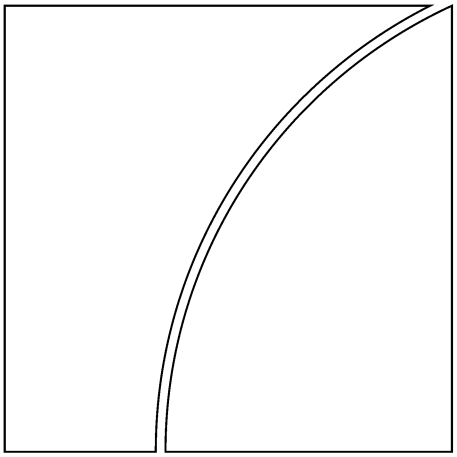
BANK FOR INTERNATIONAL SETTLEMENTS



BIS Papers

No 18

Monetary stability, financial stability and the business cycle: five views

Monetary and Economic Department

September 2003

The contributions to this volume were prepared for the conference "Monetary stability, financial stability and the business cycle" held at the BIS in Basel on 28-29 March 2003. The views expressed are those of the authors and do not necessarily reflect the views of the BIS or the central banks represented at the meeting. Individual contributions (or excerpts thereof) may be reproduced or translated with the authorisation of the authors concerned.

Requests for copies of publications, or for additions/changes to the mailing list, should be sent to:

Bank for International Settlements
Press & Communications
CH-4002 Basel, Switzerland

E-mail: publications@bis.org

Fax: +41 61 280 9100 and +41 61 280 8100

This publication is available on the BIS website (www.bis.org).

ISSN 1609-0381 (print)
ISBN 92-9131-652-0 (print)

ISSN 1682-7651 (online)
ISBN 92-9197-652-0 (online)

Foreword

On 28-29 March 2003, the BIS held a conference on "Monetary stability, financial stability and the business cycle". The event brought together central bankers, academics and market participants to exchange views on this issue (see the conference programme and list of participants). This publication contains the opening speech by the BIS General Manager and the prepared remarks of the four participants on the policy panel. The papers from the conference are being published in the BIS working paper series, together with the discussants' comments on each paper.

Contents

Conference on "Monetary stability, financial stability and the business cycle" 28-29 March 2003, Basel

Conference programme

Opening keynote remarks

Andrew Crockett (Bank for International Settlements)

Session I: The lessons from history

Chair: William White (Bank for International Settlements)

Paper 1: The price level, relative prices and economic stability: aspects of the interwar debate

Author: David Laidler (University of Western Ontario)

Discussants: Olivier Blanchard (Massachusetts Institute of Technology)
Nobuhiro Kiyotaki (London School of Economics)

Paper 2: The Great Depression as a credit boom gone wrong

Authors: Barry Eichengreen (University of California, Berkeley)
Kris Mitchener (Santa Clara University)

Discussants: Michael Bordo (Rutgers University)
Charles Goodhart (London School of Economics)

Session II: Monetary and financial frictions in business fluctuations

Chair: John Moore (London School of Economics)

Paper 3: Public and private information in monetary policy models

Authors: Jeffery Amato (Bank for International Settlements)
Hyun Song Shin (London School of Economics)

Discussants: Marvin Goodfriend (Federal Reserve Bank of Richmond)
Lars Svensson (Princeton University)

Paper 4: External constraints on monetary policy and the financial accelerator

Authors: Mark Gertler (New York University)
Simon Gilchrist (Boston University)
Fabio Natalucci (Board of Governors of the Federal Reserve System)

Discussants: Philippe Bacchetta (Study Center Gerzensee)
Philip Lowe (Reserve Bank of Australia)

Session III: Monetary policy challenges

Chair: Charles Freedman (Bank of Canada)

Paper 5: Asset prices, financial imbalances and monetary policy: are inflation targets enough?

Author: Charles Bean (Bank of England)

Discussants: Ignazio Visco (Bank of Italy)
Sushil Wadhwani (Wadhwani Asset Management LLP)

Paper 6: Financial strains and the zero lower bound: the Japanese experience

Author: Mitsuhiro Fukao (Keio University)

Discussants: Ignazio Angeloni (European Central Bank)
Jürgen von Hagen (University of Bonn)

Session IV: Achieving monetary and financial stability

Panel discussion

Chair: Andrew Crockett (Bank for International Settlements)

Panellists: Roger Ferguson (Board of Governors of the Federal Reserve System)
Otmar Issing (European Central Bank)
Michael Mussa (Institute for International Economics)
Yutaka Yamaguchi (formerly Bank of Japan)

Conference on "Monetary stability, financial stability and the business cycle" 28-29 March 2003, Basel

Participants in the conference

Ignazio Angeloni	European Central Bank
Philippe Bacchetta	Study Center Gerzensee
Armando Baqueiro Cãrdenas	Bank of Mexico
Charles Bean	Bank of England
Olivier J Blanchard	Massachusetts Institute of Technology
Michael Bordo	Rutgers University
Barry Eichengreen	University of California, Berkeley
Charles Freedman	Bank of Canada
Mitsuhiro Fukao	Keio University
Simon Gilchrist	Boston University
Marvin Goodfriend	Federal Reserve Bank of Richmond
Charles Goodhart	London School of Economics
Otmar Issing	European Central Bank
Nigel Jenkinson	Bank of England
Thomas J Jordan	Swiss National Bank
Nobuhiro Kiyotaki	London School of Economics
David E Laidler	University of Western Ontario
Flemming Larsen	International Monetary Fund
Philip Lowe	Reserve Bank of Australia
Kris J Mitchener	Santa Clara University
John Moore	London School of Economics
Michael Mussa	Institute for International Economics
Fabio M Natalucci	Board of Governors of the Federal Reserve System
Peter Praet	National Bank of Belgium

Jan F Qvigstad	Central Bank of Norway
Hermann Remsperger	Deutsche Bundesbank
Hyun Song Shin	London School of Economics
Marc-Olivier Strauss-Kahn	Bank of France
Lars E O Svensson	Princeton University
Giovanni Toniolo	University of Rome Tor Vergata
José Viñals	Bank of Spain
Ignazio Visco	Bank of Italy
Jürgen von Hagen	University of Bonn
Sushil B Wadhwani	Wadhwani Asset Management LLP
Charles Wyplosz	Graduate Institute of International Studies
Yutaka Yamaguchi	formerly Bank of Japan
Gang Yi	The People's Bank of China
Andrew Crockett André Icard William White Renato Filosa Claudio Borio Gabriele Galati Jeffery Amato William English Andrew Filardo Ben Fung (Representative Office for Asia and the Pacific)	Bank for International Settlements

Central banking under test?

Andrew Crockett[1]

Let me begin by asking you to think back to the mid-1970s. At that time, after the first round of oil price increases, inflation was in double digits, and rising. If you had told central banks then that one day they would function in a world in which inflation was low and stable, their anti-inflation commitment was highly credible and they had operational independence, they would probably have suspected you of smoking a prohibited substance. If, nevertheless, they had believed your forecast, they would surely have thought it must be the best of all possible worlds.

Well, now we live in such a world. And it has yielded great benefits. It has laid the basis for better long-term economic performance. It has removed a major cause of arbitrary income redistribution. And it has "downgraded" what for so many years had been the main reason why economic expansions came to an end, namely tighter monetary policy designed to quell rising inflation.

And yet, the new world has not quite turned out to be "the best of all possible ones". Central banks have had to face some considerable challenges. Bringing down inflation to low levels has raised the spectre of deflation, which is already a problem in one major country, Japan, and is increasingly debated elsewhere. Moreover, low inflation has not proved to be a guarantee of financial stability. Indeed, banking crises seem to have had just as large costs in terms of output forgone as in periods when inflation was higher. In short, the successful war against inflation has not yielded as big a "peace dividend" as we might have hoped.

Central bankers and academic observers are increasingly debating the underlying reasons why this has been the case. Why has monetary stability apparently not resulted in greater financial stability? What is the role in the process of the credit cycle and asset price volatility? Can asset price volatility and financial fragility interact to lead economies into a deflationary trap? And are there adjustments to central bank policy that would reduce these risks and enable a better combination of monetary and financial stability to be achieved?

The present conference is devoted to exploring the background to many of these questions. My own view is that the observed developments are not purely coincidental, but rather reflect the interaction between changes in the financial and monetary regimes. A crucial missing link in the story as told so far is that developments in the financial regime have arguably made the system more prone to booms and busts in financial asset prices with significant macroeconomic costs. But the monetary regime may have a subtle role to play too. Paradoxically, high anti-inflation credibility may sometimes allow economic expansions to proceed while masking those signs that, in earlier times, would have pointed to their unsustainable pace. Under these conditions, financial imbalances may be more prominent in business cycle dynamics and provide valuable signals of possible future pressures on the economy. A key question is how best to factor such imbalances into the policy framework.

Let me use these introductory remarks to flesh out this basic thesis. I will first review some salient changes in the economic landscape. I will then explore the implications of this evolution for the relationship between monetary stability, financial stability and the business cycle. I will finally draw some policy conclusions. In the process, I will try to touch on the themes that will crop up during the rest of the conference, and to develop a logical thread tying together the various contributions.

---

[1] General Manager, Bank for International Settlements and Chairman, Financial Stability Forum.

1. The evolving economic environment: some stylised facts

First, then, how has the economic landscape evolved? I will approach this question by highlighting the behaviour of four key "performance indicators", and noting two regime shifts.

The **first** performance indicator is the behaviour of ***inflation***. Over the last 20 years or so the inflation picture has changed dramatically. Gone are the days of high and variable inflation rates. Since at least the early 1990s, much of the world has entered a period of relatively low and more stable inflation. Indeed, the disinflation phase has been so strong that some countries in Asia have actually been experiencing declines in the overall price level, while in a larger group "true" inflation may be close to zero or negative once technical biases in price indexes are taken into account. Greater inflation stability has also resulted in lower inflation persistence, in the sense that inflation rates now tend to exhibit mean-reverting behaviour. Inflation seems better anchored than in the past.

The **second** performance indicator is ***short-term output volatility***. According to this metric, in large parts of the world the business cycle appears to have become more moderate since at least the mid-1980s. This trend has been particularly evident in the United States, but has been documented for a broader set of industrial countries. Still, there are exceptions. In particular, output volatility has tended to be higher in several of the economies experiencing widespread financial distress. In the industrial world, Japan is the clearest example; among emerging market countries, a number of East Asian economies seem to fall into the same category.

The **third** performance indicator relates to ***asset price booms and busts***. Since the mid-1980s many countries have witnessed large medium-term swings in asset prices, typically accompanied by similar fluctuations in credit. Three major fluctuations can be discerned among industrial countries since the 1970s. They correspond to the early to mid-1970s, the mid-1980s to the early 1990s, and the second half of the 1990s to the present, with Japan not having taken part in the latest upswing following the bust in asset prices in the early 1990s. The amplitude of these asset price cycles does not appear to be getting any smaller.

The **fourth** performance indicator relates to ***financial crises***. Since the 1980s the world has witnessed an increase in the incidence and severity of episodes of widespread financial distress. These have typically been associated with the bust phase of asset price and credit cycles, as the corresponding financial imbalances built up in good times unwound in a disruptive manner. Examples include the Nordic countries and Japan as well as some Latin American and, later on, East Asian economies. The resulting macroeconomic costs have been sizeable, with percentage point estimates of GDP forgone often running into double digits. Even in more benign cases, the unwinding of financial imbalances resulted in considerable strains on the financial system and powerful "headwinds" for the real economy, as suggested by the experience of the United States, United Kingdom and Australia in the early 1990s.

What about the concurrent changes in the policy regime?

The **first** change has been ***financial liberalisation***. Financial liberalisation made its first timid steps in the 1970s, and gathered momentum in the 1980s, both within and across national borders. By the 1990s the global shift from what has been called a government-led to a market-led financial system was largely complete, sustained by the ascendancy of free market philosophy, the recognition of the costs of financial repression, and technological innovation. Hence the rapid growth of the financial superstructure in the form of "financial deepening" within individual countries and tighter links across countries.

The **second** change in the policy regime has been the increased focus of central banks on a ***firm commitment to price stability***. This commitment was in part the reflection of a stronger political and social consensus to bring inflation under control. Over time, it has been underpinned by changes in the institutional and operational framework. Hence the generalised trend towards giving central banks mandates more clearly focused on price stability; endowing them with a greater degree of "autonomy" to carry out these mandates; and adopting more structured approaches for pursuing price stability, in the form of inflation targeting regimes. The resulting stronger commitment has been instrumental in the successful fight against inflation. Among its various benefits, and as often underlined by central banks, it also seems to have helped better to anchor expectations around inflation objectives, as judged from evidence drawn from yield curves or surveys.

In some respects, this configuration of arrangements in the financial and monetary spheres has similarities with the one that prevailed in the gold standard and early interwar period. Looking beyond

obvious differences in other respects, it was then that we saw for the last time the combination of liberalised financial markets with a monetary regime that, by design or implication, was seen as delivering price stability.

This suggests that there may be lessons to be learned from revisiting history. It is the reason why the first session of the conference takes us back to those days. Thus, David Laidler retraces for us the intellectual debate of that time over the relationship between monetary stability, financial stability and the business cycle, while Barry Eichengreen and Kris Mitchener explore how far the Great Depression can be seen as a credit boom that went wrong.

2. The evolving economic environment: an interpretation

How should one interpret the stylised facts I described a moment ago? Many interpretations are, of course, possible. The more sanguine ones would highlight the observed moderation in the business cycles as evidence of better policy and of the benefits of lower inflation. They would probably consider the larger medium-term swings in asset prices and credit, and the subsequent episodes of financial strains, as the result either of country-specific weaknesses in the financial infrastructure or of transitional problems in adjusting to a new financial environment.

There is, in my view, an important element of truth in these interpretations. Surely lower inflation has helped to moderate business fluctuations, not least by removing an obvious cause of the stop-go policies of the past. And no doubt transitional difficulties in the wake of financial liberalisation have contributed to the episodes of financial distress around the world; risk pricing and management skills had been stunted in the previous financially repressed environment. Nor is it hard to find weaknesses in the financial infrastructure of many of the countries that experienced financial strains. And the very shift from a high to a low inflation environment could have exacerbated risks, by clouding the distinction between nominal and real magnitudes. For example, some of the overly exuberant equity valuations and over-indebtedness may well have been the result of mistaking nominal for real declines in interest rates.

Nevertheless, it cannot be excluded that the changes run deeper. My conjecture is that the characteristics of the business cycle may have been evolving under the combined influence of changes in the financial and monetary spheres. What we have been witnessing may thus be the reflection of a more fundamental transformation in the economic environment. As such, it may also contain more informative clues about what might lie ahead. Let me elaborate.

In the **financial sphere**, a liberalised financial system can more easily accommodate, and reinforce, fluctuations in economic activity. In such a system, perceptions of value as well as the willingness to take on risk arguably become more important factors driving economic activity. And these factors move in close sympathy with business conditions, potentially amplifying fluctuations. Hence, in this sense, the ***highly procyclical*** nature of credit, asset prices and indicators of the pricing of risk, such as credit spreads. During booms, self-reinforcing processes can develop, consisting of higher asset prices, looser external financing constraints, possibly an appreciating currency, further capital deepening, rising productivity and higher measured profits. These processes operate in reverse during contractions.

Such processes are a natural component of business fluctuations. But under some conditions they may go too far. On these occasions, the system's in-built stabilisers might not prevent it from becoming overstretched. Masked by seemingly benign economic conditions, financial imbalances and the associated distortions in the real economy would build up. Their subsequent unwinding could then cause serious strains on the economy, generating strong headwinds and, in worst case scenarios, serious financial instability.

For a number of reasons, in business fluctuations of this kind, price pressures could well be more muted than otherwise. For one thing, these fluctuations are more likely to develop in the wake of positive developments on the supply side. Such developments tend to reduce price pressures directly, by lowering production costs, as well as indirectly, by encouraging an appreciation of the currency and capital accumulation. Moreover, an unsustainable rise in asset prices could itself help to limit price increases. Accounting profits, boosted by financial returns, would be artificially enhanced, thereby allowing more aggressive pricing strategies. Think, for instance, of lower contributions to pension funds, or the pricing policies of Japanese firms in the boom years. Large financial gains by employees

could also help to keep wage pressures in check. And by boosting tax revenues, asset price booms could limit public sector financing requirements.

Against this background, arrangements in the **monetary sphere** play a subtle role. The success in achieving and maintaining low inflation, and the resulting increased credibility of central banks, could further attenuate the inflation process. If so, excess demand pressures could show through more gradually into higher inflation. With inflation expectations better anchored around central bank objectives, and given a credible commitment not to accommodate price increases, prices and wages would be less likely to rise. There may also be a risk that the very belief in price stability would strengthen confidence in the sustainability of unsustainable booms, by removing a reason to bring expansions to an end. Moreover, with short-term price pressures under control, policy rates may fail to rise sufficiently promptly to restrain the build-up of financial and associated real imbalances in the economy. Paradoxically, the credibility of the anti-inflation commitment can thus cloud the picture of the risks facing the economy.

This analysis points to at least three conclusions.

First, nobody should underestimate the enormous costs that inflation can have for economic activity, or ignore the many channels through which inflation can contribute to costly financial instability. Obvious examples include blurring the distinction between real and nominal magnitudes, encouraging excessive investments in inflation hedges, masking overextension in balance sheets, and dealing with the consequences of bringing inflation under control. However, it would be unwise to expect that low inflation will, by itself, secure the appropriate degree of financial stability.

Second, measures of financial imbalances can contain useful information about the future course of the economy that is additional to that culled from measures of short-run inflationary pressures, such as the behaviour of prices or of indicators of economic slack, notably output gaps. In fact, using inflation to infer the level of output slack can be especially misleading and potentially dangerous, bolstering confidence in the sustainability of expansion. The build-up of financial imbalances can result in a subtle change in the balance of risks, towards potential future economic weakness down the road.

Finally, monetary policy can unwittingly play an enabling role. The reason is simple. In today's fiat money regimes, there is no external anchor on credit expansion other than the reaction function of the monetary authorities. If that reaction function focuses exclusively on short-run inflation pressures and does not respond to the accumulation of financial imbalances, the system may lack a sufficiently effective external anchor in the monetary sphere to prevent it from becoming overstretched.

The papers in the **second session** will, in their own way, explore issues that have a bearing on the analysis just outlined. The paper by Jeff Amato and Hyun Shin can be thought of as casting light on the "paradox of credibility", as it investigates how, in a world without common knowledge, credible public signals can distort the information content that variables such as inflation may contain about underlying economic fundamentals. Mark Gertler, Simon Gilchrist and Fabio Natalucci consider the implications of the exchange rate regime for the impact of financial factors on the real economy, with particular attention to financial crises.

3. Policy implications

So much for diagnosis. What are the policy implications if financial factors are likely to play a more prominent role in the business fluctuations that will no doubt continue to be a part of the economic landscape?

The first, and most natural, line of defence against the build-up of financial imbalances is **prudential policy**. In recent years much has been done, nationally and internationally, to strengthen prudential frameworks. The New Basel Capital Accord is but the latest in a series of important measures designed to strengthen supervisory and regulatory safeguards. These steps have reinforced, and are in the process of hardwiring, the substantial improvements in risk management that have taken place in recent years. Together, these changes have no doubt greatly increased the robustness of the financial system to financial imbalances. It is no coincidence that in the present slowdown, the banking system has so far proved much more resilient than in earlier times.

Even so, there are reasons to believe that these steps might not, by themselves, be sufficient to guarantee the necessary degree of economic stability. Since I have discussed this in detail elsewhere,

I will just make a few points here. One is that the destabilising processes I have described may have significant effects on economic activity even when they do not erupt into full-blown financial crises. In addition, they operate as much through open capital markets as through regulated financial institutions. With the increased ease with which risks can be shifted outside the banking system, this aspect takes on added significance. More fundamentally, the procyclical behaviour of commonly used measures of risk points to inherent difficulties in assessing how system-wide, undiversifiable risk evolves during business fluctuations and in responding to it adequately.

Dealing with this issue would call for finding ways of building up the system's defences, or protective cushions, in a boom, as risk builds up, in order to be in a position to rely on them in a downswing, when risk materialises. Quite apart from being a very difficult exercise, such a "macroprudential" approach is not a natural part of the ingrained culture of supervisory authorities. Although considerable steps in this direction have been taken in recent years, there is still a certain reluctance to address financial instability through prudential instruments when its origin is perceived to be macroeconomic.

Put differently, there are limits to what prudential instruments can achieve. In part this has to do with the raw material on which they operate, namely perceptions of risks and valuation. But it also reflects the fact that such perceptions are intimately related to the availability of liquidity in the system, which affects the ability to translate them into hard funding. Here, the role of credit extension is crucial. But what anchors the credit extension process itself?

This brings us to the potential role of **monetary policy**. The argument so far points to a number of reasons why there may be a prima facie case for monetary policy to respond to financial imbalances, as they build up, even if short-run inflation pressures remain in check. First, in the absence of such a response, monetary policy can unwittingly accommodate the build-up of imbalances, raising the risk of larger economic costs later on. Second, the disruptive unwinding of imbalances can cripple the effectiveness of monetary policy itself. The financial headwinds associated with strains on balance sheets and, in extreme cases, the unappealing set of options once policy rates reach the zero lower bound are obvious cases in point. The paper by Mitsuhiro Fukao in the ***third session*** explores these issues in some detail. Finally, lowering rates when problems materialise but failing to raise them when they build up could promote an insidious form of "moral hazard", which could actually contribute to generating the problem in the first place.

Even accepting these basic principles, there are of course major practical problems in implementing a strategy of this kind. Is it really possible to identify imbalances early enough to take remedial action? By the time they are recognised with a sufficient degree of confidence, they may be about to reverse spontaneously, so that the economy could later be struggling under the joint effect of the unwinding and the lagged impact of the previous tightening. How could one calibrate a response? The response of an economy where imbalances are present is likely to be less predictable, and the imbalances may prove to be particularly unresponsive, shifting the brunt of the reaction to more interest-sensitive sectors. And how could such a tightening be justified to public opinion if inflation pressures remained subdued or non-existent? The political economy constraints are daunting. In the ***third session***, the paper by Charlie Bean considers these issues in some detail.

These counterarguments are powerful; but I think it would be unwise to rule out a monetary policy response altogether. First, obtaining reliable estimates of more traditional concepts, such as output gaps and growth potential, is not straightforward either. Moreover, recent work, including some done at the BIS, suggests that it may be possible over time to develop the necessary tools. The guiding principle is to move away from trying to identify asset price bubbles per se and to focus on financial imbalances, or the set of symptoms that are likely to foreshadow subsequent strains on the real economy. Excessive credit expansion is one of these.

Second, the objective of a monetary response would be to slow down the economy in the near-term to avoid a larger and more costly slowdown later on. Non-linearities are of the essence here. Expecting a surgical removal of imbalances is unrealistic, as they are inextricably linked to the rest of the economy. In fact, if they were not, they would hardly be of great concern. Therefore, the conditions for an appropriate response of the economy to monetary tightening to deal with financial imbalances are not all that different from those applicable to a traditional policy action aimed at containing inflation. And market anticipation of such a policy reaction function might even help prevent the build-up of the imbalances in the first place.

Finally, the political economy constraints are not immovable. They presumably depend on how we think the economy works and on the perceived costs of alternative courses of action. While the

conditions for a pre-emptive tightening may not be satisfied at present, the formation of a greater intellectual and political consensus on diagnosis could change that.

A final question is whether a pre-emptive tightening in response to the build-up of financial imbalances, even if short-term inflation pressures are under control, is consistent with current monetary frameworks. I think that the answer is yes. Only minor modifications may be necessary.

A willingness to contemplate pre-emptive tightening would not require a redefinition of ***ultimate objectives***. Assuming the cost in terms of the traditional objectives, such as inflation and output, is the correct way of thinking about the problem. But it should be recalled that even in strict inflation targeting regimes concerns with output performance are incorporated through the length of the horizon and the trajectory chosen to return the inflation rate to within its target range, following an external shock.

If my analysis is accepted, it would probably call for two refinements in the application of an inflation-oriented strategy. First, it would suggest looking at somewhat ***longer policy horizons*** than the one- to two-year period commonly used at present. While the precise timing of the unwinding of imbalances is rather unpredictable, the processes involved tend to be drawn out ones. One could think of a tightening implying an undershooting of the objective in the near term in order to avoid a larger undershooting further out in the future. Second, such an approach would call for greater weight being placed on the ***balance of risks*** to the outlook. Monetary policy would be attempting to avoid some of the less palatable outcomes.

Conclusion

To conclude, central banks have been extremely successful in their long war against inflation. And yet, just as they have been emerging victorious from one battlefront, another seems to have opened. They are finding themselves under test again. How they respond to this new challenge deserves careful attention and thought.

What framework do we need to address the challenge? Perhaps one in which central banks and prudential authorities realise that the problems they face are closely linked. A framework, that is, in which they seek ways of securing both monetary and financial stability, on a sustained basis, through an appropriate distribution of responsibilities and a mutually supportive use of the instruments at their disposal. Bearing in mind, at the same time, that the ever-changing nature of the challenges calls for vigilance and an ongoing willingness to re-examine critically even well-honed convictions.

The objective of this conference is to explore in depth the issues that lie at the heart of the relationship between monetary stability, financial stability and the business cycle. It is to edge us closer to providing the basis for an appropriate policy response. That basis requires a stronger intellectual consensus on diagnosis and remedies than exists at present. It is only by addressing the questions head-on, with analytic rigour and a good sense of what is practicable, that such a consensus can be developed. Events such as this conference are ideal occasions to make progress.

Should financial stability be an explicit central bank objective?

Roger W Ferguson Jr[1]

Against the backdrop of the wide swings in equity prices in recent years, the financial market repercussions accompanying corporate accounting scandals in the United States, and the current difficulties in key emerging market economies, it seems appropriate to reconsider the role of central banks in fostering financial stability. This session asks us to address a deceptively simple question: Should financial stability be an explicit central bank objective on a par with other objectives such as price stability and sustainable economic growth? At the outset, let me emphasise that all of the views I will express in answer to this question are my own and not necessarily those of my colleagues on the Board. To summarise the discussion below, financial stability has been and always will be a fundamental objective of central banks. Indeed, many central banks around the world - including the Federal Reserve - were established in part to serve as bulwarks against chronic episodes of financial instability and the attendant adverse consequences for the economy. So at this basic level, a financial stability objective for central banks seems entirely appropriate. That said, difficult issues may arise at times in judging how much weight should be attached to financial stability versus other central bank objectives and also in judging just how "activist" central banks should be in pursuing their financial stability objectives. In this connection, the Federal Reserve has found it useful to focus on its financial stability objectives primarily through the lens of its macroeconomic goals - price stability and sustainable long-run growth. That is, the Federal Reserve seeks to foster conditions that will contribute to price stability and sustainable output growth now and in the future.

1. Public policy and financial stability

It seems useful at the outset to define financial stability and to do so by defining its opposite, financial instability. In my view, the most useful concept of financial instability for central banks and other authorities involves some notion of market failure or externalities that can potentially impinge on real economic activity. Economic research in recent years has identified a variety of market imperfections such as moral hazard and asymmetric information that, if widespread and significant, can result in threats to the functioning of any financial system, such as panics, bank runs, asset price bubbles, excessive leverage, and inadequate risk management. Such outcomes are typically highly undesirable from a social welfare perspective; financial prices can diverge sharply and for prolonged periods from fundamentals, credit conditions may be too lax at times and at other times far too restrictive, and spending and real activity may be subject to much wider swings than would otherwise be the case.

Thus, for the purposes of this paper, I'll define financial instability as a situation characterised by these three basic criteria: (1) some important set of financial asset prices seem to have diverged sharply from fundamentals; and/or (2) market functioning and credit availability, domestically and perhaps internationally, have been significantly distorted; with the result that (3) aggregate spending deviates (or is likely to deviate) significantly, either above or below, from the economy's ability to produce.

With this definition of financial instability, a clear public policy interest arises for central banks and other authorities to act in two distinct roles in pursuing financial stability - prevention of instability and management of the consequences once markets become unstable. In the area of prevention, perhaps the single most important thing a central bank can do is to foster a macroeconomic environment of low and stable inflation and sustainable economic growth. Absent such desirable macro fundamentals, the risks of financial instability are almost certainly higher and the effects of financial instability when it arises all the more pernicious. Beyond conducting sound macro policy, central banks have traditionally

[1] Vice Chairman, Board of Governors of the Federal Reserve System.

been involved in myriad activities, such as formulating appropriate financial regulations, implementing effective bank supervision, and operating or overseeing efficient payment systems, all of which help to attenuate the risks of financial instability.

Under the heading of management, central banks can alter monetary policy to forestall or mitigate the consequences of financial instability for the economy. When such instability slides into crisis, they can employ their basic tools to help alleviate liquidity pressures and to bolster public confidence. Liquidity pressures can be addressed, for example, through generous provision of reserves via open market operations and direct lending to depository institutions via a lender of last resort or discount window function. Other monetary policy tools can be employed as well, such as possibly cutting reserve requirements and, of course, lowering policy interest rates to provide a boost to the economy.

The events of 11 September 2001 underscored how important it is for central banks to be ready to act promptly in a crisis to execute all of their core functions and flexibly adapt their rules. An important aspect of this preparedness is ensuring that critical systems and policy tools are robust to any and all contingencies. To this end, the Federal Reserve has been very actively implementing additional layers of backup and contingency arrangements for all of our key payment systems and operations. In the same vein, we are also encouraging banks and other financial institutions to ensure the robustness of their own systems. Although private firms that maximise profits do have market incentives to maintain adequate backup and contingency arrangements, they may not take into account the full social, or external, value of such arrangements. Because of this, central banks and other authorities have a useful role to play in encouraging and supporting private sector planning and investments that fully reflect the social value of contingency arrangements.

Having now proposed a definition of financial stability and listed a variety of ways in which central banks can promote financial stability, I would add a cautionary note. Focusing on the various threats of financial disruptions and the need for public intervention to promote financial stability, one can sometimes lose sight of how remarkably efficient and stable financial markets typically have been in recent decades. When new information arrives, we expect that financial asset prices should respond quickly, and, thus, there is every reason to believe that asset prices may be volatile at times. We must also bear in mind that financial markets are dynamic and evolving. The incorporation of new technologies and the constant interplay of the forces of competition, deregulation, and globalisation imply that some firms, possibly even quite important ones, will fail over time through a process of economic "natural selection" or "creative destruction" in which more efficient business models displace the status quo. Thus, there is a challenge and a tension for central banks and other authorities in differentiating between developments that truly represent externalities or market failures, and thus warrant public intervention, versus those that are just part of the normal, unavoidable, and largely positive turbulence in a dynamic market.

2. Central banks' interest in financial stability

For obvious reasons, central banks have long had a keen interest in financial stability. First and foremost, financial instability as defined above poses a severe threat to important macroeconomic objectives such as sustainable output growth and price stability. Largely for this reason, nearly all central banks are empowered and expected to act as a lender of last resort in financial crises. Indeed, recognition of the role of central banks in stemming financial crises dates back to Thornton and Bagehot in the 18th and early 19th centuries, respectively. This historical function of central banks as a potential source of emergency liquidity assistance to markets - through open market operations - or to particular institutions - through discount window lending - creates a need for central banks to keep close tabs on markets for signs of instability and to be prepared for action should the provision of emergency liquidity assistance prove necessary. Moreover, monetary policy is implemented largely through operations in financial markets, and the transmission of monetary policy to the real economy depends crucially on the smooth functioning of key financial institutions and markets. Attainment of sustainable real growth with stable prices in turn will make the economy less prone to financial instability. Finally, yet another manifestation of central banks' interest in financial stability stems from their role in the operation or oversight of payment systems that, in turn, act as the critical "plumbing" supporting activity in financial markets.

As noted above, financial stability is an important objective for all central banks, and this fact has been incorporated, to varying degrees, in central bank charters. In the case of the Federal Reserve,

financial stability concerns were at the core of the Federal Reserve Act. Indeed, the Federal Reserve owes its existence to the financial instability of the US economy in the 19th and early 20th centuries. Early attempts to create a central bank in the United States - the First Bank of the United States (1791-1811) and the Second Bank of the United States (1816-36) - were undone by the deep public distrust, particularly in southern and western states, of the concentration of financial power in an institution created by the federal government. Left without a central bank for the entire period between 1836 and 1913, the US financial system had no effective backstop to guard against the periodic financial panics that occurred over these years. As a rule, these panics were soon followed by sharp contractions in economic activity. The panic and economic downturn sparked by the failure of the Knickerbocker Trust Company in 1907 were particularly acute, and prompted the appointment of a National Monetary Commission in 1908 to study and recommend structural changes that could improve the stability of the financial system. After the Commission concluded a lengthy and exhaustive report (23 volumes) and following intense public debate, Congress finally passed the Federal Reserve Act in 1913, which created the Federal Reserve System.

The preamble of the Federal Reserve Act, stating the purpose of the Federal Reserve, simply read that it was created "To provide for the establishment of Federal reserve banks, to furnish an elastic currency, to afford means of rediscounting commercial paper, to establish a more effective supervision of banking in the United States, and for other purposes." This language implicitly embodied financial stability as an objective of the Federal Reserve. The references to an "elastic currency" and the "rediscounting of commercial paper" fundamentally reflected concerns about financial market liquidity, and the reference to "more effective supervision of banking" captured the desire to develop a means to avoid or mitigate banking crises. More specific references to financial stability were implemented 20 years later with the revisions of the Federal Reserve Act that were implemented in the depth of the financial and economic crisis of the Great Depression. These Depression-era revisions granted the Federal Reserve "emergency" lending powers.[2]

More than 40 years more were to pass before the Federal Reserve Act would contain an explicit statement of its macro policy objectives. Those objectives, added in 1977, state that "The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates."

Other central bank charters

Other countries have also recognised the interdependence of macroeconomic performance and financial stability and, as a result, many central bank charters reflect a concern for both macro objectives - such as price stability and satisfactory economic performance - and financial stability. Table 1 reports some key passages from several central bank statutes. Text in italics indicates passages that would seem to provide an explicit goal for the central bank in pursuing financial stability. Text highlighted in grey could be interpreted as encompassing financial stability as an implicit central bank objective.

What can be said about the overall pattern of statutory financial stability objectives among central banks? At least among the small sample of central banks listed in Table 1, all have at least some implicit references to financial stability and many have quite explicit references to financial stability as a factor that central banks need to consider. In many cases, the explicit references to financial stability fall in the realm of banking and the efficient operation of the payment system. However, some have references that seem to embody a broader notion of financial stability.

---

[2] The emergency lending powers in Section 13(3) were amended slightly in 1991 with the passage of the Federal Deposit Insurance Corporation Improvement Act (FDICIA) of 1991. The changes removed certain restrictions on the type and maturity of collateral that can be accepted to secure such lending, which, in turn, allows the Federal Reserve somewhat more flexibility in addressing such an emergency funding need.

Table 1

Financial stability as an explicit central bank objective among other countries

Bank of Canada	"regulate credit and currency in the best interest of the economic life of the nation, to control and protect the external value of the national monetary unit and to mitigate by its influence fluctuations in the general level of production, trade, prices and employment so far as may be possible within the scope of monetary action, and generally *to promote the economic and financial welfare of Canada*."
Bank of England	"Objectives of the Bank of England shall be (a) to maintain price stability, and (b) subject to that, to support the economic policy of Her Majesty's Government, including its goals for economic growth and employment." **Note**: *There is a memorandum of understanding between the Bank of England and the government that delineates the Bank's responsibilities in the area of financial stability. It assigns the Bank of England responsibility in three broad areas including stability of the monetary system, stability of financial system infrastructure particularly in the area of payment systems, and monitoring of the financial system as a whole.*
Bank of Japan	"The objective of the Bank of Japan, as the central bank of Japan, is to issue bank notes and to carry out currency and monetary control." "In addition to what is prescribed by the preceding Paragraph, the Bank's objective is to ensure smooth settlement of funds among banks and other financial institutions, *thereby contributing to the maintenance of an orderly financial system*." "(Currency and monetary control shall be aimed at, through the pursuit of price stability, contributing to the sound development of the national economy.)"
ECB	"the primary objective of the ESCB shall be to maintain price stability. Without prejudice to the objective of price stability, it shall support the general economic policies in the Community with a view to contributing to the achievement of the objectives of the Community." "*the basic tasks to be carried out through the ECSB shall be….to promote the smooth operation of the payment systems.*" "*The ECSB shall contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system.*"
Reserve Bank of New Zealand	"The primary function of the Bank is to formulate and implement monetary policy directed to the economic objective of achieving and maintaining stability in the general level of prices." "In formulating and implementing monetary policy the Bank shall - (a) *Have regard to the efficiency and soundness of the financial system:*"
Riksbank	"The objective of the Riksbank's operations shall be to maintain price stability." "*In addition, the Riksbank shall promote a safe and efficient payment system.*"

3. Financial stability objectives: relative weight and activism

The foregoing discussion suggests that financial stability to some degree already is an important objective for central banks around the world, even for those that are sometimes viewed as solely concerned with price stability. The real question then may not be so much whether financial stability should be a central bank objective, but rather how policymakers should weigh that objective in reaching policy decisions. Here one could imagine a range of possibilities. At one extreme, a central bank might focus almost entirely on an objective such as price stability with financial stability concerns only entering in an extreme scenario when a crisis is underway. Svensson (2002) labels this a strict

inflation targeting regime.[3] At another extreme, a central bank might be highly sensitive to signs of financial instability and be quite willing to take pre-emptive policy actions to address potential instabilities even when such steps might not be warranted solely by reference to the near-term outlook for price stability and economic activity. In a thought-provoking paper, Borio and Lowe (2002) develop a rationale for just such an activist, pre-emptive approach by a central bank in a pursuing financial stability objective.[4] In a nutshell, they argue that financial imbalances may develop even at times when prices are stable and output is close to potential. As a result, central banks need to be prepared to take pre-emptive actions to head off potential financial instability even when such policy actions may not be fully justified by the outlook for inflation and output.[5]

There seem to be at least three basic issues that arise in contemplating the degree of activism that central banks should adopt in pursuing a financial stability objective. To summarise briefly: The first basic issue involves questions about how a financial stability objective would affect central bank incentives and interact with the central bank's other policy goals. Although I do not want to overemphasise the point, a financial stability objective that is accorded too much weight could, at the margin, impair the conduct of monetary policy in achieving macro ends. A second issue involves how a financial stability objective might be perceived by the public and investors. On this score, it seems likely that a central bank adopting a highly activist approach in the pursuit of a financial stability objective would court moral hazard. And finally, there are serious questions about whether a very activist approach to financial stability could end up contributing to the volatility of economic variables.

Interactions with other policy objectives

One basic issue is how much weight central banks should attach to financial stability as an objective vis-à-vis their other objectives. Of course, in many cases, the relative weight a central bank places on financial stability may not be especially important if a financial stability objective is essentially auxiliary and tends primarily to reinforce the rationale for policy actions warranted by other objectives. For example, a sudden seizing-up in financial markets is likely to be associated with a weakening in aggregate demand. In this case, the pursuit of monetary policy objectives and a financial stability objective would be largely in accord and both would be served by additional monetary policy stimulus. Conversely, a significant and unwarranted easing in credit supply conditions might be accompanied by growth of output well above that of potential. Again, in this case, financial stability considerations would tend to support the tightening of monetary policy that is justified in the first instance by the goal of economic stabilisation.

However, there is some potential for perceived conflicts between the traditional macro policy objectives and a financial stability objective. Sometimes in tightening the stance of policy, for example, policymakers are concerned about the possibility that outsized financial market reactions could occur or that an associated decline in asset prices will reveal financial vulnerabilities in some sectors. At the margin, it would seem that a financial stability objective that was weighted quite heavily would tend to make that concern more pronounced, which arguably could hinder the effectiveness of monetary policy in securing price stability and sustainable real growth. For example, one might wonder whether the Federal Reserve's changes in procedures in the late 1970s to target a narrow monetary aggregate, with the attendant rapid increase in the level of the federal funds rate, would have been possible in a regime that tended to view sharp swings in interest rates as a threat to financial stability. Potential problems also can arise when central banks need to implement policy easings. For example, some have argued that the Bank of Japan was too slow in easing policy in response to the decline in economic activity in the early 1990s, partly because it feared that an aggressive easing would risk reinflating asset price bubbles.[6]

---

[3] Lars Svensson, *Monetary policy and real stabilisation*, presented at a symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, 29-31 August 2002.

[4] Claudio Borio and Philip Lowe, "Asset prices, financial and monetary stability: exploring the nexus," *BIS Working Papers*, July 2002.

[5] Borio and Lowe (2002), for example p 22.

[6] Whether the Bank of Japan was, in fact, greatly concerned that aggressive earning would reinflate asset bubbles is unclear, but market participants perceived this to be a significant factor in the BoJ's policy deliberations. See Ahearne, Gagnon,

Moral hazard

Another important issue raised by a very activist approach to pursuit of financial stability objectives is how such an approach would affect the incentives of market participants. It seems quite possible that wide recognition that central banks place heavy weight on warding off financial instability could work to exacerbate moral hazard. Investors might conclude that a central bank with a very activist approach in addressing financial instability would be more inclined in many scenarios to step in to forestall a crisis. For example, investors may perceive that an activist central bank would be more likely to come to the rescue of large financial institutions that are perceived to be systemically important - a perception that would tend to reinforce a view that some institutions are "too big to fail". Moral hazard may also arise at the macro level as well. If investors are convinced the Federal Reserve will aggressively ease policy in response to adverse shocks to particular markets, they may undervalue the risks they assume in their investment decisions. This perception could also lead to a misallocation of resources and, paradoxically, contribute to a deterioration in financial stability over a long horizon.

Inadvertent destabilising actions

Still another concern that might be associated with a highly activist pursuit of a financial stability objective is the possibility of inadvertently contributing to greater variability in macroeconomic variables. As Milton Friedman famously cautioned many years ago, when the lags and impact of monetary policy actions are uncertain, activist monetary policy aimed at damping output fluctuations, albeit well-intentioned, can easily end up amplifying such fluctuations instead. One scenario in which this concern seems especially relevant today is the case of asset price bubbles. Some authors, including Borio and Lowe, have suggested that a central bank may be able to take actions to burst such bubbles at an early stage and thereby avert some especially serious future consequences if the bubble otherwise were to continue to inflate for some time before bursting. To be sure, central banks can and should lean against the wind to the extent that such asset price distortions affect the outlook for inflation and output. But to go beyond this to a policy of actively seeking to burst a bubble seems very problematic - there are simply too many uncertainties involved. One can never be sure that a bubble is inflating. And even if a bubble could be identified with certainty, calibrating the necessary policy actions necessary to burst a bubble without significant damage to the real economy would be extraordinarily difficult.[7]

4. Incorporating financial stability in a decision-making framework

The previous discussion suggests that there may be significant problems associated with an overly activist approach in pursuing financial stability objectives. But this begs the question of just how a central bank should take financial stability considerations into account in reaching policy decisions. In conducting monetary policy, the Federal Reserve normally prefers to focus on its broad macro policy objectives - low inflation and sustainable output growth - and to consider financial instability implicitly through its effect on these fundamental variables. Financial instabilities that are significant enough to cause the expected path either of output to move significantly above or below that of estimated potential output or of inflation to deviate from intentions are then a cause for concern and policy can be eased or tightened as appropriate. Admittedly, determining what is "appropriate" over an extended horizon may involve complicated and difficult judgments about the short- and long-run effects of alternative policy prescriptions: It is possible, for example, that attaining long-run goals for sustainable growth may require some sacrifice of output in the near term. Nonetheless, concerns about financial instability in this instance would be evaluated largely by reference to expectations about inflation and output.

Haltmaier and Kamin et al, "Preventing deflation: lessons from Japan's experience in the 1990s," *International Finance Discussion Papers*, Board of Governors of the Federal Reserve System, June 2002, p 23.

[7] These issues are discussed in more detail in Alan Greenspan, "Economic volatility," presented at a symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, 29-31 August 2002.

But there may also be cases in which a central bank faced with the prospect of financial instability needs to adjust policy by more than could be justified solely by the forecasts for output and inflation. In my view, though, this is perfectly consistent with a central bank that conducts monetary policy using forecasts for key macro variables as its primary guideposts but also considers the risks to the forecasts for those key macro variables.[8]

One might think of this as a process of stress testing by monetary policy decision makers in which they regularly assess not just the likely path of output and inflation in reaching their policy decisions but also the potential for adverse outcomes in light of recent or potential shocks. For example, the FOMC reviews documents prior to each meeting that give the staff's forecasts for inflation, output, and other variables based on economic models and the informed judgment of the staff. That forecast forms a baseline for discussion of policy alternatives at each FOMC meeting, although FOMC members of course develop their own view of the economic outlook. Issues of financial stability can be fairly readily incorporated in this process by considering "what if" exercises. For example, following a sharp increase in risk spreads in fixed-income markets, FOMC members might look not just at a baseline forecast but also how that forecast might change if some type of financial instability - perhaps a further, more extreme deterioration in credit availability - were to ensue. This scenario might influence the FOMC's monetary policy decision, depending on the likelihood of the scenario and the potential costs in terms of output or inflation variability associated with it. This basic framework of guiding policy not just by the likely path of key macro variables but also by a sense of the risks to that outlook provides a structured way to incorporate concerns about financial instability into the broader policy discussion.

Recent episodes of financial instability

Unfortunately, central banks including the Federal Reserve have faced an elevated frequency of episodes involving real or potential financial instability in recent years. The discussion below provides a brief review of the Federal Reserve's approach in three such instances, and illustrates how its actions could be rationalised in the decision-making framework described above.

Autumn of 1998: The period of global financial turmoil touched off by the Russian debt default in August 1998 and then greatly exacerbated by the well-publicised travails of the hedge fund Long Term Capital Management (LTCM) was perhaps the most intense episode of financial instability in recent years. The Federal Reserve, like other central banks, paid close attention to an array of financial indicators at this time. Nearly all such indicators portrayed a dour picture of economic prospects - risk spreads widened sharply, stocks prices fell, and banks reported tightening terms and standards on business loans. Also disturbing were reports from contacts with market participants that capital markets were seizing up as dealers and other market makers recoiled from risk-taking. A sharp widening in the spread between off-the-run and on-the-run Treasury securities underscored the fact that investors were willing to pay a very high premium for liquidity. Facing what some were referring to as the most acute financial crisis in decades, the Federal Reserve eased policy by 75 basis points in three equal steps, including an intermeeting move in mid-October of 1998, and maintained that lower funds rate through June of the subsequent year. In part, these actions were motivated by a change in economic forecasts. But at least part of this cautious behaviour reflected the FOMC's concerns about financial instabilities and associated downside risks to the economic forecast. Indeed, the minutes from the 29 September 1998 FOMC meeting reported:

> "In the Committee's discussion of current and prospective economic conditions, members focused on developments that *pointed to the potential for a significant weakening in the growth of spending*. They recognised that there were at present few statistical indications that the economy was on a significantly slower growth track. Indeed, the available data suggested that consumer expenditures and business investment retained considerable strength. At the same time, however, investors' perceptions of risks and their aversion to taking on more risk had increased markedly in financial markets around the world. That

[8] Svensson (2002) argues that optimal policy is based predominantly on an evaluation of forecasts for output and inflation and that financial stability is best viewed as a constraint on policy that becomes binding only on occasions. The FOMC tends to follow a more nuanced approach in which an assessment of the asymmetries in the outlook is part of its normal deliberations. Such risks sometimes include discussions of various types of financial imbalances.

change in sentiment was exacerbating financial and economic problems in a number of important trading partners of the United States. In addition, it was generating lower equity prices and tightening credit availability in U.S. financial markets. As a consequence, *the downside risks to the domestic expansion appeared to have risen substantially in recent weeks*." [emphasis added]

Productivity growth and the stock price run-up: Economic developments in the United States in the late 1990s were quite favourable. Output growth was unusually strong and, in no small part, that strength seemed attributable to a sizeable pickup in the trend growth of labour productivity spurred by the proliferation of new technologies, especially in the computing and telecommunications sectors. Investors read the favourable productivity trends as auguring enhanced profit growth, prompting a substantial run-up in equity prices in 1999 and into 2000 that pushed standard valuation measures - such as price-earnings ratios - well above historical benchmarks. Although it is difficult to identify an equity risk premium with great precision, it certainly seemed at the time that investors were quite optimistic about the returns they could expect to earn by holding equities. The rise in equity wealth and strong growth of income over this period contributed to a brisk pace of consumer spending and an accompanying decline in the personal savings rate. Core measures of inflation, however, remained quite subdued even as the unemployment rate and other measures of resource utilisation moved to levels that previously would have been viewed as threatening a rise in inflation pressures.

In a sense, this period is similar to the situation that Borio and Lowe posit in which "imbalances" may develop even during a period when the current macroeconomic environment is viewed as quite favourable. The FOMC, however, did not frame its policy deliberations over this period in terms of the need to take action to address a potential bubble in the stock market. Rather, it focused on the outlook for output and inflation and the risks to that outlook. The FOMC was particularly aware that the stronger trend productivity growth would tend to be associated with a higher level of "equilibrium" real interest rates and that the degree of monetary policy restraint associated with any given setting of the target funds rate would need to be judged in this light.

The FOMC responded to these economic developments by tightening policy appreciably, moving the target federal funds rate up from 4 3/4% in early 1999 to 6 1/2% in May 2000. In explaining its actions, the FOMC noted that it was concerned that growth of aggregate demand would outstrip the growth in potential supply, leading to imbalances that would pose a risk of inflation pressures. For example, in explaining its actions in August 1999 and February 2000, the FOMC stated:

> "Today's increase in the federal funds rate, together with the policy action in June and the firming of conditions more generally in U.S. financial markets over recent months, should markedly *diminish the risk of rising inflation going forward*." (24 August 1999).
>
> "The Committee remains concerned that over time increases in demand will continue to exceed the growth in potential supply, even after taking account of the pronounced rise in productivity growth. *Such trends could foster inflationary imbalances that would undermine the economy's record economic expansion*." (1 February 2000). [emphasis added]

An important factor underlying the Committee's sense of the risks of inflationary pressures was the role of accelerating productivity growth in boosting earnings expectations and stock prices which, in turn, were providing considerable impetus to wealth and spending. For example, the minutes of the February 2000 meeting noted:

> "In the Committee's review of current and prospective economic developments, members commented that the economy still seemed to be growing very vigorously as it entered the new year….*Accelerating productivity, although adding to the growth of the economy's potential output, also had induced expectations of rapidly accelerating business earnings that in turn had generated sharp increases in stock market wealth and lifted the growth of purchasing power and spending above that in incomes. Relatively high real interest rates that reflected the increased productivity and damped the rise in asset values would be needed to help restore balance*." [emphasis added]

11 September attacks: The terrorist attacks offered another example of the way in which policy decisions could be shaped importantly by concerns about potential financial instabilities viewed as risks to the economic forecast. On top of the appalling loss of life, the attacks caused major damage to the physical infrastructure of a number of key firms central to trading and market making activities. In an economy that had already been weakening prior to the attacks, many policy makers worried that

the decline in stock prices, widening in risk spreads, and impairment of market functioning raised the odds of highly adverse events in which economic activity could plunge. In view of these risks, the FOMC eased policy 50 basis points prior to the reopening of markets on Monday 17 September. In explaining that action, the FOMC pointed both to a less sanguine economic outlook and to significant uncertainties (downside risks) associated with that outlook. The minutes from the FOMC's August 2001 meeting (which included a summary of the FOMC teleconference call held on the morning of 17 September) reported:

> "Subsequently, on September 17, 2001, the Committee members voted unanimously to ease reserve conditions appreciably further, consistent with a reduction in the federal funds rate of 50 basis points to a level of 3 percent. This policy action was associated with the approval by the Board of Governors of a reduction of equal size in the discount rate to a level of 2-1/2 percent. *These actions were taken against the backdrop of heightened concerns and uncertainty created by the recent terrorist attacks and their potentially adverse effects on asset prices and the performance of the economy.* In conjunction with these policy moves, the Federal Reserve would continue to supply, as needed, an atypically large volume of liquidity to the financial system. As a consequence, the Committee recognised that the federal funds rate might fall below its target on occasion until more normal conditions were restored in the functioning of the financial system. The Committee's vote encompassed the retention of a statement in its press release indicating that the balance of risks remained weighted toward weakness for the foreseeable future." [emphasis added]

The 11 September attacks also provided an example of the way in which the Federal Reserve employed its full range of policy tools to address risks to the forecast. On the morning of 11 September the Federal Reserve issued a brief public statement indicating that it was operating and that the discount window was available. With an important market mechanism for distributing reserves among banks - the brokered federal funds market - significantly impaired, there were huge imbalances in reserve positions across the banking system. These were met through extraordinarily large levels of discount window lending for a few days and also by huge injections of reserves via the open market desk. A sizeable portion of the funding needs on some days was concentrated at foreign banking organisations. To allow foreign central banks to better meet the dollar-denominated funding needs of their institutions, the Federal Reserve arranged swap lines with the ECB and the Bank of England and expanded its existing swap line with the Bank of Canada. To augment bank liquidity further, the Federal Reserve waived all daylight overdraft fees and the penalty portion of charges for overnight overdrafts and lengthened Fedwire operating hours for several days after the attacks. The Federal Reserve also greatly eased the limits on its security lending facility, thereby helping to reduce the pressure firms faced in acquiring securities made scarce by settlement difficulties. In addition, as noted earlier, the federal banking regulators issued a joint statement recognising the possibility of significant balance sheet expansion for some banks and suggesting that banks contact them if they had concerns about how this would affect their capital ratios. These temporary arrangements were gradually unwound as financial conditions returned to normal.

5. Conclusion

Financial stability is and always will be of vital interest to central banks and is certainly an appropriate objective for central banks. There are some complexities, however, in determining just how financial stability considerations should be taken into account in reaching policy decisions. In this context, the Federal Reserve has found it useful to view financial stability in terms of its impact on the economic outlook, including its effects on the forecasts for key economic variables and the risks to those forecasts. Much of the discussion above was framed in terms of an individual central bank balancing concerns about domestic financial stability with other objectives. But in today's globally integrated markets, it is more important than ever for central banks and other financial authorities to share information, to communicate about crisis prevention measures, and to recognise a common interest in effective crisis management actions. In this vein, the work being done in various forums to develop a deeper understanding of the international dimensions of financial instability and to foster important structural improvements in areas such as payment systems, banking and securities market regulations, and accounting standards is especially important and relevant.

Monetary and financial stability: is there a trade-off?[1]

Otmar Issing[2]

The question whether there is a trade-off between monetary and financial stability has been one of the most interesting areas of research for central banking for many years. Researchers at the BIS have been regular and valuable contributors to this discussion. Thus I am particularly pleased to have the opportunity to convey my ideas on this subject here at the BIS in Basel.

Problems with definitions

Let me start by defining what I mean by monetary and financial stability. Monetary stability is a synonym for price stability. Price stability refers to a stable price level or a low level of inflation and not to stable individual prices. There is no doubt that changing relative prices play a crucial and beneficial part in economic adjustment and decision-making by individual actors, be it companies or households. Part of the costs of inflation can be related to the fact that these relative price signals will be blurred more and more the higher the rates of inflation.[3] Although there are some issues concerning the most relevant composition and measurement of the price index and the optimal horizon over which to define price stability, in general the concept is widely accepted and relatively straightforward to handle, both conceptually and in central banking practice. An example of an explicit definition of price stability is the one chosen by the ECB, which refers to a year-on-year increase in the Harmonised Index of Consumer Prices for the euro area of below, but close to, 2%, which is to be maintained over the medium term.[4]

The same degree of clarity cannot be claimed with regard to financial stability. A generally accepted definition has to my knowledge not yet been provided. Besides the fact that most authors find it more convenient to define financial instability instead of its positive counterpart, a clear distinction exists between definitions which are based on a system approach and those which are related to the volatility of directly observable financial variables. An example of the former would be a definition broadly following Mishkin (1991), which can be adapted to define financial stability as the prevalence of a financial system which is able to ensure in a lasting way, and without major disruptions, an efficient allocation of savings to investment opportunities.[5] How close an economy is to the break point, exceeding that which would impair the efficient allocation of savings, could be labelled the degree of financial fragility. This definition is very broad and - in my opinion - intellectually convincing. Due to the focus on the resilience of the financial system it would not classify each individual bank failure or each large swing in an asset price as proof of financial instability. On the contrary, large swings in asset prices possibly leading to some failures of monetary and financial institutions in the aftermath of a large real or financial shock could even be a sign of stability and of self-purifying powers of the system,[6] as long as an efficient financial intermediation and financing process can be maintained. However, this definition contains little practical guidance for any institution trying to maintain or to contribute to the goal of financial stability. Other, less conceptually convincing, but more

---

1 I would like to thank Carsten Detken and Jesper Berg for their valuable contribution.

2 Member of the Executive Board of the European Central Bank.

3 See Gaspar and Smets (2002) and Issing (2000).

4 See ECB (2003).

5 A similar definition stressing the shock resilience and the payment processing dimension of financial stability can be found in Padoa-Schioppa (2002, p 21).

6 In this context one could think of Schumpeter's creative destruction and the reduction of moral hazard risks.

directly observable definitions (and therefore frequently used in theoretical work) equate financial stability with situations without banking crisis and with asset price stability, including interest rate smoothness, relative to some benchmark.[7] But such definitions are only apparently tangible because a suitable benchmark would still have to be found.

The difficulties related to the definition of financial stability reveal more than problems with semantics. The central bank's role in contributing to financial stability is at stake. The definition to some degree predetermines the role ascribed to monetary policy in contributing to the goal of financial stability and anticipates the answer to the trade-off question. For example, the system-based definition of financial stability intuitively and reasonably suggests that prudential supervision should play the first violin in pursuit of financial stability objectives. The reason is that from comparing the toolboxes of regulators and monetary policy authorities (in a narrow sense), it is clear that the former have an absolute advantage in caring for system-wide stability of financial institutions, as they are able to define, monitor and enforce the rules of the game. The central bank's tools primarily influence the money supply, which make price stability a natural objective. Furthermore, the definition illustrates that the central bank would not attempt to target asset prices as such, but would monitor them obviously with regard to their direct inflationary consequences and also in view of the possible systemic effects. Focusing on the impact of asset price instability rather than on asset prices themselves should reduce, although not abolish, moral hazard problems.

If financial stability instead is defined as, for example, interest rate smoothness, a trade-off with price stability does immediately follow from Poole's result in the face of aggregate demand shocks. The central bank would have to choose to which degree it prefers to stabilise on the one hand interest rates or on the other hand output and inflation. So the question of defining financial stability has non-negligible consequences with regard to the trade-off between monetary and financial stability.

Price stability and financial stability - the conventional view

Having briefly touched on the substantive issue of definitions, let me turn straight away to the conventional central banker's view concerning the trade-off between monetary and financial stability. The conventional wisdom is rather sceptical concerning the existence of a trade-off. The reason is that inflation is regarded as one of the major factors creating financial instability in the first place. This is in line with the view that inflation increases the likelihood of misperceptions about future return possibilities. Inflation can worsen the asymmetric information problem between lenders and borrowers. High inflation is always related to high inflation volatility, which adds to the problems of predicting real returns. A business cycle boom accompanied by high inflation is traditionally considered as the typical environment in which real overinvestment and asset price bubbles blossom. Excess liquidity provided by the central bank is one of the main factors responsible for the development of inappropriately lax lending standards. Credit growth, which is excessive in view of realistic return expectations is often the foundation for financial instability. In other words, stable prices and a monetary policy focused on that objective play an important role for stable financial markets.

Strong protagonists of this view even claim that price stability is almost a sufficient condition for financial stability.[8] Others are more careful and simply state that price stability will tend to promote financial stability.[9] I think it is difficult to argue against the basic notion of the latter. Price stability and financial stability tend to mutually reinforce each other in the long run. This widespread view is supported by empirical evidence that many financial crises were caused by major shifts in the price level.[10] Moreover, historically most banking crises occurred during recessions[11] often following periods of high inflation. This is comforting for central bankers in the sense that the likely policy stance to

---

[7] See eg Goodfriend (1987) or Cukierman (1990).

[8] Schwartz (1995).

[9] Bordo and Wheelock (1998).

[10] Bordo et al (2000).

[11] Gorton (1988) and Calomiris and Gorton (1991).

maintain price stability will also be appropriate for the state of the financial system. According to the conventional view there is no general trade-off between monetary and financial stability.

On the other hand, we also know that the world is not always as straightforward as we might wish it to be. We know that financial imbalances can build up even in an environment of stable prices - think for example of the United States in the 1920s and 1990s and Japan in the late 1980s. Thus we must be aware that price stability is not a sufficient condition for financial stability.

However, just as the concrete definition of financial stability is important for the precise link of financial stability to monetary policy, the choice of the monetary policy strategy has implications for financial stability. If the central bank has a primary objective to maintain price stability over the medium term, simply pursuing an inflation targeting strategy according to an inflation forecast with a one- or two-year horizon might not always be the optimal policy strategy. The overall costs (in terms of a standard central bank loss function, mainly future deflation following a financial crisis) might not receive the appropriate weight in a limited horizon inflation forecast. Truly optimal monetary policy cannot avoid that, at times, strains in the financial system might be such that deviations from the desired inflation rate during shorter periods of time have to be accepted in order to preserve price stability over the medium to long run.[12] The argument here implies, of course, that monetary policy decisions actually bear on the state of the financial system and could at the margin even be decisive to prevent the crisis and allow the system to recover.

A second argument leading to the same conclusion stems from risk asymmetries. Given the fact that consequences of a systemic financial crisis can be quite substantial, the optimal monetary policy might at times choose to err on the side of caution, in order to reduce the probability of a crisis to a very small likelihood.[13] Due to the asymmetries (very low probability of very large loss) involved, actual inflation is then likely to exceed expected inflation – and optimally so – for quite some time.

The above argumentation can be used to illustrate why the ECB has always stressed that its stability-oriented monetary policy strategy is more than simple inflation forecast targeting, and it is also more robust. The reason is that explicitly focusing on monetary and credit developments in order to form a judgment on consumer price inflation in the medium to long run forces the ECB to take a sufficiently forward-looking perspective. For example, Borio et al (2003, p 43) explicitly recognise the pre-emptive role of the first pillar of the ECB monetary policy strategy. This longer perspective highlights risks to price stability stemming from financial imbalances. As an important side effect, the optimal price stability-oriented policy reaction based on monetary and credit developments is likely to diminish financial imbalances. The latter claim rests on the observation of a positive correlation between credit growth and bubble developments. Policy would be tightened in times of rising and loosened in times of unwinding financial imbalances.[14]

At this point it is worth stressing that according to the previous arguments, considering financial imbalances - from time to time - may lead to a different monetary policy stance than fixed-horizon inflation targeting, despite the fact that the only objective of the central bank is price stability (defined over the appropriate medium-term horizon).

The “new environment” hypothesis

A new strand of research is indicating that the achievement of low inflation has created a “new environment”, in the context of which the relation between monetary stability and financial stability has to be reconsidered.[15] Interestingly it has recently even been suggested that the conventional wisdom that price stability is good for financial stability has to be reversed. This is - at least for central bankers

[12] See Kent and Lowe (1997) and Brousseau and Detken (2001).

[13] Bordo and Jeanne (2002) argue that one should think of this aspect in terms of insurance.

[14] See Issing (2002).

[15] See Borio and Lowe (2002) and Borio et al (2003).

of my generation - a provocative view, which is spreading in the academic world.[16] The very first signs of a discussion along these lines can be found in the FOMC minutes of the 13 November 1996 meeting, a few weeks before Chairman Greenspan made his famous "irrational exuberance" speech. During the FOMC meeting Governor Lindsay mentioned being preoccupied by the thought that the central bank's success of keeping inflation under control could trigger a too optimistic outlook on the future course of economic development. People's false sense of security could lead to asset valuations, which could pose problems for the future. Since then additional arguments have been put forward to explain why low and stable inflation can make the financial system more vulnerable – and in compliance with language used in BIS research papers – I will label this the "new environment" hypothesis in the following.[17] The reasons suggested are that for quite some time inflationary pressure might not show up in inflation itself, due to (a) low pricing power of firms, (b) positive supply side developments and (c) well anchored low inflation expectations. It has been argued that central banks' focus on (consumer) price stability is insufficient and financial imbalances would have to be addressed directly. This direct response could consist of two parts. It would first involve trying to avoid (or at least subdue) the building-up process of financial imbalances and second – if the former was unsuccessful (or insufficient) – to smooth the adverse consequences when imbalances are being unwound.

Policy implications

I have on previous occasions already stated my doubts that price stability should be added to the list of causes triggering financial instability.[18] I do not deny the fact that financial fragility can be significant in times of low inflation. But the latter statement that low inflation is not a sufficient condition for financial stability and the former that low inflation causes financial instability, are worlds apart. Here I would like to focus on two particular aspects, which are the trade-off question with respect to the "new environment" hypothesis and the related relevance of the problems associated with identifying asset price bubbles.[19]

In the spirit of Tinbergen, if the central bank has one policy instrument, ie monetary policy, it can only achieve one independent goal, which is price stability. An intuitive division of labour is to assign the objective of financial stability to a financial regulatory authority, which sets up a prudential supervisory framework. This regulatory authority can, but need not, be the central bank. In this scenario with two authorities following one objective each, neither of the authorities would be subject to a policy trade-off, as the number of instruments matches the number of objectives. Nevertheless this reasoning cannot be used to exclude all conflict situations. In practice central banks' responsibilities concerning financial stability vary a lot. For example, no general financial stability objective can be derived from the Treaty or the Statute of the ECB. Nevertheless the ECB has the task to contribute to policies pursued by the competent authorities relating to the stability of the financial system (art 105(5) of the Treaty, arts 3.3 and 25.1 of the Statute). In addition, it should promote the smooth functioning of payment systems (art 105(2) fourth indent of the Treaty, arts 3.1 and 22 of the Statute). Given the fact that in the long run financial stability supports sustainable price stability, it is difficult to deny any central bank's legitimate interest in financial stability. Thus, despite no trade-off being possible when financial stability is not a primary objective of the central bank, the separate allocation of objectives to institutions cannot exclude situations of short-term conflict, along the lines described in previous paragraphs.

How does the trade-off discussion relate to the "new environment" hypothesis? Would there exist a trade-off between monetary and financial stability? Let us assume for a moment that it is true that low and stable rates of inflation foster asset price bubbles for the reasons given above, eg due to excessively optimistic expectations. If we take an extreme position, the existence of a trade-off will imply that achieving less price stability would generate more financial stability. Due to the lack of

---

[16] See Blinder (1999).

[17] See Borio et al (2003).

[18] Issing (2002).

[19] See also Greenspan (2002).

evidence that inflation in general has a beneficial effect on financial stability and quite some evidence to the contrary, I regard the existence of such an exploitable trade-off as highly implausible. And to be fair, no proponent of the "new environment" view has so far suggested that the central bank should purposefully increase inflation and inflation volatility.

The only situation I can envisage where lower inflation could actually be conducive to financial instability is a period of significant and unprecedented disinflation, typically in times of convergence from a state of high to a state of low inflation. Very often simultaneous financial deregulation adds new risks as well as opportunities to investment decisions. Although a higher level of debt is sustainable with lower interest rates, unusually (and perhaps only temporarily) low nominal interest rates might give rise to the financing of too risky projects, due to the inexperience of both lenders and borrowers in a low-interest-low-inflation rate environment and due to the fact that liquidity constraints are automatically eased. But the fragility during periods of disinflation is a transitory adjustment problem and would vanish as soon as the economy gets accustomed to the new and stable environment. Furthermore, in a broader, longer-term perspective it is again high inflation which causes the problem. Without a preceding period of higher inflation, the economy would not have to go through a potentially vulnerable period of disinflation and adaptation to a regime of low inflation in the first place.

In general, though, a "new environment" economy would rather be another example where a short-term conflict between nearer-term price stability and financial stability - rather than an exploitable trade-off - could arise. The reason is that an increase in interest rates required to dampen asset price inflation, prevent overinvestment and thus reduce the risk of a serious financial crisis could come along with lower than desired near-term inflation. Again, this short-term conflict would occur not because financial stability should be an independent general objective of the central bank, but because the time horizon over which the primary objective of price stability should be pursued includes future - possibly post-crisis - periods.

The "new environment" short-term conflict is thus one where financial imbalances are considered important enough to possibly constitute a long-run threat to price stability. To my mind it does not imply that the ultimate objective of monetary policy should not be price stability.

With regard to asset prices any central bank intervention would imply that the central bank has the ability to detect a bubble in real time. I myself have often made the argument that the central bank has no comparative advantage over market participants to venture such a judgment.[20] It follows that reacting to perceived financial imbalances could easily be misleading. It remains true that one can hardly be humble enough in judging one's ability to estimate equilibrium asset prices in general. But in the light of the most recent boom and bust phase in equity markets, I would tend to be slightly less pessimistic about the possibilities to identify an extreme bubble in real time. There has been ample evidence that stock market developments in the late 90s were to a large part unrelated to fundamentals. Of course, this information has not been available to central banks alone. But due to the uncertainty related to the timing when the bubble will burst, it often is more rewarding for market participants to follow the trend than to bet against it. This view is consistent with the recent literature on market efficiency, which finds that returns are to some degree predictable, but the horizon over which this would be exploitable is too long to be sustainable for individual market participants. Thus the central bank might have a role to play in providing a noisy but unbiased opinion about equilibrium prices to the public.

Recently arguments have been put forward that the uncertainty related to the identification of an asset price bubble is not fundamentally different from the uncertainty surrounding other variables, on which the central bank bases its policy decisions. In particular, estimates of the output gap rely to a large degree on very much the same information needed to identify a stock market bubble, which is underlying productivity growth and the equilibrium risk premium.[21] More provokingly, Cechetti et al (2003, p 440) recently claimed that "if you cannot estimate asset price misalignments, you cannot forecast inflation either." I consider the latter view purposely exaggerated for dramatic effect. But still there is probably more truth to it than is commonly accepted in central banking circles. I would therefore not completely disregard the possibility that situations of financial instability can be

[20] See Issing (2002) and Garber (2000).

[21] See Cechetti et al (2003).

approximately identified in a relevant time horizon and that this information should find its way into policy decisions.[22]

There still remains the issue at which level and how strongly a central bank should react to a perceived misalignment of asset prices. The strongest form is to target the asset price level which is considered to be in line with fundamentals. This idea has been rejected - and correctly so - many times before.[23] Here, I only mention the moral hazard problems and possible indeterminacy of inflation such a policy would foster. A second, less interventionist strategy would be for the central bank to lean against the wind of asset price changes. Here I must say that I share concerns that the monetary policy reaction necessary to prick a bubble in the midst of a euphoric bull market could create immense risks for the real economy, in particular for the more interest sensitive sectors. This is even truer when the central bank suddenly shifts gears, after having been accommodating financial market developments for an extended period of time. A third option would be that the central bank avoids accommodating asset price movements which are deemed to move away from equilibrium. As was explained above, the ECB two-pillar strategy would send a "warning signal" in cases when the forecast for consumer price development is benign but monetary and credit aggregates are rising strongly. In considering monetary policy actions, the result of the analysis would at least ask for a more cautious approach. Finally, as a fourth option, the central bank could choose to react mainly by means of communication. Communicating its views in a careful manner when asset prices are considered to be out of line with fundamentals could lead market participants to increase their own doubts about the sustainability of price developments. However, the central bank would need to avoid "pretence of knowledge", which could be misleading and even undermine its reputation. It should provide a transparent analysis of the indicators and evaluation models on which its assessment is based. A "combination" of exceptional increases of asset prices over an extended period of time and strong increases of monetary aggregates and credit could be seen as evidence for unsustainable asset price developments.

An example of such a communication strategy could be observed during the period of undervaluation of the euro early in this millennium.[24] ECB representatives issued statements that the euro had the potential to appreciate. The Editorials of the *Monthly Bulletins* between March 2000 and October 2000 expressed increasing concern with the divergence of fundamentals and the external value of the euro.[25] Although the estimation of equilibrium exchange rates is a difficult business as model and parameter uncertainties are huge,[26] there was sufficient evidence at the time to underpin such statements. However, also in this case no guess on the timing of a trend reversal or on the exact equilibrium level was given.

While exchange rate and asset price misalignments raise some of the same issues, there are also some noteworthy differences. In the most plausible scenarios, the likely impact of exchange rate misalignments on economic developments of the euro area is more important than asset price misalignments. Our knowledge concerning the impact of exchange rate changes is generally better founded than our understanding of the impact of asset price changes. On the other hand, in extreme scenarios the impact of major asset price adjustments could potentially be more harmful for the euro area than (even large) exchange rate changes. Thus analysing the likelihood and impact of asset price "tail events" remains a major challenge for central bank research.

---

[22] Some first steps in this direction have been provided by Borio and Lowe (2002).

[23] See eg Issing (2002).

[24] See Gaspar and Issing (2002) concerning the role of the exchange rate for monetary policy.

[25] See *ECB Monthly Bulletins* in March, April, May, September and October 2000.

[26] See Detken et al (2002), Maeso-Fernandez et al (2002) and ECB (2002).

Conclusions

Let me conclude. I started out by discussing why defining financial stability is as difficult as it is important. Namely, it can pre-empt the answer to the trade-off question. A system definition of financial stability practically excludes a trade-off between monetary and financial stability. It does so partly by promoting a clear assignment of objectives to authorities according to comparative advantages of the major instruments in their toolboxes.

Furthermore, if the central bank employs a medium-term horizon for the maintenance of price stability and implies a strategy encompassing a stability-oriented, forward-looking approach, financial imbalances will implicitly obtain the attention they deserve.[27] This is true even if financial stability is not considered a general objective of the central bank and monetary policy aims at maintaining the objective of price stability. This does not rule out the existence of a short-term conflict. In most cases price stability would foster financial stability. In rare circumstances though, a short-term conflict is possible. With short-term conflict I refer to a situation where it is optimal to deviate from the desired rate of inflation in the short run in order to best maintain price stability over the medium run. Therefore, in the context of an appropriate definition of price stability and financial stability and in particular an appropriate concept for the horizon to which the policy objective should apply, the conflict disappears.

The "new environment" view for central banking, according to which low inflation is detrimental to financial stability, in my opinion, does not overturn the conventional wisdom that in general price stability fosters financial stability.

Ironically, there could exist a trade-off between accepting that at times shorter-term deviations from the desired rate of inflation can be optimal and acting accordingly on the one side and the overall credibility of a central bank on the other side. If the previously described optimal policy would lead to a prolonged period of deviations from the declared inflation objective, the long-term loss of inflation-fighting reputation could outweigh the gains. Furthermore, any systematic central bank response to financial instability which is expected by financial market participants will most likely trigger higher risk-taking. As a consequence the financial system might not become a safer place, and the only result would be higher average inflation. Accepting the possibility of a short-term conflict between monetary and financial stability need not mean that the moral hazard problem is denied or forgotten. And finally, a last reason for caution is that temporarily deviating from the declared price stability objective for financial stability reasons might be difficult to explain to the public.

In dealing with this latter trade-off, central bankers should be risk-averse with regard to their primary objective, as the loss of inflation-fighting credibility may weigh heavily. But reputation is also at stake if a central bank is perceived as having underestimated or even neglected the issue of financial instability. Thus the final conclusion is that there is no easy choice, which is not a surprising result in a complex world.

References

Blinder, A (1999): "General discussion: monetary policy and asset price volatility", *Federal Reserve Bank of Kansas City Economic Review*, 4th quarter, pp 139-40.

Bordo, M, M Dueker and D Wheelock (2000): "Inflation shocks and financial distress: a historical analysis", *Federal Reserve Bank of St Louis Working Paper Series*, no 2000-005A.

Bordo, M and O Jeanne (2002): "Monetary policy and asset prices: does 'benign neglect' make sense? ", *International Finance*, 5(2), pp 139-64.

Bordo, M and D Wheelock (1998): "Price stability and financial stability: the historical record", *Federal Reserve Bank of St Louis Review*, Sep/Oct, pp 41-62.

[27] See also *The Economist*, 18 January 2003, "Economics focus: still bubbling", p 66.

Brousseau, V and C Detken (2001): "Monetary policy and fears of financial instability", *ECB Working Paper*, no 89.

Borio, C and P Lowe (2002): "Asset prices, financial and monetary stability: exploring the nexus", *BIS Working Papers*, no 114.

Borio, C, B English and A Filardo (2003): "A tale of two perspectives: old or new challenges for monetary policy?", *BIS Working Papers*, no 127.

Calomiris, C and G Gorton (1991): "The origins of banking panics, models, facts, and bank regulation", in R G Hubbard (ed), *Financial markets and financial crises*, University of Chicago Press, Chicago.

Cecchetti, S, H Genberg, J Lipsky and S Wadhwani (2000): "Asset prices and central bank policy" *ICMB/CEPR Report*, no 2.

Cecchetti, S, H Genberg and S Wadhwani (2003): "Asset prices in a flexible inflation targeting framework", in W Hunter, G Kaufmann and M Pomerleano (eds), *Asset price bubbles*, The MIT Press, Cambridge.

Cukierman, A (1990): "Why does the Fed smooth interest rates?", in M Belongia (ed), *Monetary policy on the Fed's 75th anniversary*, Proceedings of the 14th Annual Economic Policy Conference of the Federal Reserve Bank of St Louis, Kluwer Academic Publishers, Norwell, MA.

Detken, C, A Dieppe, J Henry, C Marin and F Smets (2002): "Determinants of the effective real exchange rate of the synthetic euro: alternative methodological approaches", *Australian Economic Papers*, vol 41(4), pp 404-36.

European Central Bank (2003): "The outcome of the ECB's evaluation of its monetary policy strategy", *Monthly Bulletin*, June, pp 79-92.

——— (2000): Editorial, *Monthly Bulletin*, March, April, May, September, October.

——— (2002): "Economic fundamentals and the exchange rate of the euro", *Monthly Bulletin*, January, pp 41-53.

Garber, P (2000): *Famous first bubbles: the fundamentals of early manias*, MIT Press, Cambridge.

Gaspar, V and O Issing (2002): "Exchange rates and monetary policy", *Australian Economic Papers*, vol 41(4), pp 342-65.

Gaspar, V and F Smets (2002): "Price level stability: some issues", *National Institute Economic Review*, no 174.

Goodfriend, M (1987): "Interest-rate smoothing and price level trend-stationarity", *Journal of Monetary Economics*, 19, no 3, pp 335-48.

Gorton, G (1988): "Banking panics and business cycles", *Oxford Economic Papers*, 40, pp 751-81.

Greenspan, A (2002): *Economic volatility*, Remarks at a Symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole.

Issing, O (2000): *Why price stability?*, First ECB Central Banking Conference.

——— (2002): *Why stable prices and stable markets are important and how they fit together*, First Conference of the Monetary Stability Foundation, 5 December.

Kent, C and P Lowe (1997): "Asset-price bubbles and monetary policy", *Research discussion paper*, Reserve Bank of Australia, RDP 9709.

Maeso-Fernandez, F, C Osbat and B Schnatz (2002): "Determinants of the euro real effective exchange rate: a Beer/Peer approach", *Australian Economic Papers*, vol 41(4), pp 437-61.

Mishkin, F (1991): "Anatomy of financial crisis", *NBER Working Paper*, no 3934.

Padoa-Schioppa, T (2002): *Central banks and financial stability: exploring the land in between*, Second ECB Central Banking Conference on the transformation of the European financial system, 24-25 October.

Schwartz, A (1995): "Why financial stability depends on price stability", *Economic Affairs*, pp 21-5.

Remarks on achieving monetary and financial stability

Michael Mussa[1]

It is an honour and a great pleasure to participate in this panel discussion marking Andrew Crockett's last official function after nine eventful and constructive years as General Manager of the Bank for International Settlements.

In many ways, this conference has been a fitting tribute not only to Andrew's accomplishments at the BIS but also to his long career as a scholar, adviser, and policymaker with keen insight on a wide range of issues in macro, monetary, and financial economics and related areas of public policy. The conference papers have both illuminated key issues of policy importance and provided the groundwork for much worthwhile discussion.

Nevertheless, I believe that the conference has not fully responded to the key challenges put forward in Andrew's opening remarks concerning the role of monetary policy in responding to financial instability in the form of possible asset price bubbles:

> "The argument … points to a number of reasons why there may be a prima facie case for monetary policy to respond to financial imbalances, as they build up, even if short-run inflation pressures remain in check. First, in the absence of such a response, monetary policy can unwittingly accommodate the build-up of imbalances, raising the risk of larger economic costs later on. Second, the disruptive unwinding of imbalances can cripple the effectiveness of monetary policy itself…. Finally, lowering rates when problems materialise but failing to raise them when they build up could promote an insidious form of 'moral hazard', which could actually contribute to generating the problem in the first place."

In taking up the challenge posed by Andrew's statement, I should like to make three main points. The first concerns the appropriate objective of monetary policy - specifically, the need for recognition that the proper objective of monetary policy is broader than the widely accepted goal of "price stability". Indeed, I would state the broad objective of monetary policy in the following terms:

> Monetary policy should contribute, as best as it can, to achieving over time the highest sustainable path for the standard of living of society - recognising that maintaining a reasonably low and stable rate of general price inflation is usually a key means for monetary policy to serve this basic objective.

This statement clearly acknowledges that achieving reasonable price stability in the sense of maintaining a low and stable inflation rate is something that monetary policy should usually seek to do. And, it does **not** call on monetary policy to promote a high and sustainable rate of economic growth; but only to "… contribute, **as best as it can**," to achieving high living standards over time. This recognises that the influence of monetary policy on the path of economic activity is limited, and that sometimes monetary policy's best long-run contribution may not be that which maximises short-term economic growth. Nevertheless, achievement of reasonable price stability is not the be all and end all of monetary policy. Reasonable price stability is presumably desirable in its own right, but it is primarily desirable as an essential means to achieve the broader end of high real living standards.

The above statement of the fundamental objective of monetary policy differs somewhat in emphasis, but should usually differ little in practice, from the objective embodied in "flexible inflation targeting". Under "flexible inflation targeting", the primary objective of monetary policy is to keep actual inflation (over a suitably defined period) within a narrow range of an officially established (and low) target rate of inflation. Monetary policy that pursues this objective may naturally tend to stabilise the behaviour of output and employment. In addition, monetary policy has some flexibility to pursue short-run output

---

[1] Senior Fellow, Institute for International Economics.

stabilisation within the band of permissible inflation; and adjustments of the inflation target may be used to allow greater weight on output stabilisation in more extraordinary circumstances.

If there is little practical difference between flexible inflation targeting and my broader definition of the objective of monetary policy, why push for the broader statement - especially in view of the emerging consensus in support of inflation targeting as the way to do monetary policy? The answer is that there are circumstances where the emphasis placed in the broader objective does really matter; and in those circumstances flexible inflation targeting may lead monetary policy astray. Before turning to those circumstances, however, I should note an important reason why inflation targeting has an advantage as an official statement of the framework for monetary policy.

Monetary policy is not a technical exercise carried out by central bankers with advice from expert staff and consultants. Monetary policy is an exercise in political economy where the central bank must be able to explain and justify its actions to politically responsible officials and to the general public. If the economy is weak and inflation is not a problem, a central bank usually faces little difficulty in explaining a decision to ease monetary policy - even if, under a regime of inflation targeting, the inflation rate is not threatening to fall below some permissible lower bound. In contrast, if the economy is exhausting margins of slack but inflation is still relatively low and showing only minor upward pressures, a tightening of monetary policy may not be particularly popular. A flexible inflation targeting regime gives the central bank some advantage in dealing with such situations - by pointing to its primary mandate for the maintenance of price stability. In contrast, an official statement of the objective for monetary policy that emphasised support for high growth and rising real living standards might undermine the central bank when it needs support for unpopular actions - without really helping in those situations where a central bank needs to take fundamentally more popular decisions. It seems to me that this is a good reason to put considerable (but not exclusive) emphasis on the objective of price stability in the official mandate for monetary policy.

My second main point is that there clearly are circumstances where, on occasion, the maintenance of price stability is not the most important objective of monetary policy. Lord Keynes remarks on this fact in the Tract on Monetary Reform:

> "… money is simply that which the state declares from time to time to be a good legal discharge for money contracts …. There is no record of prolonged war or a great social upheaval which has not been accompanied by a change in legal tender, but an almost unbroken chronicle in every country with a history, back to the earliest dawn of economic record of successive legal tenders which have represented money ….
>
> The power of taxation by currency depreciation is one which has been inherent in the State since Rome discovered it. The creation of legal tender has been and is a government's ultimate reserve; and no state or government is likely to decree its own bankruptcy or its own downfall, so long as this instrument still lies at hand unused."

Indeed, Britain and the United States - which have enjoyed the most stable monetary arrangements of any country over the past two centuries - have had occasional recourse to the printing press and to alterations in the monetary standard as means to help deal with major wars and economic catastrophes. Most other industrial countries, especially those that lost major wars, have had far more extensive resort to the monetary printing press. More recently, in Germany - the bastion of postwar monetary discipline - we have seen how the exigencies of reunification have affected money policy. Looking forward, it is reasonable to expect that there will be occasions when the objective of reasonable price stability will again be trumped by more important concerns in determining the conduct of monetary policy.

My third main point is that among those situations where the maintenance of low general price inflation may not be the best guide for proper conduct of monetary policy are those where asset prices are behaving bizarrely. Of course, it is widely accepted that the behaviour of asset prices has some importance for monetary policy - as the behaviour of asset prices is an important macroeconomic indicator that affects expectations about both economic growth and general price inflation. The issue is when, if ever, should asset prices play more than this generally accepted role in the conduct of monetary policy.

My answer is clear - sometimes, and on a discretionary basis! By this I mean that there is no general guide to exactly when and how the behaviour of asset prices should exert unusual influence on monetary policy. There is nothing like an augmented Taylor rule where asset prices regularly appear as an additional factor influencing monetary policy. Certainly, stabilisation of asset prices (or asset

price inflation) should not be an objective of monetary policy in any way similar to that in which maintenance of reasonably low and stable general price inflation is such an objective. Rather, the special and unusual influence of asset prices on monetary policy arises, from time to time, in special circumstances when asset prices are behaving strangely and when this strange behaviour justifies an alteration in monetary policy from what it would otherwise be.

One such circumstance often occurs in situations of financial crises, when financial markets suddenly become highly turbulent and asset prices (especially equity prices and prices of lower quality credits) sometimes fall precipitously. Then is it often appropriate for the central bank to respond by injecting liquidity in order to calm the crisis. (Unfortunately, countries that face crises of confidence in their economic policies along with a more general financial crisis, including many emerging market countries, may not have the latitude for such countervailing action.) This, for example, is what the Federal Reserve did after the stock market crash of October 1987, during the LTCM and Russian crises of November 1998, and following the events of 11 September 2001. I would add that these actions were taken with the clear understanding that in the absence of Fed intervention, deepening of these financial crises would probably have posed important threats to the economy. General price deflation might also have followed in the wake of an uncontained financial crisis - as it did in the early 1930s - but this threat was not arguably imminent in autumns of 1987, 1998, or 2001. Rather, the broader definition of the objective of monetary policy (described above) took over in these crisis episodes as the effective guide for monetary policy.

While there is fairly broad consensus that central banks should act to countervail financial crises, there is much less agreement, especially by central bankers, that monetary policy should also operate in the opposite direction to attempt to countervail (positive) asset price bubbles. In particular, Chairman Greenspan has argued that the surge in US equity prices in the late 1990s was difficult to diagnose as an unsustainable asset price bubble (at least until it collapsed), that US monetary policy had no reliable means to contain this bubble, and that action to contain the bubble might have been counterproductive or might have provoked an even more devastating collapse. Officials from the Bank of Japan have similarly argued that Japanese monetary policy could have done little to counteract the rise of the bubble economy in the late 1980s and did virtually all that could have been done to countervail the results of its collapse.

I find such arguments unpersuasive. The enormous bubble in Japanese equity and real estate prices - with the value of the square mile of grounds surrounding the Imperial Palace in Tokyo worth more than all of California - was a wonder to behold. As one Wall Street wag put it at the time, “I have met the greater fool; and he speaks Japanese”. Surely there can be no excuse for failing to see in all of this something that could be described, with a reasonably high degree of confidence, as an unsustainable asset price bubble. Similarly, there should have been recognition that the likely eventual collapse of this bubble would have dire consequences for the Japanese economy and financial system.

For the Bank of Japan, the problem was not that no one could see credible evidence of a dangerous bubble. The problem was that general price inflation remained very low in 1988-89 (and rose only modestly in 1990-91), and it was difficult for the BOJ to find a reason to begin to tighten monetary policy based on general inflationary pressures. This was complicated by the desire of the Ministry of Finance (which retained ultimate control over monetary policy) to keep economic activity and domestic demand growing strongly (under pressure from the American government), while maintaining a restrained fiscal policy and avoiding further appreciation of the yen. Nevertheless, it is now clear that - even based on the information available at the time - Japanese monetary policy should have been tightened earlier and more aggressively in 1988-89, with the probable effect of containing some of the excesses of the bubble economy.

For the Federal Reserve in the late 1990s, the problem of the asset price bubble was less severe, and the case for a somewhat earlier and more aggressive monetary tightening is, correspondingly, less clear-cut. Judged both by its huge and rapid run-up to just over 5,000 in early March 2000 and by the scale of its subsequent collapse to below 1,500 by September 2001 (and below 1,200 in early 2003), there can now be little doubt that a substantial bubble affected the technology-heavy Nasdaq index. The broader US equity market, represented by the S&P 500, had a much less spectacular run-up and subsequent collapse (especially if technology, media, and telecoms are excluded from this index); and US real estate prices never saw an escalation like those in Japan. Nevertheless, the sharp recession of 2001 and the subsequent difficulty in sustaining a vigorous recovery despite massive monetary and fiscal easing testify to the fact that the US economy was experiencing an unsustainably strong expansion at the end of the 1990s.

Notably, this overheating was not very apparent in measures of general price inflation. Although measures of labour compensation began to show some acceleration, increases in the personal consumption price index (in the quarterly GDP results) remained modest and inflation measured by core CPI showed only limited signs of pickup in 1999-2000. Instead of general price inflation, the signs of unsustainable overheating came in asset prices (especially the Nasdaq) and in the rapid widening of the US current account deficit and strengthening of the foreign exchange value of the dollar (which tended to suppress and conceal domestic inflationary pressures).

Alan Greenspan initially suggested the possibility that US equity markets might be affected by "irrational exuberance" in December 1996. But US monetary policy did not immediately try to do anything about this possibility. Indeed, with the onset of the Asian crisis in the second half of 1997, the Federal Reserve held off from monetary tightening moves that might otherwise have been contemplated in the face of low and declining US unemployment. Then, when the LTCM/Russian crises threatened broader financial market disruption, the Fed responded with 75 basis points of emergency easing in the autumn of 1998.

From the perspective of both the US and the world economy, this emergency easing, as well as the Fed's earlier accommodative stance, were probably desirable, even if they provided some encouragement to what would later turn out to be an unsustainable rise in US and global equity markets. The problem with Fed policy, in my view, was that emergency easing of the autumn of 1998 was not rapidly reversed once the crisis had passed. In fact, there was only one 25 basis point step of monetary tightening in the spring of 1999, and the Fed did not get back to its pre-LTCM stance until a year after the crisis. The result was that a relatively accommodative US monetary policy throughout most of 1999 probably helped to fuel the accelerating rise in US and global equity markets. To this was added the market perception, reinforced by the Fed's response to the LTCM crisis, that US monetary policy would act aggressively to countervail any sharp sell-off in equity markets - making investment in equities appear to have some characteristics of a one-way bet. (Also, as the end of 1999 approached, the Fed and other central banks kept markets very liquid because of concerns about the Y2K computer problem.)

It is not possible to know by how much (or even whether) more aggressive tightening of US monetary policy would have slowed the rise of equity prices during 1999. But the presumption is that by slowing the growth rate of the economy and of corporate earnings and raising the discount rate used to capitalise future income streams, monetary tightening should work against rising equity values. More importantly, the purpose of more aggressive monetary tightening during 1999 would not have been to dampen the equity price boom for its own sake, but rather to apply timely restraint to an overheating US economy. From this perspective, the accelerating boom in equity markets during 1999 was an important signal that a serious problem of overheating was building up, even if this was not easily visible in measures of general price inflation. The Federal Reserve could have and should have responded more aggressively to this signal.

To be clear, I do not believe that the Federal Reserve is mainly responsible for the unsustainable boom in US equity markets in the late 1990s, or that it is the proper task of monetary policy to attempt to countervail all excesses and anomalies in the behaviour of asset prices. Nor is it possible for monetary policy to offset perfectly all of the disturbances that affect the growth rate of real economic activity, including those that may arise from the behaviour of asset prices. However, within the context of its generally excellent record of monetary policy management over the past two decades, it is clearly arguable that the Federal Reserve was too slow in responding to evidence from escalating equity prices (and other sources) that the US economy had entered an unsustainable boom in 1999. More aggressive monetary tightening during that year would probably have avoided some of the excesses of the boom, would have made the subsequent recession more mild, and would have helped to provide a better foundation for the present recovery.

Asset price "bubbles" and monetary policy

Yutaka Yamaguchi[1]

I would like to address some of the issues raised yesterday by Andrew mostly in the context of Japan. First, I agree with Andrew that financial imbalances can develop under a low and stable rate of inflation. I would even argue that price stability is perhaps a necessary, though not sufficient, condition of major bubbles that lead to financial instability. In fact the Japanese financial bubbles in the late 1980s expanded when the economy enjoyed almost complete price stability.

Needless to say, price stability and associated easy money alone cannot generate a major asset market bubble. Excessive optimism about the future, which substantially reduces risk premia, is an indispensable ingredient of the chemistry that breeds asset market bubbles. At any rate, expansion and subsequent collapse of asset market bubbles have dominated the Japanese economic scene in the last 15 years. And, in my view, annual asset price deflation of 10% has exerted much greater pressure on activity than the deflation of CPI by less than 1% a year.

Let me start with the collapsing phase of an asset market bubble.

Charles Goodhart pointed out yesterday that in the United States the unwinding effects of one bubble are being mitigated by another bubble (or boom) in a different market. In Japan there was no such "different" area, because we had twin bubbles in the 1980s in the equity and property markets. When the turning point arrived, both equity and, with a short time lag, real estate markets collapsed.

Add to this the heavy dominance of the banking system in Japanese financial intermediation. The vast flow of credit in the 1980s, much of it secured by collateral in the form of real estate, lost value in the 1990s, and had to be written off from the banks' balance sheets. Inevitably, banks' capital position was hit hard.

It seems to me that the bank-financed property bubble tends to leave behind greater and lingering contractionary effects in comparison with equity driven bubbles. The equity market bubble appears to rise and fall even without being supported by a massive flow of credit; moreover, risks inherent in equity investment should reasonably be understood by average investors, although exuberance tends to blind that reason. That said, capital loss has tended to be concentrated in the banking sector in the Japanese episode, while in the United States it is more widely dispersed. But it remains to be seen to what extent the US financial system is effectively protected by the dispersion or transfer of risks and how US households in particular ultimately adjust themselves to the erosion of their major asset component.

Let me turn to challenges for monetary policy. The BOJ has been criticised, too often, for having been slow to ease in the first few years after the bubble burst. Some simulations I have read indicate that the BOJ's easing path in the crucial early stage was broadly appropriate as a standard stabilisation policy based on the information available at that time. And yet it has been argued that the Bank should have pursued a more aggressive easing given the unusual situation that was to unfold.

I have presented my views on this on a number of occasions in the past. I will briefly summarise my argument as follows.

First, there is a question of "feasibility". We are talking about a specific phase when inflation is still relatively high and uncertainty is unusually great as the result of the bursting bubble. For policymakers to take boldly aggressive steps towards easing when concerns still linger about the risk of re-igniting the bubble and accelerating inflation in the short run, they would have to be equipped with near perfect insight, particularly as regards the risk of deflation more than a few years down the road.

Second, a more basic question in the Japanese context is the following. Could an aggressive easing have significantly moderated the falling trend of asset prices?

I am sceptical. History tells us that once an asset inflation has developed into a major bubble, it is impossible to "soft land" the market when the tide changes. If this is the case, and if the asset market

[1] Formerly Bank of Japan.

in question has traditionally served as a kind of anchor for financial stability, the capacity of monetary policy to stimulate demand, inflation and even money growth is bound to be severely handicapped.

My reference to a strong constraint on central bank's money creation capacity might sound odd, for it defies conventional wisdom explained in Economics A textbooks. But what has actually happened in the last two years since the BOJ conducted "quantitative easing" is illustrative: growth of the monetary base accelerated, the money multiplier dropped almost correspondingly, and broad money in the hands of businesses and households changed little. This is the reality where businesses are working out excessive debt and banks' risk-taking capacity is impaired - features of a post-bubble economy.

The observation so far leads me to a few conclusions with respect to policies in the collapsing phase of a major bubble.

- While it is no doubt desirable to gain a better insight and more accurate predicting ability to support policy judgment, it promises to be a daunting task, given the high degree of uncertainty in the aftermath of a bubble.
- Uncertainty is great as to what an "aggressive easing" can accomplish in terms of its effects on asset prices.
- Prompt actions to address the emerging problems in the banking system are crucial, not merely to stem financial fragility itself, but also to secure a transmission channel for monetary policy.

The point of my argument today is not so much to defend every aspect of the Bank of Japan's policy in the early 1990s, but rather to point to a need to give deeper thought to the complex situation in which the Bank had to operate.

Finally, let me say a few words on monetary policy when asset bubbles are expanding. Andrew emphasised yesterday a need to consider and achieve price stability over a somewhat longer time horizon than, say, two years. I have sympathy for his argument because such an approach would accommodate flexibility in policy to somehow take account of asset market developments, particularly when asset price inflation is accompanied by excessive flows of credit and/or investment. It would be rather odd for a central bank to merely watch vast amounts of credit flowing into property and other markets simply because the conventional price indices remain relatively benign.

That said, I also think there is a limit to how far the central bank can go in terms of "tightening" in a situation where prices are fairly stable. It would be a daunting task to persuade the public into accepting a significantly restrictive policy by explaining the possible medium-term destabilising effects of asset market developments on conventional prices. Moreover, a moderately tighter policy short of having restraining effects on asset prices entails an important risk: it might actually add fuel to an evolving bubble, as it could contribute to the public expectation of well controlled, sustainable economic prosperity.

What about the role of prudential policy in such a situation? On this I agree with Phillip Lowe, who said yesterday that supervisors are primarily micro-oriented and therefore are not appropriately positioned to implement policies with a macroeconomic perspective. Macroeconomic viewpoints aside, the second pillar of Basel II could presumably be utilised as a kind of moral suasion to induce bankers to restrain procyclical lending when, in the eyes of supervisors, asset markets are headed for a bubble. Our past experiences in moral suasion tell us, however, that it can be effective only when equipped with real guns, which in this context means monetary policy. Some novel devices, including dynamic provisioning, are and will be proposed to help stabilise procyclical credit flows. They might be helpful but in my view would fall far short of effective countervailing power to balance the dynamics of a bubble, financial accelerators and indeed human nature at work.

Let me quickly conclude. I believe that the central bank's time horizon to achieve and maintain its price stability objective should be longer than two years or so. I basically concur with the traditional view that the central bank take into account asset market conditions in the context of their effects on current and projected inflation. However, if asset market developments were deemed to be threatening the goal, monetary policy actions should not be ruled out. Given the risks mentioned above, such actions would have to be carefully designed so as not to unwittingly increase asset market volatility. Much more study is called for to advance in this line the constructive approach for monetary policy to address the challenges posed by the asset markets. Similarly, it would be worthwhile to explore ways to incorporate the macroeconomic perspective into prudential policies since the problem lies in the nexus of monetary and prudential policy spheres.

Previous volumes in this series

No	Title	Issue date
BIS Papers No 17	Regional currency areas and the use of foreign currencies	Revised September 2003 May 2003
BIS Papers No 16	Guide to the international banking statistics	April 2003
BIS Papers No 15	China's capital account liberalisation: international perspectives	April 2003
BIS Papers No 14	Guide to the international financial statistics	February 2003
BIS Papers No 13	Comparison of creditor and debtor data on short-term external debt	December 2002
BIS Papers No 12	Market functioning and central bank policy (2001 Autumn Economists' Meeting)	June 2002
BIS Papers No 11	The development of bond markets in emerging economies (2001 Deputy Governors' Meeting)	June 2002
BIS Papers No 10	Central bank intervention and market expectations	April 2002
BIS Papers No 9	Comparing monetary policy operating procedures across the United States, Japan and the euro area	December 2001
BIS Papers No 8	Modelling aspects of the inflation process and the monetary transmission mechanism in emerging market countries	November 2001
BIS Papers No 7	Electronic finance: a new perspective and challenges	November 2001
BIS Papers No 6	The financial crisis in Japan during the 1990s: how the Bank of Japan responded and the lessons learnt	October 2001
BIS Papers No 5	The changing shape of fixed income markets: a collection of studies by central bank economists	October 2001
BIS Papers No 4	The banking industry in the emerging market economies: competition, consolidation and systemic stability (2000 Deputy Governors' Meeting)	August 2001
BIS Papers No 3	Empirical studies of structural changes and inflation	August 2001
BIS Papers No 2	Market liquidity: proceedings of a workshop held at the BIS	April 2001
BIS Papers No 1	Marrying the macro- and micro-prudential dimensions of financial stability (2000 Autumn Economists' Meeting)	March 2001
Policy Papers No 8	Managing foreign debt and liquidity risks (1999 Deputy Governors' Meeting)	September 2000
Policy Papers No 7	Strengthening the banking system in China: issues and experience (also available in Chinese)	October 1999
Policy Papers No 6	Bank restructuring in practice (late 1998 Deputy Governors' Meeting)	August 1999
Policy Papers No 5	Monetary policy operating procedures in emerging market economies (early 1998 Deputy Governors' Meeting)	March 1999
Policy Papers No 4	Managing change in payment systems	May 1998
Policy Papers No 3	The transmission of monetary policy in emerging market economies (1997 Deputy Governors' Meeting)	January 1998
Policy Papers No 2	Monetary policy in the Nordic countries: experiences since 1992	October 1997

All volumes are available on request from the BIS and are also on our website www.bis.org.