Round-table/Wrap-up Discussion

1. Jeffrey Carmichael

I would like to sum up my thoughts on the conference by reflecting on what I have learned over the past day and a half.

First, I have learned that bubbles occur when asset prices rise sharply then fall sharply – without any apparent change in underlying market fundamentals. I should underline two aspects of that seemingly innocuous definition:

- The first interesting aspect is its direction – up then down; importantly, not the reverse. Despite the impassioned pleas from Steve Cecchetti for symmetry, no-one (including myself) was able to think of an example of an inverted bubble. Note that I rule out exchange rate examples, since inversion there is a trivial case of swapping the numeraire.
- The second aspect I want to underline is the reference to 'without any apparent change in the underlying market fundamentals'. This was a point made well and repeatedly by Warwick McKibbin and others. We need to be careful about calling every sharp price swing a bubble. We must first establish whether or not something fundamental has actually changed.

Second, I learned that bubbles have certain characteristics in common. From a number of presentations, most notably from John Simon and Karl Case, I learned that bubbles are typically characterised by some or all of the following:

- speculation rather than fundamentals as the primary driver of price movements;
- strong credit growth;
- fraud or other forms of market misconduct;
- the failure of financial institutions; and
- significant economic costs.

However, as the discussion of these characteristics progressed, I came to my third insight and perhaps the main message of the conference – not all bubbles are born equal. In particular, I learned that there appear to be major differences between stock-price bubbles and property-price bubbles:

- Stock-price bubbles are typically much sharper and shorter in duration.
- Fraud and market misconduct are more often associated with stock-price bubbles (although confidence tricksters are not unknown in the real estate market).
- Institutional failure is much more likely following a property bubble – largely because of the institutional leverage in property financing.
- The economic impact is typically greater following the bursting of a property-price bubble – not only because of the greater potential for institutional failure, but also

because property booms seem more likely to feed into consumption behaviour through wealth effects. I refer here particularly to Karl Case's results.

Fourth, I learned that bubbles are bad. But I have to confess that at this point I started to have some doubts. The papers all said bubbles were bad. My starting prejudice was that bubbles were bad. But that bane of all good economics raised its ugly head – the evidence started to get in the way of a good theory. David Merrett made the point that only one of the three bubbles considered by John Simon could actually be considered as having had a major impact on the real economy. Karl Case convinced me that the last property bubble in Massachusetts had a major impact. But he, and others, were much less convinced that the next bubble will have as much impact, given the structural changes that have occurred in financial markets and in financial regulation.

Again I was drawn to the idea that perhaps not all bubbles are born equal. A 400 per cent rise and fall in the mining sector share price index in the space of three months is unlikely to carry the same systemic threats as a five-year imbalance in national housing prices, coupled with a vulnerable banking system.

So what did I learn from all of this for the implementation of monetary policy?

I learned from a number of speakers, including Charlie Bean and Phil Lowe, that bubbles are hard to identify. But I can still hear Steve Cecchetti crying from the background – 'hard yes, but don't give up just because it is hard'. Then David Gruen added weight to Charlie and Phil's position with his observation that, not only are bubbles hard to identify, the central bank needs a lot of additional information in order to calibrate the optimal monetary response. Again I can hear Steve imploring us not to give up.

What then can a central bank reasonably do? Here Steve came into his own. Asset prices should not be targeted by monetary policy. At best, asset prices convey information about expected inflation and economic activity. That information has value and should be taken into account in calibrating monetary policy. On this basic proposition there seemed to be a high degree of consensus – although there would undoubtedly have been less consensus about exactly how the information should be used.

Then, just as I was starting to feel that we had the topic under control, Martin Parkinson noted that we should not forget the cost-benefit aspect of using monetary policy to influence bubbles – however minor that use of monetary policy might be.

Unfortunately, we did not explore the costs very far and so I was left to speculate.

As I grappled with what these costs might be, Adam Posen reminded me that the one thing I should remember from my 20 years as a central banker (in a previous incarnation) is that monetary policy is a blunt instrument. Its impact tends to fall without fear or favour. The central bank does not face a situation of one monetary policy instrument and one asset price subject to a bubble. In reality, it has one

monetary policy instrument and hundreds of asset prices – some subset of which may or may not be subject to bubbles.

So I asked myself the following questions:

- Could monetary policy stop fraud and market misconduct? No – the result of such an attempt would be all cost and no benefit.
- Could monetary policy stop a local property price bubble in Oodnadatta? Maybe – but at the likely cost of plunging the rest of the economy into a decade of recession.
- Could monetary policy have stopped the Poseidon price boom in the early 1970s? Again maybe – but again at extreme cost to the rest of the economy.
- Could monetary policy stop bank failures by preventing a property boom from collapsing? In the short term probably yes – by creating excessive liquidity – but, in the longer term the problems are likely to be compounded.
- Could monetary policy help correct a potentially overheating economy that was being fuelled by a widespread property bubble? Finally we appear to have a situation where the benefits of monetary intervention might outweigh the costs – though even here, Adam Posen would be quick to point out that the main role for monetary policy is more likely to be in dealing with the aftermath of the asset-price collapse, than in stemming the rise.

But if the role of monetary policy in containing bubbles is really so limited, the question naturally follows – is there anything else we can do?

The answer seemed to lie in comparative advantage. Steve Cecchetti and Phil Lowe both pointed out that the primary damage from bubbles often lies in institutional failure – and institutional soundness is more a matter for regulators than for monetary policy. Indeed the discussion went further to suggest that prudential regulation could even play a role in dampening bubbles. Again the discussion implied that the task was not easy (in part because it required regulators to make judgements about the same bubbles that we agreed central bankers had trouble identifying). At the same time, it was agreed that regulation offers the prospect of targeted intervention and has the advantage that the intervention can be viewed as falling within the regulator's mandate of risk management and financial sector stability – though any regulator heading down this path would be well-advised to heed Gordon de Brouwer's warning against trying to be too cute with targeted intervention.

While no one actually pointed it out, I believe all would have been aware of the obvious parallel with market conduct regulation. If prudential regulation can be used to reduce the economic impact of institutional failure following property bubbles, maybe market conduct regulation could similarly be used to reduce the economic and social impact of fraud and misconduct that appear to accompany stock-price bubbles. While conduct regulation arguably still has a long way to go before it effectively combats the dangers present in stock-price booms, they have unquestionably come a long way since the South Sea bubble.

Following comparative advantage, a case could be made that the more active roles in combating bubbles – at least in minimising the damage that they might otherwise do – lie more with the regulators than with monetary policy. If the regulators manage their part successfully, monetary policy would be left largely with the responsibility of dealing with the aftermath – which, in an effective regulatory world with no fraud and no institutional failure, should be relatively minor.

Again I began to think we had it all under control. Then I heard Trevor Sykes, through the after-dinner haze, warning us that we are all doomed to re-learn history in financial markets, locked in a repeating 'Groundhog Day' bubble.

Maybe we still have some more work to go after all.

2. John Plender

The question at the back of my mind at the start of this conference was whether something new and different was happening in the operation of bubbles. If you think about it, we have just lived through the biggest stock market bubble in history. Yet it has not been followed by a financial crisis. This contrasts markedly with circumstances after the 1929 Crash. And from a broader historical perspective it remains unusual for bubbles not to be followed by trouble in banking. So what is going on?

If we try to identify what has been different in the recent stock market bubble that emanated from the US, the first thing that seems clear is that the American population was more heavily exposed to equity than at any time in history. The same is broadly true of most of the economies in the English-speaking countries. The striking point is that this exposure was largely unleveraged. In the US, for example, it came through such vehicles as mutual funds and Section 401k pension plans. Much the same was true elsewhere.

From a central banker's perspective this has one specific advantage. It reduces the risk of systemic trouble in banking. But there is also an important potential cost. The increased exposure of the household sector to equities means that the economy is hostage to the fluctuations of equity prices as never before, thanks to wealth effects. We all know the consequence for savings, consumption and the household sector balance sheet. Because people think that the stock market is doing their saving for them, household savings decline in relation to disposable income. Debt accumulates. The unwinding of the resulting imbalance may cause a fall in demand as asset prices decline and people become more pessimistic about their economic prospects. And in a period of low inflation the ability to offset this kind of shock may be limited if there is little or no scope to reduce nominal interest rates.

I am surprised at the earlier suggestions that bubbles are not such a terribly bad thing. Quite apart from this problem of dealing with imbalances, there are serious implications for the supply side of the economy. To name just one, in a securities bubble stock prices that rise out of line with fundamentals lead to an artificially low cost of capital. That in turn leads to excessive investment in sub-optimal projects. The result in the present economic cycle has been a grotesque misallocation of

resources. The whole process leads to economic inefficiency. So even without leverage and without a subsequent financial crisis, a bubble can do considerable economic damage.

It is worth saying, in passing, that there was leverage in the recent bubble, but that it had moved outside the financial system. It came with the growth of stock options, where the leverage is inherent in the structure of the instrument rather than a function of borrowing. This meant that in the 1990s you had a micro-wealth effect in the boardroom. And this in turn spawned leverage in company balance sheets as corporations borrowed to buy back shares to offset the dilution that resulted from issuing stock options. More recently, as many of these stock options lost value in the stock market decline, there was a negative boardroom wealth effect which in the post-Enron climate contributed to a serious dampening of 'animal spirits'. Note, too, that the greater transparency that now prevails in relation to pension costs has made the corporate sector even further hostage to the gyrations of the stock market.

So to return to my opening question, are we now in a world where imbalances are the big worry for policy-makers after a bubble and that leverage is no longer the threat it used to be? Surely not. Throughout the conference I have been fishing for a taxonomy of asset-price bubbles and asking myself whether there is a hierarchy, in terms of which kind of bubble delivers the most economic and financial damage. I think the tentative answer is that there cannot be a simple and straightforward hierarchical categorisation because a firm distinction between unleveraged and leveraged bubbles has to be acknowledged at the outset. But within these two individual categories I think it is worth hazarding an attempt to distinguish the bad from the less bad, while acknowledging that a leveraged bubble is simply one which gives an additional complex twist to the instabilities latent in an unleveraged bubble.

If we consider, first, the equity-financed bubbles, the benign or less troublesome end of the spectrum would feature Poseidon and the nickel boom. This was not large in relation to Australia's GDP and the banking system was not heavily exposed to the weaker exploration companies. By definition there could be no dangerous global spillover. There were undoubtedly corporate governance failures, which impaired confidence for a time in the stock market, but that is another story.

The more troublesome end of the spectrum contains the recent US bubble, which was very large in relation to GDP. The globalisation of capital flows since the 1970s means that the bubble was contagious, with striking consequences for those economies where the stock market was large in relation to national output. Because the imbalances have yet to be unwound, the extent of the damage cannot be quantified. But the key danger signal is simply size of the asset-price misalignment in relation to GDP.

A point worth making for the future is that many economies where financial intermediation has been dominated by relationship banking rather than capital markets are now moving closer to the model that prevails in the English-speaking economies. As more of their populations are exposed to equity, there will be a growing risk of heavily synchronised economic cycles if the correlation between US equity prices and those in the rest of the developed world remains close.

Now consider the second category. With leveraged bubbles we are back to eternal verities. They combine the problem of imbalance with the threat of systemic trouble in banking, which in turn implies even greater macroeconomic instability along with moral hazard and other problems associated with last-resort lending. In the current economic cycle, commercial property is a sleeper. But it remains a considerable danger. The worry is that it is one of the few assets that is sufficiently lumpy to absorb large sums when bankers are under heavy pressure to lend. We should never underestimate the bankers' capacity for collective memory loss.

Residential property, which is more the focus of concern in the present cycle, especially in the UK and Australia, is a less dangerous threat. We have heard from Karl Case about bank failures after a house price bubble in Massachusetts; also from John Simon about bank failures after the late 19th century property bubble in Melbourne. But the leverage in housing bubbles will normally tend to be dangerous only where banking systems are fragmented and bank profitability is poor.

Today the UK and Australian banking systems are well capitalised and relatively concentrated. If house prices plunge, home-owners afflicted by negative equity will normally continue to service their mortgage debt. And the banks have substantial collateral. The bad debts tend to arise when unemployment goes up. But on the basis of current lending practice, it would take exceptionally high levels of unemployment to generate a systemic financial crisis.

The buy-to-let market, which in both the UK and Australia has been hyper-active of late, is more dangerous than the owner-occupied market because so much activity has been based on deficit financing. No doubt some banks will catch a cold. Yet the speculative activity is not on a scale to do much damage to the banking system or the wider economy. The problem is well understood and ought to be manageable.

The new and interesting phenomenon on the leveraged side of my list concerns derivatives, where the leverage is implicit in the structure of the instrument rather than in conventional borrowing. Since the many crises involving derivatives have so far been more eye-catching than economically significant, I have no idea where, on the spectrum of danger, they belong. But they are definitely dangerous. The great volume of over-the-counter derivatives business is managed by a tiny handful of very big banks. This concentration of risk is worrying and there is no great consolation in the sheer size of the banks concerned. We should not forget that in the last banking crisis in the US the largest commercial bank, Citigroup, very nearly came unstuck. Also noteworthy is that while the new credit derivatives market appears to have spread risk from banks to non-banks, it remains so opaque that no-one can be wholly certain where these risks have ended up. Black holes in the system all too often prove to be accidents waiting to happen.

This brings us to the question of what can be done to prevent or restrain asset-price bubbles. Clearly it is very difficult to act on them in advance, as Charles Bean's paper eloquently attests. And it is especially difficult to take aggressive action to prick the bubble. Everyone here is too delicate to refer to the crude politics of pre-emptive action or to the implications for central bankers' career prospects. But in political terms, the pre-emptive calculus involves taking the risk of precipitating

a smaller recession now in the hope of preventing a bigger recession later. One's first thought is that this poses questions of timing within the electoral cycle. One's second is that there is probably no point in the electoral cycle when this is a saleable proposition to the politicians. As for voters who are basking in the early warm glow of a wealth effect, they are unlikely to be receptive to arguments for early pain. The fact is that few people are going to thank a central banker for delivering a pre-emptive recession.

That forces us back onto weaker responses such as taking asset prices into account in pursuing standard inflation targeting. This amounts to holding onto your seat on the way up and hoping to be able to clean out the Augean stables in double-quick time on the way down. In the current version of the ploy, you gamble on a positive wealth effect in housing offsetting the negative wealth effect in equities. The aim is to keep the consumer in play in the hope that the public and corporate sectors will come to the rescue in time to prevent a savage unwinding of imbalances. It is too early to pass a verdict on the success or otherwise of this experiment.

That leaves the option of leaning against the bubble in subtle and nuanced ways that fall short of targeting asset prices. This is where the debate becomes theological and it will no doubt run and run. But it is probably also safe to predict that there will be an increasing focus on what can be done to address asset-price bubbles through regulation. The pro-cyclical nature of much regulation in banking and insurance is clearly a contributory factor in some bubbles. And it would certainly be possible to attempt to damp down a bubble via the Basel capital adequacy regime, even if prudential watchdogs feel instinctively uneasy about the use of their powers to secure macroeconomic objectives.

At this point I would like to highlight something that is not directly related to monetary policy, but which should nonetheless be of concern to central bankers: the impact on bubbles of the incentives structures that operate within financial intermediaries and fund management groups. This is an old problem. Many of you will recall in the 1980s and early 1990s that some lending bankers were awarded bonuses on the basis of the volume of lending. That played a part in both the Latin American debt crisis and the property crisis in the US and much of Europe in the early '90s. I doubt whether this practice still goes on, but there are plenty of other disturbing incentives in existence. Many traders in banks, for example, are being rewarded with bonuses based on absolute returns without adjustment for risk. That is a recipe for gung-ho speculation and subsequent trouble.

In the context of the latest bubble, the incentive structures in fund management bear thinking about. A securities bubble reflects, among other things, a lack of stabilising speculation. One of the new things in the equity market over the past decade or so has been index-tracking. This has been a boon to the retail investor, but not for the wider market place since index-trackers are the opposite of contrarians. For them, as far as the stock market valuation is concerned, what is, is right. And then, of course, we have closet indexing, which reflects the fund managers' desire to minimise their business risk. As well as being a dereliction of fiduciary duty, this is an opt-out from the stabilising speculator's role.

So we have a question about where stabilising speculators are going to come from, when retail investors buy and hold, professional investors hug indices and herd, and hedge funds increasingly follow long/short market neutral policies. Volatility must by definition increase if the free float dwindles to a marginal level. The snag is that professional investment practice has become dangerously remote from the detailed analysis of individual companies and the recent bubble was exacerbated by the pervasive spread of institutional herding. This is partly a result of the malign influence of short-term performance measures. Too little policy effort has been directed at encouraging pension trustees and others to make better and more responsible use of the numbers in the interests of the ultimate beneficiaries.

To conclude, much of the debate on bubbles has highlighted irrational exuberance. But there is a fair amount of rational exuberance that has contributed to bubbles because of the impact of distorting incentives on behaviour across the financial community. On the more substantive issues concerning asset prices and monetary policy we are all agreed about the difficulties. I am sure I am not alone in being grateful to the Reserve Bank of Australia for having helped us understand them better.

3. Glenn Stevens

I want to begin by trying to outline some areas where I think we might have a measure of consensus. Then I will give some perspective on areas where it is not so easy to agree, and finish with some observations about future research.

Firstly, asset-price 'bubbles'. There was quite a bit of discussion about how to recognise a bubble and, indeed, how to define one. John Simon's definition was, in effect, 'I know it when I see it'. I thought Saul Eslake made a useful contribution here in suggesting that a bubble was when a one-time price level shift, which was well based in fundamentals, came to be perceived as a permanent change in the rate of growth of a price. My own definition would be, I think, that a bubble is when the main 'fundamental' on which people focus is simply yesterday's change in the price. In general, it is quite clear that people find it very hard to pin down a precise definition of what is, and is not, a 'bubble'.

But I think we should not get too hung up about trying to decide what is a 'bubble'. To do so is certainly not very helpful from a policy point of view. It tends to promote the idea that if we can define something as not being a bubble, then we can forget about it; and conversely, that if something can be defined to be a bubble, then an implication follows that something drastic must be done. But policy-makers do not think this way, and nor should they. It is more useful to couch the discussion in terms of something like the following question: 'Is something occurring which seems increasingly likely to be a misalignment, and which carries an attendant risk of creating instability when a realignment occurs?' That is, perhaps, somewhat less exciting language, but I think it is a more helpful way in which to frame the discussion.

Second, one of the quotes of the conference came from Gordon de Brouwer's comments on Adam Posen's paper: 'Like the poor, asset-price swings are with us always'. I think this is true. Furthermore, asset-price movements often, indeed almost always, have some fundamental basis at the beginning. And as Warwick McKibbin pointed out in his remarks, the changes in various prices and quantities in the economy associated with changes in some of the key fundamentals can be very large and very persistent.

In addition, not only are asset-price movements always going to be with us, we probably cannot stop them. Nobody, to my knowledge, really suggests that, faced with a sizeable asset-price move, monetary policy (or indeed any other policy) ought to be so adjusted as to ensure that the move is stopped dead in its tracks or reversed. A monetary policy response of that kind would usually be far too extreme for the rest of the economy. But equally, while we cannot stop big asset-price movements occurring from time to time, nor can we simply avert our face and ignore them, and assume that all will be well. My sense is that most people agree that these movements are potentially very important, potentially disruptive, and should not be ignored.

Third, it is really the leverage that accompanies asset-price movements which is the issue, rather than the asset-price movements themselves. I think this was a point quite usefully made as a result of questions from Bill Evans: all sizeable asset-price misalignments presumably do some damage, but the ones which do the most damage are those which were associated with a big build-up in leverage, which always carries the risk of forcing abrupt changes in behaviour by borrowers and their lenders when the prices turn. To coin a phrase, 'it's the leverage, stupid'.

Fourth, I think it is generally accepted that, after an asset-price bust, the conduct of monetary policy is going to involve easing, and quite possibly easing a lot. There is a potential issue of moral hazard here: namely that 'bailing out' market participants in some sense will create further incentives to gear up in the future, to the detriment of the economy's long-term stability. But Adam Posen argued that, in practice, the evidence for this has not been all that clear. Furthermore, I think when faced with a financial system and economy in distress, one just has to incur that risk.

On those issues, it seems to me that there is a measure of consensus. The conduct of policy during the boom is the area about which there is a bit less consensus. However, Charlie Bean in his paper, and Stephen Cecchetti in other writings, have suggested that a medium-term flexible inflation target is a useful framework in which to think about these issues and to communicate the concerns of policy-makers. No-one at the conference disputed this and it is a sentiment with which I am inclined to agree. If a fair number of people accept that, then there is a little progress to show for our discussions.

Charlie went on to say that an inflation-targeting framework may, on occasion, provide a logic for monetary policy to do a little more than just take account of the near-term effects of asset-price movements on activity and inflation. As I read his paper, it set this issue in the context of a possible trade-off of a small amount of current economic activity today in return for a lower variance of economic activity at some stage in the future. In practice, Charlie said that such trade-offs

were likely to involve only marginal adjustments to policy. Given our current state of knowledge, I think that is probably right. There is a question as to whether those marginal adjustments actually make any difference to the dynamics of asset-price movements, but at least this seems the right framework in which to think about it. And, of course, contrary to what we in the Bank might have expected when we set up the program for the conference, the Bean and Cecchetti views about all this are actually not that far apart. I hope that this can be taken as some sign that a little bit more common ground is being found in this debate, which at least initially tended to be characterised by people taking fairly extreme positions. As a central banker, I suppose I am naturally predisposed to be more comfortable that there is a bit more common ground in the middle.

My interpretation of the outcome of the Bean/Cecchetti session as it gives us some framework for thinking about and handling asset-price movements is:

- do not *target* asset prices – keep the current general goals in terms of goods and services inflation and variability of economic activity;
- but consider having a somewhat *longer horizon*, which allows asset prices to be brought more effectively into the framework. This is an important point: I think that in central banks' efforts to present inflation targeting as a simple, well-understood framework, we have often said that it involves adjusting policy so as to keep the forecast inflation rate at the target at a two-year horizon. But in the context of asset prices and economic instability, this is an over-simplification. Surely policy-makers care not just about where inflation is in two years' time, but where it might be heading after that and why. That is, we care about the entire future path of prices, not just their behaviour at one particular forecast horizon;
- focus policy discussion more on the *balance of risks,* that is on the forecast distribution in its entirety, not just the central forecast. This was a point very forcefully made by Philip Lowe in his comments. Of course, the balance of risks is a much more subtle concept than 'the number' contained in the central forecast, and popular discussion of forecasts focuses virtually entirely on the latter. But this just says that our efforts in trying to get the balance of risks concept across should be re-doubled;
- policy-makers should be concerned about the build-up in credit which sometimes accompanies asset-price movements – again, it is the highly leveraged movements which are most likely to do damage; and
- all of this ought to be embodied in some sort of cost/benefit framework, an important point made in discussion by Martin Parkinson. I agree – indeed, I think 'conventional' monetary policy, directed simply at fighting inflation, involves articulating why it is worth paying a modest cost in terms of lower short-run growth in order not to pay a much larger cost of lost output later when inflation gets too high. In principle, when we are talking about a particular response to possible asset-price misalignments, we are talking about exactly the same sort of thing.

My sense of the discussion on these issues was that no-one violently objected to the ideas. But that's not the same thing as saying people enthusiastically embraced them. I think most people, including me, have a certain wariness about policy activism even when they accept the logic that policy can't just blithely assume all will work out for the best. And that wariness is less due to the difficulties of deciding whether something is a bubble, than to some other quite practical difficulties.

One is communication. The difficulties in explaining a rise in interest rates designed to head off incipient inflation in the CPI are already hard enough. When we are talking about problems resulting from asset-price fluctuations, we are really talking about potential costs which may occur several years in the future. We cannot point to those costs today, only the risk of incurring them. This is a more difficult idea to communicate, if only because the time horizons are so much longer. We have to try harder, as I have argued above. But some aspects of past experience are not encouraging. Our own experience, for example, when we introduce a discussion of a new variable in our public statements is that there tends to be a small number of people who, on seeing that, say 'ah, you have stopped targeting inflation and you are now targeting the exchange rate, or credit, or [substitute variable here]'. It is very easy to be misunderstood.

In addition, as highlighted by the Gruen, Plumb and Stone paper, the dynamics of asset-price booms and busts are quite complicated. And the first order of business is to try to make fairly sure that any policy response would be stabilising, rather than destabilising. An aggressive policy response late in the asset-price boom could be quite destabilising – the problem being, of course, we do not know at any point in time whether the boom is in its late stage or not. This problem exists with any policy exercise, but I think most people accept it is unusually acute in the case of asset-price swings.

David Stockton made a useful point in pointing to the possibility of Type I and Type II errors. That is, policy-makers might think something is a worrying misalignment, respond to it as if it were, and turn out to be wrong. Alternatively, they might see an asset-price development which they judge to be benign, not respond to it, and turn out to be wrong there instead. Which of these errors would be the most costly, and under what particular sets of circumstances? It seems to me that future research might usefully try to think along these lines, because I think that is in fact how policy-makers actually think.

So, in conclusion, how would I sum all this up?

1. This is all very hard – no-one should think these are easy issues.
2. We should keep a close eye on leverage.
3. We should talk about concerns that we might have about asset markets and leverage. At the very least, we should be careful by our actions and our words not to exacerbate them: 'first, do no harm'.
4. *Perhaps* we should, at some times, be prepared to lean a little into asset-price swings, on the grounds of 'least regret', but with considerable care.
5. Be ready to clean up afterwards.
6. Be on the look-out for other instruments.

4. General Discussion

The general discussion indicated that there was broad agreement with most of the points highlighted by the round-table speakers. Several of the participants discussed the emphasis placed on leverage by some of the wrap-up speakers. In particular, while there was agreement that increases in leverage are typically an important factor in the development of asset-price misalignments, some suggested that it was possible for bubbles not associated with significant growth in leverage to still have substantial real effects on the economy. Such effects were thought primarily to be the resulting distortions in the allocation of both physical and human capital. Warwick McKibbin explained that this misallocation of capital, combined with the assumption that capital is not particularly fungible between sectors, underpinned the sizeable and prolonged real effects of asset-price misalignments that he found in his simulations. Additionally, some participants thought that the role of monetary policy in reacting to such supply-side imbalances was limited, and that it is better suited to dealing with the demand-side consequences of asset-price misalignments, such as limiting adverse wealth effects.

There was also discussion of John Plender's contrast of the experience of the Great Depression and the recent equity boom and bust. Several speakers stressed that the US policy response to the recent collapse in equity prices and macroeconomic weakness has been markedly different to the tightening of credit conditions that occurred in the earlier episode. Most participants appeared to agree that the moral hazard implications of aggressive post-boom policy responses (the so-called 'Greenspan put') were likely to be minor.

A number of speakers addressed the possibility of using alternative policy instruments (other than monetary policy) for dealing with asset-price misalignments. Several speakers noted that aspects of the tax code could contribute to the development of asset-price misalignments. Hence it was thought that fiscal policy could be another instrument used to react to price misalignments, and it could do so in a more targeted manner. In addition, by being more targeted, fiscal policy responses could avoid the costs of blunter demand-management policies on the broader economy.

Another theme relating to fiscal policy was the issue raised in Stephen Cecchetti's paper, namely the influence of asset-price misalignments on fiscal behaviour. Booming asset prices increase tax revenues, and may lead to over-reliance by governments on these revenues. The recent sharp falls in US equity prices have indeed resulted in falling capital gains tax revenues and resulted in fiscal problems in some US states.

Among the other issues raised, one participant argued that for assets such as housing, where the quantity supplied is relatively inelastic with respect to price, supply-side (rather than demand-side) policies might be a more appropriate means of addressing price misalignments. Another participant suggested that a possible area for future research is the impact of asset-price bubbles on the distribution of income and wealth, and whether they cause inequality to rise. In addition, there was agreement that further research was warranted on the issue raised by John Plender about the opaque redistribution of risk through credit derivatives and securitisation.