, many might have imagined that only emerging markets suffered from financial instability. After the Nordic banking crises, some clung to the hope that financial instability in advanced economies was just a transitional problem associated with financial deregulation. Now we have learned that financial markets are not self-stabilising under certain conditions, or that they do not self-stabilise at any socially acceptable cost.

We should recognise with Charles Kindleberger,[1] once a BIS economist, that manias, panics and crashes are not unusual. Indeed, a once-in-a-lifetime event seems to happen every 5 to 10 years. On one count, 94 countries experienced 116 systemic banking crises in 1976–2000.[2] That is over 4 a year! Name a country that has not been hit!

1 See Kindleberger and Aliber (2005).

2 Caprio *et al* (2005). See also Laeven and Valencia (2008), who count 124 systemic crises between 1970 and 2007 (which is over 3 a year).

The answer is not to repress financial markets – rather, we must recognise that markets need rules, constraints and careful monitoring so that market failures are less frequent and less costly. And the rules, constraints and monitoring exercises need a macro-prudential approach – that is, one that tries to capture not only individual risks but system-wide risks.

Can that be done? Before the crisis, people who expressed concern about imbalances and the mispricing of risk were frequently asked: why do you think you know better than market participants? The question is important because many official bodies are now seeking to monitor financial risks better so that early action can be taken to prevent a crisis or lessen its potential costs. The International Monetary Fund (IMF) and the Financial Stability Board (FSB) are engaged in such an early warning exercise and have the daunting task of spotting financial market problems before they crash around our ears. I think the crisis has suggested, not that we are smarter or know better than market participants, but rather that we have the luxury of longer horizons, different incentives and a public policy objective.

However, these are early days and we should be cautious about raising expectations too high. Indeed, one of the lessons of the crisis is that it was easier to recognise vulnerabilities than to do anything about them. It will never be easy to take unpopular preventive action to avert events that are perceived as having a low probability and an uncertain timing.

2. Can Private Sector Risk Management Keep Risks under Control?

Not alone. Let us consider this question with reference to both risk management within financial firms and the broader process by which market participants impose discipline on each other's risk-taking.

Regarding risk management within firms, it would be wrong to deny the very real progress that has been made. Conceptual and quantitative approaches have developed in many illuminating ways. However, it would be even more wrong to deny that risk management has proven less reliable than we hoped. This is true because the capacity and the incentives to take risks have clearly overwhelmed any improvements in risk management. Risk management is about quantifying the infrequent, that is, assessing tail risks, where by definition experience is sparse. Even stress testing has been caught out, failing to consider those seemingly remote possibilities that have, in fact, come to haunt us over the past two years.[3] In short, we need risk management that can deal with both the known unknowns and those unknown unknowns.

Reform in this area will require potential losses to be assessed in relation to longer runs of data. In addition, assessments will need to take into account stressed market conditions, so that we keep our guard up even after the recent turmoil recedes from memory.

Most importantly, beyond the inputs and the models, we have seen weaknesses in governance and incentives within firms. After risk management had apparently tamed risk, management leveraged up in response to incentives to 'increase shareholder value' on the basis of short-term

3 See Alfaro and Drehmann (2009) and BCBS (2009b).

results. Building wider shoulders for a road can save lives, but not if drivers simply speed up. Capital requirements are the speed limits of banking.

Regarding the larger-scale process of market discipline, the record here can only be described as disappointing. That individual financial firms failed to manage their risks is bad enough; that their counterparties allowed them to do so is worse (Frankel 2009). Market discipline fell short not only with respect to firms, but also with respect to instruments. For instance, why did rating agencies and ultimate investors fail to insist that mortgage originators retain an interest in the mortgage so as to prevent moral hazard?[4] I am told that practice among mortgage lenders differed in Australia.

There is one final respect in which private risk management will not suffice to control risk. Each private firm takes the underlying risk in the financial system as a given, and takes no account of the impact of changes in its own risks on the risks of others. This then can lead to excessive accumulation of system-wide risk during good times. The control of system-wide risk requires some contribution from the regulatory side to deal with this externality.

3. Are Capital Requirements Necessary and Sufficient to Achieve Financial Stability?

Yes, capital requirements are necessary; but, no, they are not sufficient. Indeed, I would argue that regulation was only part of the problem and it is only part of the answer. Capital is not enough; regulation is not enough.

As was said of the Bank of England, a bank has 'a duty to be rich' (Sayers 1976, p 27). Capital requirements should draw on deep pockets that can absorb losses arising from financial and economic stress, thus reducing the risk of spillover from the financial sector to the real economy. Lessons have been drawn by the Basel Committee on Banking Supervision (BCBS) concerning the need to improve the quality of capital, to raise the level of capital and to improve the framework's capture of risk, especially with regard to the trading book. And agreement has been reached that both belt and braces are needed, so that one's trousers are held up by a simpler leverage ratio even if the risk-weighted ratio is distorted by an inadequate assessment of the riskiness of assets (BCBS 2009d).

One of the most fundamental improvements introduced by the BCBS in its reform package is the macro-prudential focus to address both system-wide risks and the procyclical amplification of risks over time. We have learned that those deep pockets I just mentioned need to be made even deeper in good times so that more can be taken from them in bad times.

Capital is a central part of the financial reform, but the crisis also highlighted the importance of *liquidity management*. A well-capitalised bank is less likely to face a run. And a liquid entity has time to raise more equity. Maturity transformation is the job of banks, but so is maintaining adequate liquidity. The BCBS has addressed the shortcomings in the liquidity regulatory framework highlighted by the crisis by defining the liquidity buffers needed to promote resilience (BCBS 2009a). Banks should hold a sufficient stock of high-quality liquid assets to be able to

4 See Fender and Mitchell (2009).

survive a month-long loss of access to funding markets. This test is an extension of the one that has been applied in Australia. Banks also need to have a sound funding model that fits their business model.

Capital and liquidity are part of the core financial reforms, but dealing with systemic risk is a multifaceted task, and more measures are on the table. My next question will address this.

4. What Is to Be Done about Systemic Risk?

We know the right direction even if we have not yet worked out the precise destination.

Even though the official response to the crisis was necessary to avoid the collapse of the financial system, it has created new challenges. Weak, large institutions have been kept alive and mergers have even made some institutions larger. Furthermore, the various support and rescue measures raise immense moral hazard issues if market participants count on their repetition in times of difficulty.

The global financial crisis underscored once again that systemic risk is not external to the functioning of financial markets. Systemic risk is not only about the knock-on effects of some external event like a meteor strike. In fact, the distress in financial markets during this crisis preceded any broad-based downturn in economic activity (Alfaro and Drehmann 2009). In retrospect, the muted risk spreads, low volatility and high asset prices and leverage going into 2007 were symptoms of latent instability. They were not just side effects of a tamer business cycle, just-in-time inventories or economic globalisation. Just when risk seemed most remote on the basis of market indicators and complacency was at its highest, the system was most fragile.

I already mentioned that capital buffers and provisions need to be built up in good times so that they can be drawn down in bad times.[5] In this way, we can address the risk of procyclicality in the financial system – the time dimension of systemic risk. In addition, systemic risk has a cross-sectional dimension, and we must address the common exposures/interlinkages among financial institutions. The systemic risk that a given firm poses is hard to measure, but it surely exists.[6] Somehow it must be internalised.

Six policy approaches can be distinguished.

- A first is to propose higher prudential standards for large, connected and indispensable financial firms. These can be set in terms of risk-weighted assets or a simple leverage ratio or both, with the aim of lowering the probability of failure. These should be set for firms along a continuum, not for a set list of institutions deemed systemic.
- A second is to improve the system's capacity for an orderly resolution of a big, complex, cross-border institution's failure – no easy task. As noted, this is being actively worked on at the international level. When an important financial institution fails, appropriate capital requirements notwithstanding, resolution regimes must allow the failure to be managed across borders (BCBS 2009c). The BCBS has recommended that supervisors provide capital or other prudential incentives for banks to simplify group structures that are too complex

5 See BIS (2008, 2009), Borio and Drehmann (2009, pp 5–8) and Caruana (2009).

6 See the report of the staff of the IMF, BIS and FSB (2009) and Tarashev, Borio and Tsatsaronis (2009).

to permit orderly and cost-effective resolution. It has also recommended the strengthening of national resolution powers, institution-specific contingency planning involving the institutions themselves as well as critical home and host jurisdictions, and measures to avoid contagion, such as the further strengthening of netting arrangements. Both the FSB and the BCBS are working hard to improve the resolution regimes even in complex cross-border cases.

- A third set is to limit the structure of firms or the scope of their activities. Proposals include splitting off safe banks or preventing core institutions from engaging in risky activities, limiting size or even promoting simpler structures and the use of stand-alone subsidiaries. This is an area where the discussion is still wide open.
- A fourth is to improve infrastructure in order to reduce interconnectedness and therefore the cost of default. Here, too, there has been progress. While capital requirements can keep institutions strong, financial stability depends on market structure and its plumbing, namely clearing and settlements. In Basel, the Committee on the Global Financial System (CGFS) and the Committee on Payment and Settlement Systems complement the BCBS. Counterparty credit risk can be larger than necessary in over-the-counter markets. A private interest in this market structure must not trump the public interest in organised exchanges or centralised counterparties, where these are feasible and meet strict sound standards.
- A fifth idea is to tax size or interconnectedness. While this deserves study as a classic means of dealing with an externality, many questions arise. Would the tax end up being paid by customers, or even by shareholders if their control over management is weak? Would not higher capital and liquidity requirements, and prudential incentives for simpler structures, be preferable?
- A sixth approach is to supervise systemic institutions more proactively, to ensure that the perimeter of financial regulation is maintained.

But, even with all these elements that are the core of financial reform, I think this crisis has shown that addressing system-wide risks properly requires two important additional building blocks: that macroeconomic policies take into account accumulating financial imbalances, and that international cooperation be sufficient to ensure consistency. Two upcoming questions address these themes.

5. What Is the Role of Implementation?

This is a question that has not been satisfactorily answered, but there is some evidence from the recent crisis. Similar regulations have sometimes resulted in very different outcomes in different countries. This may be due to several factors: the structure of the financial system, the degree of sophistication, the different business models, etc. One of them, I believe, is the rigour with which rules were enforced.

Of course, banks in any economy that experiences a credit-fuelled asset boom will suffer in the bust. No supervisor can be confident of maintaining financial stability when real estate prices fall by 60 or 70 per cent.

That said, we have to recognise that there was no simple mapping from the macroeconomy to distress in the banking system during the recent crisis. True, banks in countries with real estate

booms and busts suffered. But those in the United States and the United Kingdom, which had placed their real estate exposures in special purpose vehicles, suffered more. At the same time, some German and Swiss banks were hit hard, not by exposures to German or Swiss borrowers, but rather by exposures to US real estate. What proved costly in these cases was cross-border investment in securitised assets.

These observations point to the importance of enforcement. The strength of supervision mattered, not just the rule-setting, as demonstrated by Australia and Canada. Contrary to the notion that strict supervision restricts competiveness, the crisis shows that the financial systems of countries with strict, rigorous supervision came out better.

There is another implication from the imperfect mapping between a bank's home country and its exposure to troubled assets – that is, the vulnerability of the banking system must be assessed in relation not only to credit and asset developments in the home economy, but also to the array of countries to which the banking system is exposed. A final implication, to which I will return in a moment, is that international coordination of supervision is vital.

6. Is Narrow Banking the Solution to the Problem of Financial Instability?

Not in general.

In a historical perspective, it is not surprising that narrow banking is enjoying renewed appeal after the latest credit-fuelled boom and bust. Henry Simons made his argument at a similar moment in the 1930s (Simons 1936). Once again, a demonstration of the devilish potential of excessive risk-taking has led to proposals to cast out lending from the temple of money.

However, narrow banking would only ensure that credit risks move beyond the regulatory perimeter, with the result that financial instability would then strike outside those confines. The economy depends on a sustained flow of credit, not just on secure deposits and smooth payments. Grave instability can arise from risky quasi-banks that grow faster than safe banks during the boom, only to shrink rapidly during the crisis (Goodhart 2008).

A case in point is the US money market fund industry. Through an autonomous market process, it divided itself into strict narrow banking ('government only' funds) and a looser model ('prime' funds). Lehman's failure led to a run from prime funds into government funds.[7] This threatened a disruptive contraction of credit to banks and firms. The US authorities extended lender-of-last-resort support and *ex post* deposit insurance to stabilise the industry.

Recent US proposals – the so-called Volcker rule – to keep core financial institutions from engaging in businesses such as hedge funds, private equity and proprietary trading have the merit of restricting insured deposits to funding more traditional banking activities. But such plans would put a heavy burden on policing the borders of the firm, and they may create more complexity and interlinkages in the financial system. Where banking accounts for the larger

7 This is consistent with Stanley Fischer's interpretation that money market fund shareholders are 'showing they want higher returns and do not think they will have to bear the risk' in the discussion of Boyd and Gertler (1993, p 377). See also Baba, McCauley and Ramaswamy (2009).

part of the financial system, such restrictions could limit the supply of funds to riskier long-term activities that may merit financing under an appropriate risk management system.

Narrow or narrower banking may have its place in some cases, and supervisors should have the capacity to restrict some activities. But I am not convinced that it is appropriate in the general case, and I think it requires more careful consideration.

Perhaps the question should be posed: is there an appropriate model for global banking?

Here again we are groping for an answer, although there are lessons from the crisis.

Recent experience has certainly highlighted some of the limitations of a funding model that has banks borrowing wholesale funds in global markets and redistributing them across currencies and borders. Following the unprecedented breakdown of low-risk arbitrage, liquidity could no longer be readily and cheaply transformed from one major currency into another. Learning from that lesson, banks are now seeking out more stable and more diversified deposit bases. Those that operated on a decentralised multinational model, relying mostly on subsidiaries endowed with stable retail deposits, have emerged in better shape than banks with wholesale models.

However, we need to understand better what has worked and what has not worked. Several working groups of the CGFS are taking up aspects of this question in response to the questions posed in the FSB. An official of the Reserve Bank of Australia chairs one of these groups.

7. Does Financial Stability Need Help from Monetary Policy?

The answer is yes, but it must be emphasised that the way the question is posed is important. The question is not whether monetary policy should target asset prices. The question is how monetary policy can be more symmetrical and lean against the build-up of financial imbalances.

It is tempting to make a neat Tinbergian assignment in which, under normal circumstances at least, price stability is assured by interest rate policy, while financial stability is assured by macro-prudential policies, be they capital requirements or credit restrictions, general or sector-specific. In this conception, financial stability would have no claim on monetary policy.

As cases in point, one could cite the Hong Kong and Spanish experiences in dealing with real estate cycles without resort to interest rate policy. In the 1990s, Hong Kong money market yields were basically set by the US Federal Reserve. In the 2000s, euro interest rates were set to euro area conditions. In both cases, real estate markets suffered a boom-and-bust cycle that threatened to devastate the banking system. The Hong Kong authorities lowered maximum loan-to-value ratios in real estate lending,[8] while the Spanish authorities sought to build up buffers through forward-looking provisioning.[9] In both cases, banks proved more resilient to the eventual bust than they would otherwise have been.

But, in general, prudential policies do not suffice to maintain financial stability. This being the case, regulation would be overburdened without some help from monetary policy. After all, the short-term interest rate sets the cost of leverage, which figures prominently in any debt-fuelled asset bubble. Here in Australia, the Reserve Bank's interest rate policy in 2003 rightly erred on the

8 See McCauley, Ruud and Iacono (1999) and Gerlach and Peng (2005).

9 See Caruana (2005).

side of tightness in the face of strong growth in house prices and credit.[10] There was concern in some quarters at the time that this was straying from the goal of price stability. In the light of experience, this shading of interest rate policy is better interpreted as having realised the Reserve Bank's stated goal of price stability over the business cycle.

8. Are Central Banks Equipped for their Financial Stability Role?

My view is that most are but that their state of readiness can be significantly improved.

It is easily observed that some central banks have or share responsibility for bank supervision while others do not. Matters differ on either side of the Tasman Sea; the major ASEAN central banks and the Reserve Bank of India are all also bank supervisors; Korea and Japan have a separation between central banks and supervisors. And it should not be too controversial to say that central banks that also have supervisory powers are well placed to add a macro overlay to their firm-by-firm supervision.

By contrast, those without such powers will need to find other ways to influence macro-prudential settings. Indeed, one might argue that the Asian central banks have been ahead of the curve with the use of macro-prudential tools. No matter whether the institutional assignment of prudential supervision is to the central bank or not, the recent financial crisis has highlighted the prominent role that central banks should have in financial stability policy. This has raised important questions about mandates, expertise, tools, immunities and governance structures:

- What is the basis of the mandate to attend to financial stability? Is there a sound legislative basis or a clear public understanding of the responsibility to ensure financial stability?
- Does the central bank have the requisite expertise and resources? Can the models and points of view of the central bank be adapted to the assessment of financial vulnerabilities and the analysis of possible responses?
- Does the central bank have the requisite tools? Are these rusty from lack of use, or does the administrative or legal basis for new ones need to be established?
- Is the central bank's notion of independence adequate for new responsibilities? Does it need an extension of its legal immunities or changes in the purview of legislative oversight to carry out its financial stability responsibilities?
- Are loss-sharing arrangements robust enough to take on the balance sheet risks entailed by policies such as the recent measures to restore financial stability?
- Does the central bank need changes to its governance arrangements, by analogy with the separation within the Reserve Bank of Australia between its monetary policy committee (the Reserve Bank Board) and its Payments System Board?

Work is under way in the CGFS that seeks to catalogue what has been done and what has worked. At the same time, there are ongoing efforts in the Central Bank Governance Forum on the internal arrangements for central bank work on financial stability. We hope to have better answers on this front soon.

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10 See the paper by Cagliarini, Kent and Stevens (this volume).

9. Is It Enough for Everyone to Keep their Own House in Order?[11]

No, we need international coordination. Just as risk management at individual firms does not add up to the stability of the financial markets, so too, macroeconomic and financial stability at the national level does not necessarily add up to global financial stability.

Let me just highlight a number of key steps that are being taken to strengthen international coordination.

First, the perimeter of international coordination has widened. More countries have joined in the international response to the crisis. Let me emphasise that the recent enlargement of international discussions to major emerging economies has worked particularly well and efficiently.

Second, the G-20 has provided a political impetus for financial regulatory reform and policy cooperation. This push will make for more coherent macroeconomic and financial policies across countries. In particular, the new mutual assessment exercise that is under way is a promising signal of the commitment of the G-20 countries to cooperate on broader policies.

Third, the FSB has a clear mandate to increase the international coordination of policy-makers, financial regulators, supervisors and standard setters. The Basel process, which covers a wide range of cooperative efforts among banking supervisors, central bank financial market experts, and deposit insurance and insurance supervisors, is part of the efforts coordinated by the FSB. These new institutional arrangements have already started to produce significant results. One example is the formation of colleges of supervisors to coordinate the oversight of those firms that span national boundaries.

Fourth, new mutual assessment processes will ensure that internationally agreed rules are enforced in all jurisdictions. To promote adherence to common standards, the FSB is conducting two kinds of peer review: one on themes and another on particular economies. The Basel Committee is also overseeing peer reviews.

All these are imperfect mechanisms, no doubt. But they give practical expression to the insight that global firms and global markets require global cooperation in regulation, supervision and macroeconomic policy.

10. Will It Be Different Next Time?

I am inclined to think that, provided we do not become complacent and we continue to work on the reform of the financial regulation, the answer may be positive.

There are many good reasons to hope that it will be different next time. These can be summarised as follows:

- We are building into the regulations much more resilience, especially with regard to capital and liquidity requirements.
- We are taking much better account of system-wide risk in its two major dimensions, the time dimension and the cross-sectional dimension.

11 See Padoa-Schioppa (2006).

- We are at least thinking about, if not entirely in agreement on, what contribution to financial stability can be expected from monetary, fiscal and tax policies.
- We have strengthened the structures of international cooperation and have broadened participation in them to hitherto excluded economies.
- We are systematically scanning financial markets for evidence of underlying vulnerabilities and unsustainable developments.

All that said, and borrowing from the recent work by Reinhart and Rogoff,[12] we must recall that the words 'It's different this time' are some of the most demonstrably expensive words in the entire English language. The more we convince ourselves that we have mastered risk and uncertainty and the more confident we are that we have learned the lessons of the past, the more vulnerable we become to lethal overconfidence and the probability that things will again go unimaginably wrong.

So the best way to ensure that the next time really will be different is to strengthen the financial system and remain vigilant, so as to avoid, at all costs, the thought that this time it is different.

12 See Reinhart and Rogoff (2009).

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Panel Discussion

1. William C Dudley

The US financial system: where we have been, where we are and where we need to go

Today, my remarks will focus on the United States and global financial systems:

1. What went wrong to produce the worst financial crisis in the past 70 years?
2. Where are we now?
3. What should be our top priorities to ensure that this never happens again?

As always, my views are my own and do not necessarily reflect those of the Federal Open Market Committee or the Federal Reserve System.

With respect to what went wrong, it is important to recognise that the financial crisis occurred for a host of reasons and, thus, there is no single silver bullet to avoid such crises in the future. At the heart of the crisis was a tremendous build-up in leverage, which our regulatory framework failed to prevent. Large amounts of opaque, illiquid, long-term assets were financed by short-term liabilities, and much of this financing occurred in the shadow banking system.

When the housing bubble burst, financial asset prices fell and exposed the deep linkages and overall fragility of our system. Interbank funding markets seized up, the shadow banking system crumpled and several major financial firms – banks and non-banks alike – collapsed or approached the brink of collapse. Extraordinary interventions of governments and central banks around the world were necessary to prevent a complete collapse of the financial system and the broader economy. As a general matter, regulators did not appreciate beforehand how vulnerable the system was to shocks. In particular, there was a failure to appreciate the important interconnections between the banking system, capital markets, and payment and settlement systems. For example, the disruption of the securitisation markets caused by the poor performance of highly rated debt securities led to significant problems for major financial institutions. These banks had to take assets back on their books, contingent lines of credit were triggered, and banks could no longer securitise loans, thus increasing the pressure on their balance sheets. This reduced credit availability, which increased the downward pressure on economic activity, which caused asset values to decline further, and in turn, increased the degree of stress in the financial system.

Moreover, regulators did not adequately understand how the dynamics of the system tended to exacerbate shocks, rather than dampen their impact. For example, with respect to capital, firms under stress had incentives to continue to pay dividends to show that they were strong. These dividend payments actually depleted capital, making the firms weaker and vulnerable to credit

rating downgrades. When credit ratings were indeed cut, that increased collateral calls, which intensified the pressure on scarce liquidity resources.

Regulatory gaps were another important factor in causing the crisis. American International Group, Inc. (AIG) is a case in point. AIG Financial Products, a subsidiary of the AIG parent company, provided guarantees against default on complex collateralised debt obligations, leveraging the AAA rating of the AIG parent company in the process. This activity was conducted with inadequate regulatory oversight, poor risk management and insufficient capital.

Finally, many of the incentives built into the system ultimately undermined its stability. The problems with incentives were evident in a number of areas, including faulty compensation schemes and risk management that was too narrowly focused on one business area without regard for the broader entity. These incentives created important externalities in which participants did not bear the full costs of their actions.

Turning to where we are now, the US financial system is in much better shape today than it was a year ago. The capital markets are generally open for business – with the important exception of some securitisation markets – and the major securities dealers that survived the crisis have seen a sharp recovery in profitability. The largest US bank holding companies, which went through the Supervisory Capital Assessment Program exercise,[1] have more and better quality capital, having raised more than US$100 billion of common equity over the past year in the capital markets and generated nearly as much common equity via preferred stock conversions and from gains on asset sales.

However, many smaller and medium-sized banks remain under significant pressure. This reflects several factors. First, such institutions hold assets that are carried mainly on the books on an accrual basis. Compared with mark-to-market assets, such assets adjust much more slowly to changes in market conditions and the economic environment. Second, many of these banks have a much more concentrated exposure to commercial real estate, a sector that remains under considerable pressure. Not only have capitalisation rates risen sharply – meaning the investors will pay much less for a dollar of rental income than before – but the rental income streams on these properties also have declined as the performance of the US economy has declined. Together, these two factors have pushed US commercial real estate prices down by around 40 to 50 per cent from the peak reached in 2006. Loan losses in commercial real estate and consumer and mortgage loans seem likely to continue to pressure smaller banks for some time to come. This in turn means that credit availability to households and small businesses will still be curtailed.

The improvement in the overall health of the financial system and in market function has allowed the Federal Reserve to phase out many of the special liquidity facilities that were enacted in response to the crisis. These facilities were generally successful in achieving their objectives – helping to restore confidence and rebuild market liquidity in a way that safeguarded the taxpayers' interests. When a full accounting of the special liquidity facilities is complete, it seems likely that the facilities will have generated substantial incremental earnings that the Federal Reserve will remit to the US Treasury. Although these incremental earnings were not the objective of these facilities, they are a pleasant outcome relative to the alternative.

1 For details see <http://www.federalreserve.gov/bankinforeg/scap.htm>.

As the crisis has abated, our attention has shifted to what we need to do to prevent another crisis in the future. We need to take the necessary steps to build a strong and resilient financial system. In my opinion, three broad sets of actions are needed:

i. Effective macro-prudential supervision. By this, I mean conducting supervision not just vertically institution by institution, but also horizontally across institutions and markets. We need to better understand how the system operates as a whole and how problems in one area can affect financial stability elsewhere. This includes both how the overall system affects individual firms and how the activities of a single firm or market affect the entire financial system.

ii. Make financial institutions and market infrastructures more robust to withstand shocks and become less prone to failure.

iii. Change the system so that no financial firm is 'too big to fail'.

Macro-prudential supervision is essential for two reasons. First, it addresses the problem of gaps in the regulatory regime, and the regulatory arbitrage that such gaps can encourage. Second, macro-prudential supervision is needed because the financial system is interconnected. Siloed regulatory oversight is not sufficient. Supervisory practices must be revamped so that supervision is also horizontal – looking broadly across banks, non-banks, markets and geographies. This also means that regulatory standards need to be harmonised across different regions. Without harmonisation, there will inevitably be a 'race to the bottom' and regulatory arbitrage will be encouraged, rather than inhibited.

Many steps are needed to make financial institutions and infrastructure more robust. For example, we need to strengthen bank capital requirements, improve liquidity buffers and make financial market infrastructures more resilient to shocks when individual firms get into trouble.

In terms of capital requirements, many changes are needed, including global capital standards that put more emphasis on common equity, establish an overall leverage limit and better capture all of the sources of risk in the capital assessment process. Improved risk capture, for example, includes the trading accounts of banks. Some institutions had clearly not set aside adequate levels of capital given the risks that were embedded in their trading positions.

It would also be very desirable to develop a mechanism to bolster the amount of common equity available to absorb losses in adverse economic environments. This might be done most efficiently by allowing the issuance of debt instruments that would automatically convert to common equity in stressful environments, under certain pre-specified conditions. Such 'contingent capital' instruments might have proven very helpful had they been in place before and during this crisis. Investors would have anticipated that common equity would be replenished automatically if a firm came under stress, and this knowledge might have tempered anxieties about counterparty risk. At a minimum, contingent capital instruments might have enabled common equity buffers at the weaker firms to be replenished earlier and automatically, thereby reducing uncertainty and the risk of failure.

On the liquidity front, there are a host of initiatives under way. The Basel Committee on Banking Supervision is working on establishing international standards for liquidity requirements. There are two parts to this. The first is a requirement for a short-term liquidity buffer of sufficient size,

so that an institution that was shut out of the market for several weeks would still have sufficient liquidity to continue its operations unimpaired. The second is a liquidity standard that limits the degree of permissible maturity transformation – that is, the amount of short-term borrowing allowed to be used in the funding of long-term illiquid assets. Under these standards, a firm's holdings of long-term illiquid assets would need to be funded mainly by equity or long-term debt.

With respect to financial market infrastructures, the Federal Reserve is working with a broad range of private-sector participants, including dealers, clearing banks and tri-party repo investors, to dramatically reduce the structural instability of the tri-party repo system. Similarly, over-the-counter (OTC) derivatives clearance activity is being pushed toward central counterparties and exchanges. In addition, the Federal Reserve and others are evaluating how greater transparency with respect to OTC derivatives prices would improve financial stability. The Committee on Payment and Settlement Systems and the Technical Committee of the International Organization of Securities Commissions are doing a review of standards for payment, clearing and settlement systems. This work will inform the efforts of the Financial Stability Board to strengthen such standards.

There is also work under way on the problem of how to ensure that financial institutions have compensation structures that curb rather than encourage excessive risk-taking.

Finally, it is critical that we ensure that no firm is too big to fail. This is about both fairness and having proper incentives in the financial system. Having some firms that are too big to fail creates moral hazard. These firms are able to obtain funding on more attractive terms because debt holders expect that the government will intervene rather than allow failure. In addition, being too big to fail creates perverse incentives. In a too-big-to-fail regime, firms have an incentive to get large, not because it facilitates greater efficiency, but instead because the implicit government guarantee enables the too-big-to-fail firm to achieve lower funding costs.

To solve the too-big-to-fail problem, we need to do two things. First, we need to develop a truly robust resolution mechanism that allows for the orderly wind-down of a failing institution and that limits the contagion to the broader financial system. This will require not only domestic legislation, but also intensive work internationally to address a range of legal issues involved in winding down a major global firm.

Second, we need to reduce the likelihood that systemically important institutions will come close to failure in the first place. This can be done by mandating higher capital requirements, improving the capture of risks by those requirements, and by requiring greater liquidity buffers for such firms.

2. Mohamed A El-Erian

It is a huge pleasure and honour for me to be here. I would like to thank Governor Stevens and his RBA colleagues for inviting me to this important event. I am delighted to serve on this panel.

I would like to join the many Symposium participants that have congratulated the RBA on its 50th Anniversary. Like others, my PIMCO colleagues and I admire the Bank for the skillful way it has conducted policies over the years, including in helping to navigate Australia very well through the landmines of the recent global financial crisis.

I can also tell you that every quarter – in February, May, August and November – my colleagues and I await with anticipation the publication by the RBA of its *Statement on Monetary Policy*. We have consistently found this document to provide deep and insightful analyses of both the domestic situation and that of the rest of the world.

This Symposium also provides me with the opportunity to meet up with some old friends from the official sector. Jaime Caruana is among them. So it's an even greater pleasure for me to be asked to act as a discussant for his interesting and well-written paper.

My comments on Jaime's paper will be organised around three themes:

- first, supporting some important points made in the paper;
- second, and with a view to provoking further discussion, attempting to supplement some of his insights and analyses; and
- third, identifying some related questions that, based on our work at PIMCO, we believe are consequential for the topic at hand and, as yet, have not attracted sufficient attention and analysis in policy circles and in the academic community. (Some of these questions also relate to the discussion in the first session of this Symposium.)

I can be very brief on the first theme as I agree with many of the points made by Jaime, including those pertaining to more robust capital cushions, better resolution mechanisms and the importance of maintaining the integrity of key institutions. These are among the necessary conditions for reducing the instability of the financial sector and for limiting the risk of adverse contagion to the real economy, employment and the welfare of current and future generations.

Where I would place even greater emphasis is on the implementation challenges that policy-makers have faced, and are facing, in transitioning from 'urgent and important' responses to the 'important but not urgent'. History warns us that this critical transition, from crisis management to crisis prevention, is tricky when it comes to both design and implementation.

There is a risk that this already tricky transition will be made even more challenging by what seems to be a shift, over the past few months, in the balance between a globally coordinated approach and nationally driven ones. As Jaime correctly argues in his paper, international coordination is key – and I would argue essential. This speaks not only to effective regulation and supervision; it also relates to managing the fat tails for the system, including Jaime's important point that resolution regimes must allow institutional failures to be managed across borders.

Today, there is increasing evidence of a clear and present danger in the shift of emphasis away from international coordination and harmonisation. We are particularly worried that some of the national mindsets and approaches recently in evidence could result in consequential

cross-border inconsistencies which, in turn, would contaminate the national effectiveness of the reform measures.

We should all be reminded of the extent to which the G-20 process – especially in its April 2009 gathering in London – succeeded in signalling to markets meaningful and self-reinforcing policies among key countries around the world. Any erosion of this process – real or perceived – will serve to increase the already significant headwinds to a sustained and meaningful recovery in economic growth, employment creation and global welfare.

Turning to the second topic – what I would attempt to add to Jaime's important insights in an effort to stimulate further discussion – allow me to expand the points relating to firm behaviours.

Jaime makes the correct and important observation that the history of the global financial crisis shows that it was easier to recognise vulnerabilities than to do anything about them. This speaks directly to the question of how well firms' internal risk management processes, and more generally firm management and planning, can respond to the 'known unknowns' (let alone the much more difficult 'unknown unknowns').

Governance and incentive systems are critical here, as Jaime correctly points out. There is still a lot of analytical work to be done to understand better the micro influences that operate at the level of the firm. There are also the insights that the behavioural literature sheds on aspects that reduce the responsiveness of firms – such as inappropriate anchoring, active inertia and an unwieldy set of internal commitments. As Don Sull of the London Business School has documented well in his detailed research, it is also important to remember that history is full of examples of successful firms that recognised paradigm shifts, tried to do something about them, but ended up doing the wrong thing.

Regulators would be well advised to explicitly take into account the elements of firms' responsiveness in thinking about the nature and fatness of the left tail. To date, this seems to have featured little, if at all, in the deliberations. Specifically, there is a basis for arguing that it may prove much harder to alter behaviour than commonly assumed, given the set of internal commitments on Wall Street and in the City of London.

Allow me now to turn to the third and final issue – namely, some related questions that we, at PIMCO, believe are consequential for the topic at hand.

Jaime modestly notes that his paper scores a 70 per cent answers-to-questions ratio, below the count achieved by Alan Blinder in his 2006 presentation to the Bank of Spain (and during Jaime's successful tenure as Governor) (Blinder 2007). But, especially in this extremely fluid global environment, Jaime's 70 per cent may well be better than what we would record when it comes to some big global macroeconomic questions.

In our opinion, there are a number of issues out there that warrant further research and that will likely impact both the design and effectiveness of the upcoming regulatory response. Several of these questions speak directly to the linkages from the macroeconomy to the financial system, and related feedback loops that can prove (and have proved) so destabilising and unpredictable.

We have spent a lot of time identifying what we believe are consequential 'known unknowns'. And the list is quite long at a time when the global economy is gradually resetting after the

global financial crisis. For example, there are significant questions as to how a number of 'unusual' factors will play out in the months and years ahead, including:

- the simultaneous shocks to public finances in a meaningful number of advanced economies (shocks which some countries, such as Greece, are particularly ill-equipped to handle smoothly);
- the erosion of the standing of the global public goods supplied by the United States (including a reserve currency, the deepest and most predictable financial markets, and the consumers of first and last resort) and for which there are no readily available alternatives;
- large and persistent unemployment in economies, especially in the United States, notwithstanding the fact that the labour market there is assumed to be highly flexible and responsive;
- headwinds to a much-needed shift in policy mindset from cyclical responses with immediate impact to more structurally oriented ones with longer gestation periods;
- the exit from unconventional measures in circumstances where warranted intervention by national authorities have materially changed market dynamics;
- an attack on the institutional integrity of both public and private sector entities;
- the multi-year political reaction to a system that has resulted in the privatisation of massive gains and the socialisation of massive losses; and
- the natural multilateral desire to manage to the middle an increasingly bar-belled global economy.

This is a long list. Yet these are just some of the questions that remain open – indeed, under-researched and under-discussed – as the world economy looks to reset after the global financial crisis. And yet they are critical to the design of a sustainable regulatory response that seeks to reduce global financial instability without unduly undermining economic growth and efficiency. They reflect an 'inconvenient reality' of systemic crises: these crises tend to expose deep structural weaknesses that cannot be sustainably addressed by just cyclical policy responses.

So, where does all this leave us?

Jaime's paper correctly identifies important lessons for financial stability, and with direct policy implications. The design and implementation of the appropriate policy response will face headwinds, many of which reflect structural weaknesses that have been visibly exposed by the global financial crisis. The longer it takes for the policy response to shift from cyclical to structural, the greater the risk that Jaime's unanswered questions may be resolved in a less-than-pleasant manner for global growth, employment, welfare and financial stability.

Thank you.

Reference

Blinder AS (2007), 'Monetary Policy Today: Sixteen Questions and about Twelve Answers', in S Fernández de Lis and F Restoy (eds), *Central Banks in the 21st Century: An International Conference Sponsored by the Banco de España,* Banco de España, Madrid, pp 31–72.

3. Charles Goodhart

Thank you very much Ian. Australia is known, in my country at least, as the lucky country and I am sure that we all feel very lucky to be privileged to be here on this occasion.

Another fortunate outcome is that macroeconomists and financial regulators share a condition, which is that the worse we do, in terms of forecasts and outcomes, the more people are interested in what we have to say, which is an advantage. In addition, financial regulators – I am not so sure about macroeconomists – are remarkably reactive. Financial regulation is usually a matter of shutting the stable door after the horses have bolted – 'that shall not be allowed to happen again'. There is rarely sufficient introspection about what is the true purpose of the regulatory structure that we are trying to introduce.

At the moment there is a likelihood that we are sliding imperceptibly from one basic paradigm into another. The basic regulatory paradigm we are leaving is the old banking, Bagehot paradigm, which is that when trouble occurs in your financial system you protect the institutions that are illiquid but solvent, and you allow the institutions that are insolvent to go to the wall. That really began in 1866 with Overend, Gurney & Company, which was at that time the largest financial institution in the United Kingdom, being allowed to go under.

I think that paradigm effectively came to an end with the Lehman failure, when the outcome was regarded as so awful that in virtually every major economy the authorities have effectively taken a vow that they will not allow any similar really large, interconnected systemic institution to be closed. What we now have reached is a world in which the reality is that the authorities actually insure both the liquidity and, in terms of the continuing operation (at least in a rather restricted sense), the solvency of our systemic institutions. We need to consider what are the implications of moving from a banking to an insurance paradigm. One of them, I feel, is that the kind of tax on banks that President Obama recently proposed is likely to sweep the world. This will be introduced as an insurance premium on risk-taking systemic institutions.

One of the reasons why the Bagehot paradigm failed is that liquidity and solvency were always, in practice, inseparable. The reason why institutions become illiquid, other than from mechanical failure, is that people ultimately have doubts about their solvency. In a world in which no-one ever defaults – such as in the standard DSGE models in which you do not need banks, you do not need financial institutions, you do not actually need money – anyone can just raise funds simply by issuing an IOU. The problem is that if liquidity and solvency are intimately connected, as they always are, the only institution that can effectively deal with solvency problems is not the central bank, it is the government. That means that in this particular area, this particular field, central banks and governments *have* to work together, like it or not, particularly when it comes to dealing with the resolution of solvency problems.

In my view there has been excessive concern about what the implications of all this might be for the independence of central banks. I have never understood why it is not possible for a central bank to operate independently of government in the monetary policy field but to act conjointly with government and the other supervisory institutions in the financial stability field. Indeed, out of concern to try and keep central banks 'Simon Pure' in their monetary policy independence, there are even suggestions in some quarters that central banks should be kept out of

macro-prudential issues altogether. That strikes me as both undesirable and impossible so long as the central bank operates the lender-of-last-resort instrument, which is the major mechanism for dealing with the liquidity aspects of this particular joint problem.

The real problems, however, that we face – as Jaime, Bill and Mohamed have emphasised – is that we cannot do all this within the nation state because most systemic institutions are also going to be cross-border institutions. They virtually all are. Now what are we going to do about cross-border issues? Could we get an internationally agreed special resolution system organised so that the mechanisms for dealing with failing systemic institutions are the same the world around, irrespective of where they are headquartered and have their subsidiaries? Perhaps an analogy can be drawn with the International Swaps and Derivatives Association master agreement for financial contracts. If we cannot get a common special resolution regime, how far could we develop the proposals for living wills? I would also add, if we are thinking about countercyclical policy, that cycles, such as housing cycles, differ from country to country. That means that if we are going to be countercyclical, the heaviness, the strictness of the regulation will at any time have to differ from country to country. How then are the regulators and supervisors going to face down the standard argument (that all financial intermediaries use to bring about a lowest common denominator) about the need for a level-playing field? If you are going to want to be countercyclical, you are going to have to face up to saying that we are not going to worry so much about the level-playing-field argument.

Now I am coming to the last part of what I have got to say, and that is that any fool can make our banking systems safer. All you have got to do is just toughen up the regulation – more capital, more liquidity, more of that, more of the other. But the question is how safe and how small do we actually want our banking systems to be?

In the 19th century in the United Kingdom, our main mechanism for keeping the banks safe was unlimited liability. We dropped that because the banks were not big enough and not able to take sufficient risks to finance the large corporate institutions that were growing up in Europe and we had to get more capital into our banking systems. So, as we move now towards making our banks much smaller and much safer, are we actually going to constrain the provision of credit through our banking systems unduly? The large corporations and governments can go to the capital markets; we do not need to worry about them. But are we going to provide sufficient banking to finance credit to small and medium-sized enterprises and to our household sector? Indeed, how much competition within our banking systems do we actually want? Remember that the measures taken after the Great Depression in the United States were primarily and intentionally anti-competitive – regulating interest rates, limiting what banks could do, etc, etc.

Jaime suggested that one of the reasons why the Australian and Canadian banking systems have done so much better was that the regulation there has been better, which may be so. But it could also have been in part because the Australian and Canadian banking systems (at least domestically) were in some part protected from competition from a wide range of alternative foreign banks. So how competitive do we actually want our banking systems to be?

Finally, the choice of the appropriate ratio for capital and liquidity is always totally arbitrary. One of the problems has been that people have spent a lot of time worrying about that number and not worrying about how that number should be enforced. So the number that they have

adopted is frequently taken to be the minimum. If it is the minimum, it is useless because it can not be infringed upon. The only buffer that our banking system had was the margin that they kept above the minimum required capital and the minimum required liquidity ratio. What we have to think about, instead of worrying excessively about an appropriate ratio, is the appropriate ladder of sanctions, which for a variety of reasons the BIS very rarely did, though at last the Basel Committee in December began to approach that, discussing how you might undertake measures such as cutting back on dividend payments as capital fell below a certain level. The only mechanism for dealing with a proper ladder of sanctions is the *Federal Deposit Insurance Corporation Improvement Act of 1991* and that is the template that the Basel Committee and other international regulators need to apply much more.

Thank you very much.

4. General Discussion

The discussion in this session focused on two key areas of the regulatory debate: the challenges involved in formulating and implementing regulatory reforms; and the viability of a number of suggested reforms, including resolution mechanisms, local incorporation and narrow banking. The transfer of risk from the private to the public sphere, and the implications of this for regulation, was also touched on.

There was a general consensus among Symposium participants on the need for regulatory reform, but less agreement on the appropriate scope and nature of reform. One panellist argued that the critical role of government intervention in reducing the severity of the crisis meant that comprehensive regulatory overhaul was now required to minimise the need for such intervention in the future. On a cautionary note, another panellist said that dramatic re-regulation would be a mistake because the prosperity of the past 30 years, particularly in developed economies, could be attributed in part to financial deregulation that has occurred over that period. Along these same lines, some participants expressed concern that the appetite for immediate action has made imperfect, quick responses more likely than carefully considered actions.

The role of the existing regulatory framework in propagating the crisis was raised by a number of participants. It was argued that the concessional risk-weighting scheme used to determine required regulatory capital under Basel II encouraged many financial institutions to build up large exposures to securities with questionable liquidity (in a crisis), and residential mortgages for which risks were often underestimated given the potential for housing prices to fall. Also, it was argued that the adoption of internal risk assessments under Basel II had helped to mask the extent of risk-taking in the financial system. With all of this in mind, it was recommended that reforms address the potential for the regulatory framework itself to contribute to the build-up of risks. In response, one panellist suggested that a number of the proposed regulatory improvements were intended to make the recognition of risk more forward-looking.

Still on the factors underpinning the financial crisis, the central role of the 'originate-to-distribute' model of financing was raised. One panellist argued that the problem here was a lack of supporting infrastructure, both public (for example, in some countries, lax regulation and poor supervision allowed lending standards to deteriorate substantially) and private (for example, insufficient due

diligence on the part of credit rating agencies). It was suggested that in reforming the system, it will be important to keep the good parts of this model of financing while preventing the excessive risk-taking that it enabled.

Turning to some more specific reforms that have been proposed, one participant noted the lack of attention being given to resolution mechanisms for distressed financial firms. Opinion among the panellists differed somewhat on this issue. One suggested that instruments such as living wills for financial institutions could be helpful but said that there was a need for more robust resolution powers for supervisory authorities. Another panellist argued that something along these lines was needed but commented that to be credible, any such mechanism must be accompanied by the financial backing of other financial institutions, the fiscal authorities or by contingent debt instruments. In contrast, a third panellist echoed earlier comments, saying that we have entered a new paradigm in which systemically important institutions will not be allowed to be liquidated, and that this has rendered mechanisms for comprehensive resolution redundant.

Given that the recent crisis was a global phenomenon spread in part by large global financial institutions, the potential for local incorporation as a protective measure was debated. One panellist argued that the implementation of such measures was an issue for local supervisors but agreed that increased simplicity in the financial sector could be beneficial. Others commented on the limitations of local incorporation, suggesting that it may be suitable for some business models but would not be viable for global banks catering to the needs of multinational corporations because it would lead to a loss of synergies from cross-border activities. The difficulty of pursuing local incorporation within the euro area was also raised.

The potential for narrow banking to mitigate systemic risk was also discussed. However, the panel argued against this for a number of reasons. One panellist suggested that such an approach was promoted on the basis of extreme cases, such as the large investment banks that played such a central role in the recent crisis, and noted that it may be viable for some types of institutions but not as a general rule. Another panellist commented that historical experience has demonstrated that narrow banks are not viable, with restrictions on the type of assets held resulting in uncompetitive interest rates and poor service. It was also argued that massive shifts of funds between narrow banks and other financial institutions, particularly in the early stages of a crisis, would serve to heighten panics when they occur. Similarly, it was argued that such an approach would simply increase regulatory arbitrage, pushing risks into the shadow banking sector and weakening the core of the banking sector during good times.

The difficulties of developing and implementing regulations that responded to cyclical developments were raised by a number of participants. The usefulness of forward-looking provisioning was mentioned, with one panellist commenting that the application of such provisioning schemes in Spain was a step forward. It was noted, however, that international accounting standards required modification given that they are currently inconsistent with such provisioning schemes. It was suggested that, unlike monetary authorities, prudential supervisors lacked the political support to use discretionary means to tighten regulation in times of prosperity. One panellist acknowledged this difficulty and argued that a set of international standards could make the task of regulators easier. In a similar vein, another panellist argued

that prudential regulation could overcome the opposition to intervention during good times by embracing a rules-based regime implemented on a 'comply or explain' basis, under which deviations from any specified policy rule would need to be clearly justified in a public manner. However, other panellists commented that the difficulties here were unlikely to be overcome and that the focus of prudential policy should shift towards addressing the incentive structures underpinning the financial system and combating the factors that amplify localised shocks.

There was a suggestion that some regulatory responses to the crisis being proposed may unduly impinge upon smaller institutions that played only a limited role in the crisis. However, one panellist pointed out that it was not only large institutions at the centre of the financial crisis; some small institutions, such as Northern Rock, had played a pivotal role. Another panellist noted that many smaller institutions would probably already meet the tighter capital and liquidity requirements that are being proposed. More generally, it was argued that regulation and risk premia need to be related to the risks taken by individual institutions, large or small, in order to ensure that those with safer practices are not penalised.

Participants remarked that much of the risk accumulated by the private sector in the lead-up to the crisis had now effectively been transferred to the public sector and, accordingly, the state of public finances had become a source of concern for some countries. If the public sector was the new epicentre of risk, it was argued, the policy response in the wake of this crisis must acknowledge this. In reply, one panellist suggested that the management of overall risks in the private and public sectors had common shortcomings, and that both need to make more of an effort to prepare for future downturns during good times. In this context, the potential for the monetisation of public debt was raised. One panellist suggested that monetary authorities must make it clear to fiscal authorities that this was not an option.

What Have We Learned in the Past 50 Years about the International Financial Architecture?

Andrew Crockett

It is a great honour to be invited to give the luncheon address at this Symposium to mark the 50th Anniversary of the Reserve Bank of Australia. The Reserve Bank has played a major, and very positive, role in the economic life of Australia in the past half century. Over the years, it has been fortunate in attracting to its staff a highly competent and dedicated group of public servants. It has been my privilege to have known many of them, and even to have met the legendary 'Nugget' Coombs, the first Governor. Hence, it is a pleasure, as well as an honour, to join Glenn Stevens, his colleagues and predecessors in marking the Reserve Bank's first 50 years.

My topic today is the international financial architecture – how it has operated and evolved over the 50 years of the Reserve Bank's existence, and what we have learned. In reviewing this half century of experience, I hope to draw some of the lessons about the strengths and weaknesses of different arrangements. These lessons will be important as we approach the task of reforming international finance in the wake of the current crisis.

To begin with, however, I should start by defining terms. To my knowledge, there is no comprehensive and generally accepted definition of the 'international financial architecture', despite the frequency with which the term has been used over the past 10 years or so. I will take it to encompass three interrelated elements: first, the basic economic model that governs cross-border monetary and financial relations; second, the institutional structure that exists to manage and, where necessary, adapt these relations; and third, the distribution of decision-making authority in international institutions (their 'governance'). All three of these elements have evolved enormously over the past 50 years, and are changing further as the lessons of the current crisis are absorbed.

The Reserve Bank of Australia came into existence in the heyday of the Bretton Woods system. The Bretton Woods arrangements were noteworthy in several respects. Most strikingly, they represented the first attempt to create a planned international monetary order, subject to agreed and enforceable rules of behaviour by all participating countries. They were a key part of the post-World War II international settlement, which was consciously designed to avoid the political and economic failures that had followed the 1919 Treaty of Versailles.

In the economic sphere, these failures had included the lack of any plan for post war reconstruction; the spread of protectionism during the Great Depression; and the beggar-thy-neighbour payment and exchange rate policies of the 1930s. The political consequence of these economic failures was the rise of totalitarianism and eventually another disastrous war.

To prevent a repetition of such consequences following 1945, the Bretton Woods architecture envisaged a new model of international economic cooperation, and created new institutions to oversee its functioning.

The World Bank was to provide a source of financing for reconstruction and development. The General Agreement on Tariffs and Trade created a framework for liberalising trade. And the International Monetary Fund (IMF) established rules for a managed international monetary system. Given the focus of this Symposium, I will direct my remarks today principally towards the monetary and financial architecture, and how it has evolved and changed over time.

The Articles of Agreement of the IMF were a remarkably comprehensive blueprint for the operation of the international monetary system. They covered all the key elements of financial relations among countries: the exchange rate regime; payments arrangements; the adjustment process; and the management of international liquidity.

The exchange rate regime was based on fixed but adjustable rates. This was thought to provide the right balance between the excessive rigidity of the gold standard, and the quasi-anarchy of the floating rates of the 1930s. Payments restrictions on current account transactions were to be gradually eliminated over time. International liquidity would be based on gold, supplemented by US dollar balances and conditional liquidity in the form of drawing rights at the IMF. Balance of payments adjustment would be managed through domestic fiscal and monetary policies.

To oversee this system, the IMF was given powers to grant or withhold approval of exchange rate changes, to review payments restrictions, to lend to countries experiencing payments problems, and to assess the operation of the international adjustment process. This was, in the words of Padoa-Schioppa and Saccomanni (1994), a 'government-led' system. The basic design of the system was established by an intergovernmental treaty, the key decisions in its operation were made by governments, and its management was overseen by an international organisation.

In 1960, as the Reserve Bank came into existence, there was reason for satisfaction with the way in which this government-led system was operating. High levels of employment had been sustained; trade and output had grown rapidly; exchange rates had been stable, with occasional adjustments; exchange restrictions had been dramatically reduced; and neither deflation nor inflation had proved to be a serious problem.

From an institutional standpoint, the IMF was the acknowledged focus of international financial cooperation. The distribution of decision-making authority within the Fund was broadly accepted. Two aspects of the governance of the IMF were important in its success. First, voting power was distributed broadly in relation to economic weight, albeit through a complex formula. Second, decisions by the IMF Board were invariably reached by consensus, which encouraged a collegial and inclusive approach to decision-making. Another element making for success was the tradition of a highly competent and non-political staff. All these factors should be accounted important lessons learned in the early days of the Bretton Woods system, whose relevance, I believe, endures to the present day.

The success of the Bretton Woods system at the time the Reserve Bank was founded was not to last, however. As the 1960s wore on, a number of weaknesses in the Bretton Woods system became apparent. Paradoxically, these weaknesses were revealed by the very success of the

system in facilitating the cross-border liberalisation of financial markets and in promoting the rapid growth of trade and output. In fact, the system made remarkably little provision for the integration of global capital markets.

The growing mobility of capital exposed a central flaw in the fixed-but-adjustable exchange rate model. If a country's exchange rate became a candidate for devaluation, it created incentives for speculators to bet against it. The prescribed remedy in the Bretton Woods system was to use monetary and fiscal measures to redirect resources to the current account of the balance of payments, while protecting the exchange rate through market intervention and the judicious use of capital controls. This prescription became increasingly difficult to use, however. It took time for monetary and fiscal measures to work, during which unemployment had to be endured. The financial resources available to bridge the period while adjustment was taking effect were strictly limited. And exchange controls proved leaky in a liberalised financial system.

Moreover, the adjustment process, in practice, operated asymmetrically. Keynes had already foreseen this when the Bretton Woods treaty came into force. Deficit countries were obliged to adjust by a loss of reserves. But surplus countries could run surpluses and accumulate reserves more or less indefinitely. The mechanism in the IMF Articles of Agreement that was designed to put pressure on surplus countries, the Scarce Currency clause, was never invoked.

Liquidity arrangements, too, came under pressure. The quantity of gold was more or less fixed, so that primary international liquidity became smaller and smaller relative to world trade and output. For a time, liquidity could be enhanced by the accumulation of US dollar balances, but this was only a temporary solution. President de Gaulle objected to the 'exorbitant privilege' this arrangement conferred on the United States, while Robert Triffin pointed out that the growing share of US dollars in reserves cast doubt on their convertibility into gold. Borrowing rights at the IMF were not seen as a satisfactory substitute for owned liquidity, since they could not be counted on under all circumstances.

As is well known, the internal contradictions in the Bretton Woods system led to its demise in the early 1970s. I would draw three central lessons from this experience. First, a system designed by intergovernmental decision-making is unlikely to envisage the ways in which markets will evolve in practice. The development of new financial market instruments and the liberalisation of capital flows combined to make a government-led system untenable. A resilient system needs to have the flexibility to adapt to market developments.

A second key lesson is that powerful countries will not abide by rules that they do not perceive to be in their national interest. In the late 1960s, the rules of the game were telling the United States that it should restrain domestic demand. But the escalation of the Vietnam War and the implementation of the Great Society were pushing in the opposite direction. Similarly, the Bretton Woods rules suggested that Germany should allow demand to expand, but public opinion was demanding vigilance against inflation. To be successful, an international financial architecture has to harness, not run counter to, perceived national interests.

A third lesson, particularly relevant in present circumstances, is that asymmetrical obligations on countries will eventually lead to unsustainable outcomes. Simple economics tells us that exchange rates are multi-sided, and that global balance of payments positions have to sum to zero. If pressures to devalue and revalue are not broadly symmetric, unsustainable financial

imbalances will arise. The need for symmetry goes to the heart, not only of the design of the monetary system, but also to the institutional structure by which it is managed and to the powers exercised by the various players in the system. I will return to this theme later in my remarks.

First, however, I turn to the architecture that emerged in the post-Bretton Woods era, which for convenience I will take to run from the mid 1970s up to the early years of the present century. This was a time during which there was a growing belief that market forces were the best basis for the allocation of resources. In particular, open, international financial markets were viewed as beneficial for the efficient mobilisation of saving and distribution of investment. Free capital mobility could complement free trade in maximising the growth of output and trade. A corollary to this belief was that governments should not attempt to control market outcomes. They should rather focus on facilitating the operation of market forces and, where necessary, dealing with sources of market failure.

Consider how this set of underlying beliefs about markets maps into the key features of the international monetary system that I described earlier. First, exchange rates should not be arbitrarily determined by governments but should be allowed to find their own equilibrium. Second, currency convertibility should be assured by the access of the private sector to a free foreign exchange market. Third, the adjustment process should work through the incentives created by the price mechanism, without attempts to target particular components of the balance of payments, such as the current account. And fourth, liquidity can emerge as a result of the working of open capital markets.

But there is more. In contrast to Bretton Woods, which had implicitly assumed financial markets that were national and relatively closed to international influences, the system of the latter years of the 20th century celebrated the openness and global orientation of both markets and institutions.

Of course, such a pure 'market-led' system did not emerge immediately, nor did it ever apply in its full sense, or in all countries. Many governments, especially in the emerging world, maintained fixed, or at least managed, exchange rates. Among industrial countries, members of the European Community sought to protect themselves against the disruptive effects of uncontrolled exchange rate movements within the European single market. But to a remarkable extent, a market-driven international monetary system, at least among the major countries and economic blocs, became accepted as both inevitable and desirable. Even among those countries that maintained managed exchange rates, the 'Washington Consensus' emphasised movement towards freer financial markets. This was interpreted by many to embrace the liberalisation of international, as well as domestic, capital markets.

The market orientation of the basic model of national and international economic management had important implications for the institutional arrangements for international economic cooperation. In relative terms, the role of the IMF became less central, since it no longer had the function of coordinating exchange rate and adjustment decisions taken by governments. The Fund became an institution whose major tasks were to lend to developing countries in financial difficulties, to develop standards of financial transparency and to provide periodic assessments of member countries' economic policies.

By contrast, an increasing role in economic management was played by those agencies that regulated markets, such as central banks and supervisory authorities. To provide a basis for the international coordination of these bodies, various existing groupings were strengthened and new mechanisms were established. Noteworthy in this regard was the enhanced role of the Bank for International Settlements (BIS) and the various semi-autonomous committees established under its auspices, such as the Basel Committee on Banking Supervision, the Committee on the Global Financial System, and the Committee on Payment and Settlement Systems. Also of growing significance were other bodies of regulators and standard setters, such as the International Organization of Securities Commissions (IOSCO) and International Accounting Standards Board.

There were also important implications for the distribution of power in the post-Bretton Woods era. The end of fixed rates deprived the system of an important fulcrum for the assessment of countries' policies. Yet it was clear that economic policy interactions continued to be important. To fill the vacuum, the major countries began having regular informal meetings to discuss these interactions.

The process began in the mid 1970s, with meetings of the Finance Ministers of the United States, France, Germany and the United Kingdom. The group soon expanded to include Japan, and was quickly broadened to include central bank Governors as well. However, ministries of finance generally remained in control of the group's agenda. Subsequently, Italy and Canada were invited to participate, and the resulting body endured for some 20 years as the G7.

The G5/G7 began life with a focus on issues among its members, such as their exchange rate relationships. Landmark agreements on exchange rate relationships were reached at the Plaza and Louvre meetings. Over time, however, the G7 expanded its area of interest to become an informal and self-appointed 'directorate' for the management of the international monetary system more broadly.

As a result of all this, without much planning or forethought, the institutional architecture of the global monetary system was transformed. Key aspects of macroeconomic management passed largely into the hands of the G7, while the increasingly important area of market oversight became subject to many different sources of authority, most of them loosely under the umbrella of the G10 Governors in Basel. With the benefit of hindsight, these unplanned arrangements had both strengths and weaknesses, which provide lessons for how the system of the future might be managed.

On the positive side, four aspects are worthy of note. First, the emergence of the G7 process engaged the major countries directly in the management of the system, something that might not have happened if the IMF alone had been the focus of cooperation. Second, the network of market committees at the BIS had greater flexibility to adapt to changing circumstances. They generally accepted the evolution of financial markets without attempting to place them within a specific 'model' of international cooperation. Third, the new bodies stressed regular meetings of principals, that is, those responsible for decision-making in their respective countries. Fourth, the predominant form of cooperation was information exchange, with limited attempts at coordinated decision-making. This facilitated confidence-building and avoided some of the

problems that would have come with attempts to force countries to follow policies dictated by formal rules.

But the proliferation of international groupings and the concentration of power in the hands of smaller groups also had major drawbacks. There was a lack of overall vision as to how the system should be managed, and where threats to stability might arise. Coordination among the various groupings was lacking and the one organisation that could have supplied coordination, the IMF, was frozen out of a number of key aspects of decision-making. Lastly, the new arrangements lacked representativeness. The G7 was particularly exclusive. But the Basel-based committees were hardly less so, dependent as they were on the G10 membership that formed the core of the BIS Board. Given the speed with which emerging markets were growing, especially after about 1990, the exclusion of major national players outside the industrial world was increasingly anomalous.

Some efforts were made to deal with these shortcomings, though evidently not enough to avoid the financial meltdown that began in 2007. Beginning in the mid 1990s, the BIS took steps to broaden its membership to include the major emerging markets. Periodic meetings were arranged between central bank Governors and other regulators to try and improve coordination. After the Asian financial crisis, the G7 set up the Financial Stability Forum (FSF) as a body to bring together central banks, regulators and finance ministries to monitor the health of national and international financial systems. At the same time, the G-20 was established to provide a forum in which Finance Ministers and central bank Governors from all systemically important countries could regularly review economic and financial issues.

In the end, despite these modifications, the market-based international financial architecture was found wanting. Most obviously, it failed spectacularly to prevent the current financial crisis.

Several lessons flow from this failure. First, an international system that is based on market forces managed only through 'light touch' regulation is inadequate to prevent the emergence of unsustainable financial imbalances. Second, an institutional architecture in which responsibility for systemic oversight is shared among multiple authorities needs more effective coordination than happened in practice. And third, the exclusion of key countries or bodies from the process of decision-making undermines its effectiveness and legitimacy.

These lessons need to be borne in mind as we contemplate the task of reforming the international financial architecture, the topic to which I now turn. I will cover, in turn, the basic model of international finance, the institutional structure for the global financial system and the distribution of decision-making power.

Concerning the basic model for cross-border financial activity, it is hard to deny that the way in which the market-based system operated 'failed' in some important ways. In particular, a lightly regulated global financial market resulted in excessive and unrecognised risks that ultimately exacted a heavy price in unemployment and lost output.

But this does not mean that we would do better to substitute governmental decision-making for market forces. The history of government failure is just as long as that of market failure. What has been demonstrated by recent events is not that the market should be abandoned as an organising principle for economic relations, but that the scope for market failure is wider than

previously supposed. Reforms therefore need to deal with these sources of market failure, not to attempt to suppress market forces.

At the macro level, the model of cross-border financial relations should continue to be based on open trade and capital markets, which will almost certainly entail flexible exchange rates. But there needs to be a more effective way of ensuring that exchange rates reflect fundamental forces, and that neither deficit nor surplus countries can prevent the adjustment process from working. For certain countries, particularly emerging markets, there may be a case for managing capital mobility and exchange rates, so as to avoid procyclical market tendencies. But this needs to be done sparingly and transparently. Above all, there needs to be an accepted international process for assessing the suitability of the exchange rates that emerge from the combination of market forces and government management.

At the micro level, it has been amply demonstrated that inadequate risk management has the capacity to generate systemic crises. Reforms are needed to both reduce the likelihood of failures of key institutions and markets, and to limit the costs if institutional failures nevertheless occur. The focus should be to protect the basis on which financial markets function, not to preserve specific market players. In my view, it could be a distraction from this goal to attempt to prescribe business models on the basis of supervisory convenience. This would be an interference with the market's role in judging the business models that best meet customers' needs. Even more importantly, it would risk unintended consequences as markets responded to new incentives and business shifted to less-regulated channels. Equally, it would be undesirable to try to roll back the forces of globalisation. Financial firms have global reach for many of the same reasons that non-financial corporations do. There would be significant costs in trying to restrict them to national boundaries just because it was convenient from a supervisory standpoint.

A better approach, in my view, is to work on mechanisms to internalise risk, such as minimum capital and liquidity requirements, and to allow failing firms to go out of business with appropriate losses to shareholders, management and unsecured creditors. Doing so would do much to limit moral hazard concerns, while still leaving in place suitable incentives for innovation and business efficiency. Innovation and globalisation have brought benefits across the board, both in the financial and non-financial realm. It is better to address any negative consequences of these head-on, rather than to try to turn back the tide of history.

What of the institutional infrastructure needed to manage a system in which market forces remain predominant, but are subject to more effective regulation and supervision than in the past? For reasons I gave earlier, I think the model in which a substantial management role is played by bodies in which top-level national officials meet regularly carries considerable advantages. But steps need to be taken to make the coordination of these various bodies more effective.

The recent enhancement of the G-20 process, and the transformation of the FSF into the Financial Stability Board (FSB) should be regarded as positive in this connection. The G-20 itself is much more representative of the world financial community than its predecessor, the G7. The same can be said for the FSB by comparison with the FSF. Both the FSB and its member groupings, such as the Basel Committee, IOSCO and the International Association of Insurance Supervisors have been enlarged to have broadly the same membership as the G-20.

With its enhanced legitimacy, the FSB thus has the capacity to develop into a genuine overseer of global financial stability and an effective coordinator of the activities of other bodies. Indeed, US Treasury Secretary Geithner has labeled the FSB the 'fourth pillar' of the international system, alongside the IMF, World Bank and World Trade Organization.

A strength of the FSB and its member groupings is that it brings together the principal decision-makers in member countries. Much of the work of developing recommendations is undertaken by member authorities, with the permanent FSB staff playing a facilitating and drafting role. In my experience, international cooperation works better if member countries are directly involved in key policy decisions, rather than being invited to approve proposals generated by an international staff, however competent.

Even so, there are aspects of the emerging arrangements that warrant careful consideration. Let me end by touching on some concerns and open issues.

First, although the G-20 process is much more representative and legitimate than the previous G7, it is still not universal. Second, although the FSB has been given numerous important tasks, and has a formal 'Charter', it does not embody an institutional 'vision' of what the international financial architecture should comprise. Nor does it yet have effective mechanisms to ensure that member countries do not bypass it in favour of national initiatives. Third, there remains a disturbing lack of clarity in the relationship between the FSB and the G-20, on the one hand, and the IMF, on the other. And fourth, the international adjustment process is still characterised by significant asymmetry. How could these shortcomings be addressed?

The G-20 and the FSB could enhance their legitimacy by involving non-member countries more formally in their discussions. As envisaged in the FSB Charter, but not really implemented, there could be regular 'outreach' activities, in which non-member countries could express views before decisions are made by the more limited group of large countries.

To clarify its role, the FSB could develop the 'medium- and long-term strategic plans, principles, standards and guidance', referred to in its Charter, so as to provide a more comprehensive description of the desired international financial architecture. To put it another way, we know what the FSB exists to *prevent*, that is, financial instability, but we do not fully understand what it exists to *promote*, which is presumably a competitive and efficient, as well as a stable, system. More work needs to be done to ensure the FSB continues to be an effective forum after the current crisis is past. This will inevitably raise the question of its legal standing and decision-making authority.

Developing an overall vision for the FSB should help in the third potential problem, that of clarifying its relationship with the IMF. In this connection, a useful distinction can be drawn between the international *monetary* system, which is the responsibility of the IMF, and the international *financial* system, which could become the area of focus of the FSB. The international monetary system includes aspects such as the exchange rate regime, international liquidity and the adjustment process – all macroeconomic issues. The international financial system covers features such as capital mobility, the oversight of financial markets and financial market institutions, and arrangements for the coordination of regulatory and supervisory policies. Little has been done over the years to develop a 'Bretton Woods' for the financial system. Perhaps, with the creation of the FSB, it is time to try and fill this gap.

Finally, one of the thorniest issues of international economic cooperation is how to restore more symmetry to the international adjustment process and to prevent the dangerous prolongation of unsustainable financial imbalances. This task is clearly that of the IMF, and to the extent that the G-20 is involved, it should be to encourage the IMF to play its natural role. Under the auspices of the IMF, special consultations among key players have taken place, with some useful results in clarifying issues. But clearly more is needed. Bearing in mind the lesson from Bretton Woods that countries cannot be forced to adopt policies when they do not want to, an enhanced effort is needed to demonstrate the ultimate negative consequences of unsustainable policies, and to seek mutually acceptable solutions. For example, if payments imbalances have emerged because countries want to hold higher owned reserves, then SDR allocations need to be considered.

Major countries have all expressed the intention to allow the IMF to act as an impartial assessor of members' policies. Where these policies are found to be contrary to national and international stability, the IMF should be empowered to use its moral authority to publicise such lapses. This could then form a basis for domestic pressure within the countries concerned and peer pressure from without. Nobody should be under the illusion that peer pressure alone would do the trick, but at least it would be a start.

In conclusion, let me emphasise that a new comprehensive international financial order, similar in breadth and ambition to the Bretton Woods system, is not a realistic possibility in our pluralistic world. But this does not mean that we cannot make meaningful improvements to our international architecture to reflect the lessons we have learned over the years. What is needed is neither a reversion to the 'business as usual' of before the crisis, nor an atavistic yearning for a world uncomplicated by financial globalisation. It requires thoughtful assessment of what made the financial system so brittle and solutions that preserve its contribution to global welfare, while improving its resilience to market shocks. Admittedly this will not be easy, but to shirk the task would be to give up on our ability to learn from a half century of experience.

Reference

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Increased Understanding of Supply-side Economics

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It is perhaps fortuitous that the 50th Anniversary of the Reserve Bank of Australia provides an opportunity to reflect on how far the understanding of economics has come over the Bank's 50 years. For, while retrospectives are always instructive, they are especially so at present, when many analysts and commentators seem to believe that economics and economic knowledge have been static and unchanging throughout the post-War period, and that the financial crisis of the noughties indicates a failure of economics. I shall argue in this paper that much has been learned, often through experience and the challenges arising because of changes in economies, and that improved understanding has resulted in better policy-making. However, there will always be new phenomena to understand and problems to resolve as economic growth leads to changes in the structure and responses of our economies.

This paper is divided into four parts. The introduction deals with some preliminaries, including the definition of supply-side economics. In the second, there is a necessarily somewhat stylised sketch of the general mindset of analysts and policy-makers around a half century ago. Focus is on those major themes which drove decision-makers and academics in their thinking about policy. For reasons to be discussed, some differentiation needs to be made between thinking regarding industrial countries' policies and that centring on policy for developing (or as they were then called, 'underdeveloped') countries in that period.

The third section deals with those important changes in policy, and the thinking underlying them, that inform current thought and actions. As far as possible, aspects of monetary and financial policy are dealt with briefly, as they are the subject of other papers delivered at this Symposium. A final section then turns to current changes in the international economy that constitute challenges for understanding and policy in the future.

1. Introductory Considerations

A first task is to define supply-side economics. Google gives many definitions, some of which associate supply-side economics with the proposition that lowering tax rates will raise tax revenue, or with the proposition that lowering tax rates will induce more rapid economic growth. For present purposes, however, these definitions are too narrow. Broader definitions focus on the determinants of aggregate supply. In this light, 'production or supply is the key to economic prosperity'.[1] I shall define supply-side economics to be concerned with the determinants of potential output, or productive capacity, and changes in it over time.

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1 'Supply-side economics – Definition' at <http://www.wordiq.com/definition/Supply-side_economics>.

Given that definition, it is quite possible to recognise that output is the outcome of the interaction of aggregate supply and aggregate demand and to recognise that shortfalls in aggregate demand can not only lead to output at a level below potential, but can also deter investment and thus future potential output. Nonetheless, for present purposes, I shall focus on the understanding of determinants of the supply side and changes in thinking about the relative importance of supply and demand factors in determining output and growth. Supply-side analysis then focuses on the determinants of increases in the supply of factors of production and total factor productivity.

A second preliminary observation has to do with the proposition that, as a broad first approximation, the past half century has witnessed the greatest economic success in human history for any comparable period in bringing living standards and the quality of life to levels heretofore not dreamt of. Whether we speak in terms of real per capita income growth or other measures of economic performance, or whether we instead focus upon life expectancies, infant mortality rates, educational attainments and other indicators of the quality of life, there can be no question that the world of 2010 is a different, and in economic terms, better, place than it was a half century ago.

Table 1 gives data on per capita incomes for various regions of the world, in 1990 US dollars, for decades from 1950 to 2000. For the world as a whole, real per capita income rose an estimated 2.85 times while world population was 2.41 times as large in 2000 as it was in 1950. World real GDP rose approximately 6.9 times. Productive capacity had to increase enormously to underpin those achievements and it was almost entirely supply-side factors that enabled the rapid global rate of growth.

Table 1: Per Capita Incomes by Region

1990 international Geary-Khamis dollars[(a)]

	Western Europe	'Western offshoots'[(b)]	Asia	Africa	World
1950	4 579	9 268	712	894	2 111
1960	6 896	10 961	1 029	1 066	2 777
1970	10 195	14 560	1 530	1 357	3 736
1980	13 197	18 066	2 034	1 536	4 520
1990	15 966	22 345	2 771	1 444	5 157
2000	19 002	27 065	3 817	1 464	6 012
		Ratio of income, 2000 relative to 1950			
	4.15	2.92	5.36	1.63	2.85

(a) The Geary-Khamis dollar, also known as the international dollar, is a hypothetical unit of currency that has the same purchasing power that the US dollar had in the United States at a given point in time (1990 for the data in this table).

(b) Australia, Canada, New Zealand and the United States.

Source: Maddison (2003, p 234)

Increases in per capita income were accompanied by increases in other measures of quality of life and wellbeing. Life expectancy, for example, rose by about 10 years for industrial countries and more than 20 years for the then-developing countries, while literacy rates have more than doubled.[2]

The successes of the past half century have, of course, brought with them problems and challenges, which will be addressed in the final section. But it should not be overlooked that there have been major improvements in the quality of life in industrial countries, although changes in developing countries have been even more dramatic. Life expectancies in the developing countries have risen rapidly, literacy is almost universal among the young in most developing countries, some very poor countries (mostly in east Asia) have achieved living standards similar to those of industrial countries, and poverty has been greatly reduced in most middle-income countries and emerging markets.[3] The sad exception, to which I shall return, is the group of countries referred to as 'least developed', which includes most of sub-Saharan Africa and south central Asia. But the successes owe much to what has been learned about supply-side issues, and the failures are attributable, in part, to a lack of acceptance of that learning. Indeed, many of the challenges facing the international economy today are the result of the successes of the past 50 years. These will be addressed in the final section.

2. Thinking about Economic Policy in the 1950s

Prior to the end of the Second World War, little thought had been given to the economic conditions in developing countries: most had been, or still were, colonies[4] and it was generally taken for granted that their economies were 'different'. The leadership in almost all developing countries set economic development and rising living standards as a pre-eminent policy goal. When governments in developing countries embarked upon policies formulated to foster economic growth, they based their policies at least partly on a different understanding of supply-side economics than that in developed, or as they were often called, industrial countries.

For ease of exposition, it is simplest to start with developed countries. It will be recalled that memories of the Great Depression were very strong, with many economists believing that there was a tendency for 'secular stagnation' which would reassert itself once the initial post-War recovery was completed.

The intellectual contribution to policy-making of the 1930s had been Keynesian: it was thought that private markets would work fairly well in allocating resources at full employment (with the exceptions to be noted below), but the major challenge to policy-makers was to maintain full employment. It was generally accepted that there was little or no automatic tendency for markets to achieve that outcome. Moreover, there was a widely held view that there was a trade-off between price stability and the level of employment: by the 1960s this had been formalised as

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2 Life expectancy and other indicators of health and wellbeing had been rising in the industrial countries, some since the early 1800s and others (such as Japan) from more recent dates. See Clark (2007) for an account.

3 Compare the data, for example, in a text in the 1980s (Gillis *et al* 1987) with recent data from the World Bank (2007).

4 There were, of course, a number of countries (such as those in Latin America, Thailand and Turkey) that had never been colonised. The general views on economic policy in those countries were much the same as in former colonies, as the 'modernising elites' and leadership believed that the developed countries had been sufficiently economically dominant so as to render them 'virtual' colonies.

the Phillips curve, which was deemed to show that higher rates of inflation would be consistent with higher levels of employment.

With regard to macroeconomics, therefore, the focus was largely on aggregate demand and determinants of the level of employment. It seems to have been more or less implicitly assumed that, if full employment were achieved and maintained, economic growth would be the automatic result and that few, if any, growth-oriented policies would be needed. To a significant extent, 'supply-side' issues were downplayed or ignored because of the belief that the major challenge for policy-makers was to sustain aggregate demand along Keynesian lines. Automatic stabilisers (in the forms of unemployment compensation, progressive income tax rates, and other schemes) were advocated and developed, and discretionary policies were advocated to stimulate the economy in times of underemployment and to moderate economic activity in times of overly rapid expansion.

A major consequence of this focus was the neglect, or even the disbelief, in the role of incentives, and to some degree even of prices, in affecting the workings of the economy.[5] Marginal tax rates greater than 80 per cent were not uncommon; replacement rates for the lost wages of the unemployed were often near 100 per cent; and some industries were brought under government ownership. There was even a sizeable academic literature on whether devaluation of a currency might result in an improvement or a deterioration of the trade and current account balances (and no distinction was made between the nominal and the real exchange rate).[6]

The belief in government regulation and/or ownership of economic activities stemmed from three sources: the Pigovian argument that governments should compensate for externalities through taxes or direct interventions; concerns about market failures, especially in the labour market; and widespread belief that the Great Depression had shown that markets 'didn't work'. Many regulatory regimes, such as the U.S. Securities and Exchange Commission, the National Labor Relations Board and the Glass-Steagall Act in the United States, had been established or tightened during the 1930s. Then, and in the first two decades after the War, there was little or no discussion of whether governments *could* regulate or run various economic activities; academic focus was on appropriate criteria for doing so, while policy-makers simply acted.

A significant contributing factor to the acceptance of government ownership was the widely held belief that the USSR had successfully been transformed into an industrial country through central planning, and in some industrial countries, government ownership increased in the early post-War years. This view even more strongly influenced economic policy-makers in many developing countries and often resulted in policies that were detrimental to growth.[7]

Even with respect to international trade, views were schizophrenic. If one examines the proposed charter of the International Trade Organization (ITO), the first half espoused the general principles

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5 At a conference in the 1970s at which I presented a paper, my discussant began and ended his discussion with words to the effect that 'this paper is based on the assumption that prices matter. They do not, and this paper is therefore irrelevant'.

6 A classic paper by Alexander (1952) provides an early effort to bring income-expenditure effects into the analysis.

7 India, for example, adopted a 'socialist pattern of society', delineating industries into three groups: the 'commanding heights' industries which could only be owned and operated by the Government; the 'mixed' industries in which both private and public sector firms could coexist; and industries (generally deemed 'small-scale') that would be reserved for the private sector. Even those that were reserved were heavily regulated, and would lose their tax exemptions and other privileges if they grew 'too large'. See Bhagwati and Srinivasan (1975).

that most free traders would adhere to: there should be open multilateral trade without discrimination among countries; and trade barriers should only be in the form of tariffs, and the lower the better. There were, however, exceptions noted for developing countries to which I return below. But that first half became the articles of the General Agreement on Tariffs and Trade (GATT, now the World Trade Organization, or WTO). The second half of the proposed charter focused on what countries might do whenever they were confronted with less than the level of employment they deemed desirable: they were empowered to take trade protective measures in those circumstances. It was argued at the time, and in my judgment correctly, that the second half of the proposed ITO charter gave countries licence to erect whatever trade barriers they liked in the name of achieving full employment (Krueger 1999).

Fortunately, the ITO never came into being, largely because the US Congress refused to ratify it, with objections based largely on the licence the exceptions gave to countries to adopt whatever levels of protection they chose. Indeed, the conflict between the two halves of the proposed ITO charter has often been noted as puzzling to present-day observers. It seems safe to say that had the ITO charter been ratified, the unprecedented reciprocal lowering of trade barriers among the industrial countries that took place over the next several decades would have been quantitatively much smaller, if indeed reciprocal trade liberalisation would have happened at all.

That the 'free trade' GATT articles were adopted (by Presidential decree in the United States in order to begin the process of multilateral tariff negotiations while the American President still had 'fast track' authority) was largely the result of American pressure. The multilateral tariff negotiations that took place under the auspices of the GATT were certainly a significant contributor to the rapid post-War economic recovery and sustained rapid growth among the industrial countries that took place in the 1948–1973 period.[8] The more integrated global trading system and its results were certainly one of the key factors accounting for the greater weight placed on supply-side factors in later years.[9]

In developing countries, Keynesian ideas on macroeconomic policies were similar to those in industrial countries but the policy framework was even more inimical to private markets. The apparent success of the Soviet Union and the disaster of the Great Depression were viewed as having shown the fatal flaws in the capitalist system. In addition, there were two other factors. On one hand, the colonial legacy led many to believe that the West had developed through 'exploitation' of its colonies, and that government support for economic activity thus lent to domestic industry had accelerated growth among the developed countries and thwarted it in the colonies.[10] On the other hand, there was a strong belief that high living standards resulted

8 By most estimates, the average height of tariffs on manufactures prior to the first GATT round (in 1947) was between 40 and 50 per cent in Europe, Japan and North America. The European and Japanese tariffs understate the extent of protection because bilateral trading arrangements and exchange control were used to constrain imports in light of the 'dollar shortage'. The removal of quantitative restrictions on imports and adoption of Article VIII (full convertibility for current account transactions) in the 1950s was important for the speed of reconstruction and the rapid growth of trade in that era. For an account of the successive rounds of multilateral trade negotiations under the GATT/WTO, see Irwin (2002, p 164 *ff*).

9 Transport and communications costs also fell significantly. However, by the middle of the century, they constituted about 20 per cent of the free-on-board prices of exports and were thus less of a barrier than were tariffs and quotas.

10 It was widely accepted that the terms of trade had worsened for primary commodities and would continue to do so. That belief was also used as a rationale for 'import substitution'. See Spraos (1980) on the terms of trade, and the collection of essays in Agarwala and Singh (1964), many of which reflect the attitudes of the time with respect to development. On structuralist inflation, see especially Prebisch (1984), but also the other essays in Meier and Seers (1984).

from having a large manufacturing/industrial base. The modernising elites of most developing countries adhered strongly to the view that their countries must industrialise,[11] and that the head start of the developed countries made it necessary for governments to take the lead in establishing these industries, either in the public sector or through protection of the new infants from imports. The infant industry argument, long noted in economics textbooks as a key exception to the case for free trade, was invoked as justification.

In practice, most developing countries' governments adopted fixed exchange rates but undertook expansionary fiscal and monetary policies in the belief that these would spur investment and therefore accelerate growth.[12] The incremental capital-output ratio was seen as a given, virtually unaffected by economic policies, so that the investment rate (limited by savings and the current account balance) would determine the growth rate.

Policies resulting from these views led to inflation rates that were generally significantly higher than in the United States, at a time when US dollar prices generally were global prices. Since most countries pegged their currencies to the US dollar, there was a strong tendency for real appreciation of developing countries' exchange rates. Real exchange rate appreciation served to discourage exports and of course to lead to greater demand for importable goods.[13]

Development of 'import substitution' industries in the developing countries proved to be import-intensive, and excess demand for imports at the prevailing exchange rates generally led to greater and greater distortions over time. 'Stop-go' cycles were the general rule, with each 'stop' taking place when inability to finance even imports deemed essential resulted in a 'stabilisation' program in which fiscal deficits were reduced and monetary policy tightened, while devaluation adjusted the exchange rate. 'Go' started after export earnings (and foreign exchange received as part of the stabilisation as well as decumulation of speculative holdings of imports and exports) enabled an increase in imports. But each 'stop' cycle was generally longer and more severe than the previous one, while each 'go' was shorter and with a lower average rate of economic growth.

Policies toward international trade were central to this line of thinking. Underlying them was the view that prices had little or no effect on key variables. And after small, primarily agricultural, economies were insulated from world markets because of high tariffs, quantitative restrictions on imports and import prohibitions, governments could, and did, intervene extensively in domestic economic activities. There was generally a strong bias against agriculture because of overvalued exchange rates used for the valuation of exports, the high prices paid by farmers for non-agricultural items, and the suppression of domestic food prices through agricultural

11 As a stylised fact, industrial countries exported manufactures and imported primary commodities, while developing countries had large sectors producing and exporting primary commodities and imported most of the manufactured goods consumed domestically. This buttressed the belief that growth of industry was the key to rising living standards and economic development.

12 It will be recalled that there was a 'structuralist' school of thought in Latin America which held that 'rigidities' were strong and that relatively high rates of inflation would be desirable to enable the breaking of the resulting bottlenecks.

13 An extreme example is provided by Ghana. In that country, the black market rate rose to 200 times the official rate before policies began being altered in the early 1980s. By that time, farmers had not only stopped replanting cocoa trees, but had even failed to harvest those that were still yielding. But most developing countries used import licensing and import prohibitions for goods that could be domestically produced in an attempt to restrict the value of imports to match the available foreign exchange.

marketing boards and other mechanisms.[14] But since it was believed that peasants were not responsive in any event to incentives, these policies were seen as supportive of industrialisation and growth. Public sector enterprises were established, not only in utilities, transportation and heavy industries, but even in activities such as tourist hotels, textiles and apparel, and food processing.

For activities not in the public sector, in most developing countries (and, in the early post-War years, many developed countries), governments placed low ceilings on interest rates that might be charged by banks, with many instances of negative real interest rates. With credit rationing, governments could, and usually did, direct credit to lines of economic activity (mostly in the 'modern' sector) they wanted to encourage. Price controls, on private economic activity and through loss-making public sector enterprises, were extensively used in efforts to suppress inflation.

All of these policies were effected in developed countries as well, but the degree to which government regulation, control and ownership dominated economic activity was generally much, much greater in developing countries. To the extent that the foreign trade regimes in developing countries were much more highly restrictive than in developed countries, the apparent room for government intervention was considerably greater, while the insulation of the economies from the rest of the world prevented feedback that might have signaled the extent to which these policies were detrimental to the very goals at which they were said to be aimed.

One result was that, until 1973, the average rate of economic growth of developing countries was below that of industrial countries, despite the much greater potential for growth due to the catch-up possibilities. Although developing countries benefited from the rapid expansion of global trade, their share of world trade fell markedly, and for many purposes it was possible to view the world as split into the industrial countries, the developing countries and, of course, the centrally planned economies, of which only the first group seemed significant for analysis of many global issues.[15]

3. Supply-side Economics Today

The contrast between the economic analysis of the noughties and that of a half century ago is stark: while many would accept that there may be a role for macroeconomic stabilisation in the short run, most would hold that economic policies, macro[16] but especially micro, are key determinants of output and the longer-run rate of economic growth, and that sufficiently

14 Agricultural marketing boards typically were the only legal buyers of farm commodities and were often the only legal source of farm inputs. They were used, however, as a means of collection of revenue for governments and as a source of patronage for politicians. As their costs rose, the return to farmers fell. It is estimated that in the late 1970s, there were many countries in which peasants earned less than a third of what they would have had they been able to sell their products and obtain their inputs and consumer goods at international prices. See Jones (1980) for a discussion of agricultural marketing boards and Krueger (1992) for an analysis of the degree of discrimination against agriculture.

15 In 1950, the developing countries' (both oil exporters and others) share of world trade was 36.2 per cent; it fell to 21.8 per cent by 1970, and rose thereafter, reaching 33 per cent by the mid 1990s and 44 per cent by 2005. See IMF (1980, 2006).

16 If one includes exchange rate regimes, controlled interest rates and repressed financial systems among macroeconomic policies, they would be regarded as equally important as microeconomic policies. In addition, as inflation has been tamed and fiscal balances brought under control in many countries, there is increasing acceptance that inflation, fiscal deficits and high public debt/GDP ratios are more detrimental to economic growth than had earlier been supposed.

ill-advised policies can result in economic stagnation, if not decline. Moreover, many of the policies that were regarded as output- and growth-enhancing or neutral would now generally be viewed as detrimental to growth. In addition, the relative emphasis on the short-term and the longer-term aspects of economic policy has changed dramatically.

Here, I attempt to pinpoint some of the key changes in thinking and the factors that led to those changes. Examination of what and why ideas changed is helpful in considering the challenges of the coming decades and the ways in which economic analysis and policy formulation may be influenced.

A key issue underlying many, if not most, of the changes, is how much incentives matter. An answer in the 1950s might have been 'not much', as reflected in the tolerance, if not the advocacy, of high marginal tax rates, in the discrimination against agriculture in many countries, in the belief that the capital-output ratio was a given and not very much affected by policies, in price controls and credit rationing, and so on.

The change was starkest in developing countries, perhaps because the initial policies had become so extremely detrimental. There is now in general much wider recognition of the importance of incentives and the responses likely to occur when market outcomes are suppressed. This appreciation resulted from a number of factors, which can be mentioned only briefly here. In developing countries, failure of agricultural output to grow as expected was one phenomenon that helped. Responses by peasants to incentives came to be recognised as not only existing, but relatively strong. This was pinpointed in the pioneering work of Schultz (1964) and his colleagues (Becker 1964), not only with respect to agriculture, but with respect to human capital formation more generally. They showed that human capital formation was an important source of economic growth,[17] and that rates of return to education mattered greatly in determining individuals' choices as to type and duration of education. Once it is recognised that investment in humans is an important determinant of factor productivity and growth, and that those investments are responsive to the costs and returns associated with them, it is no longer possible to regard the growth rate as a mechanical function of physical capital investment only. But the human capital paradigm was important in developed countries as well as in developing countries.

As import substitution progressed in developing countries, its evident costs became higher and the benefits lower. One might regard the first-round import substitution industries as having been relatively close to low-income countries' comparative advantages. But as domestic demand for these unskilled labour-intensive products (footwear, apparel, matches, simple assembly industries, and so on) was satisfied (given the relatively high prices of the domestically produced goods behind high walls of protection), further import substitution investments necessarily entailed starting industries using physical and human capital more intensively, many of which had fairly large minimum efficient sizes of plant, while catering to small domestic markets. Few of the highly protected 'infant industries' developed into export industries, both because they

17 In the early post-War years, it was often assumed that developing countries were poor because, and only because, they lacked physical capital. The incremental capital-output ratio was taken as a technological given, and policy prescriptions centred on raising the rate of capital formation. The human capital literature showed both that incentives mattered and that investment in human capital was an important source of economic growth.

were high-cost relative to international standards and because it was generally more profitable to develop a new domestic monopolistic position by producing an imported item and thus removing it from the list of eligible imports. Foreign exchange 'shortages' persisted and worsened even with periodic stabilisation programs, and infant industries became 'senescent' without ever growing up. When, after 20 or more years, industries were still high-cost and insisted upon the need for continuing high levels of protection, if not import prohibitions, some began questioning the efficacy of the import substitution strategy. While the primary lesson was in developing countries, difficulties with state-owned enterprises and weak incentives came to be recognised in developed countries as well.

In both developed and developing countries, peoples' evasions of government regulations also came to be recognised as a likely response to significant disparities between official prices and market-clearing prices. There was significant rent seeking, corruption, smuggling and unanticipated behaviour within public sector enterprises. Sometimes the behaviour was legal, although uneconomic (Krueger 1974). It was demonstrated that 'rate of return regulation' for public utilities led to overinvestment in many circumstances (for example, Averch and Johnson 1962). Cost-plus pricing was seen to be wasteful in many government contracts. When regulations (including high marginal tax rates, bureaucratic delays in obtaining necessary permissions, and price controls) surrounding the conduct of private sector enterprises became sufficiently onerous, 'informal sector' economic activity developed. Small-scale enterprises sprang up beneath the radar screen of government officials. In India and other countries where regulations were put in place to cover activities larger than a specified minimum, a large number of enterprises below that minimum, owned by relatives in the same family, would spring up in the same building, with each unit in a separate room or rooms. With high marginal tax rates, taxes were avoided, labour market regulations ineffective and the small firms escaped oversight by the authorities. The costs, however, were generally significant as productivity in these informal sector firms was estimated to be one-quarter or less that of larger firms in the formal sector. Meanwhile, even if the activities were unskilled-intensive, exporting was not feasible, as that would have required paperwork and official permissions only attainable by firms with large staffs.

But illegal activity also flourished and was more widespread the more restrictive the regulations, as there was greater scope for profit. Smuggling, black markets, tax evasion, over- and under-invoicing of imports and exports, bribery of officials, misallocation of government procurement from low-cost sources to those bribing the most, and a host of other activities reduced tax revenues, raised procurement costs and thwarted the stated intent of government regulations.

The scale of these activities increased over time and was, in many instances, breathtaking. While some of this also occurred in developed countries, it was usually on a smaller scale, both because the disparity between regulations and individual incentives was generally smaller and because institutional mechanisms for enforcement of government edicts were further developed.

These developments, the stop-go cycles already mentioned and failure of growth rates to accelerate, would undoubtedly over time have led to some degree of rethinking in developing countries as to the degree to which the policies undertaken were supportive of the stated objectives. But at the same time as growth rates were failing to accelerate, if not decelerate, a

small group of economies were rejecting the entire set of policies that had been adopted, and turning to policies much more closely identified with those that economists would have said were conducive to economic growth. The pioneers were in east Asia: Hong Kong, Singapore, South Korea and Taiwan.[18] Because Hong Kong and Singapore were city-states, their experience was largely ignored and rejected by development economists and policy-makers.

But South Korea and Taiwan were not so easy to ignore. Initially, they had very low per capita incomes in the 1950s and the ills generally associated with developing countries: heavy dependence on primary commodity exports; reliance on imports to supply most manufactured goods; an abundance of unskilled labour; relatively high rates of inflation; and chaotic public finances. They had also relied heavily on import licensing and exchange controls to encourage domestic import substitution.

But starting in the mid 1950s in Taiwan and around 1960 in South Korea, economic policies were reformed dramatically. Trade policy was shifted from a focus on restraining imports and encouraging domestic production of substitutes to an outer-oriented trade strategy. This entailed moving to relatively balanced incentives for sale on the home market and abroad: quantitative restrictions and import licensing were eliminated within a decade and tariff levels were greatly reduced. The exchange rate was brought to more realistic levels.[19]

Although changes in the trade regime were perhaps the most visible and dramatic, reforms in these economies were more far-reaching. Price controls were abandoned, the tax structures reformed and fiscal deficits greatly reduced, nominal interest rates were permitted to rise to levels that made real interest rates positive (with unexpectedly large effects on the domestic savings rate – which had been negative in South Korea in 1960) although credit rationing did not entirely cease, to name just some of the major reforms. At the same time, government activities focused on the provision of infrastructure (a real challenge when real growth rates reached double-digit figures as they did for well over a decade), education and the creation of business-friendly environments, while public sector enterprises' shares of new investment and economic activity fell, with much greater reliance on the private sector.

The spectacular results in each of the Asian 'tigers' were well beyond expectations. In South Korea, for example, real wages and per capita incomes increased seven-fold between 1960 and 1995, while the unemployment rate fell from 25 per cent to less than 5 per cent. Exports grew at an average annual rate of 40 per cent for the first decade of the new policies, and rose from 3 per cent of GDP (in 1960) to 38 per cent by the mid 1980s. Living standards and economic structure were transformed from those of poor developing countries to those of industrial countries.[20]

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18 On Taiwan, see Ranis (1999); on South Korea, see Frank, Kim and Westphal (1975).

19 In South Korea's case, uniform export 'incentives' were provided on the basis of the value of export earnings, with incentives initially in the form of preferential access to (subsidised) credit, tax breaks and import privileges, but these were largely offsets to the remaining protection accorded to import-competing production. By 1973, these 'incentives' had been eliminated and tariffs reduced, as the exchange rate became the main mechanism for inducing exportable production.

20 By one estimate, South Korea's per capita income was about the same as that of Ghana in the late 1950s, and 22 times Ghana's by the turn of the century. Indeed, South Korean incomes were estimated to be lower than those of many sub-Saharan African countries in the late 1950s. See Maddison (2003) for estimates.

Foreign observers could not help but note the transformation of the east Asian economies. It changed thinking regarding feasible growth rates[21] and altered the economic geography of the world as east Asians became major international traders and could no longer be viewed as 'similar' to low-income developing countries. South-east Asian economies also altered their economic policies starting in the late 1960s and the 1970s, with accompanying acceleration of growth rates. By 1980, China also began pursuing an outer-oriented trade strategy, with accompanying domestic reforms. Those results were as dramatic over the next two decades as South Korea's and Taiwan's had been earlier, and rapid growth has proceeded, and even accelerated, more recently. India, which had had a highly restrictive trade regime and heavy government involvement in economic life in the entire post-War period, began major policy reforms in the early 1990s[22] and also experienced sharp acceleration in economic growth. Many other developing countries began dismantling their trade barriers and reducing the role of the public sector in directing economic activity by the 1990s,[23] although the reforms in the trade regimes and domestic economic policies were frequently less far-reaching than they had been in the east Asian tigers and later the other rapidly growing economies.[24]

Although the shift in thinking was more dramatic in developing countries than in the industrial world, significant changes took place there as well. Disillusionment with public sector enterprises led to privatisation; financial markets were considerably deregulated; tax structures were reformed so that marginal tax rates (on both corporate and personal incomes) did not greatly damage incentives; and monetary and fiscal policies were altered so that inflation rates dropped sharply. There was also considerable deregulation of domestic economic activity.[25] In almost all industrial countries, trade had been liberalised and tariff barriers (in manufactures) reduced to low single digits. Those among the industrial countries where reforms began earliest and were most far-reaching (Australia, New Zealand and the United Kingdom among them) were the earliest to experience improved economic performance.

Much has been learned. The costs of inflation are considerably higher than was generally thought 50 years ago, while the benefits are much lower. Fiscal policy is evaluated in terms

21 As late as the mid 1960s, most development economists regarded average annual growth of 5 or 6 per cent as the maximum sustainable rate. Hollis Chenery, the chief economist of the World Bank, used that number to model development prospects. See Chenery and Strout (1966).

22 The slowdown in growth rates in many developing countries also led many to reject their countries' earlier strategies for economic development. In India, for example, it was the foreign exchange crisis of 1991, combined with the contrast between India's continuing difficulties and Chinese and east Asian successes, that induced the policy changes. The fall of the Soviet Union reduced the credibility of those still advocating a heavy role for the state in directing all economic activity.

23 The aftermath of the oil price increases of the 1970s and the debt crisis of the early 1980s served to reinforce the lessons from east Asia. In particular, the Asian tigers were able to adjust economic policies and sustain economic growth in both decades, while many other developing countries were experiencing sharp slowdowns in economic activity and growth.

24 Among countries undertaking major reforms, Chile should be noted. Starting in the mid 1980s, protection was dismantled and other reforms were undertaken that made the Chilean economic experience much more satisfactory than that of other Latin American countries. See Bosworth, Dornbusch and Labán (1994). The focus on the Asian economies is largely because of their much greater size and economic importance to the global economy today.

25 Deregulation of the airline industry in the United States was a watershed in the movement toward deregulation. Despite forecasts of loss of service for small cities and other major problems, the cost of air travel fell sharply and service in fact improved to small cities as small aircraft came to be used.

of sustainability,[26] and few would question the negative consequences of high personal and corporate marginal tax rates.[27] Replacement rates for unemployment compensation, publicly funded disability payments and other facets of the social safety net are scrutinised and evaluated in terms of their incentives for labour force participation in a way that would have been unthinkable a half century ago. Rigidities in the labour market more generally are subject to scrutiny, with issues such as portability of pension rights (to enable mobility) coming to the fore.

In general, the appreciation of the degree to which markets and individuals respond to incentives, including those arising out of uncertainty, is greatly increased. Part of this enhanced appreciation may result from the fact that the world is increasingly globalised. With that comes the recognition that capital and skilled labour can move across borders, and that ill-advised regulation, be it of phytosanitary standards, financial sector activities, labour markets or other, can be costly to the economy of the country imposing it. To name but a few of the highly visible examples, the interest equalisation tax is regarded as having shifted the financial capital of the world from New York to London; the *Sarbanes-Oxley Act 2002* is thought to be responsible for the shifting of a significant number of corporate headquarters away from the United States; and the US imposition of anti-dumping duties on DRAM (dynamic random access memory) chips led to the wholesale shift of computer assembly operations offshore.

4. Challenges for the Future

While unprecedented rates of economic growth for the world economy and associated successes have certainly led to greater understanding and appreciation of the importance of supply-side determinants of output and growth, the world economy itself has changed markedly and, as a result, new problems have arisen. Some of these are the outcome of success itself; some result from the failure of the accepted policies to deliver the anticipated results; and yet others result from reactions to the greater constraints that this understanding has imposed on some aspects of traditional economic policy formulation. To a considerable degree, the challenges are interrelated, and can only briefly be addressed here.

Among the challenges posed by success must be counted the rapidly increased importance of large new emerging markets (which would not be such a challenge by definition if these countries were growing only at the rates they achieved in the 1950s and 1960s), which in turn means that the international decision-making processes for the world economy must appropriately reflect the voices of the emerging markets.

Challenges arising because of the inability to solve fully past problems concern mainly the very-low-income countries. The low-income countries have not succeeded in generating rising living standards and improved wellbeing. Many have living standards below those of a half century ago.

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26 The evaluation of fiscal policy in terms of sustainability has certainly been learned in the policy community. However, most industrial countries and all but a few emerging market and low-income countries were running fiscal deficits in the boom years of the mid-noughties. During 2008 it became evident that the room for fiscal manoeuvre was much greater in those countries that had relatively low levels of public debt and had incurred surpluses or relatively small deficits.

27 Especially in the case of the corporate income tax, the increasing importance of international private capital flows, and their responsiveness to tax and interest rate differentials, was a major factor in the rejection of high marginal rates.

Turning first to the fruits of success, the emergence of China and India, especially, but also of a number of other countries,[28] has led to the need for their greater contributions to, and participation in, international economic policy formulation and execution. Fifty years ago, a few countries accounted for such a large share of world economic activity that they could consult each other informally or take a lead in international organisations, and in effect reach decisions for the global economy.[29] Today, the weight of many emerging economies in the world economy is large enough so that they must participate in the process. Moreover, interdependence was considerably less than it is today, further challenging international governance.

Although the IMF was generally consulted throughout the past 50 years about exchange rate changes, most of its authority came from its ability to lend funds to countries in severe economic difficulties, and these were mostly developing countries. Efforts to coordinate international macroeconomic policy were generally left to the large industrial countries, as for example in the Plaza and Louvre Accords. An effort in the mid-noughties to induce the major economies, the United States, China, the euro area, Japan, the United Kingdom and Saudi Arabia, to agree to simultaneous policy measures that could address global imbalances ended with agreement that action should be taken but without agreement on who should take it. Large countries were not willing to adjust their macroeconomic policies because of international ramifications. Current account surplus and deficit countries each believed that adjustments should be taken by the other side. While willingness to adjust in coordination with other countries may be somewhat increased by the experience of 2007–2009 (and was agreed by the G-20 with a process of peer review intended to achieve that result), there is still a gaping hole in international economic policy formulation when each large economy believes the others should adjust.[30] Without agreement on a credible process to enforce needed adjustments, it will be of interest to see whether peer pressure can achieve the desired outcome.

But the issue is not only one of macroeconomic coordination. At the GATT/WTO negotiations until the Doha Round, developed countries engaged in multilateral tariff negotiations and reductions, with the developing countries claiming 'special and differential' treatment and essentially being free riders, benefiting from the tariff cuts of industrial countries but offering few of their own. Even in the past two decades, when there have been large reductions in protectionist measures in emerging markets, those reductions have generally been undertaken unilaterally (see Hoekman and Kostecki 2001, Chapter 12).

International trade was certainly an engine of growth. Whereas world real GDP grew by a factor of almost 7, international trade in goods and services grew by a factor of 22 from 1950 to 2000.[31]

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28 Brazil and Russia are often lumped with China and India as 'the BRICs', but there are a number of other economies, some such as Indonesia that are fairly large, and others much smaller, but which collectively are increasing their share of world output and trade.

29 The United States and the United Kingdom together held 52 per cent of the votes in the IMF and the World Bank at the inception of those institutions. The 'quad' of the United States, Japan, Europe and Canada constituted a 'core' group in the GATT. The G3, then G5, and then G7 of industrial countries was often the forum in which problems requiring international coordination were addressed.

30 Appreciation of the importance of coordination was enhanced by a number of events during the financial crisis, including issues regarding the supervision of banks, deposit insurance guarantees, bailouts for industrial firms and 'buy local' provisions in stimulus packages, to name just a few.

31 See IMF (1980, 2006) for the data.

Some of that increase was attributable to the fall in costs of transport and communications; some was attributable to growth in the international economy; but much was the result of trade liberalisation through the GATT/WTO, and surely growth of trade stimulated growth of real GDP as well as *vice versa*.

However, the increased importance of the emerging markets in the international economy implies that increased participation of those countries will be needed to enable the system to foster further integration of the global economy. Yet, to date, the emerging markets are still largely claiming their earlier place as developing countries without acknowledging their interest in the rapid and healthy growth of international trade in goods and services.[32] Achieving increased participation by the emerging markets and their support for multilateral decision-making processes has begun, but the challenge remains, and will even increase, as emerging markets sustain their rapid growth.

The open multilateral trading system is challenged in a number of other ways. The WTO's procedures, with a requirement of 'consensus' (the full membership make most decisions) is cumbersome, and has become more so as membership has enlarged. And, while the GATT/WTO has been successful in the removal of quantitative restrictions and reductions in tariffs on trade in manufactured goods, there has been little success to date in achieving comparable disciplines over agriculture, trade in services and capital flows. For the international economy as a whole, bringing agriculture, services and capital flows under WTO disciplines would do much to enable achievement of growth rates at or above those achieved in the past half century.

The final major challenge for the international trading system relates to the proliferation of preferential trading arrangements (PTAs). Those arrangements have, on some occasions, resulted in freer, welfare-improving trade for member countries. But they have also permitted the rise of protectionist pressures and reduced the support for multilateral trade. Finding ways to make PTAs more consistent with an open multilateral system is urgently needed.[33]

The functioning of the WTO is important. But however that issue is resolved, there will be the challenge associated with the increasing share of rapidly growing countries in world markets. The entry of newcomers always engenders protectionist pressures, as was seen *vis-à-vis* Japan in the 1980s. With the rapid ascent of India and even more of China, the temptation to resort to protectionist measures in the 'old' countries must be recognised. A well-functioning and legitimate WTO is the best bulwark against such pressure, but achieving it (or otherwise thwarting those pressures) will be difficult. Of course, completion of the Doha Round would be a major step forward, while failure to do so weakens the WTO at a time when its value to the international economy could be extremely high.[34]

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32 There is also a major lacuna in the international system when it comes to international capital flows. At present, there is no international agreement to prevent discriminatory treatment of these flows, and indeed some preferential trading agreements have contained clauses that could result in discrimination against third countries.

33 See Schott (2004).

34 Much of the discussion of the challenge of emerging markets has been framed in terms of 'voting rights' at the international institutions. The chief issue, of course, is that those members whose relative weight has diminished are reluctant, if not entirely unwilling, to surrender any of their shares. Although there has been some reallocation of shares toward emerging markets, allocation of shares at present fails to reflect economic realities. There is also confusion about the 'representation' of non-governmental organisations (NGOs) in international organisations. Presumably, NGO members have their voices within individual countries and are already represented. Their demand for a 'voice at the table' has confused a number of discussions.

Success has also resulted in bringing environmental issues to the fore. Obviously, the rapid growth of the world economy and the emergence of the BRICs have resulted in greater urgency than would have occurred had growth been slower. But no-one can defend the view that emerging markets' growth should be severely restrained because of environmental concerns. Finding a multilateral regime in which the 'public good' of the environment can be protected with an agreed-upon mechanism for allocating the burdens of reducing negative externalities, while simultaneously enabling the sustained growth of emerging markets and enabling other poor countries to develop more rapidly, is challenging, as witnessed by the Copenhagen outcome. There is also a danger that environmental concerns can motivate calls for protectionist measures if producers believe that they must compete with imports not subject to the same costs imposed by environmental protection in particular countries.

The other major challenge arises because a number of countries have as yet failed to adopt policy reforms that achieved rapid growth. By and large these considerations are centred on the low-income countries. At the extreme, there are the failed states which either have not undertaken reform or where the state itself is so weak that reforms cannot be implemented even if decision-makers attempt to adopt them. The challenge of failed states is huge: they have failed in part because the existing economic framework has led to stagnant or deteriorating standards of living, as can be seen in Table I. There has been civil war in some cases, but whether civil war resulted in deteriorating living standards or *vice versa* is an open question. The inability of key groups within those countries to agree has led to political conflict that has prevented meaningful changes in the framework.

But, in an important sense, the problems of failed states are the problems of low-income countries (and, to a lesser extent, other countries) writ large. The absence of strong institutions, such as the judiciary, discredits the law at the same time as it reduces the efficiency of the economy. Without an enforceable and meaningful commercial code, the scope for efficient organisation of production and exchange is greatly reduced. When the state cannot enforce the law because civil servants use their posts for immediate personal profit, the burden on the economic system can prevent any significant increase in output and even result in decline. Per capita incomes in many sub-Saharan African countries fell in the 20 years after independence. In some of them, civil war was the triggering factor, but in others, ill-advised economic policies and rapacious politicians and civil servants were among the chief culprits.

Addressing the issues surrounding low-income countries and bringing them into the international community of more successful countries is clearly desirable on humanitarian grounds. In addition, the fact that the failed states among them are believed to be major locations for terrorist activity makes the task urgent. To date, however, there have been few successes in reversing the declines. Research attempting to diagnose the problems has led to a focus on what is called the 'institutional framework' within which economic actions (both policies and response to incentives) are undertaken. The challenges of failed states, as well as those of countries where reform outcomes have fallen far short of desired (and believed to be realistic) outcomes are a major issue that must be addressed.

A final challenge lies in the political economy of economic policy formulation. Resistance to reforms and political pressures in support of special interests (agriculture, protection, etc) are

facts of life in all economies, especially in failed states. Indeed, there is some evidence that a crisis, bringing about the 'suspension of politics as usual', may be the best hope for achieving major policy reforms. One of the great improvements in the understanding of economic policy formulation in the past half century has been the increased understanding and awareness of political economy issues. It was earlier assumed that ignorance of good economics, such as the superiority of free trade and the efficiency of competitive markets, was the problem and could be addressed by better education. The role of interest groups, and their influence on policy-making, is an issue of concern, especially with respect to trade policy, but also in addressing almost all economic and financial issues.

More generally, one of the big improvements in the understanding of economic policies over the past 50 years has been to recognise and analyse the political pressures that arise and surround economic policy formulation, including economic policy reform. In many instances, potential winners from reforms are unaware that they might benefit, while many individuals believe that they are at risk of losing when in fact only a relatively small fraction of them will. But efforts to compensate potential losers fully have sufficiently negative incentive effects that it is difficult to formulate policies to reduce resistance to reforms. In addition, pressures for policy reforms typically arise when economic conditions are close to, or at, the crisis stage. At that point, the crisis generally mandates reductions in fiscal deficits, so that compensation is in any event infeasible.

In many poor countries, those most threatened by possible reforms are often not the very poor, but those in urban areas, and especially the capital, where demonstrations can put great pressure on politicians even if those participating represent a small fraction of the entire populace. Some observers have claimed that strong teachers' unions in some developing countries are one of the biggest obstacles to progress. Achieving a consensus as to the appropriate role for interest groups relative to other influences on public policy is a major challenge for the years ahead.

Fifty years ago, it was thought that per capita incomes in 'underdeveloped countries', as they were then called, could 'never' catch up with those in advanced countries (see Morawetz 1977). But some have. That South Korea could be transformed from the third-poorest country in Asia to an industrial country in the space of 35 years would have been regarded as wildly unrealistic. Had anyone been told that tariffs on manufactured goods would fall from an average level of 40–50 per cent in industrial countries to 3–4 per cent, while quantitative restrictions would disappear, they would have reacted with total scepticism. Indeed, in the early post-War years, it was assumed that the key economic challenge was to prevent the world from sinking back to another great depression.

Over the past 50 years, a great deal has been learned about poverty and the choice of effective policies for poverty reduction. The result has been progress beyond what most analysts believed was possible over the half century. If learning and implementation can be sustained at the same rate over the next half century, one can expect that the conference celebrating the 100th Anniversary of the Reserve Bank of Australia will look back on great progress in, if not total resolution of, the poverty problems of today, and enumerate a new set of issues that would then dominate the future policy agenda.

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Panel Discussion

1. Alan Bollard

First, I would like very much to thank the Reserve Bank of Australia for the invitation to contribute to today's Symposium. Congratulations on the 50th Anniversary and thank you for a long period of great cooperation between our institutions, which has certainly helped us. I should also say that it is quite insightful to put a supply-side topic onto an agenda like this, its inclusion is not automatic, but it underpins so much of what we care about.

What I would like to do is not critique the paper, which I enjoyed very much, but rather to say 'so what?' from a central banking perspective. Inevitably, the answer I will provide is coloured by my own experiences. In my previous job as Treasury Secretary, and before that as head of our competition authority, I was deeply involved in supply-side issues, and in the 1980s we undertook a sort of deregulatory 'big bang', so I have been involved with a key part of these policy debates for a long time.

1.1 Why should central banks care about supply-side issues?

Basically because of the importance of potential output and output gaps in the way we think about, model and measure inflation and its relationship to the real economy. It is important, not just in a measurement sense, but more conceptually as well. Of course we attempt to measure potential output despite the great difficulties of quantifying, even *ex post*, just what it is. So while I enjoyed the paper's definition of supply-side issues, measurement is something additional to think about and right at the moment is exceptionally hard.

1.2 How have supply-side developments impacted potential output?

From a monetary policy point of view, potential output tends to be thought of as fixed in the short term. However, the global financial crisis is currently making us question that sort of assumption. Policy-makers do, of course, learn to distinguish carefully between demand-side and supply-side shocks. If we get them wrong in the case of productivity shocks, commodity price shocks, or trade and financial liberalisation shocks, the result will invariably be that the wrong policy response is implemented. Those sorts of shocks to the supply side do very much impact monetary policy calibrations and monetary policy decisions. Deeper still, we have now seen a graphic example, in the crisis, of how supply shocks can impact the interaction of macroeconomic and financial systems.

1.3 What have supply-side developments and deregulation in general meant for monetary policy transmission?

The obvious thing that comes out of the paper is that supply-side developments have affected the flexibility of markets, and that generally this has occurred in terms of both prices and quantities, and not just domestically but also in terms of the transmission of shocks internationally. In principle, it can be assumed that there is now much more reliance on price mechanisms and much less on rationing mechanisms. National policy-makers are also now more attuned to the impact of actions of private agents and policy-makers in other countries.

1.4 Do supply-side developments help reduce cycles in the domestic economy? Do they generally help stabilisation?

I would say in a guarded way, yes, but once again we have just had a vivid example of how apparently successful use of this added flexibility of markets, manifest in the Great Moderation, can be so successful that it encourages public overindulgence, ill-disciplined markets, and excessive tolerance by regulators. Furthermore, despite this being something that many central bankers had seen unfolding, and publicly articulated over the past few years, they have not necessarily been able to act against it. The Great Moderation and the associated problems I have just described clearly fostered global imbalances. While this process was also able to deliver a measure of medium-term prosperity, it has also seen spillovers arising from those imbalances. In New Zealand, the carry trade has been a classic example. In other cases we have seen a failure of adjustment – problems have built up behind a dam so to speak – such as the rapid growth of current account deficit in New Zealand.

1.5 What have we learnt through this?

We have learnt how to treat and look through supply-side asset price shocks, particularly given our improved understanding of inflation expectations. I think we have learnt something about the degree of international spillovers of other countries' domestic monetary policy decisions – especially if they are large economies. The paper's focus on emerging markets has a resonance for us as we look at particular issues of globalisation, especially of emerging market economies that have partially deregulated but are still relying a lot on various control mechanisms. A key lesson for a small open economy like New Zealand is the limitations of our own national monetary policies when they are out of sync with the G3 economies, or in danger of being so.

1.6 What can we say about exit from the global financial crisis?

This is arguably the first really big crisis in an era of considerable supply-side flexibility. A key question we have to examine is just how much this has been a supply-side or a demand-side shock. I believe there are elements of both.

What does a 'supply-side shock' mean in terms of transmission of the crisis? Well, it is great to be on the other side of the world from Lehman's but when the news hits, this distance only gives you about 30 seconds of respite. In that sense everyone is in the same boat. We are confident that we are beginning to understand the loss of potential output in New Zealand and around

the world in a short-term transitional sense; however, we are not at all confident about what it means for the medium term. Where consensus on this issue falls is going to be absolutely crucial for monetary policy decisions and for getting these things right *ex post*. It is also impacting on the speed of recovery. It may be a generalisation, but probably a fair one, to say that countries with very flexible markets, like the United States, have been able to put in place recovery mechanisms much faster than other more tightly regulated economies.

Will this sort of flexibility also help the transition from public sector stimulus to more sustained private sector growth? Again I think you would assume that the answer, on balance, is yes, but with a lot of uncertainty. There is now, and always will be, more to do. We must not forget that Doha is still unfinished. It is well through its cycle with goals only half achieved. Let us look at the lessons of Copenhagen and the supply-side implications of climate change more generally. And let us also remember, as we talk about what might loosely be called Basel III, that the overhaul of the regulatory system will have implications for the supply side as well as prudential soundness.

2. Warwick McKibbin

The paper by Professor Krueger provides a comprehensive overview of the important supply-side issues we have learned over the past half century. A recurring theme is that history shows that people respond to price signals.

There are two parts to these comments. First, I have some suggestions on the core of the discussion in the paper and second, I attempt to draw out lessons for the design of climate policy, which is touched on in the paper under challenges for the future.

There is considerable discussion in the paper on the role of the World Trade Organization (WTO) in reducing tariffs. While the WTO established the overarching framework for trade liberalisation, when you look at the Australian experience, national institutions (such as the Industries Assistance Commission, which is now the Productivity Commission) and a body of academic research were also very important in achieving tariff reductions. These contributions came from transparently quantifying the costs and benefits of trade liberalisation and identifying the potential winners and losers. This work was able to sway public opinion in favour of the unilateral tariff reductions in Australia and other countries.

A second key issue, which is discussed in the paper but I think it is worth stressing, relates to the role of the real exchange rate on the supply side of the economy. An undervalued exchange rate stimulates external demand, but it also plays a critical role in restricting the production possibility frontier. Most countries are large importers of intermediate and capital goods. With an undervalued exchange rate, those imports become more expensive and the production possibility frontier can be dragged inwards substantially. This supply-side effect is critical in all but the largest economies.

Professor Krueger also identifies the key challenges for the future. One of these issues is climate change policy. There are important lessons from this paper for how we move forward from the Copenhagen negotiations at the end of 2009 in designing the global climate policy architecture.

The theme of this Symposium is the lessons that policy-makers have learned over recent decades for policy design. We have learned a lot about how not to design climate policy and there is a

lot to be reconsidered in this area. Economics has a critical role to play in designing the global climate architecture, although it is not the role of economists to calculate national emissions targets; indeed the focus of some economists on targets and timetables has held back sensible policy for many years. The use of targets and timetables as embodied in the Kyoto protocol, and as embodied in the failed attempt at Copenhagen, to push national climate change policies forward, along with the failure of national cap and trade legislation in many jurisdictions, demonstrates that even if national emissions targets were a good idea in theory, they are not easily implementable in practice in key countries.

Like monetary policy, climate change policy is about risk management. It is also about providing strong price incentives over long time horizons. In the case of climate change policy, this will encourage a substantial change on the supply side of the economy that will bring forth technological innovations to help reduce carbon dioxide emissions over time.

It is important to stress that it is not the emissions per year of any country that matters for climate change; it is the global concentrations of carbon dioxide in the atmosphere. These concentrations result from emissions of all countries. This is what we know from science; what science does not address is how to design schemes to meet national emissions targets. There are many different emission profiles that will allow the world to hit a given longer-term concentration target. It is economics that can help to design the least-cost strategy to hit such targets. Economists can design mechanisms for achieving long-term targets in the most efficient way through creating incentives to innovate via price signals.

A common misperception is that equal national targets for emission reductions represent equality of effort. This belief is partly why the international negotiations have failed. A large number of commentators and politicians appear to believe that if all countries have the same target they are all undertaking the same effort. The evidence is that this is far from correct. Countries have different endowments of energy, different types of energy, different economic structures, are at different stages of development, have different capacities to respond and different rates of population and productivity growth. A common emissions target clearly does not imply common effort across countries. So what does? An economist would say a better measure of equality of effort is equality of the cost of carbon across different societies. If we start with that premise, we would be inclined to design a system around common carbon prices. This could be adapted to allow for differentiation between countries at low and high levels of development. Less-developed economies could have a lower carbon price profile and wealthier countries could afford a higher carbon price profile. Focusing on prices, just as the world focuses on tariff rates rather than trade volume in the trade policy area, would provide a way forward for global negotiations on climate policy.

How can a common price be achieved? One way is to have a global carbon tax, and there are advocates of that approach.[1] But it is not practical. We do not have the global institutions; we do not have time to develop the global institutions to have a global carbon tax.

What about 'cap and trade' at a global level? Emissions could be capped in each country and markets allowed to trade the rights across borders to generate a common price through

1 See Nordhaus (1994), Cooper (1996) and papers in Aldy and Stavins (2007).

a global market in emissions permits. This is sensible in theory, but it is not practical because the global institutions do not exist, the national institutions do not exist, and the monitoring and enforcement mechanisms do not exist to make this possible. The basic problem in trading emissions permits globally comes down to understanding what an emissions permit really is. An emissions permit reflects the promise of a government to hit a carbon target. This commitment is equivalent to the promise of a government to maintain the purchasing power of its national currency. The fact that an emissions trading scheme is a trade in promises rather than physical commodities means that it is similar to a global currency. The reason we do not see a common global currency, the reason that central banks around the world print their own currencies, is that different countries have different degrees of credibility. That basic insight from international monetary economics rules out the real possibility of developing an international carbon trading system that would last any longer than attempts to create a global common currency have historically.

So what is left? What is left is to coordinate policies globally that are perceived to be in the national interest of the key participants. Can economists devise such a system? I believe that we can.[2] The focus should be on national policies coordinated within the framework of a common carbon price across the globe. There is, I believe, an increasing acceptance of the need to have an approach based on a carbon price 'collar' in different countries.[3] In the world of price collars, a country like China would start with a low carbon price, but one which is rising over time. A country like the United States could start with a high carbon price and the global price would be somewhere on average between these extremes. To implement a policy around this idea you need to create the technical capability to calculate the carbon price equivalence for different policies, in a similar fashion to calculating the tariff equivalence of different international trade policies. The idea is that all distortions are converted into an equivalent tariff so that negotiations can be based on reducing the size of these trade barriers. We can do the same thing in the world of carbon emissions by calculating the carbon price equivalent of regulations in the United States that govern emissions. The same can be done for the Chinese policies, which have already substantially reduced emissions relative to business as usual. Given these calculations, countries can negotiate over the convergence of these efforts over time in terms of equivalent carbon prices; the European trading system already implies a price for carbon, so there is no need to calculate the carbon equivalent price of their efforts.

Monetary experience has powerful lessons for climate policy in another dimension. Instead of a supranational organisation, I argue that we need national central banks of carbon that control the short-term carbon price along an internationally agreed rising threshold.[4] It is the long-term carbon price that matters, but the short-term price should not be too volatile. This has parallels with the lesson that we should not target the stock of money. Instead, we should target the interest rate because volatility in the interest rate has no benefit, and so too volatility in the short-term carbon price has no benefit.

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2 See McKibbin and Wilcoxen (2002).

3 See McKibbin, Morris and Wilcoxen (2009).

4 See, for example, the 2007 Shann Memorial Lecture by McKibbin (2009).

So what are the relevant lessons for climate policy from Professor Krueger's paper, as well as from the recent financial crisis and from monetary history more broadly? First, it is crucial to tie down expectations. In the monetary arena, expectations of inflation matter; in the climate arena, expectations of where the global concentration target is heading matter. It is important and fundamental to get the prices right since, as Professor Krueger points out, people respond to price incentives. Second, it is important not to destroy balance sheets. We know from the financial crisis that those companies whose balance sheets have contracted will not undertake long-term investment. So whatever policy you undertake, make sure that those who need to undertake the investment do not end up with their capacity to invest destroyed by the policy. This requires a careful allocation of property rights over the revenue from carbon policies. And third, it is important to build on the national institutions that we have; central banks in different countries are different and similarly, we should not be concerned about having different central banks of carbon across countries. International coordination around national realities is absolutely fundamental to ensure that the world can move forward.

In contrast to many commentators, I believe that the outcome of the Copenhagen negotiations was a good one. It cleared the way to move in the right direction on climate policy. Once the ruins of the targets and timetables strategy have settled, I hope policy-makers, under the influence of good economics and an understanding of the lessons of the past 50 years in global trade and monetary policy design, will move in the right direction. The paper by Professor Krueger contributes to that understanding.

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3. Zhou Xiaochuan

3.1 Thirty years of China's 'reform and opening': Chinese-style supply-side economics

I would like to start by thanking the Reserve Bank of Australia for inviting me to attend this Symposium and participate as a panellist in this session. I would also like to thank Professor Krueger, a well-known specialist in the field of international economics, for a wonderful paper. Her paper uses many vivid examples as she reviews the course of global economic growth in the 50 odd years after World War II, describing the contribution of developments in international trade to increasing the efficiency of global economic growth and emphasising the importance of an increase in supply-side efficiency more generally for the promotion of global economic growth. She also analyses some important supply-side challenges facing global economic growth in the wake of the global financial crisis.

I am not convinced about the idea that developing countries derived relatively more benefits from globalisation and trade expansion than developed economies, nor with the view that developing countries are hoping to gain a 'free ride' in the ongoing process of global trade liberalisation. However, the essay correctly emphasises the importance of factors such as free trade, market prices and structural reform in strengthening economic incentives and promoting economic growth. These conclusions undoubtedly support the case for promoting international trade liberalisation and sustainable economic growth. They also support China's efforts to deepen reform and promote scientific development.

Looking back on economic development in the 30 years since China initiated a program of economic reforms and began opening up its markets to foreign trade and investment, it is not difficult to find evidence of the importance of 'supply-side economics' in driving China's rapid economic growth. The economic reforms beginning in the late 1970s, and the 'opening-up' embarked upon in the mid 1980s, both stimulated the vitality of the economy, and together became the great force driving more than 30 years of sustained and rapid economic growth in China. Looking at future developments, China will continue to promote structural reforms on many levels so as to increase supply-side efficiency and promote economic growth. Next I would like to explain specific economic growth policies in China from a supply-side perspective.

3.2 China will continue to expand opening-up and promote trade and investment facilitation

Over the past 30 years, maintaining 'openness' has been an important driving force in China's sustained economic growth. The facts prove that industries which were 'opened' relatively early have all gained relatively strong competitiveness, and have made a substantial contribution to China's economic growth in the process of globalisation. In contrast, industries under prolonged protection have been relatively slow to improve their efficiency and the quality of the goods and services they produce. China will continue to expand opening-up and promote trade and investment facilitation. First, this is a broad strategy for expanding domestic demand and speeding up the transformation of the economy. Second, continuing to encourage the opening-up of domestic markets, so as to raise competitiveness, will reduce the disparities

between markets, increasing supply-side efficiency in domestic industries that are lagging. Third, encouraging enterprises, under the right circumstances, to expand abroad will not only improve the international trade balance, but also assist in China's development on a broader scale.

3.3 China will further intensify economic reform and promote private investment and financial market deepening to raise supply-side efficiency

Economic reform and the establishment of a market economy are the foundations of China's sustained rapid economic growth since the 'reform and opening'. In the past 30 years, the establishment of market mechanisms and reform of the state sectors' property rights have provided a powerful force for China's economic growth. In the next phase of reform, China will focus on promoting and guiding the healthy development of private investment and, through measures such as the further relaxation of access restrictions for private capital markets and an increase in public resources for private capital, stimulate the vitality of private capital investment. Importantly, this will increase the efficient use of resources, bolster innovation and promote market-based competition. At the same time, China will continue to push forward with financial reforms, speeding up commercialisation of the financial sector and the liberalisation of interest rates and the exchange rate, fully utilising the signalling effect of interest rates and the exchange rate, and increasing the efficiency of resource allocation.

3.4 Enhance energy conservation and emissions reduction, promoting sustainable economic growth in China

In recent years, China has done a lot of work in energy conservation and emissions reduction, and in 2007 tabled China's 'National Climate Change Program',[1] the first of its kind in the world. During the Copenhagen summit, China offered to reduce its emissions per unit of GDP by 40–45 per cent on 2005 levels by 2020. Actually, between 2006 and 2008, China's emissions per unit of GDP fell by 1.8, 4.0 and 4.6 per cent in each of the three years respectively, a cumulative decline of 10.1 per cent.

Although China has made obvious achievements in energy conservation and emissions reduction, the absolute level of energy consumption and emissions for economic growth remains relatively high, and the constraints of energy resources, natural resources and the environment are becoming increasingly obvious. In the course of future development, through measures including adjustments in the prices of resources products, reasonable taxes and the establishment of a carbon market, China will limit industries which are intense energy consumers and polluters, and encourage the development of tertiary and high-tech industries. On the one hand these measures can reduce per unit GDP energy consumption and emissions, while on the other, they can assist in the adjustment of industry structures and ensure that economic growth is more sustainable.

1 This was issued by the National Development and Reform Commission on 4 June 2007; for details, see <http://www.china.org.cn/english/environment/213624.htm>.

3.5 Actively and stably promote urbanisation, improving the structure of Chinese industries and supply-side efficiency

Urbanisation is a necessary process in economic development, as demonstrated by the large movements of the rural population towards non-agricultural industries and into cities. In the short term, the process of urbanisation raises economic growth mainly through an increase in aggregate demand. And in the long term, urbanisation will have a positive impact on the productive capacity of the economy. In the process of urbanisation, there will be a large movement of workers from the primary sector to the secondary and tertiary sectors, which will change the overall structure of aggregate supply and promote the upgrading of industries. At the same time, the longer-run decline in the share of the population in rural areas will increase the efficient use of human capital and bring about an overall increase in people's welfare.

3.6 Improve China's income (re)distribution mechanisms, enhancing economic incentives and human capital accumulation

The excessive reliance of China's economic growth on physical capital investment has generated an unreasonable income distribution. Some monopolist industries and owners of physical capital have unfairly gained substantial rewards from economic development. In order to shift the mode of economic development, improve supply and raise social welfare, there must be reform of the existing income (re)distribution system that increases returns to labour. Against the current economic background, it is difficult to rely on market forces to adjust the ratio of physical and human capital investment. Rather, this should be done through other measures such as taxation to adjust the relative returns to capital and labour. By redistributing a portion of the income of enterprises and individuals in industries that primarily depend on returns from capital investment towards industries that are intensive in human capital, as well as increasing expenditure on research and development and the development of human capital, we can progressively enhance the model of economic development.

Thanks to you all.

4. General Discussion

Discussion in this session centred on three themes: the possible links between productivity growth and monetary policy and financial regulations; the scope for ongoing trade liberalisation; and the potential for further regulatory reforms to boost the supply side more generally.

The role of central banks in affecting productivity was raised by several participants. A number of ways in which central banks and/or financial regulators could influence productivity were suggested. If monetary policy is used to lean against financial imbalances, higher interest rates could influence credit allocation and therefore have an effect on productivity. In particular, it was suggested that policies that were too loose could allow inefficient producers to stay in business longer than would otherwise be the case, while excessively tight policies, including any unwillingness to help resolve financial crises, could reduce the potential output over time. Finally, maintaining a stable inflation environment is a key way for central banks to contribute to

longer-term growth, reducing the incentives for investors to waste time and energy worrying about how to avoid the deleterious effects of high and variable inflation. One panellist suggested that this point was an important factor in explaining the strong economic growth over the past decade or so.

There was some discussion of the positive influence of supply-side flexibility on the effectiveness of monetary policy, based on the notion that more flexible labour and product markets may make the task of monetary policy easier in the face of various shocks. Some participants went so far as to suggest that central banks might be served well by expressing their support for appropriate microeconomic reforms. However, the view from the panel was that central bank independence required them to avoid straying from their core mandate. Finally on this topic, in response to a question about the influence of higher productivity growth on interest rates, one panellist noted that higher productivity growth may imply a rise in the neutral real interest rate rather than the other way around.

The inability of the World Trade Organization to finalise the Doha round of negotiations was discussed at some length. One panellist noted that multilateral liberalisation would be more likely if there was a representative executive council which made trade decisions. It was suggested that the current system, which requires consensus from a multitude of countries, is 'unwieldy'. Another panellist stressed that all trade liberalisation is beneficial in the long run and, because of this, trade negotiations need to move away from a mercantilist and adversarial mindset. The appropriateness of this view for some emerging economies was disputed, with the suggestion that such economies may require greater incentives in order to liberalise trade. The problem, it was argued, is that the short-term adjustment costs inherent in reducing trade barriers need to be offset by the mutual reduction of trade barriers by other countries. Another concern raised by a panellist was the proliferation of regional or bilateral free trade agreements, which can lead to constituencies within countries that have an incentive to work against more widespread, multilateral liberalisation.

The scope for more general regulatory reforms, particularly in developed economies, was explored. One concern that was voiced was whether this would be impeded by an apparent resurgence in populism, particularly in light of weak growth prospects in the developed world. The panel had little to add on this point beyond noting the difficulties of dealing with narrow vested interests.

Finally, several participants and panellists emphasised that, in formulating the regulatory response to the financial crisis, we must not forget that a well-developed financial system was, for many years, the lifeblood of a strong global economy. Hence, while regulatory reform is required, it should not unduly impinge upon the benefits to society which efficient financial markets provide.

Closing Remarks

Glenn Stevens

Thank you Ross.

You've all heard too much from me already today, so I am not going to try to sum up what has been a rich discussion. I do want to thank all of the people who have contributed papers, the panellists, including the Chairs, and all of our other guests.

We have been running an annual conference in the Bank since 1989, and over the twenty plus years I think this one ranks up there with among the best so far. This is testimony to the quality of all of the presentations as well as the general discussions.

I will offer just three or four reflections on the themes that have been touched on today. The first relates to the fact that everything is connected; that is true in economics, but it is often forgotten. A key theme of this morning was that monetary policy and financial stability are connected, and indeed this connection runs both ways. In particular, the efforts that we are embarking on in order to improve long-run financial stability will have macroeconomic implications in terms of additional costs for intermediation over time. Also, supply-side and macroeconomic policies are connected for reasons that we heard about in both the first and the final sessions of the day, and I think all these connections are quite important. A novel connection, at least for me, is Warwick McKibbin's idea that 30 years of learning about how to run monetary policy provides potential insights for climate policy.

This theme of interconnections is closely related to the second theme of the day that I want to mention, which is international cooperation. This came up in a lot of areas. This morning, Jaime Caruana talked about the need for a global approach to ensure financial stability. It was also raised in Andrew Crockett's remarks at lunch about the global financial architecture. One thing that Andrew said which I think is quite fundamental is that harnessing countries' desire to pursue their own interests is critical. Reforms that go against their own interests are not going to work. So the question is: how do we get countries to focus on the areas in which their interests are all aligned so that we can work together in critical areas? This is relevant to the international financial architecture, to trade issues, and to climate change. So making sure that policies are such that countries' interests are aligned as much as possible seems to be a critical challenge.

The third theme of the Symposium has been that things change. A few times this morning we heard about paradigm shifts. Mohamed El-Erian argued that things are not going to go back to the way they were even when special stimulus measures are withdrawn. Charles Goodhart made a rather prophetic sounding remark that the Bagehot world of the past 150 years has gone, and we are now in a new world in which insurance is basically provided to all. I am not sure that we fully appreciate the implications of this if it is true. The third change which has been remarked on is the emergence of China, which is ongoing and particularly important for Australia. As I

have said before, I am an optimist in the long run about China, but as China gets more and more important, the rest of us need to understand how that country works and what is happening there.

The fourth theme, if I can just go back to one thing that was in my paper, is the value of remembering all of the old lessons, which are still relevant to the new challenges we face. The supply side still matters a lot. It was quite deliberate on our part to put supply-side issues on the agenda for this Symposium. We have seen Anne Krueger give a forceful defence of the benefits of supply-side reforms – the opening-up of international trade and financial systems, liberalising markets, reducing unnecessary involvement of governments – which have contributed to the large rise in living standards across most of the world. And while we all recognise the importance of monetary and financial stability, it still needs to be defended again and again. So as much as things are changing, these old verities are, if not eternal, at least rather durable.

The only other thing that remains for me to do is to thank the many staff of the Reserve Bank who have worked very hard putting together this event and other events yesterday and last night, and to thank you all for coming and participating in our 50th Anniversary celebration.

Biographies of Contributors

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Ric Battellino is the Deputy Governor of the Reserve Bank of Australia and a member of the Reserve Bank Board. Prior to taking up his current position he held senior roles in a number of areas of the Bank, including time as the head of the Bank's Domestic Markets and International Departments and 13 years as the Assistant Governor of the Financial Markets Group. Mr Battellino has had over 30 years experience in central banking. He received his undergraduate education at the University of Queensland and was a Sloan Fellow at the London Business School.

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Alan Bollard is the Governor of the Reserve Bank of New Zealand, a position he has held since 2002. Before taking up his current role he served for four years as Secretary of the Department of the Treasury. Dr Bollard was the Chairman of the New Zealand Commerce Commission between 1994 and 1998, following a period as Director of the New Zealand Institute of Economic Research. He has also worked as an economist in a variety of positions in the United Kingdom and the South Pacific, and is the author of a number of books on the New Zealand economy. Dr Bollard received his doctorate from the University of Auckland in 1977.

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Jaime Caruana is the General Manager of the Bank for International Settlements, and a member of the Washington-based financial advisory body the Group of Thirty. Prior to taking up his current position he was Director of the Monetary and Capital Markets Department at the International Monetary Fund and a Financial Counsellor to the Managing Director. From 2000 to 2006 he served as the Governor of the Bank of Spain and as a member of the European Central Bank's Governing Council. He has been a member of the Financial Stability Board since 2003 and chaired the Basel Committee on Banking Supervision from 2003 until 2006. Mr Caruana has also served as Chairman of the Basel Committee's Coordination Group. Before joining the Bank

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William Dudley is the President and Chief Executive Officer of the Federal Reserve Bank of New York and, in that capacity, the Vice Chairman and a permanent member of the Federal Open Market Committee. Before taking up his current role he was the Executive Vice President of the Markets Group of the New York Federal Reserve. Prior to joining the New York Federal Reserve in 2007, Mr Dudley was a partner and Managing Director of Goldman Sachs and Company, serving as the firm's chief US economist for 10 years. He has also previously held positions at the Morgan Guaranty Trust Company and the Federal Reserve Board. Between 1999 and 2005 he was a member of the Technical Consultants Group to the Congressional Budget Office. Mr Dudley holds an undergraduate degree from New College of Florida, Sarasota and a PhD from the University of California, Berkeley.

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Stanley Fischer is the Governor of the Bank of Israel, a position he has held since 2005. He is a Fellow of the Econometric Society and the American Academy of Arts and Sciences, a member of the Council on Foreign Relations, the Group of Thirty and the Trilateral Commission. He was a Professor at the Massachusetts Institute of Technology between 1977 and 1999. Professor Fischer's first teaching position was at the University of Chicago, and he has held visiting positions at the Hebrew University of Jerusalem and the Hoover Institution at Stanford University. Prior to his current position, Professor Fischer served as Vice Chairman of Citigroup and President of Citigroup International. From 1988 until 1990 he was Vice President and Chief Economist at the World Bank. In 1994 he became the First Deputy Managing Director of the International Monetary Fund, a position he held until 2001. Professor Fischer has published several books, including the well-known Dornbusch, Fischer and Startz's *Macroeconomics*, and has published extensively in professional journals, as well as serving as associate editor of several. Professor Fischer holds BSc (Econ) and MSc (Econ) degrees from the London School of Economics and a PhD from the Massachusetts Institute of Technology.

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Professor Ross Garnaut (AO) is a Vice-Chancellor's Fellow and a Professorial Fellow in Economics at the University of Melbourne as well as a Distinguished Professor of the Australian National University. He is currently chairman of a number of international companies and research organisations, including the International Food Policy Research Institute (Washington DC) and the PNG Sustainable Development Program Ltd (Singapore). In addition, he is a director of Ok Tedi Mining Ltd (Papua New Guinea) and a member of the board of several international research institutions, including the Lowy Institute for International Policy (Sydney), Asialink (Melbourne), the Centre for Strategic and International Studies (Jakarta) and the China Center for Economic Research at Peking University (Beijing). Professor Garnaut is the author of numerous books, monographs and articles in scholarly journals on international economics, public finance and economic development, particularly in relation to east Asia and the south-west Pacific. In addition to his distinguished academic career, Professor Garnaut has also had longstanding and successful roles as policy advisor, diplomat and businessman. He was the Senior Economic Adviser to Australian Prime Minister RJL Hawke from

1983 to 1985 and subsequently served as the Australian Ambassador to China (1985 to 1988). In September 2008, Professor Garnaut presented the Garnaut Climate Change Review to the Australian Prime Minister. This review, commissioned by the Australian Government, examines the impact of climate change on the Australian economy and provides potential medium- to long-term policies to ameliorate these. Professor Garnaut has a Bachelor of Arts and a PhD from the Australian National University.

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Charles Goodhart is an Emeritus Professor at the London School of Economics, where he is Director of the Financial Regulation Research Programme and has been a faculty member since 1985. He has also held teaching positions at Cambridge University. He is a former member of the Bank of England's Monetary Policy Committee on which he served from 1997 until 2000. Professor Goodhart spent 17 years as an advisor to the Bank of England, 5 of which were as senior advisor. He is the author of several books and has been widely published in academic journals on areas ranging from structural change in financial markets to the role of central banks, central bank independence and monetary policy. Professor Goodhart holds a Bachelors degree from Cambridge University and a PhD from Harvard University.

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Christopher Kent is the Head of Economic Research Department at the Reserve Bank of Australia, a position he has held since November 2004. Prior to rejoining the Bank as Deputy Head of Economic Analysis in September 2003, Dr Kent spent three years working in the European Department of the International Monetary Fund. His earlier career was spent at the Bank, where he worked in Economic Group and Financial Stability Department. His research interests include the links between asset prices and monetary policy, inflation targeting for small open economies, and the relationship between the current account and the terms of trade. Dr Kent is also a member of the Advisory Board of the Melbourne Institute of Applied Economic and Social Research at the University of Melbourne. He holds a PhD from the Massachusetts Institute of Technology.

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Anne Krueger is Professor of International Economics at the School of Advanced International Studies, Johns Hopkins University. She is a Senior Fellow of the Stanford Center for International Development (of which she was the founding Director) and the Herald L and Caroline Ritch Emeritus Professor of Sciences and Humanities in the Economics Department at Stanford University. Professor Krueger was the First Deputy Managing Director of the International Monetary Fund from 2001 to 2006. Prior to that, she taught at Stanford and Duke Universities. From 1982 to 1986, she was Vice President, Economics and Research at the World Bank. She had earlier been Professor of Economics at the University of Minnesota. Professor Krueger has held visiting Professorships at a number of universities, including the Massachusetts Institute of Technology, Northwestern University, Bogaziçi University (Istanbul), the Indian Council for Research on International Economic Relations, Monash University, the Australian National

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