

## Alan Bollard: Asset prices and monetary policy

Address by Dr Alan Bollard, Governor of the Reserve Bank of New Zealand, to the Canterbury Employers' Chamber of Commerce, Christchurch, 30 January 2004.

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It has long been a tradition that Reserve Bank Governors begin their year with a speech to the Canterbury Employers' Chamber of Commerce and because the economy of Christchurch is focussed on exporting the topics picked have often been of particular interest to the tradable sector. Given current concerns about the exchange rate, you may have expected a talk on that subject. However, I want to talk about something else - a topic which may seem more esoteric, but in particular circumstances can be very important. Indeed, it is a topic that has been of considerable relevance to New Zealand from time to time over the years.

Among central bankers right now one of the key topics of debate is whether monetary policy should actively seek to encourage **asset** price stability. The sharp end of this is whether monetary policy should seek to prevent or at least reduce asset price bubbles? This is exemplified by questions such as whether Japan's long-running recession and the US "tech wreck" could have been ameliorated by monetary policy constraining the events that preceded them.

Before going further, I should define my terms a bit. By an asset price I mean the price of something that one buys to generate income or to sell for a profit later. Examples are physical assets - like housing, land, other buildings and collectables like paintings or exotic cars - and financial assets - like shares, bonds and other financial instruments. By consumer prices I means things one buys to consume, like milk, petrol, a visit to the doctor and ordinary cars. Remember also that asset prices often behave more erratically than consumer prices, being slower to react to changes in supply and demand. Prices of, for example, fruit and vegetables move constantly to match up buyers and sellers. Asset prices are seldom that appealing in terms of classic economics.

Under the Reserve Bank's [Policy Targets Agreement \(PTA\)](#) the Bank is required to ensure price stability, as measured by the Consumers Price Index (CPI), and, subject to this goal, to avoid unnecessary instability in output, interest rates and the exchange rate. Asset prices are not included in the CPI. Thus the question is should monetary policy sometimes look ahead of its normal time horizon and try to offset the potential damage down the track to consumer prices and economic stability that can occur when asset prices tumble?

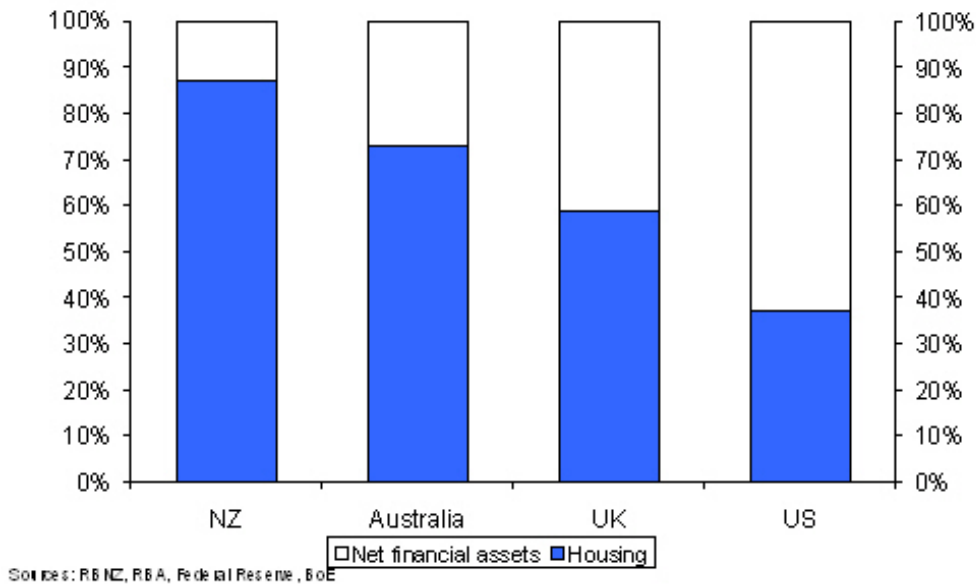
### **Monetary policy automatically takes asset price developments into account**

The first point I need to make is that day-to-day central banks pay attention to asset prices when setting monetary policy, even when, as in New Zealand, their formal focus is exclusively on consumption prices.

This is primarily because asset price movements impact on CPI inflation and large movements in asset prices can have significant implications for CPI inflation. For starters, in the case of physical assets, if their prices are rising faster than general inflation, people try to build or create more. For example, if the price of paintings is going up artists get painting. To do that they have to buy more paints, brushes and canvas, putting pressure on prices of these materials.

In addition to that direct impact, asset price movements - physical and financial - also feed into CPI inflation due to the so-called "wealth effect". As asset prices rise, people tend to feel wealthier. Some people go shopping as a result, and in an economy already running at full steam this gives inflation a push. This can apply with any kind of asset, but in New Zealand we see this mostly through house prices, due to the high proportion of home ownership here, as well as the large proportion of household wealth associated with housing, as illustrated in graph 1.

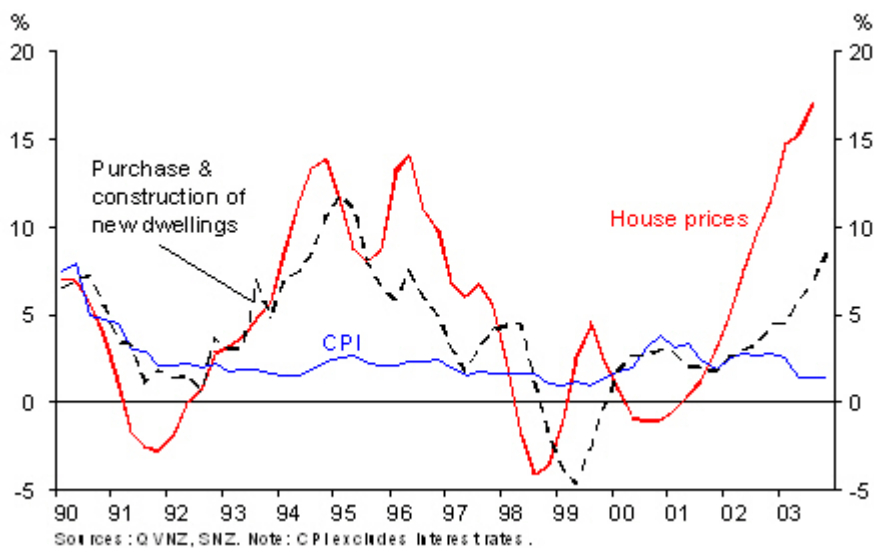
**Graph 1**  
**Household wealth: housing and net financial assets**



Asset prices also feed through into spending and hence inflation in other ways. For example, asset price increases improve balance sheets, increasing the borrowing power of firms and individuals. Increases in net worth tend to increase the willingness of lenders to lend and borrowers to borrow, facilitating a general expansion in spending as well as an expansion in spending on the construction of appreciating assets.

In New Zealand, for example, house price inflation can lead to greater demand for houses, and price increases in construction-related goods and services. These goods and services are directly included in the CPI making up about 8½ per cent. Lately, “purchase and construction of new dwellings” has been notching up price increases approaching 7 per cent year-on-year. This is much higher than the CPI average of around 1½ per cent (see graph 2), and contributed materially to our recent non-tradables inflation of around 4½ per cent.

**Graph 2**  
**The link between house price inflation and the CPI**  
*(annual percentage change)*



Central banks also pay attention to asset prices because they contain information that's very useful when setting monetary policy. Normally asset prices reflect perceptions of future income streams that the assets will earn. Therefore, asset prices tell us something about how people think the economy will perform in the months and years ahead.

Accordingly, in the ordinary day-to-day operation of monetary policy asset prices matter. Also, day-to-day, when the Reserve Bank raises or lowers interest rates to keep CPI inflation where it should be, this also tends to partly constrain rising or falling asset prices in a desirable way. So most of the time asset and consumer prices roughly track together and asset prices present no particular problem for monetary policy or the economy. That's most of the time.

### **The building and bursting of big speculative bubbles**

There are however times when things get more difficult and asset prices move well out of line with underlying economic fundamentals.

For example, in Japan real estate prices and the equity market shot up through the 1980s, with the Nikkei getting to extraordinary levels before the inevitable collapse which took 60 per cent off equities in 3 years and 70 percent off real estate prices over the following decade. Economic growth struggled, averaging only 2 per cent in the 1990s compared to 4 per cent in the 1980s.

In Sweden real estate prices boomed in the second half of the 1980s, nearly doubling over that time. The boom ran out of steam in 1991, and the correction was severe enough to require the rescue of a good deal of the Swedish banking system. Over the first 3 years of the 1990s, Sweden's economy shrank by nearly 10 per cent.

And in the US the NASDAQ increased fivefold over 3 years in the late 1990s, before losing all of that ground by early last year. With the boom having helped the US economy grow at an exceptional pace during the 1990s, the collapse helped send that economy nearly into recession.

These examples hopefully make clear that this goes far beyond just housing assets, and includes equities or shares, commercial property, rural property and a wide range of financial assets.

In each of these cases, at least early on in the episode, asset prices were behaving "normally" and asset prices reflected reasonable expectations of the earnings prospects of those assets. A variety of things can cause expectations of future earnings prospects to be revised either up or down, and this will of course affect the prices of the assets. As farmers in the audience know, rural land and stock prices swing readily with peoples' confidence about the future. The sharp rise in dairy land prices in following the GATT agreement in the early 1990s was an example of how expectations can influence asset prices.

But expectations of the future can sometimes go beyond the well-founded and can turn out to be horribly wrong. Sometimes, asset prices can become disconnected from reasonable expectations of future earnings, resulting in speculative bubbles that cannot be justified by economic fundamentals. These are situations where markets fail in a big way to get prices even approximately right. Such mispricing can be exaggerated by rule-of-thumb, momentum, or herd behaviour, or irrational exuberance if you like. It happens sometimes that speculators convince themselves that someone else will pay still higher prices for an asset in the future, and in such a situation prices can start bearing less and less relation to any reasonable expectation of future income streams.

Classic examples of speculative bubbles include the tulip mania that swept Holland in the seventeenth century, and the South Seas bubble which caused the first big stock market crash in England in 1720. The more recent three examples I have cited were mild by comparison with these earlier ones!

Although bubbles may persist for quite some time, experience shows that asset prices eventually return to a level that is more consistent with "the fundamentals". Bubbles do reveal themselves in the end - people are not fooled forever. Eventually mistakes in pricing become widely recognised, and markets correct. This makes bubbles inherently temporary, involving first expansion and then contraction. It is often only once the contraction has taken place that we see how big the bubble was, or just how much prices were misrepresenting economic fundamentals. But by then a lot of damage may have been done.

Failures to get asset prices "right" won't always be obvious until prices have corrected, but in principle if we can't square rapid price increases for assets with any apparent fundamentals then we are

probably looking at a bubble. In extreme cases, that inability to square developments with fundamentals may become obvious before the correction happens.

Speculative bubbles can do damage in two ways. First, they distort resource allocation in the wider economy as people get fooled into investing in the wrong things. Resource misallocation can also be caused by the consumer price inflation that sometimes accompanies asset price bubbles, since inflation makes decision-making more difficult.

Second, when the bubble bursts there is damage to consumer and investor confidence, economic activity and potentially the financial system. Several recent international studies<sup>1</sup> of asset price booms and busts have documented substantial costs from asset price cycles.

The role of the financial system can be crucial to the consequences of a bubble building and bursting. The economic consequences when bubbles burst depends on the extent to which individuals and companies have taken on debts that they cannot comfortably meet. Asset price changes typically involve borrowing and lending in financial markets, because it is future income that is being used to “fund” current expenditure. Generally, at least some of the income from an asset is used to repay financial obligations associated with the asset’s purchase. With speculative bubbles, future capital gains - rather than future income - are often the main source of expected profit. If the bubble bursts, and such capital gains aren’t forthcoming, people have to look elsewhere for the money to service and repay their debts.

Debt financing is an extremely useful feature of the economy. It facilitates the reallocation of resources in the economy towards the most profitable activities. Nevertheless, heightened debt can seriously backfire when bubbles burst. In particularly severe cases, borrowers’ troubles carry over to lenders as well, so that in a bubble situation financing, credit and leverage may create financial fragility. Since the financial system is at the heart of all economic transactions, any disruption to it can have significant implications for economic activity. This fragility is sorely exposed when the bubble implodes. These issues are well-illustrated by the Japanese and Swedish cases referred to earlier.

Prudent lending practices can help to insulate lenders from serious fallout associated with declines in asset prices, but even then a bubble can still result in serious macroeconomic fallout. The bursting of the US high-tech stock bubble in 2000, and the subsequent weakening in equity prices more generally, was not accompanied by major financial sector problems, but it has been followed by a sustained period of very weak economic growth. Stretched balance sheets, characterised by excess leverage, damaged business confidence, over-investment in high-technology enterprises, and sharply increased costs of new equity raisings all combined to hold back new corporate investment to such an extent that economic growth stalled.

This brings us to the crunch question of whether central banks should try to constrain asset price bubbles to avoid or at least reduce the disruption to the real economy that can come from a bubble bursting?

Firstly, we need to recognise that this is difficult as it is very hard to tell in advance whether or not any particular market changes are justified. Forecasting the future is never easy. At each point in time, there tend to be many plausible explanations associated with any given price movement, and it is hard to separate temporary factors from more permanent ones until some time has passed.

Secondly, pursuing a separate asset price objective could mean having to compromise on our normal inflation objective. Seeking to stabilise rising house prices or an overheated stock market might mean having to force inflation lower than otherwise would be required. It might also mean greater variability in the real economy, interest rates and, potentially, the exchange rate. That could raise questions about the PTA’s requirement to conduct monetary policy to maintain CPI price stability and avoid unnecessary volatility in those other variables.

A further difficulty is that interest rates have limited power to affect the perceptions which move asset prices in the first place. To materially affect some asset prices, such as housing, interest rates might need to move quite a bit, and probably by much more than would be required just to keep CPI inflation comfortably within the target range. Since interest rate changes affect not just house prices, but also the prices of most other assets, goods and services, there would be secondary, unintended consequences, with potentially serious consequences for the economy as a whole.

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<sup>1</sup> Helbling and Terrones (2003), IMF; Bordo and Jeanne (2002), IMF; Detken and Smets (2003), ECB.

Timing also makes this difficult. Given the lag of 1 to 2 years that we think applies between an interest rate move and its effect on the real economy, the risk is high that policy moves would be mistimed and only make matters worse. If interest rates are high at the moment that a bubble bursts, those high interest rates will still impact on the economy two years on. This would make the landing harder.

So, given both uncertainty over whether asset price increases have overshoot, and doubts over whether monetary policy responses are helpful for known bubbles, one has to be cautious in leaning aggressively against an increase in asset prices.

What about using other instruments besides the interest rate? There are not many appealing options for this. Some less developed financial systems use mandatory credit rationing, but this instrument is also very blunt, harming newcomers to the market, distorting resource allocation and potentially depriving the private sector of sound investment opportunities.

Another possible option - at least in theory - is to make more use of prudential regulation. For example, could the capital ratio applied to banks be used counter-cyclically? Could the risk-weight on credit exposures secured by residential property be applied in ways that reduce swings in house prices? From time-to-time we consider these kinds of issues, but have so far always reached the same three negative conclusions.

First, such tools are unlikely to be very effective in addressing asset price cycles. The implementation of policy changes would take time, after which there would be a potentially long and variable lag in the impact on asset prices. Second, although such tools are less blunt than the OCR in targeting particular asset categories, they are nonetheless still relatively blunt instruments, and would have impacts that go beyond those intended. Third, the use of such tools for macroeconomic purposes conflict with the objective for which such tools were originally designed - i.e. financial stability. Indeed, the use of prudential regulation to moderate asset price cycles might backfire in some circumstances, creating perverse incentives for banks to bias their lending into riskier ends of the lending spectrum, which in turn could reduce the stability of the financial system. These factors have led us to reject the use of prudential tools as instruments for responding to asset price cycles.

So where does that leave us?

As I have already explained, in the course of doing what we normally do we automatically lean against detrimental effects of asset price movements, since there is often a correlation between asset price inflation and consumer price inflation. The harder question is what to do when a speculative asset price bubble is not accompanied by current or near-term inflation.

Responding to a bubble bursting is relatively obvious. The collapse of big speculative bubbles is often accompanied by recession and disinflation or even deflation. The Japanese case illustrates the point. A rapid monetary response, aggressively if need be, to a sudden collapse in asset prices would be consistent with the PTA, assuming there was also a substantial risk of consumer price disinflation.

Responding to an emerging bubble is more challenging. I have presented reasons why it is sensible to prevent the emergence of large speculative asset price bubbles, if possible. And I have presented reasons why that would be difficult to achieve, and why it would be risky to try. Nonetheless, it seems to me that the scale of the fallout from the build-up and bursting of very large asset price bubbles warrants taking some risks in an attempt to moderate - and that's all that one might hope for - the problem. And it seems to me that there are cases when the asset price misalignment is sufficiently obvious that one can be confident enough to take the risk.

But I need to be clear that such situations are likely to be rare indeed. And the risks may be considerable. We are talking about circumstances where monetary policy may well have to be quite tight - tighter than would be the case if the sole objective was to keep consumer price inflation within the target range. In such circumstances, I expect many audiences would say that the Bank was unnecessarily squeezing growth from the economy. It would be a foolhardy central banker who would take such risks lightly.

That said, as I interpret my mandate, it does permit me to take such risks in rare circumstances. As I explained in an earlier speech, the PTA clearly requires monetary policy to be forward-looking. Normally, we would think in terms of the next three years. But, as I indicated then, there will be exceptions. Given the potentially long-lived nature of asset price misalignments, it may occasionally be helpful to take a longer view of when risks might eventuate, how best to insure against them, and at

what price. As a recent IMF study<sup>2</sup> has pointed out, in effect an asset price boom can change the trade-off between current and future macroeconomic objectives. A new element enters the picture, which involves trading off the risk of severe economic dislocation further down the track with the near-term cost of reducing that risk.

### Recent New Zealand house price developments in context

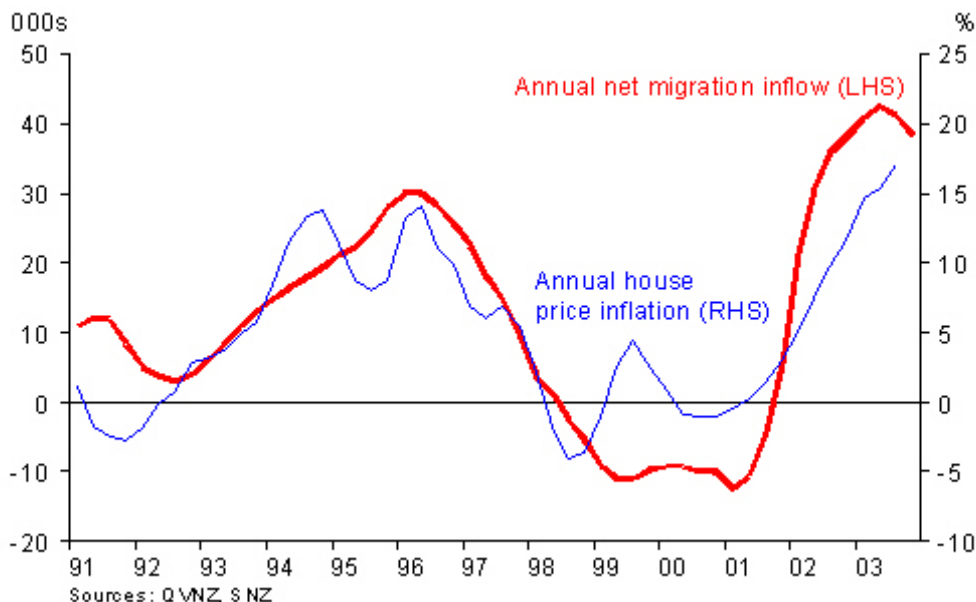
The next and obvious question is whether or not the recent run up in house prices in New Zealand constitutes a bubble so severe that it warrants a one-off additional monetary policy response, as described. Such a response would drive overall inflation to near the bottom or even below the 1 to 3 per cent target range in the PTA, thereby letting the air out of the bubble to avoid a collapse later. The immediate answer is no, though of course, in terms of the day-to-day controlling of consumer price inflation, housing is still the biggest thing being faced at the moment.

Over longer periods of time, real house prices are determined by the balance between underlying demand and supply conditions. There are nevertheless some important idiosyncrasies to housing markets that should be borne in mind. On the demand side, such factors include demographics, migration, growth in household disposable income, features of the tax system and the average level of mortgage interest rates. On the supply side, factors include improvements in the existing housing stock, the availability of suitable building sites, and construction costs.

Although the demand for housing can shift quite dramatically in a short space of time, the housing stock is relatively inelastic. It takes time to build new houses and the capacity of the construction sector to provide them also takes time to adjust to variations in demand.

Accordingly, housing prices are prone to quite significant short-term movements. Extra demand for housing due to migration, for example, can create supply constraints given the time taken to plan and construct new housing. In New Zealand, the correlation between net migration inflows and house price inflation is striking, as illustrated in graph 3.

**Graph 3**  
**Migration and house prices**



The price signals given by the housing market thus have to be treated with caution. Compared to markets for financial assets, the housing market is relatively slow to adjust, with long and variable

<sup>2</sup> Bordo and Jeanne (2002).

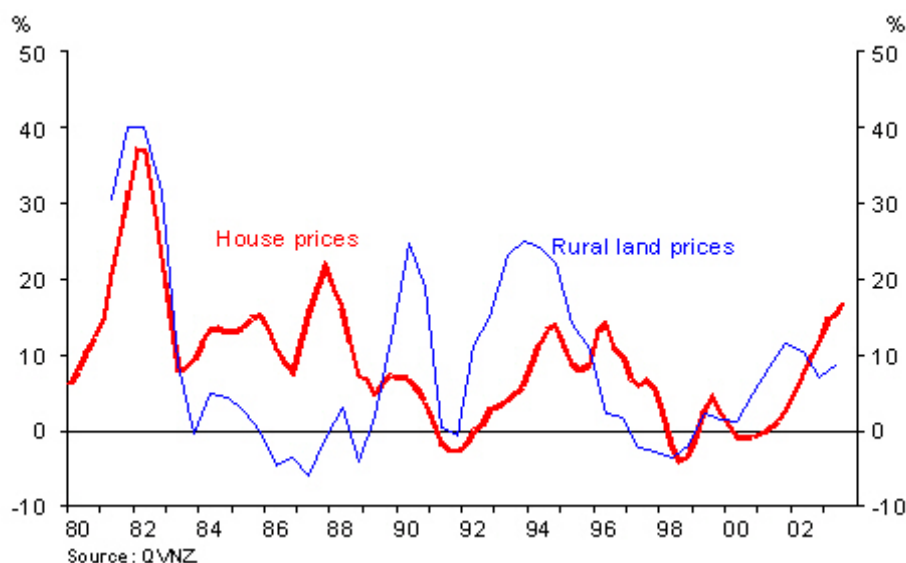
times to close sales, and with, beforehand, much uncertainty about final closing prices, if deals are even reached. Aggregated statistics on house price movements are “noisy” indicators of the future outlook for the housing sector. Past prices are not always a good indicator of future prices. Also, data on residential real estate prices are not always of a high quality.

This can mean that the housing sector is susceptible to over- and under-shooting. Initial one-off increases in house prices may be misinterpreted as increases in a trend, leading to further moves in the same direction, giving an impression that a major trend shift is underway even if in fact it isn't. Because of the noisiness of the price signals, it can take a long time for this sort of thing to correct. Eventually, as for other types of assets, house prices do correct, either by falling outright, or by prices treading water for years until fundamentals have caught up.

Do recent developments, in light of this susceptibility to over-shooting, imply that the housing market is in such a speculative bubble that an unusual monetary policy response is warranted? In some periods of our history, house prices and rural land prices have both moved through large cycles, both up and down - with the downs more noticeable in real terms (see graph 4). These real declines were sometimes masked by high inflation, which may have fed the false perception in some quarters that house prices never go anywhere but up. In the current low inflation environment, real house price declines as in the past would show up as outright declines in dollar prices.

**Graph 4**  
**Property prices**

*(annual percentage change)*



There is no doubt that we have seen quite strong increases in house prices in New Zealand in the last year or so. Some of that is justified by fundamentals, some simply reflects the fact that, in a small economy, with a small housing stock, it does not take much increase in demand to have a big effect on house prices. But some of the recent increases may also reflect excessive exuberance among some investors.

Thus some people today may be incorrectly convincing themselves that level shifts associated with lower mortgage interest rates are in fact shifts in the trend of prices, that house prices only rise, and that someone can always be found who will pay more for a property. For a time, this behaviour can be price reinforcing, but eventually some unhappy soul will be stuck holding the bag.

There are elements of speculative bubble behaviour present in recent house price developments. While that bodes ill for some individuals, however, it does not seem at this stage to be large enough, or of a character, to generate significant fall-out for the overall economy when the correction happens - as it will.

In terms of potential risks to the economy and to financial stability, a bubble in residential housing is less of a concern than a bubble in commercial property or in the stock market. On average, banks'



residential mortgage portfolios are much more stable than other loan portfolios. The historical loan loss on residential lending is very low indeed. Furthermore, recently the Reserve Bank worked with the major retail banks in an exercise that involved simulating a variety of shocks, including, amongst others, large falls in house prices and incomes, a foot and mouth outbreak, large changes to interest rates, the exchange rate and so on. The results of these tests suggest that the New Zealand banking system is well placed to absorb some quite nasty shocks including a large fall in nominal house prices. The current-day New Zealand financial system has particularly prudent lending practices, strong capitalisation, sound asset quality and strong parentage.

To be sure, there are legitimate reasons to be concerned that resources are being misallocated as a consequence of incorrect perceptions about the likely future course of house prices. But in terms of the ideas discussed earlier, the economy-wide scale of resource misallocation and the fall-out from a housing market correction do not appear sufficiently severe to warrant running monetary policy unusually tight above and beyond the requirement to ensure consumer price stability.

The scale of recent house price developments is by no means comparable to the boom and bust in New Zealand equities in the 1980s. Graph 4, below, reminds us of the dramatic bubble in equity prices that was experienced in the second half of the 1980s, when equity prices doubled in one year and halved in the next. This period is a reminder of how substantial shifts away from fundamentals can be, especially with the benefit of hindsight! It defies belief that equity prices at all times during this period were accurate reflections of the true fundamentals-based value of traded New Zealand companies. The 1980s experience was typical of the bubble phenomenon, as asset prices drifted to levels where they didn't appear to have much connection with the real world, and then eventually they corrected back.

So should the Reserve Bank have tried to head off the share market boom of the mid 80s, so as to avoid the 87 share market crash? That's a really hard call. Monetary policy was already very tight as the Reserve Bank valiantly brought inflation down from very high levels, price stability not being achieved until 1991. To have applied even more pressure probably would have been very difficult. But now, with price stability in place, if our stock market was starting to look like the left hand side of graph 5 then, yes, a Reserve Bank Governor might well say extraordinary measures were required.

**Graph 5**  
**New Zealand equity prices**



## Conclusions

In this talk I have made the following points.

I've noted that, to some extent, monetary policy aimed at keeping consumer price inflation under control automatically takes asset prices into account in terms of their effect on general price inflation.



However, even so, sometimes asset price bubbles occur, causing economic damage. I've suggested there are some very limited circumstances where monetary policy should look beyond the immediate inflation outlook and respond more vigorously to asset price developments. I have also noted that this carries risks and is difficult to do. And I've recorded that the New Zealand housing market currently does not warrant such a severe intervention, so that, for example, yesterday's interest rate increase was just part of the normal operation of monetary policy to ensure continuing consumer price stability.

There's an old adage that a popular central banker is seldom a good central banker. Those in my trade have also been likened to dismal souls that take away the punch bowl just when the party is getting boisterous. A central banker trying to constrain an asset bubble would certainly not be flavour of the month because everyone loves a bubble on the way up. Still, central bankers are required to think-long term and sometimes that means taking decisions that won't be welcomed at the time but, in the longer-term, are in the public interest.

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