

## Waiting for the bubble to burst

**A**s the financial market instability caused by the sub-prime mortgage crisis in the United States continues to ripple through global markets, many experts have begun to ask whether central banks should have taken action earlier to 'lean against' rapid increases in property prices, instead of simply waiting for the bubble to burst.

Alan Greenspan was blamed by some for not acting to counter the 'irrational exuberance' he himself identified in the American equity markets in the late 1990s, and he has subsequently been accused of failing to spot and tackle a dangerous housing bubble which has now burst, helping to spark what the International Monetary Fund has called the worst financial crisis since the Great Depression.

However, in a new paper, CEPR Researcher **Stefan Gerlach** and co-author **Katrin Assenmacher-Wesche** find that raising interest rates to deflate a bubble would, in fact, be a very risky strategy which could have large and unpredictable effects on other asset prices, and most importantly on GDP growth.

They argue that if central bankers were to be confident that they could use the tool of interest rates to 'lean against' bubbles, they would have to know that the effect of their actions would be predictable; and that they would not be unleashing instability elsewhere in the economy.

Using data from 17 countries, over the 20 years from 1986 to 2006, the authors carry out a variable autoregression analysis to test the response of property prices, inflation and economic output to changes in interest rates. When they simply look at countries one by one, they find that the impact of a 25 basis point increase in interest rates varies widely. In some countries - including Finland and the UK, for example - property prices respond almost immediately to a rate rise; while in others - including Belgium and Spain - it takes longer to have an effect.

These differences could make it hard for central bankers to assess the likely impact of their policies; but

the authors also examine the countries together in a panel regression to see whether they can identify general effects. On average, they find that house prices tend to reach a trough approximately nine months after a rate rise has taken place, and then take a long time to recover.

More worryingly, this analysis shows that there is a three-to-one relationship between the changes in property prices brought about by raising interest rates, and the concomitant shifts in economic output. For every 3% decrease in house prices brought about by raising interest rates, real GDP falls by 1%. That means to reduce house prices by 15% - the size of a plausible bubble - central bankers would have to be prepared to accept a substantial 5% decline in output.

Another problem uncovered by the panel regressions is that equity prices tend to fall by approximately the same amount as house prices in response to interest rate changes, but the effects happen much faster and equity prices tend to bounce back more quickly. These differing response patterns mean that by trying to stabilise one set of asset prices, central bankers would risk creating instability elsewhere.

One possible explanation for the variations across countries in the impact of monetary policy shocks revealed by the regression analysis is differences in the financial structure of each country, which affect the transmission mechanism by which changes in interest rates are passed through to the rest of the economy.

In order to test whether such differences are affecting their results, the authors carry out a series of further regressions, dividing the countries each time into two groups according to how developed their financial system is on a number of criteria. These include average loan-to-value ratios; the ratio of debt to GDP; the availability of mortgage equity withdrawal; and so on.

The authors do find some small differences in the way that interest rate shocks affect the groups of economies when they divide them up in this way. Where the mortgage debt to GDP ratio is high, for example, real

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GDP falls faster, and for longer, in response to a monetary policy shock.

However, there is little clear pattern to these results and, in general, the effect of the financial system in determining how strongly interest changes hit the economy seems to be relatively small. The key findings – that there is a large and unpredictable effect on GDP, and wide variations in the size and timing of the impact of rate changes – still hold, however the countries are divided up.

As the effects of the bursting of a series of house price bubbles continue to be felt across the US and Europe, it is tempting to suggest that central bankers should have intervened earlier to prevent the boom

from running out of control, instead of waiting for it to turn to bust and then cleaning up the mess. But Assenmacher-Wesche and Gerlach's analysis, covering 17 countries and two decades, suggests that raising interest rates to bring house prices under control would be a risky and imprecise policy approach, which could unleash more economic problems than it solved.

**DP6773 'Ensuring Financial Stability: Financial Structure and the Impact of Monetary Policy on Asset Prices'** by Katrin Assenmacher-Wesche and Stefan Gerlach.

## Everybody needs good neighbours

Economists have long debated the secret of successful development, pondering whether there is a special policy recipe, a perfect set of institutions or an ideal climate for a country to take off. More recently, proponents of the 'new economic geography' have argued that even with impeccable governance, it also matters where a country is located and who are its neighbours.

In a new CEPR paper prepared for the World Bank, CEPR Researcher **Thierry Mayer** carries out a formal analysis of this idea, and shows that proximity to other rich countries is a crucial component of economic development.

The major insight of economic geography is that distance matters – though it may not only be physical distance. Using trade data for every country in the world from 1960 to 2003, Mayer calculates a 'distance equation' which tests the importance of a number of factors in determining trade flows. As well as physical proximity (because goods still cost money to ship), he includes contiguity; membership of a currency union such as the euro area; and colonial links – because ex-colonies were often given special access to markets by their former rulers.

Using this equation, Mayer calculates the strength of each of these factors over time. For each country, he is then able to calculate what he calls 'real market potential,' based on a weighted sum of the expenditures of all the countries in the world.

The weights will be determined by the distance equation – Belgium is likely to receive a relatively high share of the expenditure of the Netherlands, for example, because it is nearby, and shares a currency and a free trade agreement; but a much smaller proportion of the expenditures of the US, which is farther away, has a different currency, and is not part of the EU.

However, size also matters: America's expenditure is so large that even a tiny share of it can be hugely important. Not surprisingly, the countries that are winners on this basis, with the largest 'market potential', are those with lucky locations, at the heart of groups of rich countries. This helps to explain the phenomenon studied by economists of 'spatial clubs' – groups of countries in close proximity to each other, which appear somehow to develop together.

As well as his favoured concept of 'real market potential,' which includes a measure of the share of its total budget a country spends on its own goods, Mayer also calculates what he calls 'foreign market potential,' based only on exports. This shows the impressive performance of countries such as Turkey, which has relatively weak foreign market potential because its neighbours have actually fallen behind as markets over the period studied, but has nevertheless strong real market potential – or, in other words, an unusually dynamic home market.

With these results in hand, Mayer then tests the relevance of market potential for predicting economic development, as measured by income per capita. He controls for a number of other possible variables, including the skill-level in each country, and finds that the relationship between market potential, and GDP-per capita is statistically very significant over the 40-year period he studies.

As an example, his results suggest that had the market potential of the Democratic Republic of Congo, trapped amid other developing countries in Africa, been raised to that of Vietnam, at the heart of the rapidly-growing Asian economies, its GDP per capital would have increased by approximately 24 times.

As another measure of just how important the notion of market potential can be, during the last decade of

the sample (between 1993 and 2003), GDP per capita increased by an average of 105% simply as a result of increased market potential – because of larger or richer neighbours, or falling trade costs.

Given such a large panel of data, and measures of the relationships between different factors, Mayer is also able to simulate the impact of potential policy changes on different countries' performances. As an example, he looks at what would happen if regional trade agreements were all suspended. The worst losers would be small economies that are part of rich-country trade clubs. Ireland, for example, would see wages decline by approximately 20%, he calculates.

For poorer countries, however, which have often rushed to create regional trade groupings in recent years, the effects would actually be very small –

because the other members are often relatively minor markets themselves.

In the 'weightless economy' of the twenty-first century, with outsourcing of key business processes proliferating, it can be tempting to imagine that distance and location no longer matter. But Mayer's latest contribution to 'new economic geography' demonstrates that proximity to successful neighbours is a key determinant of economic development, and will continue to be important to developing countries however impeccable their governance credentials, and whatever clever institutions they devise.

CEPR DP6798 'Market Potential and Development' by Thierry Mayer.

## House prices and consumer spending

With the United States in the grip of a severe housing downturn, and property booms coming to an end in the United Kingdom, Spain and a number of other countries, an urgent public debate is underway about how badly falling house prices affect the wider economy. In a new paper, CEPR Researcher **John Muellbauer** argues that the answer depends on how easily credit is available within an economy – and how that has changed over time.

Many economists, including those at the Bank of England, argue that falls in house prices should make little difference to consumer spending in the economy as a whole. Homeowners whose wealth declines because their property is worth less are balanced out by winners: first-time buyers who are able to purchase a home more cheaply. Muellbauer argues that this explanation misses out an important shift in the macro-economy in recent decades – the more ready availability of credit.

In an economy where it is still difficult to borrow, rising house prices mean that first-time buyers will have to put aside a larger proportion of their income to save up for a deposit, so they will have less to spare to spend on other things.

At the same time, although the owners of existing homes become wealthier as prices rise, in a world where mortgages are scarce it will be difficult for them to unlock that wealth, by borrowing extra money against the rising value of their property.

Muellbauer argues that both these effects change once credit becomes much more easily available, as it did after the waves of liberalisation in the late-1980s and early 1990s, and because of technological changes

since then such as better credit-scoring, which helps lenders to understand their risks better and to cut their costs.

In an economy where it is much easier to borrow, rising prices will have less of an effect on the spending of first time buyers: instead of saving hard for a deposit, they can fill the gap with borrowing, as many buyers did in the UK during the recent boom, when 100% mortgages became commonplace.

Meanwhile, freely available credit allows existing homeowners to cash in on rapidly rising house prices, by extending their mortgage and withdrawing some of the cash. In other words, credit liberalisation increases the 'spendability' of housing wealth.

Muellbauer teases out some of these relationships, using an equation for the changes in consumption throughout an individual's lifetime called the Friedman-Ando-Modigliani 'solved out' consumption function. Within the equation, he includes an indicator for credit market liberalisation. For the UK, there is an index of liberalisation, developed in 2006 by Muellbauer and fellow economist Fernandez-Conguale; but he also finds indicators of the availability of credit over time for the US, South Africa and Japan to enable him to compare the experiences of different countries.

Using this analysis, Muellbauer finds that the relaxation of credit constraints changes the dynamics of economies in multiple ways. Consumers are more able to use borrowing to smooth their spending during periods when their income temporarily declines – so they have less need to save. The impact of changes in interest rates – the key tool of economic management – is also altered, as the level of savings declines and

borrowing increases, relative to the size of the economy. And consumers will react differently to shifts in their expectations for their own future income if they are more able to borrow.

For the UK, he finds that before 1980, the Bank of England's approach was correct - there was no housing wealth effect. Recently, however, a more powerful relationship between housing wealth and consumer spending has developed.

For the US, the analysis suggests that the impact of changes in house prices on consumer behaviour is now strong - stronger, in fact, than the effect of shifts in the stock market. He points to a number of reasons why the US experience may be different to the UK's. Mortgage interest is still fully tax-deductible in the US, for example, whereas it was phased out in the UK from the 1980s. The state-backed Fannie Mae and Freddie Mac lenders make low-cost, fixed rate mortgages easily available in the US; while many states allow defaulting borrowers to walk away from loans they are unable to pay. After a repossession in the UK, by contrast, lenders can continue to pursue the borrower for up to seven years. Such factors have helped to intensify the effect of changes in house prices on consumers' behaviour.

For the US, Muellbauer finds that the 'marginal propensity to consume' out of housing wealth - the proportion of each \$1 increase in house prices that ends up being spent - is 6-7%; while in the UK, it is just over 3%.

He argues that the considerable shifts in credit markets over the past twenty years, with the resulting rise in the 'spendability' of housing wealth, have potentially increased the vulnerability of the wider

economy to booms and busts in the housing market, particularly given the lack of financial education across society generally.

Lower income consumers may be especially at risk - during the last year or so of the US housing boom, for example, when mis-selling was apparently rife, it was mainly consumers who had previously been unable to access the property market that took out mortgages they were subsequently unable to repay.

In fact, Muellbauer argues, low income consumers in developed countries may feel they have had a raw deal from globalisation generally. They are exposed to wage competition from lower-cost economies such as China and India; the prices of basic commodities such as food and fuel have been driven up dramatically by rising global demand; and increased inequality has contributed to asset booms. The world's financial institutions then responded by offering ever-riskier loans, sometimes without making their potential long-term costs apparent.

As the US wrestles with the knock-on effects of a housing crash, and the UK and Spain prepare for the end of the property boom years, Muellbauer argues that we should not be too reassured by the idea that keen first-time buyers will make up for the declining wealth of homeowners; and to understand fully the processes at work, we have to take into account how radically the credit markets have changed since the days of mortgage-rationing and putting on a tie to visit the bank manager.

CEPR DP 6782 'Housing, Credit and Consumer Expenditure' by John Muellbauer.

## Novelas and the shrinking Brazilian family

Characters from popular television shows are well known to set trends in fashion, hair-styles and catch-phrases; but a new study shows that women in Brazil have also echoed the lifestyles of their heroines from the small screen when it comes to planning their families.

Brazil's *novelas* - high-budget soap operas aired nightly - have attracted some of the country's best writers. During the years of the Figueiredo dictatorship, from 1978 to 1985, television was deliberately cultivated by the government as a means of promoting national unity and identity. But the *novelas* have also often portrayed issues and values that were still taboo in other areas of public life, including female emancipation.

Education levels remain low - 39% of Brazil's adult population have had four years schooling or fewer -

but the *novelas* are a mass phenomenon. Television ownership shot up from 8% of households in 1970 to 81% in 1991 - and the *novelas* can expect to pull in 60 to 80 million viewers for each episode.

Over the past 40 years, Brazil has experienced an extraordinary decrease in fertility rates, comparable only to China where a deliberate 'one child policy' was imposed by the state. The average Brazilian woman had 6.3 children in 1960; but that had dropped to 2.3 by 2000.

CEPR Researcher **Eliana La Ferrara**, **Alberto Chong** and **Suzanne Dureya** use census evidence to investigate whether the spread of the *novelas* - which tend to feature small, wealthy middle-class families, and many of whose female characters have no children at all - has had any influence on the fertility decisions of Brazilian women.

The main television network in Brazil, which had a virtual monopoly until the 1990s and is responsible for most of the *novelas*, is Rede Globo. The authors are able to use information about the location and reach of transmitters for the station to test whether the availability of *novelas* in a particular area tends to affect fertility rates.

Looking simply at aggregate data for 3,659 municipal areas in Brazil, and comparing those with and without a signal over time, they find that in general, the availability of Rede Globo did tend to decrease fertility. The effect was not huge, but as important, for example, as the availability of an extra doctor or nurse per 1,000 people in affecting the average number of live births for each woman.

Next, La Ferrara and her co-authors compare the experiences of individual women. Taking a 5% sample from the census, they carry out a regression analysis, controlling for a number of factors including whether a woman is married, and her level of education.

They find that the probability of a woman giving birth in a particular year is reduced by 0.6 percentage points if Rede Globo's *novelas* are available in her local area. This effect is as large as the impact of two years' extra education on a woman's fertility.

The impact is larger among older women, suggesting, the authors argue, that they are using 'stopping', rather than, for example, the birth control pill, to limit the size of their families. It seems that the compelling stories of the *novelas* expose Brazilian women to the possibility of a different kind of life, one which they then seek to emulate at home. The authors find that 62% of the main female characters portrayed in the soap operas have no children at all – and the average number of children is fewer than one.

As further corroboration that it is the *novelas* specifically, with their popular representations of Brazilian life, rather than television more generally which are influencing women's decisions, the authors carry out two more tests.

First, they look at the tendency of parents to name their children after the main characters in the soap operas. Within reach of a Rede Globo signal, there is a 33% chance that at least one of the unusual names from the *novelas* will be among the top 20 most popular children's names. Outside Rede Globo's reach, the chance is just 8%.

Finally, La Ferrara and her colleagues test the impact of a rival TV station – Sistema Brasileiro de Televisao, or SBT – which has existed since 1980. Unlike Rede Globo, SBT imports its soap operas from the US and Mexico, and the authors find no connection between the availability of these shows and fertility rates. This, they suggest, may be because the families and characters portrayed in such soap operas are too far removed from ordinary Brazilian life for families to think of emulating them.

Soap operas are rarely thought of as cultural phenomena worthy of research; but the results of this study suggest that where formal education is still limited, television can have an extraordinarily important effect in disseminating information about alternative values and lifestyles; which can in turn play a key role in the process of economic development, spreading much more than fashions or catch-phrases.

**DP 6785 'Soap Operas and Fertility: Evidence from Brazil' by Eliana La Ferrara, Alberto Chong and Suzanne Dureya**

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