

UK HOUSE PRICES, CONSUMPTION AND GDP, IN A GLOBAL CONTEXT

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¹ © Andrew W. K. Farlow. January 2005. This is the third of five papers looking at the economics of the housing market, with particular reference to the UK. All errors and omissions are mine. Feedback is greatly appreciated: andrew.farlow@economics.ox.ac.uk. Further copies of this paper, and the other papers, to be found at: <http://www.economics.ox.ac.uk/members/andrew.farlow>.

INTRODUCTION

There has been much recent literature on the relationship between house prices and consumption. The IMF, OECD, Bank of England, and HM Treasury have all in the past year or so released analysis of UK and global house price developments². The objective of this paper is not to repeat all of this but to draw out a few of the salient features, attempt some sort of *evaluation* of this evidence, and try to draw some conclusions as to where, on balance, it all points for policy-makers and those with an interest in the prospects of the UK housing market. In particular, the big question that this literature revolves around – sometimes attentive to it and sometimes skating around it – is what might happen to consumption and GDP were UK house prices to fall? For those interested in more general macroeconomic issues, the paper will hopefully provide some pointers as to likely monetary (and fiscal) policy reaction.

It is also increasingly clear that *something* has been going on with house prices at a global level. Indeed, the Economist Magazine recently went as far as to allege that we may be facing the world's first “global house price bubble”. It is not yet clear exactly how serious this is. Nevertheless, even if there is only a small chance of this being the case, it makes it one of the more pressing contemporary macroeconomic policy issues, even if political expedience may heavily discount bothering with such a notion. This paper therefore also seeks to put the UK case in a global context, and to

² June 2003 “Housing, consumption and EMU” http://www.hm-treasury.gov.uk/documents/the_euro/assessment/studies/euro_assess03_studdorset.cfm. IMF World Economic Outlook, Chapter 2, September 2004, <http://www.imf.org/external/pubs/ft/weo/2004/02/pdf/cha-pter2.pdf>. OECD Economic Outlook No. 75, Chapter IV, June 2004, “Housing markets, wealth and the business cycle”, <http://www.oecd.org/dataoecd/4/60/31920338.pdf>. Various Bank of England references below.

explore some of the global possibilities in more detail.

As with most things in economic life, the picture is often more complicated than raw data alone suggests, but, thankfully, not totally opaque. Some readers may disagree with some of the interpretations made here, but the author is always keen to be challenged to think further. Some of the suggestions are speculative, more ‘food for thought’ than anything else, and hopefully they will help to feed a lively debate.

1. UK HOUSE PRICES AND CONSUMPTION

1.1. Some Evidence

Strictly speaking it is *housing wealth* and not house prices that we are interested in. Housing wealth can increase either because the *price* of the existing stock held by the private sector rises or because of a rise in that *stock*. The latter rises either if net investment in housing rises or if there has been a transfer of housing stock to the private sector from the public sector at less than market price. The latter was especially important in the 1980s such that the growth in *housing wealth* was even greater in that period than the growth in house prices. However, there is often a reasonably close correlation between house prices and housing wealth for us to sometimes refer to one and, at other times, the other.

Strong housing market cycles, linked to volatile consumption, have been an overriding feature of the UK economy for over three decades. According to the OECD, over the period 1971-2002 a 1% change in UK housing wealth was, on average, correlated with a 0.07% change in consumer spending – the strongest correlation of any country surveyed. Broadly similar findings are reached by HM Treasury³ and by the IMF⁴.

³ HM Treasury, *ibid*.

The IMF recently singled out the UK (along with Finland, Ireland, and Switzerland) as having had one of the most procyclical housing markets in the world. Figure 1 shows that there has not been a large fall in real UK house prices that has not been followed by a major fall in UK GDP (the grey bands).

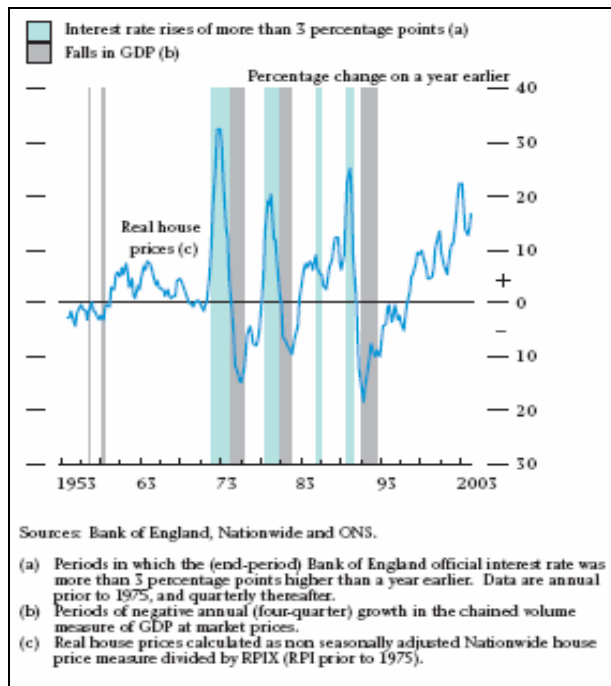


Figure 1: Real house prices and macroeconomic conditions⁵

A recent IMF cross-country study on housing booms and busts⁶ calculated that roughly 40 per cent of all housing booms are followed by busts, and that busts tend to be associated with very high GDP declines – higher than following equity market busts – with an average cumulative loss over several years, of as much as 8% of GDP⁷.

⁴ IMF, *ibid.*

⁵ Bank of England Inflation Report, May 2004, p7, Chart 1.10.

⁶ IMF World Economic Outlook April 2003.

⁷ One important caveat however (as with all such studies) is that many of the busts used in the study happened in 1980-82, and 1989-92, and so the consequences may not be a typical drawing from the true potential sample of consequences. Furthermore, the crises in many of the

Given this historical evidence, it might seem, on the surface, that a large correction in consumption and GDP should be expected if UK house prices were to fall in the next few years. After all, UK house prices have recently been rising very rapidly by historical standards, at rates many times the long-run historical average of about 2.5% per year⁸. If housing has become overvalued and prices start to fall, will the historical pattern repeat?

Depending on the links between housing and consumer demand, volatility in housing markets can be more or less rapidly transmitted to general macroeconomic volatility. There are two possibilities as to why housing markets may be less of a factor in macroeconomic volatility. Either because house prices and housing wealth are much less volatile than in the past. This seems to be the message – or the hope – of the mortgage bank industry at the moment. Alternatively, even if house prices are still volatile (with the current apparent stability being more the consequence of a very long bull run than anything else) the links to consumption are now much weaker than in the past.

The Bank of England⁹ has recently suggested that UK consumption may be less dependent on house prices than we had previously come to believe, and that future falls in house prices may be less likely to lead to significant falls in consumption and GDP. It is argued¹⁰ that the correlation between house prices and consumption in earlier cycles is not necessarily

Asian economies of 1997-1998 were preceded by record stock market and property price rises and collapses that fed the attitudes of banks and other investors during 1997-1998.

⁸ HM Treasury, *ibid.*, p2. and p31.

⁹ Bank of England Inflation Report, May 2004, especially p11-14.

¹⁰ See remarks of the Governor of the Bank of England on this topic at: <http://www.bankofengland.co.uk/inflationreport/irspnote.htm>, and also Bank of England Inflation Report, November 2004, pp 12-13. See also HM Treasury, *ibid.*, p15 and p57.

evidence of a *causal* link; both may have been driven by a common factor, such as *expectations* of future incomes, something that is not directly observable. Simple correlations of data that fail to control for this factor can give very misleading indications of causality. In this case – and not always picked up in the media commentary on this issue – from the Bank’s perspective, stopping house prices from falling in the future may be less urgent than it would have been in the past¹¹. The “lack of consumption response” observation is therefore potentially also an argument for a very different kind of central bank response to house price falls from that typical in the past.

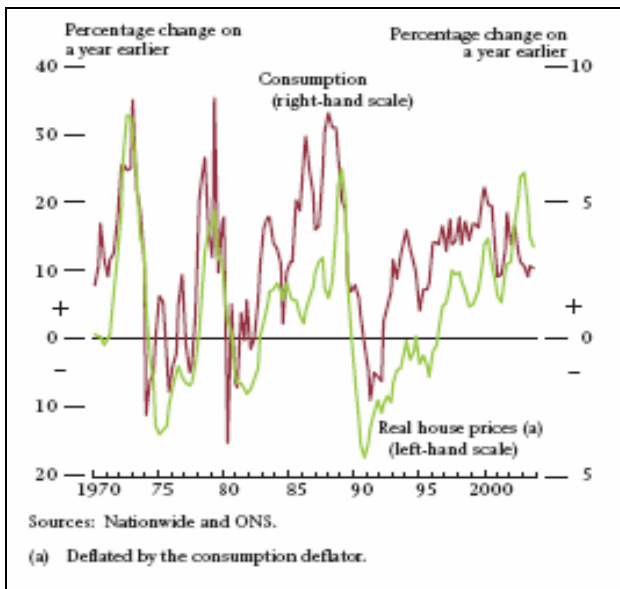


Figure 2: Consumption and house prices¹²

Figure 2 shows that since 1970 the rapid increase in house prices (green line) running up to each real price crash was accompanied by rapid growth of consumption (red line), and that every time UK house price inflation fell in real terms, so did the (nominal) rate of consumption growth. However, since the mid-1990s, though

¹¹ With one serious caveat: when income and consumption expectations are related to the fall in house prices.

¹² Bank of England Inflation Report May 2004, p12, Chart 2.1.

house price inflation has accelerated, the rate of growth of consumption has, if anything, decelerated; it certainly has not reached the rates of growth of the late 1980s boom.

One of the angles explored to try to explain this recent pattern of behavior relates to the way house price rises increase the collateral value of housing, and hence improve the access of owners to low-cost secured finance¹³. If this is less important today, one consequence would be a lower consumption response to house price rises. Recent evidence for this is provided by the behavior of spending on durables¹⁴. Real durable and semi-durable expenditure is highly pro-cyclical (Figure 3). However, since the real prices of durables and non-durables has fallen heavily (Figure 4) the rate of growth of *nominal*

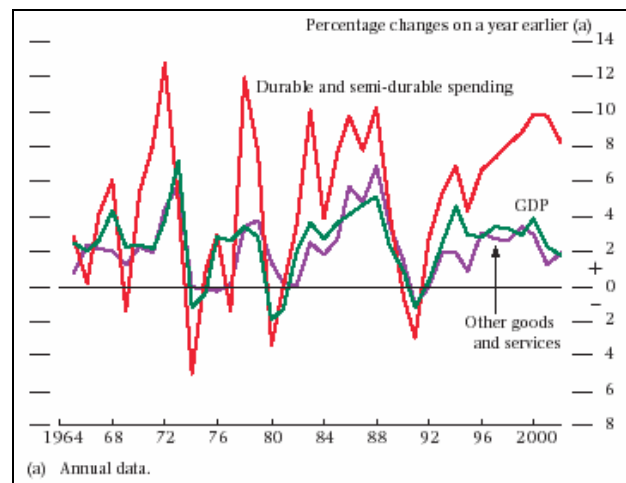


Figure 3: Real Consumption and GDP¹⁵

durable and semi-durable spending (Figure 5) has been close to the rate of growth of ‘other goods and services’ since the late 1990s (at 5.9% since 1998 Q1, not much higher than the

¹³ See IMF World Economic Outlook, April 2004, Chapter IV.

¹⁴ Power, J, “Durables spending, relative prices and consumption,” Bank of England Quarterly Bulletin, Spring 2004, pp 21-31, <http://www.bankofengland.co.uk/qb/qb040101.pdf>.

¹⁵ Bank of England Quarterly Bulletin, Spring 2004, Power, J., Chart 1.

5.4% on ‘other goods and services’¹⁶. In consequence, the ratio of durable to non-durable has been close to its estimated long-run trend (Figure 6).

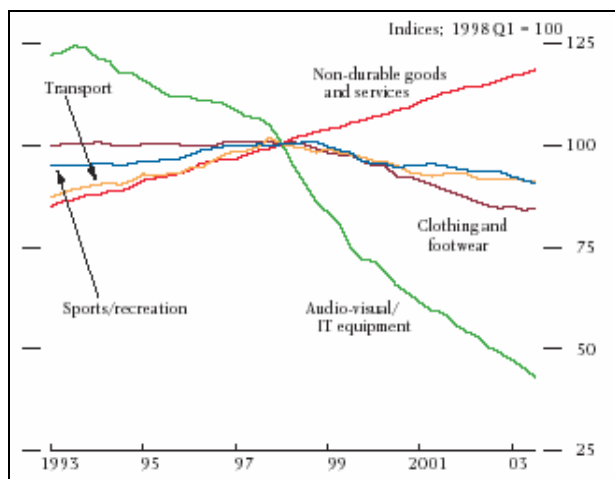


Figure 4: Consumption expenditure deflators¹⁷

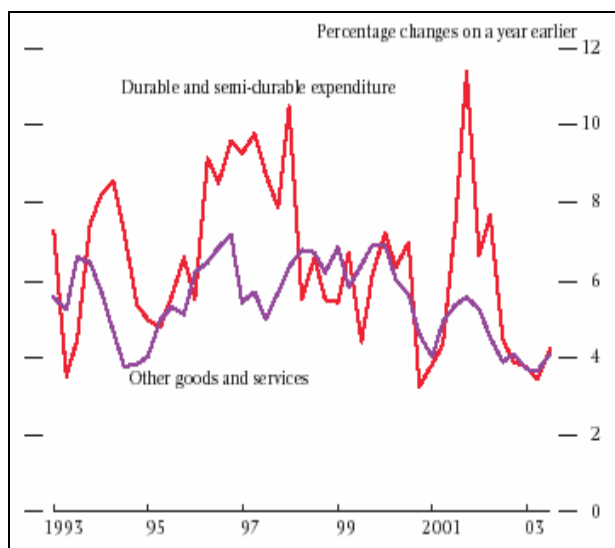


Figure 5: Nominal Expenditure¹⁸

But this generates a striking result when put alongside house price rises (Figure 7). In the past, the share of durable spending as a

¹⁶ Apart from a temporary pick-up between 2001 Q3 and 2002 Q2.

¹⁷ Bank of England Quarterly Bulletin Spring 2004, Power, J., Chart 8.

¹⁸ Bank of England Quarterly Bulletin Spring 2004, Power, J., Chart 2.

proportion of total consumption spending was heavily correlated with house prices; this has broken down entirely since the late 1990s.

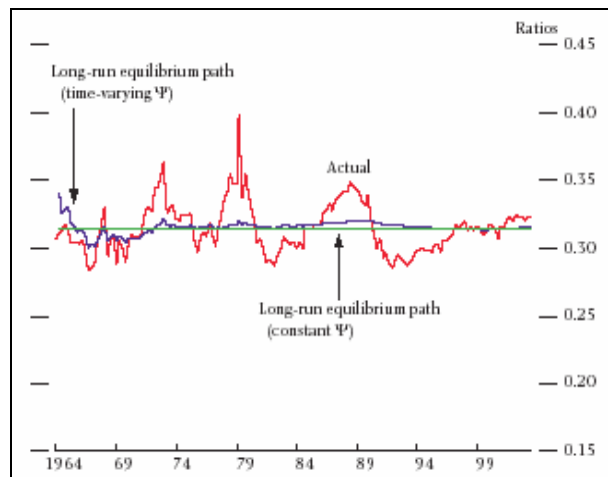


Figure 6: Nominal ratio of durable to non-durable consumption¹⁹

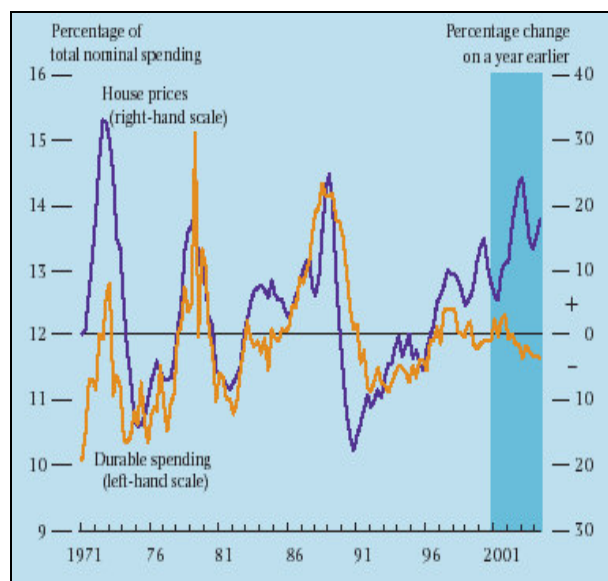


Figure 7: Real house prices and the share of durable spending in consumption²⁰

¹⁹ Bank of England Quarterly Bulletin Spring 2004, Power, J., Chart 1. The variable Ψ is a function of other structural parameters, including the depreciation rate of durable goods, the real interest rate, the long-run growth rate of the stock of durable goods, and the long-run rate of change of the relative price of durable goods.

²⁰ Bank of England Inflation Report November 2004, Chart C, p13.

This is not what we have come to expect. Durables are much more likely to be purchased on credit than non-durables, such that durable spending should, relatively, track house prices if rising house prices tend to create collateral and hence reduce credit constraints. So this breakdown could be because credit constraints are now much weaker than in the past such that an increase in housing wealth has little impact – via collateral value – on increasing consumption possibilities. Certainly, many of the heaviest credit constraints were removed in earlier periods.

Or it could be because a common driving force for both house prices and consumption of durables – in particular optimism about future earnings and wealth – has not been present since the late 1990s. Higher long-term income expectations would be expected to raise the desired *stock* of durables, and the adjustment to this new level would cause a temporary surge in the rate of growth of durables and hence in the ratio of durable to non-durables in current expenditure, at the same time as these same strong income expectations would drive demand for housing consumption and hence push up house prices (that in turn can be used as collateral to unlock credit constrained households and enable the said durable spending²¹). Instead, the consumption data seems to be suggesting that income expectations are pretty stable, that consumers expect moderate wage rises, and, indeed, much lower non-labour income than in the past (for example following the stock market shake-out of the turn of the century).

Figure 8 reveals further evidence that this collateral-based effect may not have been as powerful as previously believed. The swings in spending relative to income – in all periods –

²¹ Since the rise in house prices in this case is based on fundamentals, financial institutions would be ‘rational’ to treat this as ‘fundamental’ collateral value. Part Five discusses ‘non-fundamental’ collateral value.

seem to be nearly as great for homeowners as for renters, in spite of the formers’ supposed housing collateral. Part of the explanation for this might be based on risk premia and options thinking – that owners, unlike renters, face the riskiness of the asset value of the housing they own and the debts they have taken on to acquire it, making them less willing to use it (i.e. risk it as collateral) in periods of price slump (or indeed even in periods when there is worry about price slump), and there is also an option value (both for owners and for financial institutions) in simply waiting to see where house prices settle before using them to price collateral²². This needs more exploration.

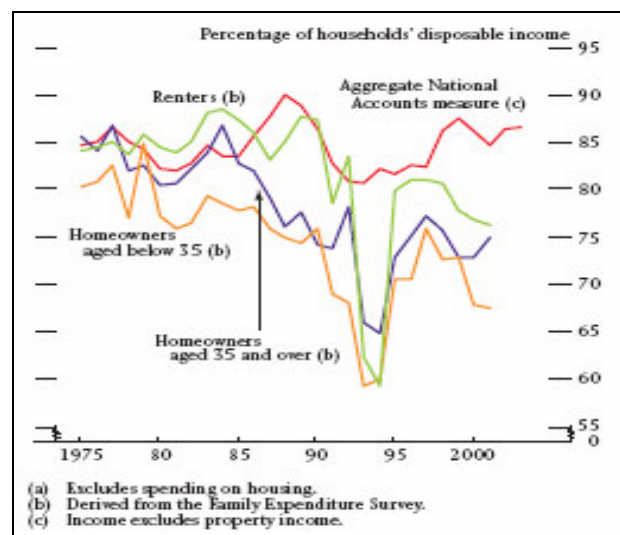


Figure 8: Household non-housing spending by different groups²³

However, the above findings create difficulties too for our interpretations of house price behaviour. Both house prices and the equilibrium stock of durables should be driven

²² See more on the use of housing as collateral and risk premia in Farlow “Risk Premia and House Prices” 2005. There is also a story that explains this in terms of banks mispricing and subsequently repricing collateral in their loan decisions, of the sense in which collateral has a ‘phony’ value at times of overvaluation, but a value nevertheless used in the pricing of loan decisions.

²³ Bank of England Inflation Report May 2004, p12, Chart 2.3, based on the Family Expenditure Survey.

by income expectations. One might expect that if households were busy revising up their notion of the equilibrium stock of housing (say because of lower real interest rates) the equilibrium stock of durables might be affected too. If, instead, *real* income expectations are pretty stable, how could a revision *upwards* in such expectations have driven house prices so much higher in just a few years?²⁴ Instead, a great deal of weight would have to fall on demographic factors and the slow rate of house building. This is not realistic (see Part One); these go some way but nowhere near far enough to explain a trebling of prices. And many of these other factors (such as higher rates of household formation) would also drive a change in the aggregate equilibrium stock of durables and hence a temporary surge in their aggregate growth too.

This leaves a great deal of weight resting on the credit constraint story (that low nominal interest rates, for given real interest rates, unlock credit constraints on house purchases, such that housing demand and prices both rise) for explaining dramatic house price rises. But it is difficult to create a story that makes credit constraints highly important for housing consumption but not for non-housing consumption, especially durables (Part One discusses the consequences of credit constraints on patterns of consumption). There may also be distributional issues working for and against house price rises, since many asset-rich households have experienced heavily relaxed credit constraints even as heavily rising house prices have tightened the conditions at the other end of the income distribution.

The only remaining explanation is that households simply do not view recent house price levels as long-term sustainable. But that, as they say, is a whole other can of worms.

²⁴ Incidentally, one would expect that the impact of falls in real interest rates are included in these income and wealth expectations.

Debt and equity withdrawal

The low recent rates of growth of consumption compared to previous episodes might seem strange given the rapid increase in UK household debt. Mortgage debt, in particular, has been rising at about 15% per year for the past five years, and mortgage equity withdrawal, MEW, has gone from 0% of household income in the late 1990s (at the end of the 6-year trough to which it had slumped following the collapse of the early 1990s) to over 8% today (Figure 9). Yet, in the same period, consumption *as a per cent of household disposable income* (red line in Figure 9) has hardly changed at all. In Figure 9, the correlation of consumption with MEW up to and out of the last property market price spike and subsequent crash is striking. The suggestion is that the recent pattern means that a similar close correlation would not follow if MEW collapsed following generalized house price falls.

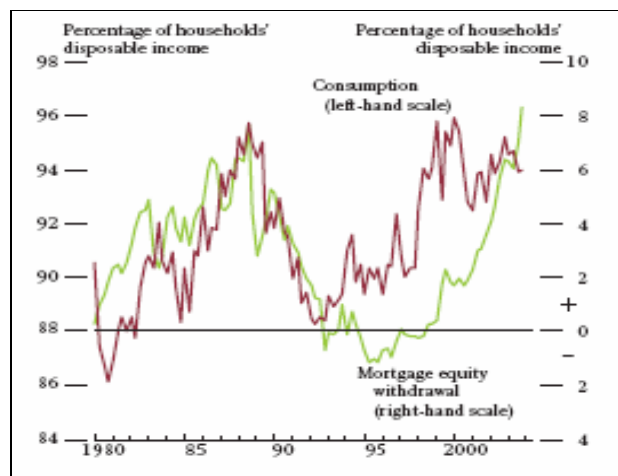


Figure 9: Household consumption and mortgage equity withdrawal²⁵

Comparisons with other EU countries

Treasury evidence finds that UK consumption is nearly homogeneous in income and wealth (housing plus net financial wealth) in the long-run, with long-run elasticity of consumption growth with respect house price inflation of

²⁵ Bank of England Inflation Report May 2004, p 13, Chart 2.4.

about 0.8-0.9. Figure 10 shows that this has been remarkably stable for the UK compared to other EU countries²⁶. The Treasury observes that the “most notable thing is the strong estimated effect of housing wealth on consumption in the UK, both in an absolute sense and relative to the other countries.”²⁷ There is plenty of other evidence for a historically strong connection between UK housing wealth and consumption²⁸. The literature also tends to find that consumption is up to twice as strongly correlated with housing wealth as with stock market wealth²⁹.

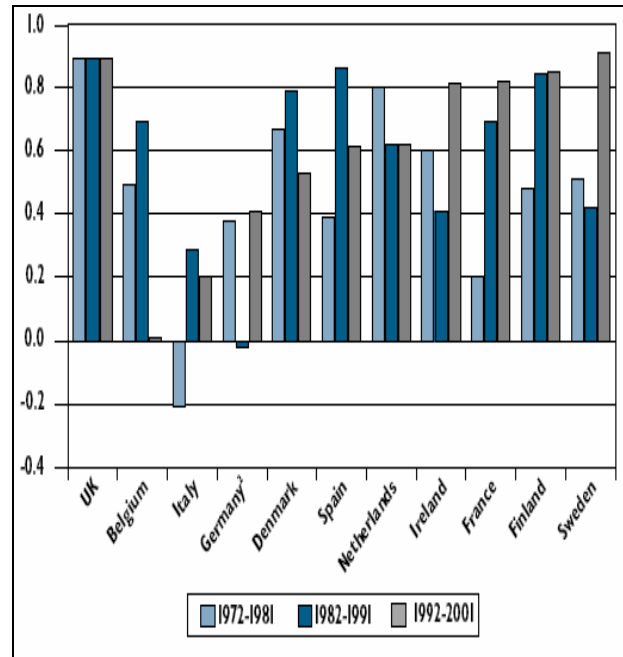


Figure 10: 10 year correlations between private consumption growth and house price inflation (Germany excludes former East Germany)³⁰.

²⁶ This may, of course, in part be a curious effect of the periods chosen.

²⁷ Observe that these observations also have their limitations: “These unrestricted estimates of common-form consumption functions did not suggest widespread similarities in the determinants of consumption across the UK, Germany, France, Italy and the Netherlands. This may in part be symptomatic of genuine differences in the transmission mechanism of interest rates and housing wealth to consumption across countries, but could equally reflect data limitations.” HM Treasury, *ibid.* p72.

²⁸ Byrne and Davis decompose financial wealth into liquid and illiquid categories and show that it is illiquid wealth that seems to influence consumption behaviour. Housing, in particular, has a larger long-run effect on consumption than net financial wealth (Byrne, J. and Davis, E.P. 2003 “Disaggregate wealth and aggregate consumption: an investigation of empirical relationships for the G7”, *Oxford Bulletin of Economics and Statistics*, 65, 1-23). The NIESR calculates that a 1% rise in total wealth, *ceteris paribus*, increases consumption in the long-run by 0.0715%. In the short run, a rise in disposable income increases consumption but by only an elasticity of 0.17, while a rise in real net financial wealth of 1% raises consumption by 0.029%, building up to the long-run impact. However, an increase in housing wealth has *five times* the impact on consumption in the short run as a rise in real financial wealth (Barrel, Choy and Riley, “Consumption and housing wealth in the UK”, NIESR, 2004, p 55).

²⁹ Case, K. E., Quigley, J.M., and Shiller, R.J. “Comparing wealth effects: The stock market versus the housing market”, Cowles Foundation Discussion Paper No. 1335, October 2001.

	Correlation coefficient of private consumption and:	
	House price inflation	House price inflation one year earlier ¹
UK	0.85	0.21
Germany	0.33 ³	-0.11 ⁴
France	0.50	0.36
Italy	0.14	-0.20
Spain ²	0.55	0.55
Netherlands	0.73	0.61
Belgium	0.38	0.16
Ireland	0.66	0.48
Finland	0.64	0.21
Sweden	0.73	0.48
Denmark	0.64	0.28

¹ House price inflation 1970-2000.
² House price inflation 1972-2001, private consumption growth 1973-2002.
³ Excluding former East Germany except private consumption growth 1992-2001. 1991 figures excluded due to German reunification.
⁴ Excluding 1991 and 1992 figures for reunification effects.
Source: Bank for International Settlements (using national data), OECD and HM Treasury calculations.

Figure 11: Correlation coefficients between annual household consumption growth and house price inflation, 1971-2001³¹.

³⁰ HMT, *ibid.*, Chart 6.2, p 59. Source: OECD, Bank for International Settlements (using national data) and HM Treasury calculations.

Meanwhile, for the UK, the link between consumption and house price inflation one year earlier (Figure 11, second column) is way down the league table. This reflects the way that household consumption has typically responded much more rapidly to changes in house prices in the UK, and is less spread out over time compared to other EU countries.

In the most recent data (Figure 12) however, the correlation between house price inflation and annual consumption seems to have fallen dramatically.

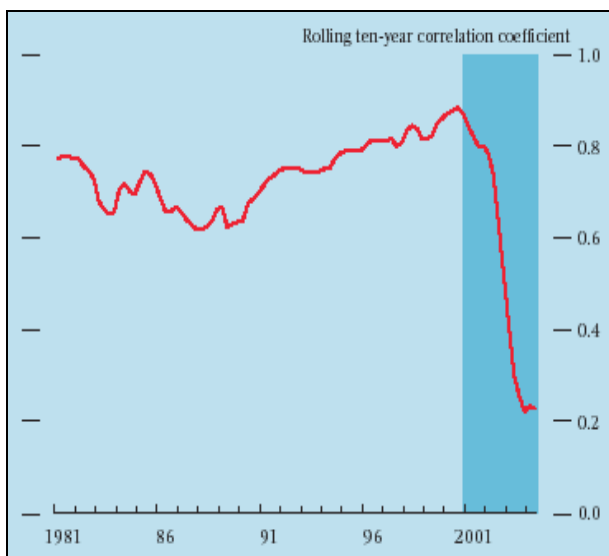


Figure 12: Correlation between annual real house price inflation and annual consumption growth. Rolling ten-year correlation coefficient³².

1.2. Looking a Bit Closer at the Evidence

1.2.1. Some distortions

The UK data is not entirely as it at first appears, as the Bank of England itself points out. For example, the demutualisation of various

building societies boosted the household sector in 1997 alone by £35 billion of one-off windfall payments, equivalent to 7% of annual consumption, and this helped to generate a jump in the per cent of disposable income consumed from about 90% to 96% in just two years (as is strongly evident in Figure 9). There was hardly any change in MEW over the same period. MEW then rises sharply in the first years of the recent decade. Such windfall payments are at least partly – even largely – fungible with MEW that might otherwise have taken place (and these payments would have gone disproportionately to households similar to those who would have taken out MEW). If one removes this impact and corrects for distortions caused by the introduction of self-assessment, one is left with much greater correlation of consumption with MEW than the raw data suggests. The relationship is still weaker than in the past but it is nevertheless positive.

1.2.2. Stock and flow issues

Most of the discussion of low consumption response is based on the *percentage change* in consumption on a year-by-year basis rather than on the *level* of consumption as a per cent of household disposable income, that is on reasoning based on Figure 2 rather than on Figure 9. Of equal importance, consumption as a percentage of disposable income has reached *levels* not seen since the end of the 1980s boom.

The *surge* in the *level* of consumption in the 1980s from 86% (in 1981) to 96% (in 1988) of household disposable income was bound to create much higher measures of *rates of growth* of consumption compared to the 1990s when consumption (with the help of other injections of spending power) has run *consistently* at a much higher level than in the past. Figure 2 shows that consumption *growth* has been steadily running at 3%-5% for much of the last 7-8 years, compared to the 1980s surge from highly negative to highly positive. Figure 9 shows consumption as a per cent of disposable

³¹ HMT *ibid.* 57.

³² Bank of England Inflation Report November 2004, p12 Chart B.

household income running at a very high level for many years; above 93% for much of the last 6 years, compared to only a couple of years above 93% in the previous 20 years – and the latter was immediately prior to the previous crash.

This is not to say that there may not be a puzzle as to why consumption growth has not been higher as MEW has grown recently, but it is basic arithmetic that a one-off level change in consumption will have a dramatic influence on growth in consumption for that period, but the rate of growth will then naturally settle down to the rate of growth of income.

These figures are also distorted by recent tax changes that have reduced disposable income such that a given absolute increase in (or level of) consumption generates a greater per cent change (or level) of disposable income; one possibility is that, in the face of these tax changes, house owners may have consumed against housing equity and reduced saving. Nevertheless, not *all* tax changes show up in the data, especially the large increase in tax on the pensions industry (of the order of £5bn per year), which, if fully internalized, would effectively have reduced disposable lifetime income even further and also generated the *need* for some actual reduction in current consumption and higher savings.

The big consumption story of the late 1990s and early 2000s, therefore, is the historically high *level* of consumption from disposable income – running for seven years at the level only briefly seen before the last housing slump –, the low level of savings, and the very low non-housing forms of pension provision being created. And the big issue is what will happen to these saving and pension components if house prices were to fall.

1.2.3. The collateral value of housing, and credit constraints³³

None of the evidence suggests that, as UK house prices have recently risen ever higher, consumption has not risen (or not remained high) as a proportion of disposable income – just that consumption may not have risen in response to house prices as much as it might have if the past was anything to go by. We would expect this if credit constraints are less tight today than in the past. If credit is now relatively unconstrained after all the previous periods of financial liberalization, then – given that the shadow price of the constraint is now much lower – an increase in housing equity would not be expected to have as large an impact on consumption at the margin as it would have had in the past.

The impact on aggregate consumption of the rise in the collateral value of the housing stock depends on the overall increase in the value of the stock but also on its distribution across homeowners³⁴. Of the different indices of average house prices, the ODPM (Office of the Deputy Prime Minister) figure gives the more accurate indication of the movement of the value of the *overall stock* of housing and hence of the total amount of collateral available in the economy (since it is based on a much more representative bundle of housing stock). However, the change in the ODPM measure of the stock of housing collateral only has an affect

³³ This passage distinguishes between i) the wealth effect on consumption of higher house values (to the extent that they are perceived as permanent) which can lead to higher consumption of those who are rich in housing assets, even if housing is not being used as collateral for loans, and ii) the collateral effect of the use of housing equity to back up loans and the relaxation of credit constraints. The two are connected since the collateral effect is sometimes used to justify higher house prices, which generates a wealth effect for some and hence boosts their consumption (a sort of externality effect of the relaxation of one groups' credit constraints on the consumption possibilities of others, including those that were not credit constrained).

³⁴ And non-owners since it will affect their ability to consume housing.

on credit constrained consumption where it impacts credit constrained households.

This leads to several observations. First, that a sizeable proportion of the increase in the value of the housing stock as measured by the ODPM (and, indeed, any other measure of the value of housing stock) has relatively slight effect on credit constraints and consumption related to credit constraints. Second, that the average house price indices generated by mortgage lenders may give a better measure of what is happening to the collateral value of those who are credit constrained – since such indices emphasize the value of the housing stock of those house owners who are typically more credit constrained. Of course, this means that *these* are also the indices we should be most interested in when they start to fall. Third (explored in much more detail in an earlier paper³⁵ but a little bit more below) as house prices rise, one person's unlocked credit constraint is another person's credit constraint tightened. Those who were relatively unconstrained before will hardly increase credit-constrained consumption (they may increase consumption in light of their now higher perceived lifetime wealth contingent on the 'windfall gain' generated by higher house prices, but that is a wealth effect) while some of those who were very credit constrained before now increase credit-constrained consumption strongly, while others find that they are even more constrained and decrease consumption. Some consumers find that as constraints are reduced in one respect (higher house prices enable more non-housing consumption) constraints come on in other respects (future housing consumption is now much more expensive because of much higher real house prices). The exact balance between these different groups is not immediately obvious (it also depends on demographics). Recently, the burden of credit constraints has been increasing as the number of first-time buyers and those

unable to trade-up has risen. Indeed, the number of locked-out first-time buyers is at historically high levels. Again, this partly might explain why aggregate credit-constraint based consumption might be more subdued compared to the past.

This seems to indicate that the rôle of collateral is still positive on consumption, though less so than in previous house price booms. Maybe this is what the consumption data is in part picking up?

1.3. Mortgage Equity Withdrawal

Mortgage Equity Withdrawal, MEW – defined as net new borrowing against residential property in excess of new investment in residential property – has often been at the center of this debate. While concluding that MEW may not be the most important part of the overall story, it is, perhaps beholden on us to take a closer look at the underlying nature and rôle of MEW.

1.3.1. Some longer-run data

Figure 13 shows that MEW was insignificant in the UK up to 1980, rarely rising above 2% of post-tax income. Starting in the 1980s, financial liberalization allowed households to better manage their assets and liabilities and this increased the links between house prices, housing equity MEW, and, as Figure 9 above showed, consumption too. Over the twenty year period 1979-1999 MEW averaged 3% per year in the UK (an average of some very wide swings), in sharp contrast to many other countries; in Germany, France and Italy there was a net *injection* of 6% of household income into housing. No other country in the EU has ever managed to get anywhere near to 8% MEW. MEW has dramatically surged recently (the 2003 level was 40% higher than the 2002 level and, at 8.3% of disposable income, the highest ever rate). Both the UK and the US

³⁵ Farlow 2004a.

(with MEW at 6% of disposable income) have now surpassed the peaks of the 1980s.

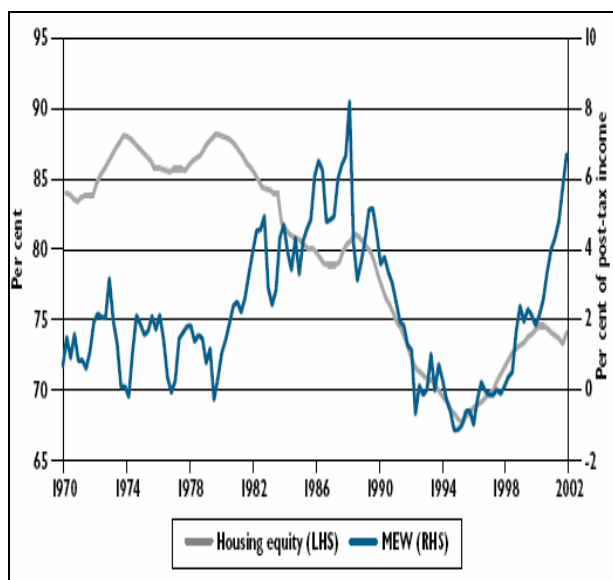


Figure 13: UK mortgage equity withdrawal (MEW) and housing equity (per cent of housing wealth owned outright by households)³⁶

1.3.2. Why extract housing equity?

If house prices rise, owners could – as with any other asset – sell to realize the gain. However, since housing is consumed as well as being an asset, if the owner wishes to carry on consuming the services of their housing they need some other way to release equity value. Unlike stock market equity and many other forms of asset wealth (such as fine art) it is easier for many typical households to turn housing equity into cash without needing to sell the underlying asset (we will find, nevertheless, that in the UK, MEW often *does* involve the sale of the underlying housing asset). In the US it is relatively easy to borrow against stocks, and also for large portfolio holders in other countries to do so, but for most ordinary investors in the UK (compared to the US, the UK is an economy with, anyway, generally lower levels of stock market holding by private individuals outside of

³⁶ Source: Bank of England, Office for National Statistics and HM Treasury calculations. Chart 5.5, HMT, *ibid*, p52, not updated.

their pensions provision), housing wealth is relatively much more collateralisable than stock market wealth.

One way of thinking about equity withdrawal (and injection) is in terms of the level of *gearing*, i.e. the ratio of debt secured against housing value relative to the total value of owner-occupied housing stock that is not accounted for by debt (i.e. the proportion of value that is free equity). If owners have a desired ‘optimal’ level of gearing, then if the total value of the housing stock rises (or falls) as house prices rise (or fall), *ceteris paribus*, owner-occupiers will wish to withdraw to bring the gearing ratio back to the desired level. The aggregate gearing effect as house prices change also depends on aggregation over individuals whose gearing ratios may be very differentially affected as house prices rise, and ought also to include, for example, those who have not yet taken on liabilities to make a house purchase (who might be very badly impacted by house price rises).

The needed adjustment back to desired gearing takes time. The proportion of households that in any one year adjust their ‘balance sheets’ by withdrawing equity when house prices rise is low, usually much lower than 10%. The process should therefore be seen as, to some extent, ‘lumpy’. So, surges in housing values generate a pattern of subsequent MEW and consumption behaviour as households respond.

The gearing analysis also ought to be based on all forms of wealth and not just housing wealth (i.e. the *ceteris paribus* assumption above is broken). In combination with other wealth levels – especially stock market and pensions wealth – when *overall* wealth levels rise/fall, households increase/reduce consumption to bring their assets back into their desired equilibrium ratio with respect to liabilities. In Section 3 below, on recent consumption and stock market puzzles, we will find that this

generates predictions about, and restriction on, behaviour over all asset classes including stock markets and housing, but that these restrictions are often not satisfied. For example, early 2000s gearing decisions also ought to have factored in the fall in stock market (and consequent pension) wealth since the late 1990s, the serious general shortfall in pensions even as the liabilities of future generations have risen, and the rises in (non-income) taxes and, even, the – now almost certain – rises in future taxes given the current state of public finances.

Of course, this is all based on the notion that house prices are efficient and never experience a ‘bubble’. Once a ‘bubble’ enters (and depending on owners’ understanding of what is going on) the possibility for long-run misallocation via ‘wrong’ gearing decisions enters too.

This essentially stock concept also has to deal with a pretty heterogeneous set of flows of equity injected and withdrawn by households according to very different motivational forces. For some it is an ‘active’ decision, whereas for others (a sizeable proportion of last time sellers on death or incapacity of the owner) it is an essentially ‘non-active’ decision. Raw MEW data aggregates and hides a great deal of this information. The next section looks at some disaggregations, but the above complications should be borne in mind when seeking to interpret the data.

1.3.3. Levels and patterns of housing equity extraction

There are various ways to extract equity from housing wealth³⁷. Which of these routes are used turns out to be important for how the wealth is spent, and how quickly. Many studies have been made of MEW. We can only give a flavour here, with an emphasis – in spite of the

³⁷ See Davey, M. “Mortgage Equity Withdrawal and Consumption” Bank of England Quarterly Bulletin Spring 2001.

many data and methodological limitations – on some sort of interpretation.

The principle routes of extraction are:

- 1) **Over-mortgaging:** A moving owner-occupier increases their mortgage by more than the difference between the old and new house prices;
- 2) **Remortgaging:** The current mortgage loan is repaid and replaced by a larger loan, without moving properties or improving the property to the same extent;
- 3) **Further advances:** A borrower raises a further advance on an existing second mortgage or takes a second mortgage without moving properties or improving the property to the same extent;
- 4) **Trading down:** A seller moves to a cheaper property but reduces the mortgage by less, to leave a cash sum;
- 5) **Last time sales:** Sales by or on behalf of households who will not buy a house in place of a house being sold;
- 6) **Sales to organizations outside of the owner occupied sector.**

Benito and Power³⁸ analyze the 2002 microdata from the 2003 Survey of English Housing (SEH), to ascertain the relative importance of different types of equity withdrawal, how likely

³⁸ Benito, A and Power, J., “Housing equity and consumption: insights from the Survey of English Housing”, Bank of England Quarterly Bulletin Autumn 2004. <http://www.bankofengland.co.uk/qb/qb040303.pdf>. The information on gross withdrawals analyzed in Benito and Power is not the same as the Bank of England’s estimate of MEW, which is net of injections of equity (home improvements, etc.). However, that equity withdrawal is not synonymous with secured lending for consumption does hold for the Bank’s estimate of MEW too.

the funds released are spent, and hence the aggregate affect. In 2002 (the most recent full calendar year of data) 4.1% of households (5.8% of owner-occupiers) withdrew equity (in a year when 7% of the stock of all housing was traded). MEW has recently shot to over 8%, so, for the results to go through to recent periods, the assumption must be made that a similar pattern of relationships holds.

The most common method of withdrawal was remortgaging or a further advance, making up about 50% of all cases³⁹. Last-time sales and over-mortgaging each accounted for about 20%, and trading down for about 13%. As a per cent of gross advances, remortgaging is at record levels, has grown in line with house prices, and is well ahead of income growth. According to Smith and Panel, remortgaging was not so prevalent in driving MEW during its peak in the late 1980s.

However, in the Benito and Power study, last-time sales tend to take much more equity out, so that the split of the *value of gross withdrawals* was 36% for last-time sales, 25% each for remortgaging and trading down, and 12% for over-mortgaging. Therefore, 60% of the gross value withdrawn in 2002 was made by those – last time sellers and those who trade down – most likely to pay off debt or save rather than spend. Indeed this seems to be up on figures of even just a few years before⁴⁰. Using data from

³⁹ The *Council of Mortgage Lenders* corroborate this finding (Smith, J. and Pannell, R. “Mortgage Equity Withdrawal and remortgaging activity”, *Council of Mortgage Lenders, London, UK 2004*); according to the most recent data available in late 2004 they find that remortgaging made up over 45% of the mortgage market in 2003.

⁴⁰ Holmans’ figures for 2000 found that last-time sales accounted for 45% of gross withdrawal, with remortgaging and further advances accounting for 27%. But Holman’s figures for trading down are much lower than Benito and Power (at 3.4%) with a higher figure for over-mortgaging (24%). Holmans, A.E., “Housing and Mortgage Equity Withdrawal and their Component Flows: A Technical Report” Cambridge Centre for

the Survey of English Housing (SHE) Smith and Pannell find that of the 6.9 million households who moved or remortgaged in the last five years, 2.34 million withdrew equity, but that the largest slice of gross equity withdrawn over that period, at 44% on their measures, nevertheless, came from last-time sales.

Interestingly, though serial remortgaging to exploit lower interest rate makes financial sense, Smith and Pannell find that this is low in the UK; only 10% of remortgagers in the previous five years, or 177,000 households, were found to have remortgaged more than once. Maybe this is because most mortgage contracts are at still relatively flexible rates (even of those mortgages where rates are locked in for a few years), and this reduces the options value to remortgaging? In addition, most remortgagers tend to lock in too early in a period of interest rate decline – probably because they fail to work out the options value of waiting a bit longer against the much more obvious extra up-front costs of sticking with the current deal – and this reduces the long-term value of remortgaging.

How is MEW spent?

It is quite difficult from survey evidence to ascertain exactly what proportion of MEW is spent and on what. The Holmans analysis seems to suggest that about 50% of funds were borrowed by the withdrawer – these are the most likely to be spent – whereas the Benito and Power analysis suggests this is somewhat lower, at about 40%. It could be that house price inflation has boosted the non-borrowed part of equity withdrawal in recent years. Or – Benito and Power suggest – it could be a data problem.

Those borrowing to withdraw equity mostly spend the funds, though a sizeable proportion of those who over-mortgage also use it for

Housing and Planning Research May 2001, Council of Mortgage Lenders, London,
http://www.cml.org.uk/servlet/dycon/zt-cml/cml/live/en/cml/pdf_pub_resreps_35full.pdf.

purposes other than spending. Of those who spend, home improvement is the largest item. About 50% of respondents in the Benito and Power study said that they either spent all the proceeds on home improvement or that this was the most expensive item. The other half mentioned other items of expenditure, the most important of which being ‘new goods for the home’. Since home improvements are a form of investment, and not, in practice, immediate consumption⁴¹ such investment should therefore have opposing effects on house prices: On the one hand, boosting house prices to the extent that the *quality* of housing stock is improved. On the other hand, given that many improvements (such as extensions) increase the housing stock, there would be a depressing influence on any measure of house prices based on a standardised housing ‘unit’.

Some borrowers make family transfers, but it is hard to guess the proportion. 25%–30% of the withdrawers mentioned other ‘unidentified’ uses, which may have included helping with deposits for the next generation. It would be interesting to explore this angle, since it is one way for one generation to help another generation feed a house price bubble and is, in part, self-fulfilling.

Indeed, many features regarded as important fundamental drivers of both house prices *and* MEW would themselves be partly endogenous to a house price bubble, such as: i) giving deposits to offspring to help buy homes; ii) a proportion of second/holiday home demand; iii) the demand to purchase student homes⁴²; and iv)

⁴¹ Though this is not always clear in the National Accounts.

⁴² The author is familiar with at least three sets of students’ parents who purchased for their offspring in Oxford even though in several cases the students continued to make use of perfectly adequate college accommodation, and would only be in the town for less than three years. Maybe the unwinding of this sort of behaviour contributed to the 5.5% price fall in Oxford city house prices in the last quarter of 2004?

a proportion of buy-to-lets. Absent a house price bubble, MEW extracted to pay towards *these* items would be much lower. It is not clear to what extent the recent surge in MEW to over 8% might itself be an endogenous response to a price bubble.

Trading down and last time sales seem to be evenly distributed across income levels. But ‘borrowers’ tend to be concentrated in the upper part of the income distribution. In the Benito and Power study, nearly a quarter of all owner-occupying households earning £40,000 or more borrowed to withdraw equity during the previous five years, compared to only 3.5% of households earning less than £10,000 (who make up 18% of all owner occupied households). Interestingly, those who are on low income and yet extract, tend to extract about the same as median income households (though the sample is small and it may be that the pattern is distorted by outliers). In summary, borrowers typically withdraw smaller amounts but are more likely to spend it, they are more concentrated at higher incomes, but there is a sizeable proportion of low income relatively high-level borrowers.

1.3.4. MEW and housing market transactions

MEW is much more of a lumpy affair than simple credit constraint stories tend to indicate. This also helps to explain why a large proportion of MEW is not spent straight away. Since housing-transaction-MEW generates a flow of future consumption rather than instant consumption, this has important implications for the MEW/consumption story.

The greater apparent ability of UK housing wealth to impact consumption, compared to the rest of the EU, is partly explicable by the fact that the UK has the highest rate of housing transactions in the EU (on average, 8.4% of owner occupied stock per year, compared to 3.4% and 5.4% in Germany and France

respectively⁴³), which is in part because the transaction cost of UK housing, though high, is low by EU standards.

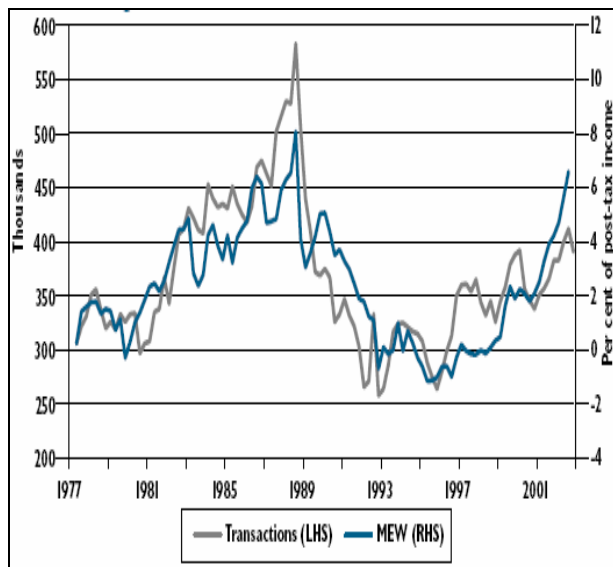


Figure 14: UK mortgage equity withdrawal (MEW) and housing transactions⁴⁴

As Figure 14 shows, there is a close correlation between MEW and housing market transactions. Indeed, we found that a large proportion of equity withdrawal takes place through the physical acts of selling and moving. Interestingly, while the financial market liberalizations of the 1980s meant that households could borrow without needing to move house, the transactions volumes were still an important driving force of MEW and consumption. Transactions volumes and MEW were at *persistently* high levels for most of that decade (over 400,000 transaction per year and MEW at over 4% of post-tax income from 1982 till 1989/9), peaking at nearly 600,000 transactions and 8% MEW. Transactions volumes were persistently much higher than in the recent period when transactions have never

risen above 400,000 per year, with MEW most of the time below 4% of post-tax income, and only recently building up to over 8%.

If the MEW/consumption story is suggesting that the power of MEW at unlocking consumption is especially heavily based on last-time sales and those trading down, then part of the 1980s story was one of (fairly) persistently high levels of transactions, allowing a *flow* of equity release generating an *increasing flow* of consumption, and the increasing correlation of consumption with MEW over time. The *flow* of consumption from MEW has not had so much time to build up in the recent episode (this also shows up in the recent increase in the holding of non-housing assets of those releasing equity, as households ‘wait’ to spend the released equity). This also suggests, happily perhaps, that this flow of consumption is still to come, and hence, so long as long-run expectations are not too perturbed if house prices fall, this will help sustain consumption even if prices fall.

1.3.5. Some options thinking, and consequences for patterns of MEW

Thinking of MEW as the purchase of a stream of consumption either in return for relinquishing housing equity outright (trading down) or from taking on a higher ratio of debt to housing wealth, and given the transactions cost of setting up MEW⁴⁵, it is clear that there is an options component to performing MEW, with riskiness of asset value an important part of the decision. For those relying on housing value being maintained to make their particular form of MEW profitable, there is an options value to *waiting* as prices fall (those using MEW for immediate consumption might ‘MEW into’ an expected price rise, but would be much more cautious in a price fall). Meanwhile, for those trading down, the options logic increasingly emphasizes the need *not to wait* as prices fall.

⁴³ See Table 5.2 of HMT *ibid*, p 5.2. See also Davey M. and Earley F. (2001) “Mortgage Equity Withdrawal”, Council of Mortgage Lenders, London, not updated.

⁴⁴ HMT Table 5.4, p51. Source: Bank of England and Office for National Statistics.

⁴⁵ This transaction cost has been falling over time.

There is also value in trying to predict where prices are going when taking out forms of MEW such as remortgaging. If future prices are strongly expected to continue rising dramatically, households may revise upwards the amount withdrawn. But it is also possible that, as a consequence, withdrawers may be overly confident that prices will continue to rise and excessively 'MEW into the price rise'.

Timing is obviously a complicated thing to get right in a rapidly rising market. But if owner-occupiers really believe that ever-higher house price levels are sustainable, they should defer as much as possible trading-down if prices are rising dramatically, with this behaviour building up a dam of unfulfilled trading-down waiting for rates of growth of house prices to slow. Once house prices start to fall, similar logic may indicate bringing forward the trading-down decision and a swing towards desired trading-down. The recent patterns of MEW – with heavy emphasis on trading down and last-time sales even as prices rise rapidly – therefore seem that bit more puzzling.

Or might the high level of recent trading down, even as rates of price increase have been very high, suggest that the older generations are much more clued up to unsustainably high levels of house prices, having 'been through it all before'? Or – given the level of trading-down ahead of the market peak – maybe they are not such good judges of the *top* of the market? Or are they cannily aware of the game theoretic reasons (that not everyone can get out at the top of the market) for not sticking out till the very top of the market and have wisely tried to trade-down before the absolute peak?

At the same time, there is some options logic to suggest that some forms of MEW might rise heavily as a bubble nears its peak. To the extent that owners believe that house prices are reaching unsustainable levels, and they understand that credit backed by housing

collateral is cheaper than other forms of credit (and the more so the higher the paper value of collateral) and that it will become much more difficult (and expensive) once house prices start to fall, there may even be an incentive to lock in mortgage deals 'while the going is good'. Might this also partly explain (along with low interest rates) why remortgaging components of MEW have been so strong recently, and yet why so much MEW has not been immediately consumed? Might the build up of 'unused' withdrawn equity itself be a side-effect of extraordinarily rapid house price growth, as well as historically (nominally) very cheap credit? Might it even suggest that owners (like first-time buyers) don't trust in the sustainability of high price levels? Is this a stabilizing or destabilizing force on house prices and consumption?

Naturally, to the extent any of this options behaviour is going on, interpretation of the data is made more difficult.

1.3.6. How reassuring is the MEW data?

With 50% to 60% of current equity withdrawal in the hands of those least likely to spend it, this might seem reassuring. However, the evidence also suggests potential weakness too. What would happen to MEW if house prices declined?

1.3.6.1. Price corrections, transactions, MEW, and consumption

The transactions evidence casts some doubt on the notion that housing markets can stagnate or fall gently while "incomes catch up with house prices". Apart from the fact that low levels of inflation make real house price stagnation much more problematic – since it requires many years of zero growth to achieve the same real decline in house prices as would have been achieved in a high inflation environment in a year or two – stagnation also leads to a fall in housing market transactions, MEW, and consumption.

When housing markets turn, transactions volumes typically fall dramatically before prices do (we see this very clearly in the current market situation), and then fall along with prices (this is very apparent in the late 1980s/early 1990s data in Figure 14). First-time buyers and those who would like to trade up hold off until prices have stopped falling (falling prices impose a large negative return/high user cost of capital invested in housing), but this also reduces the ability of those who would like to trade down to do so and hence their ability to release equity via MEW, since those trading down are heavily dependent on chains of buyers.

The diagram suggests that MEW can become negative in such situations. On past evidence (though admittedly not entirely satisfactory evidence), negative MEW would happen at transactions levels below 300,000 (see Figure 14) per year. The recent collapse in the number of new mortgages suggests this is a real and growing possibility. Indeed, in the last two price crashes, transactions and MEW fell to levels even lower than was the case before financial liberalization, releasing less MEW than under pre-liberalization conditions, and, indeed, for six years in the 1990s actually being negative. Even a small consumption response to MEW would be magnified by such a collapse in MEW.

If a house price correction is inevitable, should this be allowed quickly or slowly? The above might suggest that it would be better to get correction over and done with – to speed up the level of housing transactions and enable MEW and consumption dependent on MEW. And given that many of those trading down are likely to be ‘bubble winners’, there is less incentive to support the level of *their* house prices (except that some of them may have relied on housing wealth to clear debts and to cover for shortfalls in other savings, including pensions).

The argument that consumption and GDP would not fall if house prices fall, must therefore be based both on the notion that MEW contributes little to consumption levels and growth (so that even if it falls, consumption would hardly be affected) and also that no other driving force of consumption would be affected by house price falls.

1.3.6.2. Flows and extraction of overvalued prices

That MEW is *not* such a driving force of consumption is largely based on the evidence that a large part of MEW simply reflects receipts from last-time sales (especially of the elderly trading down or changing to renting) which do not show up as a boost to consumption in the short term, and often show up, in part, as intergenerational transfers⁴⁶. Some households also use MEW to inject equity into housing rather than using it for more immediate forms of consumption. It *is* fair to say that currently only about 10-20% of withdrawn housing equity is immediately spent on consumption. The fact that a great deal of recent MEW may have been converted into assets to be drawn off later, suggests this will stabilize consumption.

Nevertheless, there are important stock and flow effects. If, for example, when equity has been released only, say, 10% per year of the released equity is consumed, it is clear that as MEW expands an increasing flow of later consumption is generated. But once MEW levels off, the rate of *growth* of consumption caused by MEW falls back to zero. Once MEW starts falling, the rate of growth of consumption caused by MEW goes into reverse.

⁴⁶ Incidentally, to the extent these receipts are not recirculated to early-stage buyers, this should depress house prices. To the extent that they show up as a proportion of the deposits of early-stage buyers they serve to keep their loan to value ratios down, and also help to mask any mispricing going on.

That MEW generates a flow of extraction followed later by a flow of consumption rather begs us to look at some of the demographic patterns of extraction and consumption, especially in the context of a possible house price bubble. If the number of owner-occupier households were constant and population generally stable, then the number of first-time buyers would roughly equal the number of last-time sellers. The same logic does not apply to the level of mortgage debt, which in the case of first-time buyers do not need to equal the level of outstanding loans on housing sold by last-time sellers. Indeed, if house prices are rising, the level of loans of first-time buyers, of necessity, is greater than the level of loans being repaid by last time sellers. The more rapidly prices rise, the greater the difference between current first-time loan levels and the debt being repaid, since the later would have been based on very much lower, older, prices. The stock of debt would therefore naturally *rise* as the stock of housing naturally turned over.

In consequence, the withdrawal of equity from the housing market by last-time sellers is much greater than the injection of equity by first-time purchasers, as those exiting will extract from the increase in the market value of housing since they purchased. In part, the effect on prices of the low injection of fresh equity is made up by the willingness of those who do enter to take on much greater levels of real debt (based partly on their hope of being later housing equity “winners”).

Over the 1990s, first-time buyers exceeded last-time sellers by some 70,000 a year, but the average amounts withdrawn by last-time sellers was much larger than the average amount injected by first-time purchasers (outright purchase and deposits minus any deposits themselves paid for from equity released): for the years 1997, 1998 and 1999 the first averaged approximately £52,600 the latter £14,500⁴⁷,

⁴⁷ Holmans, 2001.

suggesting a great deal more equity has been taken out by last-time sellers than put in by first-time buyers. The author has no recent evidence on this. However, the collapse in numbers of first-time sellers would make this difference even greater.

	First-Time Purchasers (excluding sitting tenants)	Last-Time Sellers	Difference
	000s	000s	000s
1991	356	281	75
1992	308	268	40
1993	439	350	89
1994	449	349	100
1995	401	345	66
1996	434	357	77
1997	430	355	75
1998	429	369	60
1999	480	403	77
2000	462	(a) 403	59

Note: (a) No actual estimate, so assumed same as 1999

Figure 15: Holmans 2001, table 15p 35

If house prices are overvalued – maybe even experiencing a price ‘bubble’ – one way to interpret the data is that last-time sellers are removing greater amounts of equity than they would have done if house prices had not been so overvalued. Furthermore, for their relative proportion in the population they are taking a relatively disproportionate proportion of the increase in *market* value (and not fundamentals value) of housing, leaving behind, on average, much more indebted households and (once prices adjust back to ‘fundamentals’) relatively less net worth amongst those left in housing than would have been the case without the price bubble. This is another reflection of the way bubbles are highly redistributive and ‘good news’ for certain cohorts of the population, allowing them to extract wealth from other cohorts.

Nevertheless, house price bubbles appeal to voters, even those who ‘lose’ out from them (who either do not see that they are losers, or aspire to be older ‘winners’ later, forgetting that there are losers as well as winners). Natural optimism in times of bubbles makes buyers play

down the chances that they will ever be the losers. This has elements of being a Ponzi game⁴⁸. During the period of highly-rising prices it is easy to get new entrants to the game, but when first-time buyer numbers collapse, the scheme struggles to keep going. Fighting bubbles does not go down well with voters (especially older voters), and even those who are saved from being ‘losers’ are hardly capable of being grateful⁴⁹.

1.3.6.3. MEW debt bites more in a low inflation world

Justifying MEW-based debt on the basis of low nominal interest rates even as the real interest rate is unchanged (the credit constraint story) suffers from the problems detailed in Part One. Debt lingers much longer in a low inflation environment. To run a higher level of nominal debt rolling over at the *same real* interest rate but at a lower nominal interest rate (i.e. each effective debt contract lasting longer than in the past), and the same level of real income as before, is to suggest that consumers are willingly paying a higher percentage of real *lifetime* income than in the past to bring consumption forward via MEW⁵⁰.

1.3.6.4. The cyclical nature of MEW

The highly cyclical nature of certain components of MEW is picked up in the disaggregated evidence.

⁴⁸ After Bostonian Charles Ponzi who made a quick fortune in the 1920s using chain letters, but went to prison and died poor.

⁴⁹ There is a natural asymmetry here for policymakers too. Consumers can see the ‘win’ they make, but not perceive the ‘loss’ they never get to face on account of the policymakers’ actions.

⁵⁰ Incidentally, this is why banks can seem to make a surge in profits as they expand lending in a low nominal rate environment, but this comes at the cost of profit in later periods as the flow of new business necessarily has to be lower later. This is explained in Part Five of this series of papers.

Holman finds that the number of owner-occupiers over-mortgaging varies closely with the number of purchases made by moving owner-occupiers, and that the average amount of equity withdrawn by this category has risen during times of rapid house price increase, which further enhances cyclical variability. Similarly, Holman finds that equity withdrawal by outright buyers who trade down is also tightly tied to the number of purchases.

Equity withdrawal through further advances and equity withdrawal by last-time sellers is fairly strongly cyclical with respect to house prices and numbers of sales. Notably, further advances rose continuously and substantially from the early 1980s into the late 1980s, and then just about halved between 1990 and 1995, before rising rapidly again⁵¹.

The only element of MEW that seems non-cyclical is remortgaging. In the period covered by Holman (1987 onwards), the number of remortgages shows a nearly continuous upward trend (only in 1997 did the trend break, when the number fell significantly), and the amount of equity withdrawn, in real terms, per remortgage rose during the 1990s. However, interpreting this is not entirely straightforward.

First, since remortgaging was not such a big part of the late 1980s story, it is not clear whether the Holman coverage would be able to pick up just how cyclical remortgaging could become in a period of significant house price declines. The large movements in 1997 at least suggest it can be fragile.

Second, the fact that remortgagers do not tend to be *serial* in their behaviour, raises a couple of awkward observations. In particular, the oft-given reason for remortgaging – that it is a way to switch to a more favourable borrowing rate –

⁵¹ Not all of this variation is necessarily truly cyclical, and, Holman points out, better data may well have contributed to the higher figures in 1998, 1999, and 2000.

looks more problematic; consumers do not individually seem to remortgage particularly often to take advantage of favourable deals. The heavy rise of remortgaging over time and yet the lack of serial remortgagers, suggest that the stock of remortgagers who intend to be serial might be heavily suppressed by price falls. This also suggests that if prices decline and fixed mortgage deals come to an end and if those on flexible rates are not able, or do not want, to remortgage, the average burden of mortgage debt will rise.

Third, a market with falling nominal house prices is very different from that of the 1990s. Remortgaging could be a relatively more fragile portion of extraction than we have come to believe; it needs fresh remortgagers willing to go through the remortgage process even as nominal house prices are falling.

Nevertheless, if house prices fall, the balance of evidence is that most, if not all, elements of MEW will decline, including remortgaging, the more so the more those taking out MEW have previously been ‘borrowing into house price rises’.

1.4. Savings and Pensions

One of the core arguments of this paper is that MEW is not the only, or even the *main*, story. In particular, the state of the housing market, the level of savings, and the oft-talked about ‘pensions crisis’ are linked. And there is an important global liquidity story to be unraveled too. A fuller picture needs to take into account the rôle of lenders and borrowers and credit conditions, but that will have to await Part Five.

With consumption running consistently at 96% or more of disposable income, and ‘only’ 40%-50% of MEW being ‘borrowers’, it rather raises the question of what those non-MEW consumers who are driving such high levels of consumption are doing – in terms of running

excessively low savings, eating into the pension contributions they would otherwise be making, and taking out non-MEW forms of debt – in order to maintain such a consistently high level of consumption. If many of those withdrawing housing equity are not, it is argued, strongly likely to spend it, then high consumption levels have to be driven by something giving elsewhere. Consumption at a rate of 96% of disposable income might be being sustained even without heavy use of MEW. The slack is taken from the pensions and savings side of household balance sheets. The result is both insufficient savings and pension provision but also, possibly, an over-reliance on housing wealth for pension provision.

Indeed, if one adjusts the consumption data to produce a consumption series with MEW-generated consumption removed (there would be relatively high downwards adjustment in the 1980s data and lower downwards adjustment in the recent data), this would show an even more startling increase in, and level of, non-MEW dependent consumption. If it is true that consumption is high for reasons outside of MEW, it also suggests that sudden changes in those developments might disturb this behaviour.

Figure 16 shows that since 1980 there has been a strong negative relationship between saving and house price inflation, with little connection in the period before 1980. Figure 17 shows that the negative relationship between house prices and saving ratios⁵² is very much stronger in the UK than in any other EU country, and increasingly so in the UK (it is also strong in Sweden, Spain, Finland, and Denmark, and also increasingly so in Sweden and Spain).

If house prices have been raised above fundamentals, with many believing that the value of housing is *permanently* a great deal

⁵² As seen here in the correlation coefficient between house prices one period earlier and the saving ratio.

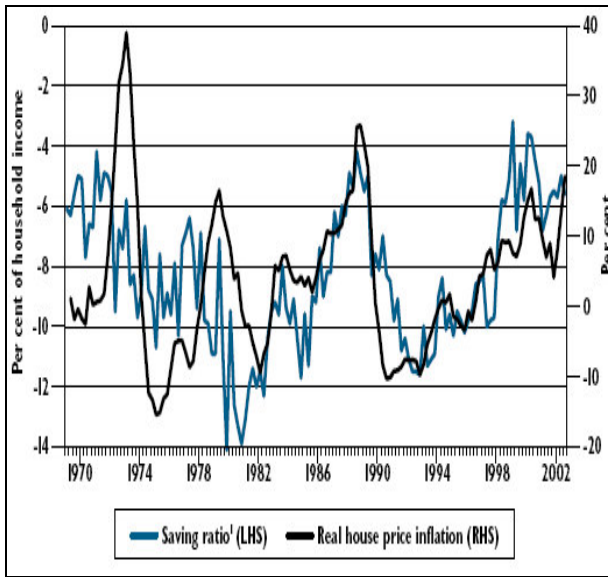


Figure 16: UK households' saving ratio and house price inflation (the negative of the saving ratio is plotted)⁵³

higher⁵⁴, with continuously rising prices distorting investment signals, some households may get the impression that current consumption can be run at very much higher levels than in the past⁵⁵. This may even apply to those who have not yet purchased property or

⁵³ HMT *ibid* Chart 6.3. p. 60. Source: Office for National Statistics and Office of the Deputy Prime Minister.

⁵⁴ Evidence in Part Four on housing risk premia suggest that homeowners regularly go through episodes where they simply do not believe that the value of housing can go down as well as up. This perception feeds an extremely low risk premia. Part Four explores the contention that UK housing is currently well overvalued on any realistic notion of key investment parameters, but especially the housing risk premia. The risk premia arguments also suggest that if risk perceptions rise, risk premia will rise dramatically and house prices will have to fall, even possibly overshooting.

⁵⁵ There are offsetting arguments that consumption might positively respond the less important is housing as collateral: When housing has high collateral value, households will over-invest in it in early periods in order to unlock later credit constraints. Rapidly rising house prices only serve to enhance this incentive. But, as credit constraints generally weaken, housing becomes less useful as future collateral and consumers can consume less housing and more non-housing consumption in earlier periods.

are only just on the property ladder⁵⁶. Homeowners can form shockingly unrealistic expectations of market potential and stability, especially in periods of boom, with some even believing that growth rates of housing wealth will be double digit for the foreseeable future⁵⁷.

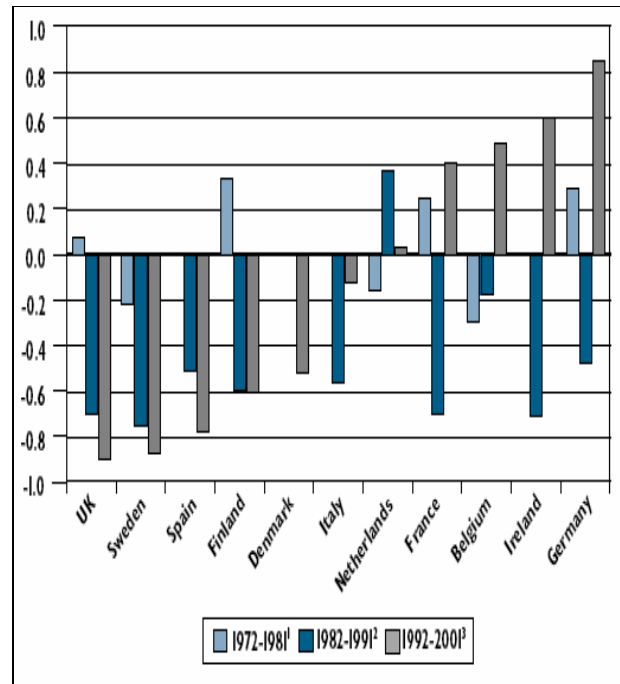


Figure 17: Correlation between saving ratio and house price inflation one period earlier⁵⁸

If housing wealth is thought fungible with other forms of wealth, then reducing the level of savings and pensions contributions while house prices surge may *seem* the cheapest of all forms of credit, and the level of aggregate consumption may be higher even as

⁵⁶ All that matters for those who do not yet own is that they 'get on the property ladder early enough'.

⁵⁷ Case, K.E., Quigley, M., and Shiller, R.J. "Home Buyers, Housing and the Macroeconomy", in "Asset Prices and Monetary Policy" Richards, A., and Robinson, T. (eds), Reserve Bank of Australia 2004.

⁵⁸ HM Treasury *ibid*. Data for 1972-1981 not available for Denmark, Spain, Italy and Ireland, and 1982-91 not available for Denmark. Year notes: 1) House price inflation 1971-1980. 2) House price inflation 1981-1990. 3) House price inflation 1991-2000. Source: OECD, Bank for International Settlements and HM Treasury calculations.

consumption from MEW is not particularly strong. Households adjust consumption/saving to the new higher level of permanent income and, in particular, the average propensity to consume out of current income rises and average propensity to save falls. Of course, if consumers are responding to the false signal of a bubble, they will find that they have misallocated between consumption and saving⁵⁹. And when the bubble unwinds, their readjustment back aggravates the severity of the bubble's collapse.

Even home improvement financed from MEW (we saw this was a large proportion of MEW) to the extent that households have an over-exaggerated notion of the long-term value of wealth locked up in housing and the long-term cost of credit, might itself take on certain bubble characteristics – in a similar manner to the way the apparent high wealth of equity markets at the end of the 1990s and the access to apparently cheap capital led firms to over-invest in real capital which subsequently became a drag on markets when prices fell⁶⁰.

The mortgage banks have largely played this down, and instead emphasized the rôle of collateral-backed debt crowding out 'more expensive' forms of debt. The quote marks are included since the ultimate cost of debt is the risk-adjusted cost. Replacing unsecured debt with secured debt puts the risk back on to the debt holder, and this has an expected cost even

⁵⁹ This is at odds with our asset pricing formulae which say that only housing wealth based on fundamentals really 'matters', and that 'bubble wealth' does not count. But it is highly unlikely that many households make the distinction, especially given the poor level of debate in the popular media about these issues.

⁶⁰ Investment in home improvement increases the stock and quality of housing in much the same way that investment in real capital increased the stock and quality of real capital in the late 1990s, and may have a similar impact on future house prices that excess investment had on firms' profitability and stock prices in the early 2000s. None of this is picked up well in standard house price data or measures of the housing stock.

if the interest rate being charged is lower⁶¹. In a house price collapse, the true risk-adjusted cost would rise significantly. Were MEW to collapse in a house price fall, to the extent that MEW is an instrument for converting expensive debt into cheaper forms of debt, the drying up of this process would increase the average expected cost of debt⁶².

The recent saving rate has been lower than for much of the 1990s. Lower savings might *seem* to indicate excessive borrowing and spending in the face of, for example, deteriorating pensions provision. However, some have argued, this can be supported. First, because in the face of lower inflation, households need to save less than in high inflation periods to maintain the real value of financial assets. Second, because this is reinforced by the easier access to credit and the less volatile environment generally, such that the need for buffer savings is lower. Of course, the first is the flip-side to the argument that real mortgage debt erodes more slowly, and it is inconsistent to hold that both asset owners and debt holders are advantaged by lower nominal interest rates. And the second is not at all a given.

Stock and flow again

Stock and flow issues become important again in reasoning about these processes. If any of the perceived required levels of pension or saving are revised upwards, we would expect to see falls in the measured *rate of growth* of consumption until the new level is achieved. Indeed, if households decide that these levels need to be revised to a *very different* level of

⁶¹ None of this is picked up in any of our measures of (expected) debt burden.

⁶² There is an aggregation issue over time. Many of those who would freshly like to engage in MEW were not able to do it at earlier periods (due to insufficient income or housing collateral). And in a price collapse, once the risk of losing housing assets is fully taken in to account, it is not so obvious that it is the 'cheapest' option; again we are hampered somewhat in debt burden data by failure to correct for risks.

income (with falls in house prices feeding through to lower expected future wealth levels) we would expect large changes in consumption on the path to this new equilibrium level.

Even if the connection of MEW-backed consumption to house prices is not as strong as previously believed, a sudden step increase in pension savings could cause a drop in consumption larger than the consumption and MEW data indicate. The overall effect depends on how much house prices fall, the degree to which pension portfolios have become biased in favour of housing, and the perceptions about the nature of any fall in house prices on future pensions provision⁶³. In addition, if the pensions shortfall is more widespread than mortgage-backed consumption – indeed, it is – then the effect of house price falls on consumption could be much greater than the MEW data would suggest.

There are also self-reinforcing feedbacks on house prices that might serve to make prices overreact to any sudden revision of pensions and savings. The after-effects of stock market bubbles yield some lessons. If consumers think that their assets are worth much more than is truly the case based on fundamentals, and they fail to save as much or put as much into pension plans as is optimal, then, when they later discover the truth, the swing back into balance can cause the initial asset price change (in this case house price falls) to be exaggerated. Indeed the effect on housing may be worse since it is not an internationally traded asset (and there is evidence that those investing in equity-based pensions tend to react less to the ups and downs

of the equity market than those who invest in bricks and mortar for their pensions).

The paradox of thrift, and implications for government finances

There is even the danger of a ‘paradox of thrift’, that as, in the aggregate, households revise up their saving, the knock-on effect to employment and GDP can be self-reinforcing and, paradoxically, lead to less being saved. One way out of this conundrum is for domestic demand to be supported via exports, so that net claims against the world can rise. If so, the revision upwards of savings and pension contributions will have to be concomitant with a shift in domestic activity in the direction of tradeable goods or services, accompanied by a lower exchange rate, and a drop in personal consumption, including the consumption of housing services. One obviously spots some self-reinforcing elements in this story too; if part of the rebalancing includes adjustment downwards of the proportion of lifetime wealth typically spent on housing consumption, house prices have to fall too.

The swing away from consumption in the direction of pension and savings would also lead to a drop in tax receipts. One little-discussed factor that has been suppressing tax rates has been the low pension provision that many households have been making (hence lower levels of usage of tax allowances), and the high consumption expenditure that has instead taken its place (hence higher tax receipts). If pensions contributions were to double from current levels, government tax receipts would drop by about £5bn per year. Given that UK government borrowing for 2004 was approaching £40bn and on an upwards trajectory, this would suggest even more pressure to raise tax rates after the next election. Indeed, the low levels of measured unemployment and high levels of consumer spending and growth of the last decade or so are all partly linked to this failure

⁶³ One has to take care measuring the impact of pensions provision on measures of household wealth. Private pension funds enter on household balance sheets under household wealth, while pay-as-you go state pensions do not. Since the UK has a greater reliance than many countries on private pension schemes, this reduces the ratio of housing assets to other assets in the UK compared to most EU countries.

to tackle the ‘pensions crisis’ and the subsequent misallocation.

It has also been suggested that the low level of (nominal) interest rates needed to hit the current inflation target may have tended to encourage too little saving. In a later section we will see how house price ‘bubbles’ (and other asset bubbles) are sometimes good for governments in the short term though they may generate longer-term problems. One of the most damaging side-effects of high UK house price inflation is that households may have tended to save less and largely ignore the long-term pensions problem; and governments of all persuasions have been complicit in this.

Should the fact that consumption may have run well ahead of MEW since the mid 1990s be seen as more or less reassuring, or is it a sign that with real house prices trebling in ten years, levels of consumption *can* run well ahead of MEW? Perhaps we should be surprised that the correlation of consumption growth and house price growth is not even lower? This suggests that looking for stories about MEW to try to understand the resilience of consumption during a house price crash, may be somewhat misdirected, since it suggests that households savings and pensions decisions may be at least as important as mortgage behaviour.

1.5. Housing and Credit Conditions

The consumer credit market has been growing even more rapidly than the mortgage market. Average credit card spreads are down at least 350 basis points since 1995, making interest repayments on unsecured lending ‘extremely affordable’. As with mortgages, the question is what might happen to these spreads if the system goes through a period of retrenchment following a housing market cool off. Indeed, such spreads are more sensitive than mortgage spreads to house price movements since

borrowers default on unsecured debt before they default on mortgage debt.

Part Five argues that many debt markets have attracted ‘bubbly’ elements of finance. When a ‘debt’-backed bubble (for example in housing) collapses, its impact differs from that of a collapsing equity-backed bubble such as that of the late 1990s, mainly on account of the nature of the contracts that underlie it. Equity values respond more quickly than ‘debt prices’ to new information, but do not have ‘default’ states. The values of debt contracts, on the other hand, do not move about in response to *every* new piece of information about the underlying state of the world – but they *do* suffer from default states. During a debt-backed bubble, the default states in the contracts, in a sense, bite ‘less than they really should’ given the true underlying fundamentals. In particular, spreads tend to be based on a false sense of security, since the bubble masks the real risks being taken on. Post collapse, banks adjust upwards the true underlying risk of the contracts they offer (compelled by the need to profit maximize and by the pressure of bank competition) and hence raise loan spreads. Part Five explores the way this can aggravate price falls, but – in short – it is not unlike the crises that sometimes hit highly-indebted countries: as spreads rise, the burden of debt rises which hits debt-backed asset prices too, which makes the debt riskier, which increases the spreads, and the burden of the debt rises, and so on. Failure to coordinate by lenders compounds the crisis. If they are aware of this then banks and consumers may take offsetting measures – but many don’t.

1.5.1. The importance of housing on bank balance sheets

Many interesting features tell a story about the rôle of housing on bank balance sheets over the last five to ten years. A collapse in the housing market has at least the potential to affect economic activity through its impact on credit conditions and the banking sector in general,

and thence to both consumers and business in general⁶⁴. The exact details of this will be explained in much more detail in Part Five, with just a very general impression given here.

Of particular note, we find that at the same time as global (but especially US) liquidity has been rising rapidly, the exposure of banks to the property market has increased markedly. Meanwhile, on other parts of the balance sheet, corporate debt defaults have reached record levels⁶⁵. Meanwhile, spreads on loans in property have been low; yet engaging in such loans has been very profitable.

This suggests:

1) Property is an unusually important part of bank balance sheets compared to the past;

2) The state of the banking sector probably matters more now for companies in general than at any period in the past 10-20 years. The equity market bubble collapse of the early 2000s depressed capital market conditions. There will be problems for the corporate sector generally – *and not just the property sector* – from a decline in house prices and any fall off in the flow of fresh mortgage debt and problems in the retail sector, which will serve to increase banks' credit risks;

⁶⁴ For more on the credit channel and the way that rising asset prices improve balance sheets and help to keep credit costs low, see IMF World Economic Outlook, May 2000, "Asset Price and the Business Cycle".

⁶⁵ According to the FSA Financial Stability Review 2003 (for data see p 21-22), by end of Q3 2002 (the latest data then available), £88bn of bonds rated by Moody's had defaulted, already surpassing the full year total of £87bn for 2001. During 2001 the (issuer weighted) default rate for speculative-grade credits was just over 10%, which had only ever been surpassed in the early 90s downturn (10.5% in 1991). Investment grade credit spreads have increased markedly (Merrill Lynch's global and sterling spread indices increased by 50% June-Oct 2002) on account of depressed corporate sector earnings, weak economic growth, and corporate scandals.

3) Given the increasingly poor margins on property loans (this is part of the 'bank bubble' scenario described in Part Five) banks have had to go for 'volume' – and encourage mortgage take up. They have also been chasing yields, piling into markets that seem safe, where bubbles are taking place but that are not to imminently bound to unwind and, in the process, almost certainly not fully accounting for the true risks.

4) Even in spite of the low yields, this suggests the possibility that the performance of housing has been shoring up financial industry balance sheets, and, in other respects, that the excessive concentration on the housing market may be in compensation for weaknesses elsewhere. Bank profitability is strong – though having declined since the peak of 1999-2000, mainly because of increased levels of provisions and write-offs against corporate and emerging market exposure. There is another stock/flow issue at work here. Increasing, strong, flows of new property-related lending mask recent weaknesses. But, like all flows, this has its limits. When the flows of new lending dry up, the weaknesses become more exposed.

2. THE IMPACT OF INTEREST RATES ON HOUSE PRICES AND CONSUMPTION

Will interest rate adjustments be capable of slowing any fall in UK house prices or cushioning any impact this has on aggregate consumption? And should interest rates be used for this purpose anyway? After all, Bank of England policy is not about low and stable real interest rates per se, but about low and stable inflation, and it is perfectly consistent to have real interest rates that are higher than the historical average for a while, precisely because they are being used to keep inflation on target. And it depends on the connection between

interest rates and house prices, a subject to which we now turn.

Interest rate changes impact consumption *directly* through their cash-flow impact on mortgage interest payments as a proportion of income as well as other flows, and *indirectly* through a housing wealth effect⁶⁶. Part Five will discuss in much more detail the importance of credit conditions generally. The following is a very simplistic overview of the main features.

2.1. The Direct Effect of Interest Rate Changes – Cash-Flow

The overall *direct* effect on spending of a change in short-term interest rates is made up of components that work both against and in favour of consumption.

Interest rates represent the ‘user cost of housing’, the returns to housing relative to other assets. At the most basic of levels, the marginal benefit of housing services is set equal to its marginal cost. A rise in rates raises the return on competing assets, as well as the cost of mortgage debt. This generates a negative substitution effect away from housing towards other assets, and substitution of *future* consumption for *current* consumption via asset markets. The decline in current consumption depends on preferences – the intertemporal elasticity of substitution⁶⁷. There is also an income effect of changes in interest rates on mortgage debt, and this also feeds changes in consumption; when rates rise the income effect is negative for *both* housing and non-housing consumption⁶⁸. However, the substitution effect

between housing and non-housing consumption (especially in the short run) is not likely to be that large, limited as it is by transaction costs and uncertainty about price movements, etc⁶⁹. Naturally, the response also depends on how permanent or temporary the effect is expected to be and how disruptive it is to cash-flows; an inability to smooth consumption increases the disruptive impact, so the disruption is much more likely to be lower in markets with low credit constraints and plenty of easy access to credit.

To work out what the overall effect is likely to be we need to look at the possible size and direction of the different effects.

Interest rate *rises(falls)* will cause a greater *negative(positive)* direct effect:

1) The higher the level of mortgage debt. At 60% of GDP it is higher in the UK than in many EU countries, and well above the EU average. Household income after mortgage payments is therefore likely to be more sensitive to interest rate changes than elsewhere. The Treasury calculates that a one per cent rise in mortgage interest rates reduces UK GDP by 0.6% once the increase has been fed through all mortgages⁷⁰ (compared to an EU average of 0.4%);

2) The greater the proportion of debt that is variable rate. Over 60% of new UK mortgages are variable rate, and most of the rest are just 1-5 years⁷¹, making the UK relatively more sensitive to interest rates. The rate of pass through is higher in the UK than other European countries⁷², and is a function of the state of competition in the mortgage industry (observe

⁶⁶ In the aggregate these overlap a little, since they feed each other somewhat in equilibrium. An aggregate cash-flow problem reduces demand for housing, which reduces house prices and housing wealth, etc.

⁶⁷ This is independent of housing market structures, though it may depend on attitudes to risk which could be affected by movements in housing and other wealth.

⁶⁸ Assuming they are both ‘normal’ goods.

⁶⁹ Though, for complimentary goods such as furniture, carpets, etc. this reasoning does not apply so much.

⁷⁰ HMT *ibid.* p 26.

⁷¹ In Germany it is 80%, France 60%. Only Italy among largest EU countries has 35%, and there the level of mortgage debt is low.

⁷² HMT, *ibid.*

how this is likely to be endogenous to the state of the housing market) as well as the structure of mortgages;

3) The smaller the size of the rented sector. In spite of growth in Buy-To-Let, the private rental sector is still relatively small in the UK (and most of the recent rise in Buy-To-Let has been offset by the decline in institutional landlords);

4) Connected to this, the higher degree of owner occupation. UK owner occupation is close to the EU average of 70% (with the rate much lower in Germany and France, but higher in Spain);

5) The more maldistributed is the debt (for example, generating, as rates rise, early fragility of those most exposed to debt, and protecting such holders the most as rates fall);

6) The lower the income earned from interest earning assets. Since the interest from these assets rises as interest rates rise, this offsets the negative effect of higher mortgage payments (and ditto offsetting the beneficial effects on consumption of interest rate falls). The UK has high holdings of interest earning assets. Something of this is picked up in Treasury findings that, in the long-run, rises in interest rates were estimated to raise consumption by similar amounts in the UK, Germany and France, but lower consumption in Italy. But in the short-run the opposite effect is at work, with consumption suppressed in the three countries and negligible in Italy;

Figure 18 shows that the value of assets far outstrips the value of liabilities. However *interest-bearing* liabilities outstrip *interest-paying* assets, generating negative net interest bearing assets. In addition, if there are bubbles in asset prices the net total asset position will be an exaggeration of the underlying situation. These figures may also mislead by failing to include net pension liabilities, which face a series and deteriorating position.

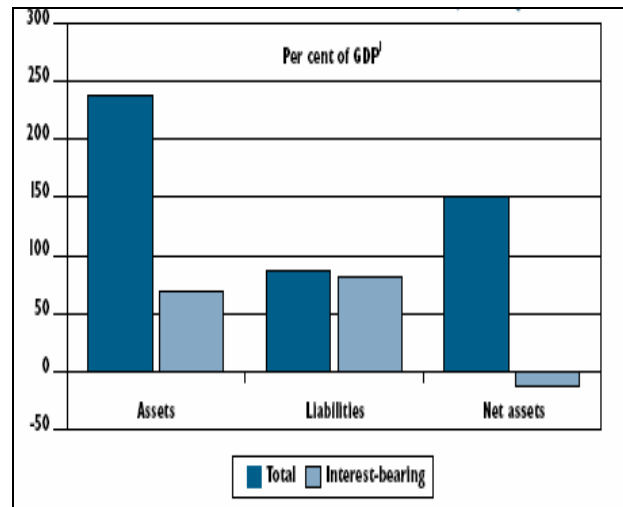


Figure 18: UK Household sector balance sheet, 2002(Q3)⁷³

7) The higher the propensity to consume of those holding interest-bearing liabilities. There is evidence that it is younger, more cash-flow dependent, households that are less net-asset rich. Other households – including recently traded-down elderly household – may lose from lower interest rates and gain from higher interest rates either immediately through interest-bearing assets or later via the rise in returns to bonds in pension portfolios, etc, but the evidence is that they have an average lower propensity to consume (though the average hides important distributional differences);

8) The greater are interest rate spreads. If these widen (quite likely in a property market and macroeconomic downturn) then the negative impact of a rise in rates on consumption rises. However, a rise in spreads could swamp any reduction in base rates, especially for more risky groups;

9) According to the degree of regulation of private rents. Highly regulated rented sectors are less likely to see rents rise (or fall) in the short-term in response to house price rises/falls, consequent on interest rate changes or otherwise. The deregulation of the private rental

⁷³ Office of National Statistics, Chart 2.2 HMT p10.

sector in the UK (in 1989) and the reduction in the social rented sector has probably therefore weakened the consumption response to interest rate falls (and rises) since it has raised the rent response and the expectations of higher (lower) future rents of non-owner occupiers when house prices rise (fall);

10) Presuming for the moment that house prices are driven by fundamentals, if lower interest rates trigger expectations of higher future house prices, non owner-occupiers and aspiring owners will expect to have to save more to pay higher future house prices or higher expected future rents (this requires some notion that there is not a bubble present, and that players do not feel constrained to join the price bubble⁷⁴) and have to consume less in the current period;

11) The more constrained is the access of households to credit and the more difficult it is to borrow to smooth income fluctuations, including those caused by interest rates. This is not so likely in the UK and the constraint has fallen over time. This is another reason why consumption may be less responsive to housing wealth than, say, in the 1980s. Though, in a house price collapse, the fall in the value of collateral generally and the pressure on bank margins would make credit conditions, and ability to smooth, more difficult, potentially much more difficult. Ability to smooth may itself be procyclical – falling just when it is most needed;

12) The higher the level of overall household debt. In the late 1980s, household debt was about 120% of household incomes. Currently it is over 150%. Therefore, a rise/fall in interest rates is a minimum of 25% more powerful, *ceteris paribus*, in its impact on debt repayments than in the late 1980s. Mortgage banks that a year ago were soothing first time buyers' nerves by arguing that interest rates "would never reach

the levels of 1989", are now bemoaning the negative impact of just over 1% of rises, and warning the Bank of England of the dangers of any more small rises. Mortgage banks have realized that at current debt levels – and low levels of nominal interest rates, and low inflation – a per cent rise or fall in base rates has more impact than it did in the late 1980s;

13) The more front-loaded is debt. The impact of recent low nominal interest rates (for given real rates) has been to stimulate the acquisition of debt with an average repayment much further off into the future, and hence with greater relative repayment of overall principle much further off in the future. In the early 1990s house price collapse, the impact of higher interest rates was, in a sense, much more front-loaded on account not only of much greater increases in interest rates but because that debt was much more front-loaded. This created a severe cash-flow problem for many (even if, relative to the lifetime cost of their debt, they might have been able to hold out until rates fell if access to credit had been available). This would seem to work, in one way, to generate a softer up-front impact of higher rates today – and indeed (the flipside to this) lower relative cushioning if rates were to fall. However, offsetting this is the high current level of real debt, such that small changes in interest rates, of the order of a per cent or two, that would have had a much smaller impact in the early 1990s translate into much larger debt repayment requirements overall, and larger cash-flow requirements today (and the flipside that smaller interest rate reductions have greater impact today on account of the size of debts). Furthermore, the longer-term impact of debt acquired in the late 1980s was much reduced by the collapse in real rates in the early 1990s; there is no evidence that there will be a similar cushioning for debt acquired in the early 2000s;

14) However, given the removal of mortgage tax relief, the burden of any given mortgage

⁷⁴ One hypothesis would be that the costs of saving also incorporates the loss by holding out from entering.

debt is now much higher. In the late 1980s £30,000 of any mortgage was allowable against tax, which was a high proportion of the average house price of £55,000;

15) The level of unemployment as a proxy for a precautionary motive to save.

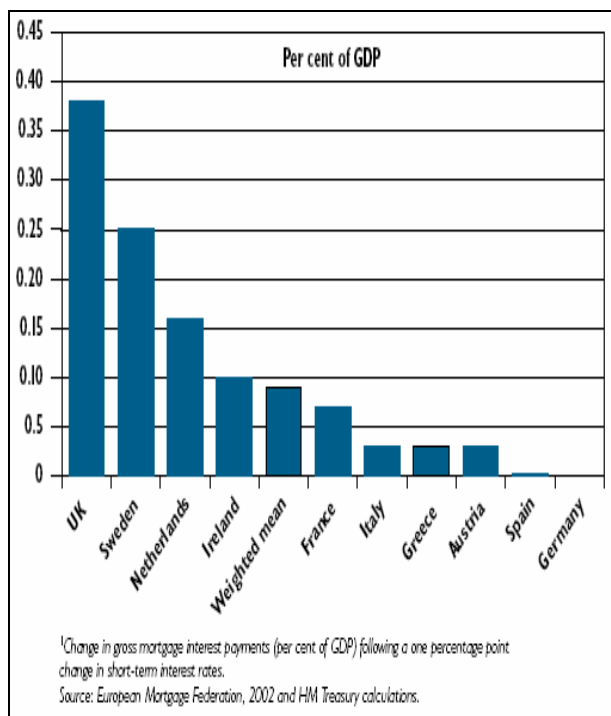


Figure 19: HM Treasury estimates of the sensitivity of average households' mortgage interest payments to a change in short-term interest rates (2001 data)⁷⁵

Figure 19 shows how much more sensitive are UK mortgage payments on average to changes in short-term interest rates, compared to other EU countries. Given the high level of debt currently held, a revision of interest rates to their supposed 'neutral' level, will, according to the Bank of England take the total debt service burden up to 14 per cent of incomes (only a little short of the 1990s peak of 16%)⁷⁶.

⁷⁵ See HMT, *ibid*, p. 26/7 for comments.

⁷⁶ Bank of England Inflation Report May 2004.

The aggregate of all these different effects in current market conditions is likely fairly modest (it actually turns out to be quite difficult to say precisely). One feature of the early 1990s crash was that the direct, cash-flow, effect was unusually large. The Bank of England should perhaps worry less about this effect this time around when raising (or holding high) interest rates, but also feel less confident of the power of rate cuts to massively ease cash-flow effects as was the case in the early 1990s. There are some very important caveats, however. Much of the above reasoning is somewhat dependent on non-bubble driven house prices and the understanding of potential buyers about what is driving prices. And, in the face of a deterioration in credit conditions (much wider spreads and higher loan rates) small percentage changes in base rates may have little impact; the analysis is less good for less stable times.

2.2. The Indirect Effect of Interest Rate Changes – the Wealth Effect

Interest rates do not just impact on the mortgage part of investing in housing, but also on the expected value of housing wealth. The overall transmission of interest rates could be strong even if the link of housing wealth to consumption is weak so long as the relationship between housing wealth and interest rates is strong.

As interest rates fall, *ceteris paribus*, the demand for housing rises, and hence house prices and the value of housing wealth. The overall effect also depends on the degree to which housing consumption and other forms of consumption interact (as real house prices rise, there is substitution between housing consumption and non-housing consumption).

The aggregate housing 'wealth' affect is very different from, say, the aggregate wealth effect generated by other financial assets since the value of those assets *can* be realised in the

aggregate via world asset markets, while UK homeowners cannot *in the aggregate* realize their capital gain via trade on international asset markets. Since housing is not just an asset but also consumed, distributional issues are also much more important.

The size of the indirect, wealth, effect is greater:

- 1) The larger the share of home ownership;
- 2) The smaller the rental sector. Renters tend to lose from price rises, while owner-occupiers gain (again, we presume that these are non-bubble generated rises, and there may be important long-term issues we are ignoring). We know, for example, that in Germany⁷⁷ there is a negative relationship between house prices and consumption because of a very high proportion of private renters (also in Germany it is relatively difficult to get access to housing wealth via the financial system);
- 3) The greater the degree of financial liberalization (and the history of it, since the length of time since major liberalization before any fresh liberalization may be important) and hence the amount of access to housing wealth. This also affects the ability to cushion wealth falls in the short-term if households have access to consumption smoothing credit;
- 4) Depending on the composition of the rental sector. In the UK the *size* of the rental sector has stayed fairly stable in recent years, with the rise in the stock held by smaller private tenants roughly matching the fall in the stock held by institutional investors (and rentals have been fairly stable, even falling in London and other cities).

A rise/fall in house prices works through institutional investors to raise/lower pensions, but this is much more difficult for the ultimate owners to liquidate via credit markets and turn

into current consumption than would be the case for a similar price rise for private owners (and the wealth rise/fall is generally much less 'obvious' to the ultimate owners anyway). So, markets based on institutional owners are less likely to see a short-term consumption response to house price rises or falls. To the extent that smaller holders are less diversified across asset classes and given that more of them are likely to be speculatively motivated, this increases the house price response in a downturn. It also pushes in the direction of a higher consumption response to house price falls;

5) The higher the propensity to consume of landlords compared to the propensity to consume of potential owners. If the propensity to consume of landlords were greater than tenants, the effect of the increase/decrease in the housing wealth of landlords on their consumption would offset the fall/rise in consumption consequent on the losses/gains of non owner-occupiers; hence aggregate consumption would rise/fall (*ceteris paribus*). Of course, this is not the case, and in part, would explain a low consumption response to rising house prices. And it may also (once house price falls are over and done with) encourage consumption when house prices are lower (with, again, plenty of caveats, not least of which being the period of instability in between);

6) The smaller the cushion of other financial assets. The UK has a large net surplus of financial assets to liabilities that can act as a potential cushion against the wealth effects of house price falls (as well as a generator of income itself). However, the total may be somewhat misleading. Half of all financial assets – pensions and life assurance – is not easily accessible, and changes in the value of it have little impact on short-term consumption. Changes in house prices are therefore capable of creating a larger impact on that portion of actively accessible assets than on the total of all assets. In addition, the value of the fraction of

⁷⁷ HMT *ibid.* p 68.

household financial assets made up of property that is not a principle residence (buy-to-let, second homes, etc.) is highly correlated with the value of the principle residence, reducing the ability to use such wealth as a way to spread risk and cushion against house price falls. The net financial positions of households with respect to interest-bearing assets and liabilities, shows a modest deficit. Some three-quarters of total interest-bearing liabilities are mortgage debts.

7) Depending on demographics (as picked up in the next section and elsewhere). If price rises are to boost aggregate consumption, the ‘winners’ must have larger propensities to consume out of wealth and must make up a ‘sufficiently’ large proportion of households. Failing this, a consumption response relies on those homeowners who choose not to move house to cash in part of the rise in house prices through credit markets, and consume off of it.

HMT⁷⁸ concludes that “There are good reasons to think that the indirect effects of interest rates on consumer spending may be more important...There is now a general consensus that housing wealth does affect consumer spending, but much less agreement regarding exactly how it exerts its influence and whether such effects are transitory or more permanent.”

2.3. Redistribution Effect of Rising/Falling House Prices and the Wealth Effect

Underlying some of these effects is the fact that increases⁷⁹ in house prices generate a redistribution of wealth – from generally younger to older households, from the relatively low asset-rich to the already relatively high asset-rich. House price inflation is just another form of inflation. RPI inflation tends to redistribute from lenders to borrowers as the

⁷⁸ HMT *ibid.* p7.

⁷⁹ Reverse all of this for falls.

real value of debt is eaten away over time by inflation. One of the detrimental effects of house price inflation is, similarly, its redistributive nature. Taking these distributional, as well as wealth effects, into consideration, the aggregate housing wealth effect might be quite small even if house prices have risen greatly.

The gainers are those trading down and last-time sellers. The losers are those who trade up or who are first-time buyers (or are unborn). In a closed economy, ignoring intergenerational bequests⁸⁰, the financial gains of those who gain roughly balances the losses of those who lose⁸¹. The relationship between house prices and consumption is less direct than it would be for most other assets. If, in periods of rapidly rising house prices, households with low housing wealth regard themselves as becoming much worse off in terms of future housing (and other) consumption, this could have suppressed their consumption response to house prices during recent rapid price booms. With the number of first-time buyers at a record low, this would seem to suggest that a fall in house prices would, in part, act to boost consumption of this group.

Like budget deficits

In the long-run, rapid house price rises have similar consequences to sustained budget deficits, transferring resources from the young (and, even, the unborn) to the old, and depressing the current real productive capital stock, in exchange for current (or a flow of near-

⁸⁰ Where bequests are allowed it is found that *permanent* changes in house prices generate small but persistent effects on consumption, taking a generation or two to emerge. Given the historical volatility of the market and the uncertainties and vagaries of life and death (!) the expected bequests may be heavily discounted at any point in time. And one household's bequest is another household's mortgage burden.

⁸¹ The bequest motive changes this a bit since it is a form of wealth acquisition. Observe, also, the way in which transfers (in ways other than the sale and trading down of housing) from the latter to the former group to help housing purchases, will act to pump any price bubble.

current) consumption by the gainers (to the extent that the price rises are cashed in before price corrections set in). Similarly, the requirement of the young generation to spend a high proportion of their lifetime real resources on housing costs, even as those exiting the market are consuming, will, in the long-run, eat into real productive capital stock⁸². House price booms, just like government budget deficits, are popular with older consumers (and governments). In both cases, older consumers benefit from the ‘borrowing’ from future generations, even as long-term income levels are reduced due to the crowding out of real productive capital stock.

Incidentally, a demographically aging population, with falling cohorts in younger generations, record low savings, deteriorating provision for retirement, and with the burden of social security and health increasing over time, are all depressing influences on the investment potential of housing of the current generation (since the market for the value of *their* homes is the next, smaller, more burdened generation). A current price bubble just exacerbates these future problems. Together with the current overvaluation of housing, this could even mean that the real rate of return on housing for, say, the next 10-20 years is much lower than the historical average of about 2.5%. Indeed, given the current degree of overvaluation, zero is well within the 95% confidence interval for the 10-20 year real rate of return on housing.

Furthermore, the addition to wealth caused by the transfer of council houses at a generous discount in the 1980s would have been a genuinely permanent increase in private wealth, boosting consumption in the long-run, so long as the rise in private assets and the consumption possibilities thus created was not matched by the loss in government assets and the increase in

⁸² The overall effect will depend also on the rôle of housing as collateral and the financial openness of the economy.

any future tax liabilities this necessitated⁸³. Such an effect is much less operative in the 2000s than it would have been in the 1980s. Taking this into consideration, along with the distributional issues discussed here, house price rises recently would have created (relatively speaking) more losers than gainers than in the last price ‘bubble’. Again, this works in favour of a lower consumption/MEW response today compared to the 1980s.

All of the above suggests more reasons why falls in house prices should not, per se, be resisted by central bankers.

2.4. Combined Effect

The overall impact on consumption of changes in interest rates and rising/falling house prices consequent on interest rate changes is the balance of all these different effects. HM Treasury concludes that “The combined income and substitution effects of *rising* house prices are likely to be *negative* overall”⁸⁴ (italics added).

Falling house prices harm the asset-rich but increase wealth and consumption possibilities of the asset-poor; why, it might be argued, should the Bank of England defend the former at the cost of the latter, especially if prices are overvalued? Maybe the sharp reductions, on some measures, in consumption response to rapidly rising house prices is also indicative of this?

⁸³ That is, it would have boosted consumption permanently if some sort of intergenerational Ricardian equivalence did not hold and/or the future tax payments (which may actually not be high) consequent on house sales are discounted at a higher rate privately than the rate used in the public sector. These are very likely to be the case.

⁸⁴ The Treasury points out that it is quite difficult to do all this, and that it is important to use a housing and consumption systems to capture the full effect, and not just a single equation consumption function (HMT, *ibid.* p63).

2.5. A Speculative Effect?

The problem with much of the above analysis is that it is based on rational adjustments in house prices and consumption in response to interest rate changes in a market with non-bubble generated house prices. This gave us the 'direct' and the 'indirect' affect on consumption of interest rate changes. Even in this restrictive setting, prices can still show large swings, impacting the direct and indirect effects, on account of the highly supply constrained nature of the UK housing market. But there is a third possible, and separate, effect that may have an interest rate element – a speculative effect, where momentum is an important part of the demand response to an initial price rise generating further movement in the same direction. Interest rates may be part-initiator of the initial 'displacement' effect that spurs a bubble into existence, and sometime (though not necessarily always) a contributory trigger of a price collapse.

The problem is that once speculative behaviour is present, such that price may deviate from the fundamentals for long, and unpredictable, periods of time, households may not respond in the standard ways described above. For example, the substitution effect suggests substituting away from housing when interest rates rise, but part of the cost of doing so may involve the loss of speculative gain if the market is in a bubble, especially if prices are likely to be misaligned for a very long time, such that consumption choices may be sub-optimal for long periods. In a bubble, the 'losing' households may actually respond by wanting to take on more mortgage debt (and housing) sooner, rather than saving to try to buy more housing later; the rate of return from going with the bubble appears to them to be higher than the rate of return to saving, and it seems it may be better to enter sooner rather than later. In particular, in certain phases of a bubble, first-time buyers participate in larger numbers than would be suggested in a model based on more

rational behaviour. To them, rises in interest rates may be swamped by the paper capital gains being achieved from housing ownership.

Whatever balance there might have been in a non-bubble market between direct and indirect effects, will not hold if there is a bubble. If the Bank of England believes that adjustment in house prices back to some notion of fundamentals is inevitable, with its concomitant wealth effect, then the direct/cash-flow effect may not be that central to reasoning on interest rate policy, on the basis that (at least at non-catastrophic levels of interest rates) there is relatively little that interest rate changes can do to positively improve cash-flows that could counteract a large negative wealth effect. This may well be quite the opposite of reasoning to the late 1980s, when the doubling of interest rates caused a large cash-flow effect and there was strong incentive to reduce interest rates as soon as possible because of the cash-flow effect (whatever was going on with the wealth effect). Besides, an indirect, wealth, effect caused by the unwinding of a bubble is much more likely to have a permanent effect on consumption than the direct effect of an interest rate rise/fall that is perceived to be only temporary.

In addition, the effect of both the direct and indirect effect on consumption is somewhat offset the more easy it is for households to smooth consumption through their access to credit markets and the degree to which they interpret the effects as temporary. Unfortunately, credit conditions are a function of bubbles in collateral value, and are likely to tighten just at the time consumption smoothing is required the most in a price collapse. This suggests that consumption smoothing may be weaker if house prices have fallen heavily. We see this already in the conditions banks are starting to impose on fresh loans as house prices start to turn.

Does the presence of price bubbles, and the reaction of households to them, show up in the consumption data in other ways? To the extent that recent UK rents have not in fact risen (they have fallen in many places, or risen at much lower rates than in the past) and that consumers may suspect that house prices are temporarily excessively high in real terms, the effect of rising house prices on consumption will have been weakened. This may be one factor feeding the low MEW consumption response to higher house prices. It also suggests that a healthy debate about the relative degree of overvaluation is to be welcomed; the more informed consumers are the less likely they are to react to temporary bubbles.

The impact of any price bubbles, and the collapse of price bubbles, on the wealth effect in particular is, however, on the whole largely unclear. The picture is also complicated by what has been going on globally, something we will turn to in sections 4-6.

3. SOME CONSUMPTION AND STOCK MARKET PUZZLES

3.1. Stock Markets, House Prices, and Consumption: Some Puzzles

In the UK, real house prices have increased in the long-run, on average, by 2.5% per year. This is greater than any other EU country (twice that in France and Italy, for example, and in many EU countries there has been hardly any real house price inflation), and has made UK housing a relatively better investment asset compared to housing elsewhere in the EU (though, it should be added that the figure is largely because of the relatively low proportion of national income per year invested in housing in the UK compared to most other EU

countries⁸⁵). Recent gains have been well above 2.5% per year.

One explanation currently in vogue to explain the recent rapid price rises is that disillusioned households (and financial institutions) have switched investment from stockmarkets into the housing market – not just in the UK, but everywhere in the world it would seem – and *rationaly* bid up house prices. This affect must have been particularly strong in the UK given the doubling of house prices in the few years since the initial stock market collapse. Banks, finding themselves awash with deposits that they *have* to do something with, it is argued, more often than not have on-lent into the housing sector (the behavioural reasons for this are explored in Part Five). Incidentally, the recent surge in stock prices has not yet ignited an equally strong argument by mortgage banks or others that investors should be abandoning the housing market for equity!

Indeed, the common feature of all four UK house price booms since 1970 is the coincidence or immediately prior fall in share prices and collapse in confidence in equities as an investment class (the bear market of 1972-74, the real falls of 1978-79, the ‘crash’ of 1987, and the heavy correction since 2000).

But this raises the question: What should be the relationship between the stock market and the housing market? Studies show that, in the past, stock markets and housing markets were much more correlated than recently⁸⁶. Why are things so different today? How should house prices have reacted to the stock market boom of the late 1990s and subsequent collapse of the early 2000s?

⁸⁵ However, this is partly consequent on the much greater post-war housing expansion in the UK, which left the UK with a much greater housing stock than typical for the EU.

⁸⁶ IMF World Economic Outlook May 2000, “Asset Price and the Business Cycle”.

Following the most recent stock market bust, interest rates were lowered rapidly, especially in the US but also in many other countries including the UK. Such falls were designed to protect stock markets as much as housing. The reaction of housing *compared* to equity is therefore a complex mix of the supposed general movement out of equity, and the reaction of each asset class to lower nominal interest rates (with credit constraints a much more important part of the housing story than the stock market story).

If we abstract from the interest rates issues for the time being⁸⁷, how house price behaviour and stock market performance are connected depends on the degree to which the stock market itself experienced a bubble, and the degree to which investors believed it to be such at the time. We have three chief cases:

- A: The stock market *was not* in a bubble and *was not* believed to be in a bubble at the time;
- B: The stock market *was* in a bubble and *was not* believed to be in a bubble at the time;
- C: The stock market *was* in a bubble and it *was* believed to be a bubble at the time but this was not common knowledge⁸⁸.

3.1.1. CASE A: Stock market not a bubble and not believed to be a bubble

The Boom

If stock market behaviour was not a bubble at the time and not believed to be a bubble, then the argument for rationally higher house prices following the stock market's collapse faces problems. Counterintuitively, it suggests that house prices would have had to have been relatively disfavoured by a fundamentals-based

stock market boom, such that when the stock market collapsed (for fundamental reasons, including the revelation of information about preexisting fundamental conditions) house prices would be in a position to be relatively more favoured. It would require that the relative proportions of a typical household's portfolio would have had to shift in favour of stocks and away from housing assets during the stock market boom, putting downward pressure on house prices, and away from stocks and towards housing in a stock market collapse, putting upward pressure on house prices. But neither makes a great deal of economic sense.

If the 'new paradigm' supposedly driving stock prices higher at the end of the last century was based on the notion that future productivity, profitability, and wealth levels were going to be a great deal higher (hence heavily capitalized into stock prices now⁸⁹), to the extent that it was believed that fundamentals supported stock markets and would eventually lead to a raised demand for housing consumption, the demand for housing assets should also have been driven higher to take advantage of the higher expected future returns to housing (higher expected future rents built on higher future stock market returns,

⁸⁷ The following few sections also take a rather simplistic approach to market risk and volatility.

⁸⁸ Such a bubble can persist even if everyone knows about it, but it is *not* common knowledge (everyone knows that everyone knows that everyone knows, etc.) that there is a bubble. We do not consider the case of a stock market that is not in a bubble and yet is believed at the time to be in a bubble.

⁸⁹ Of course, these future possibilities would not be *totally* capitalized into a stock index since many of the firms that should be capitalized into the index do not yet exist, and, similarly, many of today's firms (if history is anything to go by) will decline and exit the index. This suggests that the measured correlation between consumption and any recorded rise in stock prices based on any set of expected future rises in productivity and profits (suitably adjusting for depreciation of housing and non-housing capital) will be *higher* than the true measure reflecting fully all future firms. Housing is somewhat different, because current housing stock doesn't disappear somehow beaten into non-existence by a, sort of, housing competition by new more 'successful housing' stock. One might expect therefore that the measured correlation between consumption and the housing index would be lower compared to the measured correlation between consumption and the stock market index for the same set of conditions driving housing and stock markets.

etc.)⁹⁰. Portfolio rebalancing would have raised house prices until, at equilibrium, households were happy with the proportion of their portfolio held in housing⁹¹. House prices should therefore have been driven by both a wealth effect (from the stock market itself) and a portfolio diversification effect.

Observe that the whole process of genuine ‘wealth’ creation, as opposed to purely paper ‘wealth’ creation, is the result *only* of increased productivity, either because of advances in technology or from the more efficient use of currently existing technology (including via trade). Another way, therefore, to view the relationship between housing and stock markets is that it would be difficult for the value of housing ‘wealth’ not ultimately – just like equity wealth – to have an underlying productivity explanation. And difficult, in a non-bubble setting, for the value of housing ‘wealth’ to rationally run ahead of equity markets.

Looked at from another angle, at a very primitive level one might imagine that the increased expectation of future real wealth would have an ‘income’ and a ‘substitution’ effect on the housing market. The income effect would generate an increased demand for housing consumption *now* as well as later. But, the substitution effect would lead to a greater proportion of the typical wealth portfolio being devoted to equity markets to take advantage of favourable equity returns. However, housing is not like most other consumption goods; it is also an asset, the price of which reflects future demand for its services, the more so the more price inelastic is its supply. Observe how, in a supply constrained environment, this is different

from stock market behaviour, where the supply of the underlying real capital to a particular sector would increase in response to an increase in stock prices in that sector (the re-allocation of real capital in response to this price signal is the very purpose of such markets).

To the extent that the backward induction argument works and house prices rise in anticipation of future wealth levels and future desires for consumption of housing services, the substitution effect in favour of equity is weaker. In the US case for example, if the paradigm shift and productivity revolution were real – enabling more consumption at all periods – the welfare maximizing response would be for the US economy to suck in capital from abroad to enable greater consumption, including housing consumption, of the current generation of households rather than requiring them to reduce consumption now to fund productivity-enhancing investment. To the extent housing supply is relatively fixed, this would show up in price rises⁹². In terms of data, the greater the supply constraint on housing the greater the positive correlation of house prices with stock prices.

Bluntly put, it is hard to visualize fundamental factors having a positive effect on equity prices without also having a positive effect on house prices⁹³, with greater house price rises the greater the productivity miracle, the more open are capital markets, and the more supply constrained are housing markets.

The Fall

When stock prices fall – in this case the fall is still based on fundamentals – future income and wealth levels are revised downwards, affecting

⁹⁰ Indeed, IMF, *ibid.*, incorporates a term for the past growth of real stock prices to capture the notion that households will try to shift their portfolio *in favour* of housing.

⁹¹ If house prices were initially slow to respond, portfolios would become less and less well diversified. Impetus to diversify would eventually cause house prices to rise.

⁹² Incidentally, this suggests that house price responses elsewhere should depend on the relative ability of such economies to be also affected by the paradigm shift, and their relative supply responses.

⁹³ There would of course be competition for capital so the relative price of capital matters.

all asset and consumption decisions. The behaviour in housing markets described above should be reversed⁹⁴. If spending on housing via mortgages were maintained in spite of the stock market fall, the proportion of lifetime income to be spent on housing would rise. No explanation has been given that could justify such behaviour.

When the stock market falls, there are two offsetting influences on house prices relative to stock prices. The more housing supply was constrained (such that there would have been a greater relative response of house prices upwards in the previous period) the greater the relative fall in house prices will be after the stock market falls. But, offsetting this, the less likely it is that the housing market will have seen excessive real capital investment (at least compared to the equity markets) and hence the less downwards drag there will be on house prices compared to equity prices when the stock market falls.

3.1.2. CASE B: Stock market bubble but not believed to be a bubble

If equity markets tend to go through periods of excess – or irrational exuberance as Greenspan and Shiller⁹⁵ have called it – then housing markets should feel some side-effects.

If investors behaved as if they were unaware of the equity market bubble (not unreasonable given that many in the financial press argued it was not so), one would expect all of the above movements outlined in case A. The bursting of the technology bubble at the end of the 1990s created large falls in future expected wealth. It left a legacy of excess capital to be worked off⁹⁶, depressing pricing power in the meantime,

and reducing profits for firms to levels lower than they had once believed would be the case. The bubble would have led to pension misallocation (we see this in the way that many firms gave pension contributions holidays and boosted benefits during periods of surplus, and the way many individuals under-saved in pensions), some of it showing up in an over-reliance on the expansion of housing wealth⁹⁷.

useful capital that may not have existed but for the bubble.

⁹⁷ Government also hardly helped the case for pensions during the ‘bubble’, and this legacy of failure may be one reason why investors may in some cases be choosing residential housing over more traditional forms of pension investment (in spite of the fact that pensions investment is generally more tax advantaged). Pensions have been hurt by the £5 billion a year tax initiated by the current administration in 1998 (on dividend income), some high-profile failures to deal with collapsed pensions schemes (destroying the pensions of some 60,000) and pensions industry malpractices, and the disincentives to save in pensions caused by the highly penal marginal tax rates on pensions as a result of the operation of means testing. On the other hand, it was a previous administration that facilitated the grand pensions misselling of the 1980s that weakened company pension schemes, and that built in the inefficient requirement that companies and pension-scheme trustees eliminate excess surpluses in their funds in good economic times, even though it forced greater losses on members, than would otherwise have been the case, during the bad times. All governments have taken a dim view of overfunding (during bubble upswings), sometimes treating it as little more than a tax avoidance device.

Some of these pension failures even exacerbated the stock market bubble: Payments holidays generated more profits, which served to massage downwards the price-earnings figures, making them look less bubble-like! In the US, firms were allowed (perfectly legally according to accounting standards) to declare higher expected returns and hence profits! Even as inflation fell, just reporting the previous level of nominal returns allowed this exaggeration. And the US caved in to corporate pressure to ease the regulation of pension schemes so that they can continue to carry over \$85bn (of maybe \$350bn current shortfall across all US companies – though the figure is sensitive to current stock market levels) in pensions deficits in weak companies (in the hope that markets would recover enough to make up the shortfall), putting off yet further the day of reckoning. In the UK, the shortfall (variously quoted) ranges up to about £100bn. Carrying this level of burden in a global economy facing

⁹⁴ There may be stickiness in price response for a while, because of uncertainty and transaction costs for example.

⁹⁵ Shiller, R., “Irrational Exuberance”, Princeton University Press, 2000.

⁹⁶ We ignore for now the argument that if capital markets had been inefficient, a bubble might have created much

As the stock market collapsed, this would have reduced expected current and future consumption possibilities, including that of housing. There would be a general reassessment of future income, and lower borrowing for current consumption.

As above, because of the slow supply response in housing markets it could be that, in comparison to stock market based investments where the supply of underlying real capital may have overshoot equilibrium, the real stock of housing investment is likely to have overshoot much less⁹⁸.

3.1.3. CASE C: Stock market bubble that is believed to be a bubble

This is an interesting case, because it is the only one that stands any chance of positively impacting house prices after a stock market collapse. The rational bubble literature argues that bubbles cannot happen since all players will try to get out of the asset class at the same moment and that, by backwards induction, they will not therefore be able to collectively drive prices above fundamentals in the first place. But this literature also recognizes that this can be broken if we allow non-common knowledge (in a rational framework), or if we adopt a framework with noise traders.

If it is known (but not yet common knowledge and/or there are noise traders) by investors that the stock market is experiencing a bubble that will eventually burst, it would be foolish to bid up house prices on the basis of future income levels that will never materialize. In the meantime, if there is momentum in the stock market, those of a relatively more noise-trader

disposition may distort *their* portfolio choice in the direction of the stock market and away from housing, to try to exploit the bubble. When the market collapses there may be a rush back to other assets including housing.

Of course, the *ex ante* knowledge that there may be this rush back to housing will itself, *ex ante*, help to support house prices. And house prices may still rise if those who do not realize that a stock market bubble is taking place nevertheless invest in housing. However, the knowledge – for those who know about the stock market bubble – of the equity losses is still likely to outweigh the positive affect on house prices generated by investors ‘rushing back’ into housing after the stock-market bubble collapse. So this story, on balance, still struggles to create a scenario where house prices are advantaged by a collapse in the stock market.

There may of course be noise traders in housing markets too. Because of high transaction costs and the irreversible nature of the purchase decision, many ordinary buyers are unable to ride and exit house price bubbles. If Buy-To-Let ‘noise traders’ find that transactions costs are less of a hindrance and that they can more easily enter and exit the market, Buy-To-Lets might, on average, find riding (and feeding) bubbles and trying to jump out at price peaks (and feeding collapses) a more profitable strategy than other types of owners. The implication is that Buy-To-Lets who have ridden the bubble up are in a better position than most homeowners to time exit. Therefore, once house prices start to show reasonable price falls (we hardly need reiterate the well-known mean reversion and momentum behaviour of the market) we should expect to see the exit of some noise trader Buy-To-Lets from the market. The smaller the proportion of the buyers who are Buy-To-Let the more profitable is this Buy-To-Let noise trader strategy.

some large and delicate imbalances, is not be recommended. It will certainly exacerbate any downturn (and collapse of housing bubbles). Here’s one area where some understanding about equity (and housing) market bubbles might have made for much better practical policy.⁹⁸ Of course, this greatly simplifies everything going on, in particular expectations of price changes, etc.

3.1.4. Temporary out of equilibrium disturbances that drive house prices in the opposite direction to equity prices

This does not mean that housing and equity markets cannot become misaligned for periods of time such that a strategy favouring one asset class over the other gives a higher short-term return. In reality, the difficulty and cost of arbitrage on housing markets, means that the behaviour of equity and housing markets can deviate from each other (and from fundamentals) for sizeable periods of time. Anybody who liquidated shares in early 2000 and put all on the UK housing market would have done better than to have held shares. To suggest that this is a long-term sustainable reason to favour housing *now* over equity is to rely on long-term stock market underperformance and to ignore the impact of *that* bubble on the pattern of returns in *that* market. Similarly, those who sold their housing a year ago and put all on the stock market would be better off today (the stock market rose even more heavily than the housing market, even allowing for large housing transaction costs). This is not the same as suggesting that the general equilibrium of the system should see housing beating equity or vice versa. In the long-run, relative yields should still be driven by many of the same underlying fundamentals, and this is why, in the past, stock markets and housing markets were generally correlated, and why we should be concerned that they have not been so recently.

Indeed, stock prices tend to have predictive power on output growth while property prices tend to be less forward-looking and more contemporaneously correlated with output growth⁹⁹. In part this reflects the relatively fixed nature of UK housing supply and the less liquid markets, but it also possibly indicates the greater

⁹⁹ Property prices also tend to be a better leading indicator of the output gap, which is a closer indicator of the business cycle. IMF World Economic Outlook May 2000, Asset Price and the Business Cycle.

tendency for house prices to be bubble-like and detached from long term fundamentals¹⁰⁰.

3.1.5. Equity versus housing and *nominal* interest rates

One of the consequences of the turn-of-the-century stock market collapse was that both real and nominal interest rates were cut heavily to protect economies from the fallout. The US was a major driving force in this. Explorations of the way a real interest rate fall would have had an effect on real house prices will not be repeated here¹⁰¹. Instead, we are interested in the consistency or inconsistency of investment portfolio decisions with respect to housing and other assets in the face of purely *nominal* interest rate falls (i.e. for fixed real rates).

Empirical studies find that nominal interest rates have no impact on long-run equilibrium UK real house prices, that only real interest rates matter¹⁰². However, one regularly finds that nominal interest rates do impact short-run house price dynamics. The recent UK house price surge – and indeed, globally, just about every current global house price surge – has followed unusually low nominal interest rates.

Mortgage banks explain this in terms of the relaxation of credit constraints. That, even if real rates are the same, lower nominal rates enable house buyers to get closer to the levels of borrowing they always really wanted collectively bidding house prices higher. This now faces further problems.

¹⁰⁰ Of course there is a problem of carefully separating out the endogenous influence of house prices (and stock prices) on future output growth.

¹⁰¹ See Farlow 2004a, *ibid.* Section 4. Though it is fair to say that most of the fall in real interest rates took place before the dotcom bust.

¹⁰² IMF, 2003, Country Report 03/47 (February). Muellbauer, J., and Murphy, A., 1997, "Booms and Busts in the UK Housing Market." *The Economic Journal*, 107:1701-1727.

That households, when purchasing housing assets, respond positively in their long-run equilibrium behaviour to nominal interest rate falls¹⁰³ but, when purchasing stock market based assets (and, indeed, just about any other asset class), do *not* respond to nominal interest rate falls, implies that as nominal interest rates fall (for given real rates) the typical household investment portfolio shifts in favour of housing. Since housing (and usually not stock market purchases) is principally purchased with debt, and access to debt is constrained, housing is not only under-consumed before nominal rates fall, but also under-held in a typical portfolio. House prices are bid to a point where the risk-adjusted return on housing, including the constraint on housing consumption, is the same as on equity. Once the constraint is relaxed, consumers can devote a higher proportion of lifetime wealth to consumption of housing¹⁰⁴, and house prices are bid up till a new point is reached at which the risk-adjusted return *without the constraint* is the same as on equity.

But this will only happen if consumers always wanted to spend more on housing services, as a proportion of their lifetime wealth, and were always prevented from doing so by credit constraints. If this is not the case, it is not possible to create the asset demand for housing that would justify the house prices that would justify the average proportion of assets held in housing. So we can interpret a large equilibrium increase in mortgages for the purpose of buying housing as a commitment to shift ones asset portfolio in the direction of housing *as well as a*

¹⁰³ And negatively to nominal rate rises (even if real rates are the same or have fallen), though this is rarely mentioned.

¹⁰⁴ Remember that this is being distinguished from stories about increased access to cheaper credit based on greater price competition or deeper, more efficient, mortgage markets, since those affects are being captured in lower real mortgage rates already. Here, house prices are being driven purely by the constraint being unlocked by lower nominal rates and the access to greater lifetime real debt for a given initial cash-flow of debt repayments.

commitment to a higher lifetime spend on housing consumption¹⁰⁵. In other words, the portfolio story is the flip side to the consumption story. To the extent that the credit-constraint story does not work on consumption, the consumption story will not work, and the portfolio story will not work either, and purely *nominal* rate reductions would have no impact on the portfolio choice of housing over other assets.

If the correlation of consumption and house prices has broken down as claimed, then the consumption data does not support this portfolio behaviour. In fact we would rather like to see consumption heavily dependent on MEW since it strengthens the case for a credit constraint story underlying house price rises in response to nominal interest rate falls, and the consequent portfolio behaviour.

3.2. Housing Wealth and Consumption: Some Other Puzzles

If consumption has been much less responsive to house price changes during the current house price boom than in the past, this creates various other puzzles. This section explores these and suggests that one resolution of these puzzles is that they are further corroborating evidence of house price misalignment and of misallocation of saving and pension investments.

3.2.1. The timing puzzle

It would seem when assessing the impact of the fall in *real* interest rates (most of which took place in the early 1990s) on overall consumption possibilities, consumers seem to have made much more heavy adjustments in non-housing consumption and saving than in

¹⁰⁵ This analysis is done on the basis that none of the fundamentals affecting housing or equity purchases have changed, so the increase in demand for housing must imply an offsetting fall in the demand for non-housing and hence a depressing affect on non-housing activity *ceteris paribus*.

housing consumption. Later, when real interest rates were relatively stable but nominal rates were falling, they made rapid adjustments in their housing asset allocation decisions, even as non-housing consumption growth stabilized.

But the housing choice and the consumption choice are a joint choice, and we would need to explain why consumers would separate them in this fashion. Since *permanently* lower *real* interest rates – through the power of discounting and higher ultimate house prices – would generate capital gains, one might expect housing demand to respond more timely with the real rate falls. Maybe, after the previous housing market crash it took time for consumers' confidence to return, so that even though real interest rates were falling in the early 1990s, housing market activity did not pick up immediately. Other possibilities have been suggested for the delayed reaction, including option thinking¹⁰⁶, with buyers holding off relatively more irreversible purchases to see just how permanent real interest rate reductions were. In addition, some of the developments in the mortgage market, that helped to reduce real mortgage rates, kicked in only *after* real base rates had declined. And income expectations may still have been low at the time too.

But an alternative possibility for why households respond more to nominal rates when buying housing than when buying non-housing consumption, is that through a form of money illusion they lose sight of the real cost of housing and the downward pressure that this will have on (mostly much later) consumption, since most of this real cost lies way off in future periods¹⁰⁷. At the same time, nominal interest rate falls are much less likely to infect non-housing consumption choices, since consumers are much more aware of the real cost of non-

housing consumption, which is based on real interest rates. In summary, they do not suffer from the same degree of 'money illusion' when it comes to expenditure on current non-housing consumption compared to future – both housing and non-housing – consumption.

This nominal effect could not have been at work in the last three UK house price booms. The current price boom – the fourth since 1970 – is the *only* one in the UK that has occurred as nominal interest rates have fallen (see Figure 1). The previous booms coincided with rapidly increasing interest rates, supposedly making credit constraints tighter (from 5 to 14 per cent in 1972-73, from 6.5 to 17 per cent in 1978-79, and from 7.5 to 15 per cent in 1988-89). And in three periods interest rates fell heavily without a house price boom (from 14 to 7 per cent in 1970, from 17 to 10 per cent in 1980-82, and from 14 to 6.5 per cent from 1990-95). Could the recent comparative lack of consumption response, yet comparatively heavy housing response, be, at least in part, symptomatic of a money illusion problem?

3.2.2. The puzzle of a house price / consumption breakdown yet a credit constraint justification for higher house prices

Any recent fall in the degree of correlation between house prices and consumption has implications for how we interpret the relationship between credit constraints and house prices. The prominent explanation given by mortgage banks and others¹⁰⁸ for a *rational* recent rapid increase in house prices in response to a purely lower nominal interest rate, is in terms of a reduction in credit constraints, somehow consequent upon lower nominal rates (for given real rates). The author has previously

¹⁰⁶ Farlow 2004a.

¹⁰⁷ Meanwhile, they see self-reinforcing price rises as their collective misjudgment causes the housing asset price to rise.

¹⁰⁸ For example, McCarthy, J. and Peach, R.W.. "Are Home Prices the Next 'Bubble'?", FRBNY Economic Policy Review, 2004, <http://www.newyorkfed.org/research/epr/forthcoming/mc-carthy.pdf>.

argued that, though this explanation has some logic, it is also slightly problematic¹⁰⁹. If the consumption data is saying that the collateral value of housing is much weaker than previously thought, then this credit constraint story is also less convincing. If credit constraints are relaxed (by whatever means), we would normally expect non-housing consumption to be sensitive to this as well as housing consumption. In the 1980s, financial liberalization had bite. The rise in house prices enabled higher consumption via the ability to use housing as collateral. Now, with the period of liberalization over, with much financial innovation having already taken place, recent house price rises have less bite on consumption, and there is less demand for housing for its collateral effect. But surely this weakens the nominal interest rate credit constraint story given for boosting house prices?

Maybe the consumption data is telling us that when house prices becomes less dependent on a credit constraint story for their support – and become momentum driven and speculative – consumption also starts to become less dependent on credit constraints and somewhat unhinged from house prices?

3.2.3. The ‘Inflation peace dividend’ and patterns of consumption

Similarly, it is sometimes argued that house prices are permanently higher on account of some radical change in underlying macrofundamentals (a sort of ‘inflation peace dividend’). The consumption growth data of the *recent* few years, to the extent it fails to pick up traces of an ‘inflation peace dividend’ in response to *nominal* interest rate declines (a wealth effect on both current as well as future consumption) may be suggesting that this wealth effect only makes sense when it comes through real fundamentals such as real interest rates. Most of the ‘inflation peace dividend’

¹⁰⁹ The details of this story, and its problematic nature, are discussed in Farlow 2004a.

therefore took place in the early period. Again it suggests that we should doubt that house prices are higher for reasons that cannot be connected to *real* fundamentals.

4. GLOBAL HOUSE PRICE CORRELATIONS AND GLOBAL LIQUIDITY

How correlated are house prices internationally? According to the IMF, the situation in the UK housing market has played out against highly synchronized positive movements in global house prices, and the global build up of mortgage debt. The IMF finds that the average cross-country correlation of house prices is 0.4, but that this masks important differences, with France, Sweden, the United Kingdom, and the United States showing the strongest correlations and Denmark, Germany, and Italy the weakest. The IMF also concludes that house prices became relatively more synchronized in the 1990s, before this relationship weakened somewhat as house prices in some industrial countries continued to grow rapidly while in other countries prices moderated¹¹⁰.

At the same time the recent Treasury study¹¹¹ of housing and the EU concludes that “where house price cycles have occurred, there is no evidence that they have been synchronized. Rather they appear to have been generated by local conditions,” that “there is little evidence to support the existence of a common house price cycle across the EU, or across the euro area countries,” and (reporting on work of Englund and Ioannides¹¹²) that “house price dynamics

¹¹⁰ The European Central Bank (2003) reports similar evidence that house price cycles were synchronized among some European Union (EU) countries. PricewaterhouseCoopers (2002) comes to the contrary conclusion on 30 years of EU data.

¹¹¹ HMT *ibid.* p44.

¹¹² Englund and Ioannides “House Price Dynamics: An International Empirical Perspective”, *Journal of Housing Economics* 6, 1997, pp.119-136.

show a high degree of similarity across countries” but that “they found little or no synchronisation between countries, and hence no firm evidence of any international cycle in house prices.”

However, when one looks at the periods and countries being covered by the various studies, a clearer overall picture develops. In the past, house price bubbles tended to be mostly local. The phenomenon of a global synchronized house price bubble is an extremely *recent* phenomenon but also something that does not affect all countries equally. There is increasing evidence, for example, that housing markets in the US, Australia, UK, China, France, Ireland, New Zealand, South Africa, have all been affected by some global factors, but the group includes relatively few EU countries. There are some important, but not completely clear, global driving forces, especially US house prices and global liquidity. The UK is more likely to be affected by developments in the US than many other EU countries.

Unusually (or maybe not) the lack of apparent correlation of house prices with output and consumption is not confined to the UK. As the IMF puts it: “The correlation between real house prices and output (and consumption) has declined since the mid-1990s, reaching unprecedented low levels by 2003”¹¹³ and “prices have continued to rise while economic activity has weakened”. This can be interpreted in two ways. Either that it is a reassuring sign – as some have indeed argued, that if house prices fall, consumption will hardly be affected. Or, that it could be evidence of a global bubble of some sort, with synchronized overreaction of both consumers and banks (indeed by the interaction of the overreaction of these two groups as explained in Part Five) in response to recent unusually low nominal interest rates, such that house price rises could, as we saw in the data, be well ahead of the ability to consume

¹¹³ IMF, *ibid*, p8.

off the back of housing wealth, and, indeed, may in part indicate symptoms of the large levels of debt being taken on to ‘chase’ price rises. That just as global house prices have become highly correlated, so might house price falls¹¹⁴. And that if sufficiently strong house price falls take place in one country or several countries generating a decline in consumption for them, then it is more likely that consumption will fall in other countries too; a sort of contagion effect. And, like other episodes of contagion, there could be a real contagion (via consumption) and a financial contagion (via, in particular, mortgage bank and government balance sheets). How do these possibilities affect our attitude to falling house prices in the UK and central bank policy on interest rates?

4.1. Global Forces

Something of this can be picked up in the recent IMF study which seeks to break down the driving forces of global house prices into four groups:

- An overall *global factor* capturing the common underlying shocks affecting all variables in all countries;
- A *global housing factor*, which captures common shocks affecting house prices in all countries, but not affecting any other variables;
- A *country-specific* factor, which captures common shocks to variables in a country;
- An *idiosyncratic* factor that captures the effect of country-specific shocks for each individual variable in each country.

One potential limitation of the approach is that the “analysis assumes that house prices are driven by fundamentals and is not designed to test for the existence of potential bubbles.”¹¹⁵

¹¹⁴ The IMF file does not spell this out the same way but argues that: “A key implication of this finding is that, just as the upswing in house prices has been a global phenomenon, it is likely that any downturn would also be highly synchronized, with corresponding implications for global economic activity.” IMF, *ibid*, p1.

¹¹⁵ IMF, *ibid*, p18.

The analysis was rightly criticized¹¹⁶ for assuming that UK interest rates would be 5.5% by mid-2005¹¹⁷ in drawing its conclusions about the movement of UK house prices. However, the far more important limitation was, on the whole, entirely missed: Since the IMF analysis relies much more on UK interest rate rises to initiate house price falls than would be the case in a model incorporating a bubble element, this rather weakens the criticism of the choice of 5.5%.

According to the IMF, the impact on house prices of the ‘global factors’ – the overall global factor and the global housing factor – varies significantly. They appear to explain 70% of house price movements in the US and the UK but only 3% in New Zealand (compare countries in the top left of Figure 20 with those in the bottom right). There is a notable split between the global factor countries and the idiosyncratic factor countries. Country specific factors are much less important in the UK than in many other countries. In fact, they are practically non-existent¹¹⁸. Overall, some 40% of average global house price movements is due to global factors, reflecting the global co-movement of interest rates, economic activity, and other macroeconomic variables, which in turn result from “common underlying shocks”.

The global and house factors have typically moved in the same direction, until recently (Figure 21). The ‘house factor’ (as in the previous house price boom) has recently taken off, even as the global factor has stabilized. The IMF draws attention to the greatly increased part played by the house factor in the case of the

US, UK, Australia and Ireland. The UK (Figure 22) had a much more active country factor in the 1980s compared to the late 1990s and 2000s.

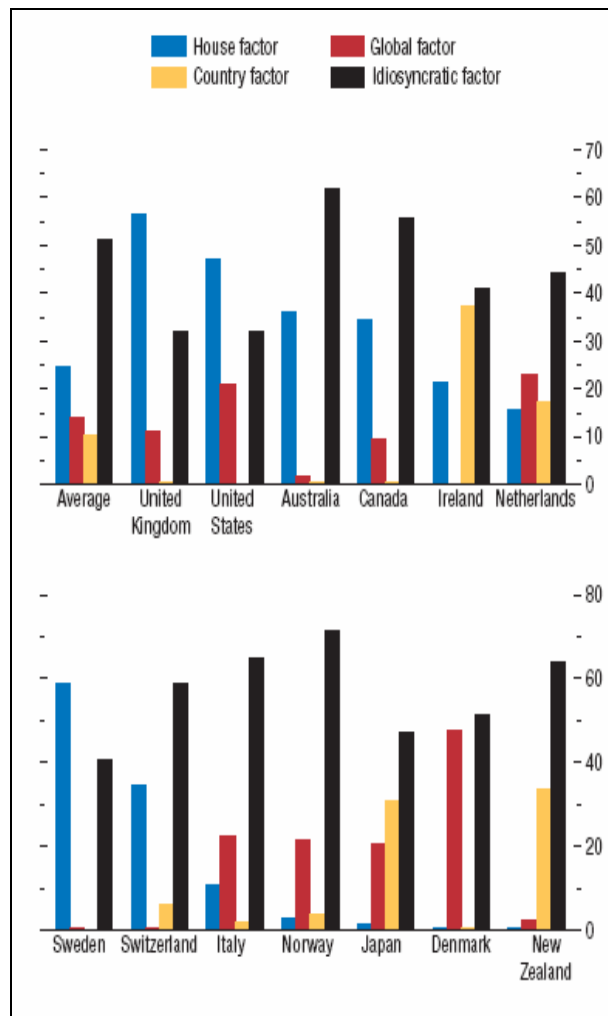


Figure 20: Variance decomposition of house prices (per cent change, constant prices)¹¹⁹

That global factors have such a large impact on the price of, essentially, a non-tradable good is because housing is part of household wealth too which also comprises internationally traded assets, so that risk-adjusted rates of return should move in a coordinated fashion.

¹¹⁶ Instantly by the chief executive of The National Association of Estate Agents, who said that the IMF had got it “badly wrong” given that the “small print” of the IMF report revealed it was based on interest rates hitting 5.5 per cent. See “Bank of England and IMF on a collision course over house prices”, Philip Thornton, *The Independent*, 24 September 2004.

¹¹⁷ Though hindsight is always a very unfair critic.

¹¹⁸ Compare to Ireland for example.

¹¹⁹ IMF Figure 2.5. Sources: Haver Analytics; IMF, International Financial Statistics; national sources; OECD; and IMF staff calculations.

The IMF concludes that US house prices lead the global housing factor and that “The co-movement observed in house prices across countries may be in large part due to the interest rate factor”¹²⁰, and that “movements in both U.S. house prices and interest rates are key sources of global house price fluctuations.” This suggests that the most likely global synchronizing force comes in the form of mortgage links via the banking system with a key rôle to US interest rates and the US housing market, and that just as the upswing was a highly synchronized global phenomenon, so will any downswing, with a key rôle for US interest rates and the US housing market. In the remainder of this section we will look at the very low recent global interest rates that seem to have been important in triggering this global phenomenon. In Section 5 below we will take a closer look at the US, with some emphasis on mortgage bank conditions there. Most of the mortgage bank parts of the phenomenon will, however, have to await Part Five.

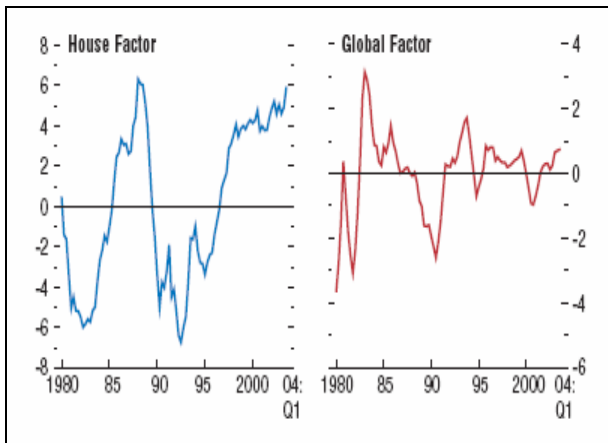


Figure 21: House Factor and Global Factor for world (per cent changes, constant prices, demeaned)¹²¹

¹²⁰ IMF, *ibid.* p17.

¹²¹ Extracted from IMF *ibid.* Figure 2.6. Sources: Haver Analytics; IMF, International Financial Statistics; national sources; OECD; and IMF staff calculations.

4.2. A Global Liquidity Story: Did Global Interest Rates go Too Low?

The late 1990s and early 2000s have seen extraordinary levels of global liquidity growth, instigated principally by waves of sharp interest rate cuts by the US Federal Reserve, following a string of financial crises and collapsing bubbles, the most recent being in the US itself.

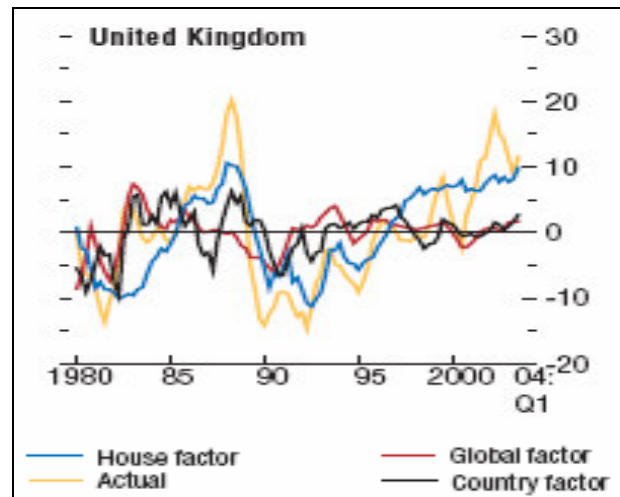


Figure 22: Factors for the UK (per cent changes, constant prices, demeaned)¹²²

In recent years the growth in the sum of America’s cash and banks’ reserves held at the Fed, and in the foreign reserve holdings of central banks around the world, has been running at nearly 25% per year¹²³. This is quite remarkable. Excess liquidity in the past flowed into traditional measures of inflation based on goods and service prices. One possibility is that in an economic environment running at a very low level of traditionally-measured inflation, this extreme liquidity shows up in asset price inflation – in this instance house prices – and

¹²² Extracted from IMF *ibid.* Figure 2.6. Sources: Haver Analytics; IMF, International Financial Statistics; national sources; OECD; and IMF staff calculations.

¹²³ Woodall, P. “The Dragon and the Eagle”, *Survey of the World Economy*, The Economist, October 2, 2004, http://www.economist.com/displaystory.cfm?story_id=3219358. This survey contains interesting original insights on the role of China in the global economy and its interaction with the US economy.

record high levels of global debt, especially mortgage debt. Given the parlous state of other asset classes in the early 2000's (but especially US equity), the impact on housing may have been even more extreme. Since house prices reflect the cost of future housing services, their rapidly increasing levels represent a shift of inflation away from current goods and services to future goods and services¹²⁴.

Was the global cost of capital, in some sense, set excessively low for too long triggering such asset price bubbles? The concept of the 'natural rate of interest' – the rate at which the supply of savings of households exactly balances the demand for funds by firms for investment purposes – suggests that it has. The intuition is relatively simple. If, in the longer term, we expect strong growth built on high investment, then we should expect returns and interest rates to be high enough to stimulate that investment. An economy can generate relatively strong growth with low interest rates for a while, but these low rates could not persist for ever.

Ignoring global features for a moment, the 'natural rate' at which domestic interest rates should find themselves in 'steady state' should roughly equal the rate of inflation plus the real trend rate of growth. If the interest rate is set below this, the economy becomes overcapitalised. Welfare would be higher if the

¹²⁴ Indeed, there is a vibrant discussion of whether or not to target inflation measures that include the price of future consumption as expressed through asset prices – i.e. whether to target asset prices as well as current inflation. The chief problem with such approaches is that the inflation index that is then targeted (current prices and, via the asset price, future prices) comes to be predominantly composed of future prices, so that current interest rate policy might come to have very little connection to current prices, and, indeed, often be set 'wrongly' vis a vis current prices so as to impact future prices via asset prices. See "Asset Prices and Central Bank Policy", Geneva reports on the World Economy, 2, 2001, Cecchetti, S.G., Gerberg, H., Lipsky, J., and Wadhvani, J. for a clear and interesting discussion of these issues.

capital stock were lower, with this driving up the steady state return on capital and hence the interest rate¹²⁵. The reasoning goes into reverse if interest rates are set at a rate higher than the 'natural rate'. For an economy such as the UK, this generates a 'natural rate' of interest in the region of 5%, composed of about 2% inflation target and 2%-3% real trend growth. In a global setting, with capital movements increasingly mobile, the global 'natural rate' is an average (which is potentially complicated to work out) of the national rates; capital 'should' flow to equalize the rate (allowing for risks including exchange rate risks).

Arguably, the global return to capital may even have risen in the last decade or so, pushing the demand curve for savings out. Countries like China, with a large and cheap labour force to soak up, have expanded and greatly increased trade, and driven up their demand for real capital¹²⁶. The increasing integration of such countries into the global economy can do nothing but increase the global return on capital. And much of the 'IT revolution', by further increasing expected future profits, also drives the demands placed on savings.

Of course, the natural rate moves around according to factors like technological improvement, changes in preferences, the impact of demographics on the need for savings, etc. Some of these shifts are influenced by bubbles, which makes it difficult to read at times what the correct level should be for the 'natural rate'. But, just as interest rates have hit record lows, the 'natural rate' has probably, on balance, risen, with one set of factors pushing out the demand curve for saving, and the other pulling in the supply curve.

How 'excessively' low have US interest rates been? Probably by as much as 3% to 5%, very

¹²⁵ We simplify by ignoring risk.

¹²⁶ See Woodall, *ibid*, for more on the impact of China on the 'natural rate' of interest.

roughly judged by taking the difference between interest rates and the growth in nominal GDP, with the latter treated as a rough proxy for overall average rate of return to investment. This difference hit negative levels not seen since the 1970s. If the cost of capital in the US is set persistently too low, the level of borrowing and investment will be excessive, saving too low, and the chances of bubbles greater, first in the US then, via financial linkages, in other countries.

The US and China sections below suggest forces that may have temporarily helped to push rates to levels that are below the long-run sustainable rate. In particular, the *very same* forces (China, IT, global integration and trade, success of anti-inflation policy to the extent that it boosts growth prospects) that have been driving the required rate of interest in an upwards direction, may have caused central banks to lower interest rates, since many of these forces are also anti-inflationary (in the goods and services sense rather than the asset price sense). Worse, on seeing bubbles developing in asset prices (especially property) many households may have concluded that they do not need to save as much as they had once thought they would need to fund retirement.

The setting of too low a US interest rate predates the current episode. At the very end of the 1990s (partly in reaction to the many financial crises of the mid to late 1990s) the deviation between the low rates and the higher expected return on capital led to a high rate of credit, a collapse in saving, and a massive stock market bubble (especially in the US). Following *that* collapse, rates were cut aggressively so that, though the natural rate fell, market rates fell even further below the natural rate, fuelling a recent 'search for yield'. This has shown up in a preponderance to investment in high risk assets, especially emerging market bonds and emerging market investments in general, but also in speculative investment in mortgage

markets and housing, possibly on a global scale, often in the belief, or exploiting the belief (of buyers), that it is a low risk asset¹²⁷.

The argument made, and the approach taken, by Alan Greenspan, chairman of the Federal Reserve, was that it could not have been known in 1999/2000 that the stock market was in a bubble, and that the best policy was to wait and see and be prepared to intervene if it turned out to be a bubble and subsequently burst. The problem with this approach is that it forgets that the very act of intervening to cushion a bubble¹²⁸ can stimulate that bubble in the first place and sometimes (but not always) also create further bubbles that spill out of the wreckage of the first collapsing bubble. There is a temporary gain, but complicated later losses and risks¹²⁹. Meanwhile, failure to act early leads to the creation of imbalances that become even harder to unwind¹³⁰.

The greatest current concern *should be* that equity-based bubbles may be relatively less damaging than debt-based bubbles, such that the short-term mitigation of the consequences of the first sort of bubble is only at the expense of the consequences of the unwinding of more painful types of bubbles later. In a sense, one bubble, via central bank response to it, creates a ripple effect out into other bubbles. What is the cost benefit-analysis of the past recent post-bubble

¹²⁷ Which in the bubble phase it, in many ways, temporarily is.

¹²⁸ This should not be taken to just to refer to interest rate policy.

¹²⁹ Besides, that a bubble could not have been strongly suspected at the time was simply wrong (Farlow, A.W.K., Goldman Sachs, March 2000).

¹³⁰ 1929 is a case in point where acting earlier to deflate a bubble would have been the best policy, and is also a good example of a bubble that had its genesis in very lax interest rate policy. This does not weaken the fact that it was post-bubble policy (especially monetary policy, driven by the desire to protect the Gold Standard, and the miserable failure to tackle contagion throughout the banking system) that was the main driver of the awful consequences of the 1930s.

years? The benefit has been in the shape of very low volatility following the US stock market collapse, and a much milder recession than has historically been the case after such collapses. But the cost has been the potential for instability at a much longer horizon and the greater risk of a larger recession later. The political incentive – and the natural appeal to the current generation of passing the consequences of a bubble on to the next generation – is clear, and is one of the ultimate driving forces. None of this is to suggest that only interest rates should be used to tackle problems with bubbles. Indeed, that might be quite the wrong conclusion to take from all this.

There is an interesting parallel (though of something almost the converse) to the recent episode to be found in the experience of the late 1970s/1980s. The commitment of Volcker to bring inflation under control, and accept greater volatility of short-term interest rates and real economic costs, created the environment that was eventually more conducive to fighting inflation elsewhere. This applied more obviously to those countries with an explicit exchange rate link to the dollar, but also to all those countries that did not, to the extent that they could not be indifferent to US dollar appreciation and the level of (market) real interest rates they were fed as influenced by US policy. Thought of another way, and as a parallel to the global situation today viewed as a game, it was difficult *then not* to ‘go with the flow’ of Fed policy, as is also the case today.

5. US INTEREST RATES AND MORTGAGE FINANCE

5.1. US House Price Factor

That there is a strong ‘US house price factor’, challenges us to think through exactly what the impetus to such a factor could be and how it might work. For example, is it possible that strong US real estate price growth has

strengthened the balance sheets of US, and hence global, financial players and given them the ability to ‘take on more risk’ in relatively more bubble-prone housing markets in other economies? Does it allow the spread – via the collateral value of US housing – of some of the effects of the implicit guarantee made to the US mortgage industry by the Fed? Does this give US banks a competitive advantage, leveraging this effect elsewhere? Have extremely low interest rates led to the creation of excess liquidity ‘chasing yields’, seeking an investment home, and in the process leading to the mispricing of risk? Is this particularly likely to show up in mortgage markets? This will be explored in much more detail in Part Five of this series. Part Four, on housing risk premia, backs this up by arguing that UK housing market risk is currently underpriced by owners, and probably not even being priced at all.

In just four years the US housing stock has risen in *paper* value by \$5trillion. This compares ‘favourably’ to the \$7trillion rise in ‘paper’ value of the US stock market in just four years in the late 1990s¹³¹. And it almost precisely matches the \$5trillion of lost stock market wealth of the early 2000s (that has been partly made up recently). What are the consequences of this in combination with record low Fed rates?

5.2. Low US Savings, and the Problems of Rebalancing

After the stock market collapse, the Fed slashed rates in 2001 from 6.5% all the way down to 1.75%, and then even lower, to 1% by 2003. The consequences of this record low rate have included record levels of US household borrowing. The private debt burden has mushroomed to \$9.7 trillion, equivalent to nearly 85% of GDP. US household saving is at a record low of 0.5% of disposable income

¹³¹ Woodall, *ibid*.

(approaching 0% indeed), compared to a long-term average of 8% (12% in the early 1980s)¹³². And real US house prices are at record levels. Since the saving rate was already at 2% at the end of the 1990s stock market boom, one might have expected that the collapse of *that* market in the early 2000s would have seen the savings rate bounce back. That it has not is testament to the surge in housing wealth, the extreme liquidity of Fed policy, and, perhaps, indicative that the ‘day of reckoning’ has simply been put off.

Households, if the bubble story is to be believed, have effectively been saving out of ‘apparent’ wealth built on the back of rises in house prices, rather than out of disposable income, and taking on higher levels of debt and consuming heavily instead. Over the last five years America’s national spending has exceeded its income by about a fifth. According to the OECD, consumption growth in the US for the past three years has been 3%, as against 1% in the euro area¹³³. Debt-service, as a per cent of income, is close to a record high – even *before* the needed upwards revision of interest rates alluded to below. Half of recent US mortgages are variable rate and especially vulnerable¹³⁴. The danger is that such levels of debt have created a sort of ratchet effect: an ability to wind debt levels up when interest rates fall, but much greater difficulty trying to wind debt levels down and interest rates up without causing a great deal of pain. Supposedly, neither is their

¹³² Observe how the 8% *average* figure, may itself be biased downwards by the recent bubble.

¹³³ OECD *ibid*.

¹³⁴ It is often pointed out that US mortgage rates tend to be long-term fixed. But the cost of such a fix (an extra interest rate of about 2%) set against historically low rates has seemed a large premium to pay and many recent buyers have chosen to take out variable rate loans (it may also be that as rates were dramatically falling it seemed too risky to take out fixed rate contracts). This does not really make a great deal of economic sense to buyers in the current stage of the interest rate cycle, but does make good sense to lenders. Maybe such things are good leading indicators of where rates (and house prices) are going in the medium term?

any inflation to help ease the pain of real adjustment.

The US government has joined US households. The US is now the world’s biggest debtor, with an annual current account deficit of nearly 6% of GDP (\$660bn/£370bn) and government borrowing of \$500bn per annum. US government debts have soared to \$7.4 trillion. A pre-Bush fiscal surplus of 2.4% of GDP has become a deficit of 5%, helped by deep tax cuts and increases in military spending (effectively, the largest fiscal stimulus in US history). The US debt ratio is about 60% (compared to the UK at about 40%, Europe 60%, and Japan 160%)¹³⁵. Huge inflows, largely from Asia, buying up US Treasuries, have allowed the US private and government sectors to run these large deficits, helped to keep interest rates low, and supported stock prices. Indeed, the externally held proportion of debt has risen in a decade from 20% to about 45%.

All of this would not matter so much if the resources were being used to fund growth-enhancing investment. If a country has strongly favourable investment opportunities – that will ultimately make its inhabitants much better off – the economically rational thing to do would be to allow its residents to consume some of the fruits of that future investment *now* by borrowing from the rest of the world¹³⁶, and repaying from the higher output later. Under such conditions, allowing a strong currency and high trade and current account deficits that generate a net capital flow equal to the current

¹³⁵ Though these also need to be treated with caution on account of huge off-balance-sheet liabilities, especially of pensions and health care for an ageing baby-boom generation.

¹³⁶ The decision as to how much to consume is the product of a standard income effect (consume more in all periods consequent on investment returns) and substitution effect (consume less so as to reap even more in future periods). Allowing access to world capital markets at very low interest rates makes it mostly income effect.

account deficit, is a good idea. It is also a normal part of demand management to run deficits during recessions.

However, if one decomposes the current US data, one finds that debt is largely being used to finance public and private consumption, rather than investment. Under Bush, non-military discretionary public spending has risen by over 20%, while investment as a proportion of GDP has fallen by 3%. There does not seem to be a consistent explanation yet as to how these deficits will be brought under control. The general presumption is that growth will be strong enough, and the adjustment of households away from current consumption towards savings for future consumption will be slow enough that the deficits will eventually improve. But given the low investment data, the grave suspicion must be that the US is simply 'living beyond its means', rather than consuming early from an inheritance that it is actively creating¹³⁷. A consumption-bubble can only be sustained if the economy can keep sucking finance in to cover it.

There are, indeed, inherent limits to how high deficits can go (this is not to suggest that we are close to those limits yet). Eventually, higher interest rates, consequent on high deficits, crowd out private investment. Currently, this is effectively being masked in part because of the high demand for US debt from Asia, but also because of the way the extremely liquid Fed policy has been helped by, possibly temporary, global disinflationary pressures. At some point the level of debt is such that the very fear of default (interpreted very broadly to include allowing inflation) will send rates rising, as holders need to be compensated for the default rate by a higher return. There is even a self-reinforcing aspect to this; since higher rates are needed to sell more debt, this will increase the overall burden of the debt (with the burden also

¹³⁷ Keeping with the previous footnote, it is more like a substitution effect going in the wrong direction!

rising over time as older cheaper debt is replaced by newer more expensive debt), this increases yet further the chances of default, generating yet more need for higher interest rates, and the cycle continues. Pressures towards the creation of such a cycle have been heavily suppressed by the external situation, as explained further below, and, it is quite likely, a false sense of security has been created.

Surveys reveal that, quite remarkably, US households still expect double-digit average annual returns from housing and shares over the *long term*. In 2002 a study found that they expected the value of their homes to rise at 12-16% *per year for the next decade*¹³⁸. Not only is this a shocking¹³⁹ discovery, but it suggests that spending and saving patterns are being distorted by highly unrealistic investment expectations (even totally illogical expectations: 16% per year growth is a five-fold increase in only 11 years¹⁴⁰), and that US households seem unprepared for any correction in these imbalances nor financial shocks concomitant on such imbalances, nor rises in interest rates.

At some point, however, imbalances will have to be addressed. Should house prices fall (this isn't even necessary; it simply strengthens the effect) and consumer spending suffer, the exchange rate would be expected to fall particularly against the Euro and Asian currencies, generating exports. Observe how this would help to correct the balance of payments deficits, but it would require a fall in

¹³⁸ Shiller, R., Case, K., and Quigley, J., studied home-buyers in Los Angeles, Boston, San Francisco and Milwaukee.

¹³⁹ I wrote this before seeing that John Calverley ("Bubbles and How to Survive Them", Nicholas Brealey Publishing, 2004) had used the same word to describe *his* reaction. I left it in, rather than diving for Roget's Thesaurus, since it is perhaps significant that we both had the same reaction.

¹⁴⁰ Remember that a buyer should presume that they will be able to sell on to others in spite of much lower rises in real earnings in the intervening period.

domestic consumption and an increase in savings. This would include reduced spending on housing consumption too. Compared to the UK, there is a much stronger link between house prices and consumption in the US via the construction industry. Since US new house builds run at 1.8 to 2 million per year, the US house price boom has contributed heavily to recent growth. Residential investment makes up about 5% of US GDP, so a fall in house-building is capable of knocking 1%-2% off GDP.

Even if reversion to the long-term savings rate of 8% (an even higher level if this figure has been biased downwards by the recent bubble episode) was relatively sedate, taking perhaps 5-10 years, with little negative impact on asset prices, this would still knock 1% off the growth of US consumer spending per year for a decade. If real asset prices – especially housing – responded unfavourably, knocking US consumer confidence too, savings might rise even more strongly in a much shorter period of time. Of course, the longer the needed adjustment is delayed, the much more likely it is that US consumers will react strongly, perhaps too strongly, when it happens.

One way out of this cycle and one way to reduce the value of real debt (in fact it is a form of default) is to allow inflation to take hold for a while. However, the very fear of this, will send rates higher. After a point, inflation may yet become the most tempting way to rid the US of its heavy debt burden (though, as a later section describes, it may be that inflation cannot be generated since the economy has slipped into deflation first). Bringing the level of debt down is very hard in a period of deflation.

5.3. 'Deeper' Mortgage Markets?

It has been argued that low and stable inflation has helped to create 'deeper' financial markets, especially mortgage markets, and that this has

helped to ease borrowing constraints, to encourage housing demand, and to increase house prices, both in the US, and, via capital market linkages, further afield too. On the whole, it is not clear how to interpret the evidence for this. Much of the benefit of 'deeper' markets is picked up in lower real mortgage interest rates in empirical models, and will have boosted house prices. We know that this factor has been positive but not strong enough to explain much of the recent house price rise we have seen in the UK.

Depth can indicate underlying stability or hidden (mispriced) risk. It is widely believed that the Fed is embarking on an upward trajectory in interest rates to more 'normal' levels. At the same time as short-term rates head back towards 4% or so, long-term rates are likely to head in the direction of 5-6%¹⁴¹. It is unclear what the response of 'deeper' US mortgage markets might be to this. During the period of falling rates, many households deliberately chose to refinance to lock in better future rates¹⁴². As rates rise, refinance deals naturally fall (as rates rise, the chance of improving on the current deal declines). Increasingly, only those forced to refinance, will do so. Indeed, mortgage refinancing has fallen by 80% in the past year.

¹⁴¹ We do not see this at the moment, however. Stephen King has written about this in a series of interesting articles in *The Independent*, recently concluding that if the US administration is not prepared to deliver fiscal tightening, the financial markets themselves might force it: "The dollar might weaken further. The bond market might initially see a bout of selling. But the real casualties would be risky US assets - equities and property, for example. And as domestic investors ran for cover, long-term interest rates would come down once again...I suspect, for many investors, yields are low because they know that the economic end-game for the US is going to be a lot more difficult than current conditions suggest." ("When monetary tools start to lose their edge," *The Independent*, January 24, 2005),

¹⁴² Though there is also some evidence, based on option pricing thinking, that households tend to remortgage 'too early' on the way down.

The duration of outstanding mortgages and mortgage-backed securities therefore lengthens at the same time as they become, on average, much less profitable for lenders and the balance sheet of the US mortgage industry weakens. The US mortgage bank system has been working on extremely thin capitalization margins anyway – driven by heavy competition and, possibly, by short-term disregard for risk (it can be very difficult for banks to ‘deviate from the crowd’ and take all risks fully into consideration, hence making themselves less competitive and risking loss of market share¹⁴³). Given this thinness and the deterioration in balance sheets, this requires continuous hedging by mortgage banks and holders of mortgage-backed securities. However, this collective behaviour reinforces the initial rise in yields – which feeds back to problems on this and other balance sheets. We saw something of the impact of this in mid-2003 in US government bond markets when the need for just such hedging caused bond prices to jump.

So far, markets have been deep enough to absorb such continuous hedging. It is not clear that in *all* situations they would be deep enough to do so, and lenders (and borrowers) would come under pressure. The precipitating crisis would not need to be the housing market itself. A rise in bond yields, consequent upon problems elsewhere in the balance sheet – and there are plenty of other imbalances on the US balance sheet – could weaken the re-mortgage market.

In testing this depth, market volatility would increase, mortgage bank profit margins fall, and interest rates rise further. If, as is probably the

¹⁴³ Which is a polite way of saying that investors in banks don’t always have sufficiently long horizons, or that they themselves (bank equity holders and otherwise) face the need to ‘go with a bubble’ (say, in the bank’s share price). This suggests that ‘bank bubbles’ may be a natural phenomenon of the pressures generated by bubbles in *other* markets. This is discussed in Part Five.

case, there is some (though it is argued, not large) bubble element in US real estate (especially in coastal cities and large metropolitan areas), real values would fall or stutter, and generate more feedback effects a fall off in loans and even further declines in remortgaging.

A further question is how this would affect other countries. And this is where we return to the ‘global’ factors listed above, that are large in the case of housing markets like those of the UK, and that are certain to contain a great deal of influence of US rates and mortgage bank activity. Potentials for contagion to other markets of problems in US mortgage banking (and indeed from other markets back to US banks with heavy links to the UK mortgage market) needs to be explored further. Given the fact that the US is probably in less of a housing bubble and therefore possibly more immune to housing price instability than the UK, it suggests that US policy designed to tackle US housing market problems may be less geared to the rebalancing in countries, like the UK, that are more prone to housing bubbles. In a sense there may be a lack of policy coordination over tackling house price adjustments. Arguably, this is already showing up in UK mortgage markets and house prices, with US interest rates set very low (even too low) in order to tackle problems in the US, where the housing market is less prone to momentum, creating the externality of an excess of mortgage bank liquidity in the UK and elsewhere.

So ‘depth’ worked well in the good times of rising house prices, long periods of (possibly bubble-generated) low volatility, and falling interest rates. That it will work so well if house prices are falling and/or interest rates are rising, is not so clear. The bottom line is that markets *are* deeper, but that their exact depths have not yet been fully explored.

One problem ‘deeper’ markets may struggle to deal with is when financial markets start to fear

that inflation is the only viable route to erase all the red ink on public and private balance sheets. The ‘need for inflation’ will be in proportion to the level of money illusion that lead to excessive debt in the first place. Paradoxically, this may be a function of the very low recent nominal rates. To defend against such a fear, interest rates would have to rise, increasing yet further the burden on debt holders and the strain on the ‘deeper’ markets, but this would serve only to reinforce the incentive to inflate, and require yet higher interest rates. If ‘deeper’ markets struggle with this, they exacerbate the problem.

5.4. US Lender of Last Resort

Underlying US mortgage activity and US real estate prices is the notion that public institutions implicitly underwrite the mortgage sector (in the US, Freddie Mac and Fannie Mae¹⁴⁴). There has also been a strong movement away from mortgage banks holding their issued mortgages on their balance sheets but offloading them (and the risks) through the secondary market, largely onto the shoulders of Freddie Mac and Fannie Mae. In 2004 these two together made up 70% of the share of the US mortgage market, more that double what they held at the start of the 1990s. In a sense there is an element of this going on in other mortgage markets with the increasing use of securitisation.

In the US, the power to tax underwrites this ability to ‘insure’ the market. How does this ‘insurance’ alter the strength of a US-based ‘interest rate factor’ and how do we interpret the potential impact on countries (such as the UK) whose mortgage sectors do not contain similar

¹⁴⁴ Although it is explicitly stated that the United States does not provide a ‘full faith and credit’ backing, the financial markets and rating agencies have interpreted it as implicitly doing so, and have priced the securities of Freddie Mac and Fannie Mae accordingly. Ginnie Mae, a wholly-owned government corporation within the U.S. Department of Housing and Urban Development (HUD), is explicitly backed fully by the ‘full faith and credit’ of the U.S. government.

insurances (or rather, in some senses, they do but much less explicitly)? Could it generate a greater disposition to more bubble-type behaviour in such ‘periphery’ countries (whatever the level of bubble in the US)? Given the reaction of mortgage banks to the insurance, might needed changes in the US interest rate be delayed compared to what would have been the case in a much less heavily insured US system, even if this delay may be less than optimal in the ‘periphery’ (by for example, generating ‘bubbles’ there)? Would the impact at the periphery be greater than on the US (for any given delay)?

In a worst-case scenario, it may not be possible to meet the implicit liability contained in the promise to bail out the US mortgage industry. The ‘too big to fail’ argument only works if the government is able to take further liabilities onto *its* balance sheet, but this balance sheet is looking ever more stretched¹⁴⁵. The knowledge that this may not be the case – and increasingly it *is* not the case – would itself help feed an incipient crisis, not least by raising the spreads on mortgage bonds and forcing higher borrowing costs on new mortgage holders (and current variable holders, of which we have seen that there are increasing numbers). The issue is not just the nature of possible crisis, but how markets expect that such crises will be dealt with. This affects market behaviour even in non-crisis states of the world.

Even discussing this can be a sensitive issue. The director of the Office of Federal Housing Enterprise Oversight (the last word of which

¹⁴⁵ It does not help that Fannie Mae, with a near-trillion dollar mortgage portfolio (with similar holdings of the company’s bonds in the hands of global investors) may have persistently exaggerated earnings and capital to boost executive bonuses, as revealed in a recent scathing report by the Office of Federal Housing Enterprise Oversight – one consequence of which might be criminal proceedings. A revision downwards of earnings and capital will only increase the market’s beliefs of the fragility of Fannie Mae.

might suggest that worrying about these things is part of the job remit) was forced to quit within 24 hours of publishing a report in 2003 analyzing the implications of default of Freddie Mac or Fannie Mae. Some things are just too politically unpalatable¹⁴⁶.

6. THE US / ASIA / CHINA SYNDROME

6.1. Monetary Policy

Another important feature of the current global economic environment that may eventually feed instability into global housing markets, is the way the US and China and Asia have been locked in a mutually self-reinforcing economic embrace. China's economy has had a double-pronged impact on the US. On the one hand, by supplying the US with cheap goods, China has helped to hold down US inflation, and hence interest rates. The Fed Reserve calculates that imports from China have lowered US inflation by about 0.1%-0.3% per year while Dresdner Kleinwort Wasserstien reckon that once the effect of Chinese competition on other producers is taken fully into consideration it is even higher, maybe nearer 1%¹⁴⁷.

On the other hand, attempts to hold its exchange rate pegged to the dollar has seen China vastly expanding its holdings of US Treasury bonds, suppressing bonds yields (the actions of China and other Asian economies have knocked between 0.5% and 1% of US bond yields¹⁴⁸) and, amongst other things, US mortgage rates. One might think of this as a form of subsidy, artificially lowering the cost of capital (and mortgages) just at the time when the return to

capital and the global natural interest rate has actually risen.

In this sense it is just another part of the story above about reactions to previous instabilities, and excessively low interest rates, creating further imbalances. Global foreign exchange reserves have doubled since the Asian crisis of 1998, to \$3,800bn, with two-thirds of this in dollars. Asia accounts for 80 per cent of this growth and now has 70 per cent of global reserves. Indeed, reserves account for 9 per cent of global gross domestic product, compared to less than 2 per cent during the pre-1971 Bretton Woods fixed exchange-rate regime. China, Japan, and other Asian states now make up a dollar-dependent zone covering countries that generate more than half of the world's GDP. China and Asia have been financing at least half the US current account and budget deficits. This largely explains why the US has been able to run ever larger government and trade deficits without concomitant rises in yields, and without a much greater fall in the dollar (so far).

The US current account deficit is indicating that the US is saving too little and that the US is running too large a budget deficit. The actions of China and Asia (and others too) is obscuring this market signal. Rather than disciplining government fiscal policy and private excess, as bond markets have traditionally done, bond markets are rewarding fiscal indiscipline and US private over-consumption. Part of this has shown up in mortgage markets and house prices. While the US has benefited in the short term, it has allowed even further unbalancing of the US economy. At some point, correcting this imbalance will necessitate a prolonged period of dollar weakness and possibly much higher interest rates.

At the same time, China's boom (annual GDP growth of 9% per year at the moment) is partly the product of extremely lax US monetary policy. One side effect has been to attract to

¹⁴⁶ The words 'bury', 'head' and 'sand' do rather come to mind. One of the side-effects of a bubble seems to be an excessive optimism and an unwillingness, to the point of castigation, to even countenance any possible dangers.

¹⁴⁷ Woodall, *ibid*.

¹⁴⁸ Woodall, *ibid*.

China large inflows of private capital chasing yield. China has been more able to run negative real interest rates than the US, since it makes more heavy use of administrative controls than interest rates to control investment and lending flows. This has heavily distorted market signals and generated moral hazard and bubbles in investment, including its very own property market bubbles. This is not to suggest that in the long-run China will not benefit enormously from much 'good' investment that is taking place. Large capital inflows have created domestic inflation, though as Joseph Stiglitz has remarked¹⁴⁹ this may be a perfectly reasonable price to pay for rapid rates of economic growth and should not be rued in the same way it might be in the US. And it is difficult for China to raise interest rates to fight inflation without attracting yet more capital!

6.2. The Cost to China of the Policy, and Some Thoughts on Scenarios for Correction

It might seem odd that the US has effectively imported cheap Chinese capital into its Treasury bonds, even as China and other emerging economies have imported relatively much more expensive private capital from the US. Such low-yielding 'safe' assets as US Treasury bonds have high opportunity cost given alternative investments available in these countries. The IMF calculates this 'quasi-fiscal deficit' at about 1% of emerging market GDP and rising (probably now closer to 2% since the original IMF calculation was made). This depresses per capita growth and welfare in these emerging economies.

Increased risk-aversion, of both central bankers and governments, following the various crises of the 1990s has driven them to hold reserves way beyond anything required to support short-term debt. Those previous crises (some

connected to bubbles) have in turn fed low US interest rates that may now be driving another sort of bubble. Indicative of this, most of the increase in reserve holdings is in countries that previously experienced 'sudden stops' (Korea, Taiwan, and Mexico stand out). In Non-Japan Asia, a small number of economies (mainly Taiwan, China and Korea) now account for 40% of world reserves. In many ways, those buying US Treasury bonds, driven by motives such as export led growth, are doing so without correctly assessing the risks and returns.

A 'bubble' in foreign reserve holdings adds to the risk of sudden currency adjustment:

1) A good analogy is the exit (devaluation) of the pound from the ERM – but in reverse. Attempts to hold the value of the UK pound artificially high led to high interest rates, in an attempt to stem reserve flows. But high interest rates imposed a social cost, in terms of job losses and the destruction of otherwise viable investment and businesses. This entered the government's loss function (there was no independent Bank of England at the time) as it 'played' against currency speculators. At some point, speculators came to realise that, however much the government might confidently commit to defend by raising interest rates yet further, the social costs at some future moment would outweigh the benefits in the government's loss function. Backwards induction on this future moment brought the crisis forward to the first moment in time at which it was believed that it had become an inevitability.

Analogously, in high-reserve countries in Asia, the loss function contains 'quasi-fiscal deficits', the costs of dislocation and misallocation of resources, and inflation. The longer a government tries to hold a currency artificially low, the greater the capital inflows and reserve accumulation, and the greater the discounted value of the sum of current and future 'quasi fiscal deficits' and costs of misallocation. At

¹⁴⁹ Overheard in private conversation in Oxford.

some moment speculators will come to realise that these costs will, at some future moment come to outweigh the benefits to the government. The backwards induction argument bites, even more capital floods in (taking the one way bet that the currency will be revalued), and revaluation is forced.

2) The bubble in reserves feeds cheap capital to the US, but it also risks capital loss of countries investing in those reserves. Another trigger for sudden revaluation might be from the way reserves are effectively being valued artificially highly on emerging market central bank balance sheets; if there were a sudden downward correction in US bond prices (if a bubble bursts on that market, or if markets came to realise that the US has no choice but to inflate its debts away, or if interest rates rise because of mortgage bank, or similar, problems described above) or there was a large depreciation of the US dollar, then the value of capital reserves would fall, generating 'quasi-capital losses'. A 10% decline in the dollar/Asia exchange rate costs Asia about 2% of GDP. Depending on how significant sterilisation is, this could also impart credit constraints to the Chinese economy, aggravating the situation (not helped by the chronic condition of the Chinese banking system).

3) Somewhat contrary to the last point (in the sense that if there is a revaluation this problem will be partly allayed), many central banks have sterilised their accumulation of foreign exchange reserves so as not to impact domestic money supply. But this gets increasingly difficult, and the risk is that a rise in the money supply is simply being delayed to a point when it is less timely and more inflationary. This may be one of the explanations for why China's inflation is currently so low in spite of 9% growth per year. But there are real limits to this.

4) The counterpart to external reserve accumulation is internal imbalance in favour of

the tradeable sector to the detriment of the non-tradeable sector, as exchange rates are held much lower than would otherwise have been the case. This happened in Japan throughout the 1980s; the consequence was a stock market and real estate bubble, which eventually collapsed, and led to overstretched balance sheets – the genesis of today's Japanese deflation. Furthermore, if eventual adjustment to a more stable world balance sheet is too rapid or disorganised, the risk is that these countries will be too dependent on tradeables, and unable to switch smoothly and rapidly enough to domestically-generated demand (and, observe that this would be taking place at the same time as the US would be reorientating *itself* away for consumption towards export). This is a particular problem for China where high growth is sustained by rapid inflows of capital and investment in tradeables and speculative activities like real estate.

On balance, the chief reason to allow the yuan to revalue is domestic – that by being so low, it has forced lax US monetary policy into the Chinese economy, with large inflows of capital, large growth in foreign exchange reserves, growth in the money supply and growth of lending, some of it feeding over-investment and bubbles. Revaluation will also encourage investment in the non-trade sector and reduce reliance on exports. Key to revaluation though is reform of the banking system, as a very high priority, otherwise liberalization risks destabilization and bank crises. This will determine how messy any ultimate revaluation will be and its impact on the US and further afield.

China (and similarly placed emerging economies) has been a good deal for the US. Not only have US consumers benefited from low goods prices and consequent low inflation and low interest rates, but the deal has been even better once one realizes that China is supplying the US 'on the cheap' with a ready

market for its bonds and therefore an ability for the US to run huge public and private deficits. It is a paradox that some in the US blame China for ‘outsourcing’ and for the ‘jobless recovery’, even as US consumers have benefited so heavily, and that the growth of the US and others *would have suffered* from slower growth in China¹⁵⁰. The problem is that the benefits in the US have been widely dispersed while the suffering from job losses has been concentrated, especially in declining rust belt regions and in some politically sensitive (i.e. swing) and high media-profile states.

Indeed, excessively low interest rates probably even go some way towards explaining the US jobless recovery. Such low rates effectively subsidise capital (the more labour-saving the greater the subsidy is), and if one gives the forces of comparative advantage time to operate¹⁵¹, it is, paradoxically, probably the Fed that has done more to drive the disappointing employment response, and not China’s rapid expansion and job creation.

6.3. Conclusions on China/US and its Impact on Global Liquidity

Why labour at such great lengths about the US and China in an article about UK house prices? Because if there is any notion of a global house price bubble, global disturbances become an issue, and the current preeminently most likely cause of a global disturbance unfavourable to the UK housing and mortgage markets is likely to be the rebalancing of the US economy and the US/China/Asia imbalance. And such thinking should also influence decisions about what to do if UK house prices start to fall. If

¹⁵⁰ Though, currently, a slowdown would help to keep pressure down on the prices of oil and a host of other commodities.

¹⁵¹ Obviously a change in interest rates takes time to favour the ‘right’ sort of investment, and its impact on jobs in the short-run may be distorted by previous investment decisions.

rebalancing of the UK housing market is anyway looking inevitable, risk aversion might suggest allowing the rebalancing to proceed sooner rather than later – leaving the housing market (and economy) in a much better position to withstand any global disturbances consequent on rebalancing elsewhere.

Whether China can engineer a soft landing (say a drop from 10% growth to 7%) is a mute point. Current attempts to cool the economy seem to be working. A hard landing might happen (especially if the banking system is not properly tackled) just at the time US monetary policy is becoming tighter. Even if China experiences a temporary downturn however, the long-term prospects for China are reasonably good.

It is much more difficult to generate a similarly happy ending for the US. A messy unraveling of the US/China mutually reinforcing equilibrium would be intensely damaging to the US. The ‘meltdown’ scenario is when the dollar loses its status as a global reserve currency, effectively destroying the incentive to hold dollar denominated instruments, generating an even bigger needed rise in interest rates (observe the self-reinforcing nature of all this) and/or collapse in asset prices. The dependence of the US on low interest rates and asset-backed credit, suggests, to say the least, difficulties for mortgage markets in particular.

Quite literally, there are two equilibria facing the US. The system is currently in one of them. The presence of such heavily indebted households and US Treasury, increases the chance of slipping into the other (self-reinforcing) equilibrium, and will feed the bringing on of this and exacerbate it once it happens. None of this may ever happen. But, as always, the risk of even a small chance of a very damaging scenario should matter, as should the behaviour of policy makers when they engage in actions that increase the risks of falling into the latter equilibrium.

In these circumstances, that one of the key driving forces of the world economy is US consumers (i.e. US non-savers) and a profligate and increasingly adventurous US administration should be some cause for concern.

7. LESSONS FOR THE UK

7.1. *Global Factors and UK House Price Responses*

It is sometimes argued that real UK house prices have rationally risen heavily in response to ‘sound’ UK macroeconomic management and stability and that this explains high ratios of real house prices to income. However, Figure 22 seems to suggest that UK house price rises may have had little to do with this; The ‘country factor’ for the UK has recently been non-existent. That global house prices have become highly correlated, and that many countries have experienced similar phenomena of rapidly rising house prices suggests that it has little to do with something specifically and exclusively British. That the UK housing market may have ‘gone with the flow’ of global – especially liquidity – factors, largely outside of the UK’s remit, leads to several conclusions:

- 1) Any argument for higher UK house prices based on ‘stability’ has to be more of a global-stability argument. Conversely, global instability might matter more for UK house prices than is perhaps currently accepted. This may suggest looking for triggers for price correction outside of traditional notions of triggers, such as domestic interest rates¹⁵²;
- 2) Any nominal-interest-rate credit-constraint story has to be a global story, yet the story fails

¹⁵² Though the author has several times argued that triggers are not necessarily needed to get bubbles to unwind.

to have complete bite at the international level as well as at the national level;

3) If the ‘global factors’ component driving house prices should change, it will, on average, hit the ‘global factors’ countries more than the ‘idiosyncratic factor’ countries. The UK is a prime ‘global factors’ country;

4) It might be that if the Bank of England had tried to use interest rates much more aggressively to curtail house price rises, it would have required larger rises to fight the tide of ‘global’ factors than would have been the case if UK house prices were less globally, and more domestically, determined. This might simply have harmed non-housing business; an even higher pound would have hit British manufacturing badly. The Bank has faced an unenviable choice between trying to turn the tide of house prices and not sacrificing growth and risking under-hitting its inflation target;

5) Interest rates anyway may have little power to influence house prices in a price collapse if prices have a speculative element. Using an interest rate adjustment to generate a direct, cash-flow, affect to offset the indirect, wealth, effect caused by an unwinding bubble may simply not work very well, if at all, in such circumstances;

6) To handle a global surge or collapse in house prices might need more of a coordinated response than it is ever likely to get. It may be relatively more difficult for individual countries to ‘deviate from the pack’ in setting interest rate policy with an eye to the housing market. Soft landings may be hard to engineer if all other countries are experiencing hard landings;

7) Similarly, the ability of the Bank of England to fight the impact of globally deteriorating global factors on UK house prices may be more limited than its ability to fight deteriorating domestic factors. The fate of the UK housing

market may currently be one of the less domestically controllable aspects of UK macroeconomics. The future movements of the UK housing market are frequently described by policy makers as ‘uncertain’ and prices frequently grow ‘beyond expectations’. Perhaps this is in part an allusion to the importance of global factors? It also suggests that emphasis on controlling the housing market has to include reforms and not just rely on interest rates, a line that the Bank of England has often taken;

8) Related to the last point, when setting other areas of economic policy, taking a gamble on the housing market may be riskier than taking a gamble on something that is more domestically controllable. For example, there are dangers in running a fiscal policy that risks a sudden tax increase in the face of a declining housing market. The impact of tax rises may be more damaging if pressure for these tax rises, consequent on the fallout of UK house prices and slowing growth, happen to coincide with rising US interest rates and/or deteriorating conditions in global mortgage markets. Some analysts have argued that in order to avoid breaking the UK’s ‘Golden Rule’ it might take a rise in income taxes of about 3%. This would be even more uncomfortable for the UK economy if it were coincidental with a fall in house price, a swing in savings and pensions sufficient to cause a further deterioration in tax receipts by 3% to 5%, and coincident with tighter global credit conditions generally;

9) Many UK banks are subsidiaries of US banks and many others rely for liquidity on flows determined by financial conditions in the US. The impact of ‘excessive’ liquidity seems to depend on structural issues relating to the financial industry and the global sources of liquidity flows. Over recent years, for example, Euro interest rates have been even lower than the UK, yet only Ireland and Spain have experienced above-trend consumption growth. This suggests that the link with consumption is

weaker in many euro countries compared with the UK. What difference drives this? Clearly the story is not only about low interest rates but also about financial structure;

10) If, for any given set of bubble-generating conditions, the US is less prone to housing market bubbles (for example the US housing supply response is much greater than in the UK) then the greater the chance, perhaps, that price collapses are more severe outside of the US since the policy response at the center (the US) to a price collapse at the periphery, may be too out of step with what is required at the periphery. Indeed, part of the problem may be that the US has exported a large chunk of the negative consequences of its 1990s bubble via these global financial and housing linkages;

11) There is always the risk that current stability may be more ‘apparent’ than real. Often a side-effect of price bubbles is to create seemingly benign economic conditions. This generates a false sense of security;

12) US home owners, unlike UK homeowners, are much more likely to have fixed-rate loans (notwithstanding the higher number of recent relatively more flexible deals) which means that they tend to be much more protected from rate rises than UK citizens. But this comes at a cost, since that risk is re-circulated back onto markets and, indirectly, through Fannie May and Freddie Mac, back on to households via implicit government guarantees (built on the ability to tax households). It also means that an increase in the fear of inflation feeds through to bond markets and new mortgage business (also observe that if rates are rising, mortgage deals will have to rise to cover this);

13) The UK is increasingly vulnerable to such global shocks, the higher the debt to income ratio is (it is currently at a record high) and the higher are loan-to-value ratios. One possibility is that lenders perceive that default is a

relatively low probability event. Recent record levels of bankruptcies even in an environment of high employment and low interest rates is worrying.

7.2. The Challenge of Soft Landings

The strong suggestion throughout many of the sections above (and in Part Five on mortgage banks) is that eventual upwards adjustment in global interest rates is a high probability, especially in the US. If bubbles (property and debt-based) have been ignited by excessively low interest rates, this makes setting interest rates – to say the least – challenging.

A tough balancing act for interest rates

Policy makers face a precarious balancing act. On the one hand, if rates are raised too slowly, any momentum-driven bubbles will expand even further, financial imbalances intensify even more (particularly if they are built on the value of the bubble), with inflationary pressures built up for the longer term, with adjustment simply delayed till a point when the fragility is even greater¹⁵³, and, when the dangers of triggering a switch to deflation are higher. On the other hand, if, during a ‘recovery’, interest rates are raised to what would once have been their ‘correct’ equilibrium position, the problem is that if these bubble-related fragilities are exposed, they may undermine the recovery. So, if rates are raised too quickly (which may be unavoidable if inflation rises fast) the fragilities may unwind too fast.

¹⁵³ We may have seen hints of this last year’s Fed’s cuts, that were probably an overreaction to an exaggerated threat of deflation. Incidentally, not all ‘deflation’ is bad. Households benefit from the fall in prices in the goods and services they buy (in the UK it is largely goods and not services, but there are plenty of services where prices are falling, for example the internet, call centers, etc.). If wages are constant, productivity improvements feed through to price falls that feed through to real increases in per capital income. But deflation is bad if it accompanies heavy real debt, is generalized, and is not driven by productivity improvement.

In this sense, such bubbles create the curious situation where a policy mistake on one side can lead to high inflation, but on the other side to recession and even deflation. And this may be much worse for housing than for equity bubbles (housing bubbles are more likely to be debt backed, general in the population, and have larger consumption responses attached). For the future fortune of those holding debt this creates a rather strange balancing act too. A mistake in one direction, and the burden of debt is inflated away. A mistake in the other direction, and the burden of debt is made even greater¹⁵⁴. In the context of housing, the combinations of falling house prices and deflation (or less positive inflation) is bad news just as are inflationary pressures if they lead to higher (real) interest rates to suppress actual inflation.

Bubbles confuse inflation signals

To complicate matters, recent asset price bubbles could themselves have helped to dampen inflationary pressures. Equity market bubbles, for example, artificially boost profits as measured in standard accountancy measures, and allow firms to adopt more aggressive pricing strategies. There is yet more positive feedback via further capital accumulation and favourable supply-side developments, especially productivity gains both in the US¹⁵⁵ and in emerging economies, and the spreading of technology and ‘catch up’ (as witness China at the moment), with consequent lower inflationary pressure. Equity price bubbles also allow firms to make much lower contributions to their pension schemes (and employees are more willing to accept lower contributions), at the same time as employees tolerate less

¹⁵⁴ This must also feed through to the incentive to hold debt and to ‘go’ with a bubble, and might somehow also be another case of the balance between ‘greed and fear’ often ascribed to equity markets.

¹⁵⁵ For the US experience see Oliner, S.D., and Sichel, D.E., Federal Reserve Board, Finance and Economics Discussion Series, “Information Technology and Productivity: Where Are We Now and Where Are We Going?” 2002.

inflationary wage claims given their perceived rapid gains on stock market based investments (this was especially evident in the US in the late 1990s). Significantly, the government also benefits from bubble-inflated asset prices since inflated prices tend to inflate the tax yield (as witness the profitable years for central government finances generated by the stock market at the end of the 1990s and from housing taxes of various sorts during the 2000s¹⁵⁶), allow them to run lower tax rates than they otherwise could have been able to, even as their fiscal positions are strengthened. When the bubbles unwind however, all these things go into reverse¹⁵⁷ –at just the wrong time too.

When interest rates have too much to do

The path of interest rates will not be exogenous to the housing market. Were house prices to fall, with negative consequences for consumption and confidence, it is hard not to visualize at least a desire to use interest rate adjustments to try to offset some of this. The fly in the ointment might be if the interest rate ends up being asked to do too many things and is unable to fall as far as the housing market might require. For example, if the pound were to weaken too quickly (we see this problem already developing somewhat), or oil prices to rise too strongly – feeding UK inflationary pressures –, or the US were to suffer a fiscal crisis and sudden swing in sentiment¹⁵⁸ forcing *it* to raise real interest rates

¹⁵⁶ One caveat is that house price bubbles add to inflationary pressures according to how they feed through in to the consumer price index.

¹⁵⁷ For example, should consumption fall, one likely response would be a cut back in investment spending. Since such spending is a key component of the low inflation story (enabling workers to maintain generous real wage increases without threatening inflation, since productivity has also risen, propping up both consumer earning and business profits and helping monetary authorities to run lower interest rates than they otherwise would be able to), complicated extra inflationary pressures may enter.

¹⁵⁸ More on the possibilities in “Is the US heading for a fiscal crisis”, at:

much higher in defense, or UK government finances were to deteriorate quickly as lower confidence and economic activity reduced the tax yield. There are several scenarios where interest rates are stranded higher than a soft landing in the UK housing market might otherwise demand. It is not so much that any of these scenarios will come to fruition, but that they are at least a risk and should be reflected in the required housing market risk premia (the evidence is that they are not by typical homeowners).

Rising spreads keep interest rates off the floor

It is not even guaranteed that interest rates *could* cushion an ‘inevitable’ correction. The behaviour of markets and central banks will factor in that at very low rates of interest (such as the US at the moment) there is precious little ability to lower interest rates in particularly heavy landings, and less orthodox measures will be needed¹⁵⁹. And mortgage rates may not go even this low. In the UK and Europe, since mortgage rates are set relative to short-term rates, mortgage rates could go as low as 1.5% to 2%, but it would also depend on what happens to spreads; if default rates rose significantly, then such low rates would not be so likely. In the US, the rate is set relative to long-term bond yields, such that, theoretically they could go as low as 2.5% to 3%, but rates might be constrained to not go as low as the UK and Europe if inflationary pressures build up long term yields (very likely). In addition, since new loans are more likely to be at fixed rates, if there are expectations of rising rates and risks, then the floor may not be so reachable. Yet again

<http://www.economics.ox.ac.uk/members/andrew.farlow/USCrisis.pdf>.

¹⁵⁹ Not to mention the moral hazard problems. Also observe that if standard measures of inflation tend to, as some claim, exaggerate inflation (the argument is that quality improvement is poorly captured in the figures), then even 1% inflation might put the system close to, or even in, deflation territory.

there is the issue of spreads keeping mortgage rates away from any base rate floor.

No negative real interest rates this time

When house prices fell by 40% in real terms between 1973 and 1977, this was accomplished without the nominal rate of return in housing becoming negative (though it fell from plus 140% per year return for leveraged first-time buyers and plus 100% per year return for averagely geared owners, to approximately zero nominal leveraged return); this was on account of the negative real interest rates of the period¹⁶⁰. It is totally off the cards that the Bank of England, with its inflation mandate, would allow the run-away inflation needed to create the negative real interest rates that would generate a similar situation today. Even moderate house price falls will have to translate into large negative nominal leveraged returns, something that has never happened in the UK and has not yet been tested (Japan in the early 1990s might be a test case of what happens when many nominal prices fall).

Nominal house price falls this time

If we entertain the notion that UK real house price falls might for the first time translate into significant nominal house price falls, it is not obvious that a repeat of the real house price behaviour of the early 1990s (with real house price falls of 10%-15% per year) would not be accompanied by negative rates of consumption growth. Even if the correlation of house prices and consumption is weaker than in the past, it is less clear to what degree this would hold if there was a *major* price correction, especially if it impacted heavily on income expectations, or coincided with revisions to income expectations driven by a further factor. The diagrams and the

¹⁶⁰ And it is sometimes forgotten that following the house price collapse of the late 1980s and early 1990s it took till 1998 for average UK house price to climb back to their 1989 level of £70,000, by which time in real terms this was still showing a loss of nearly £20,000 (inflation had eroded real value by 28%). It was not until June 2002 that real prices were back to their 1989 levels

empirical work are not capable of showing expectations. Much hinges on the speed of correction, which itself depends on the degree of any overvaluation, the causes of overvaluation, and the likely dynamics of correction. Neither is it clear that if house prices are experiencing a ‘bubble’ and have become somewhat disconnected from consumption, that price falls, reinforcing and being reinforced by a collapse in confidence, would not have a larger impact on consumption than price rises have had.

The system has not be ‘stress-tested’ yet

Furthermore, arguably (and this is where some may, with perfect reasonableness, disagree) inflation conditions have been relatively benign for the UK over the late 1990s and early 2000s. Global inflationary pressures have been low: the globalization of product prices; stable and relatively low oil prices until recently; the rapid industrialisation of China and India in particular and the growth of their exports generating yet more intense price competition; the legacy of policy changes in the 1980s especially labour market reforms; the expansion of US deficits at the same time as historically low US interest rates; and relatively low US protectionist pressure¹⁶¹, etc. Most of the decline in UK inflation happened in the early 1990s, before Bank of England independence. Inflation fell in many countries that did not switch to independent central banks, just as inflation fell in countries that already had independent central banks. This is not to suggest that independence was not a good thing in the sense of locking this in, but it is to suggest that the fall came largely for reasons outside of the influence of independence itself.

It is quite possible therefore that the Bank of England (and Treasury) has not been sorely tested yet. Even though the story about housing markets reacting favourably to the “successes of the new framework” is a bit overplayed,

¹⁶¹ The suggestion is that there is a non-trivial risk that this could be reversed.

nevertheless the chances are quite high that consumers have an exaggerated notion of the Bank of England's ability and (if the analysis of the connection between house prices and consumption is correct) even desire to cushion house price falls. Concomitantly, participants in housing markets may have been lulled into a false sense of the true risks present. Added to this is the danger that politicians with their hands on the fiscal levers may have come to over-rely on those with their hands on the monetary levers to respond in 'appropriate fashion' regardless of how ill-advised and lose the politicians have been with the fiscal levers.

Rebalancing sooner rather than later

There is even a respectable argument that the Bank should not to try too hard to rescue the housing market if the degree of correction is inevitable. Better to get the pain over and done with and rebalance the economy sooner rather than later (especially if the evidence is seeming to indicate that consumption, income, and employment will not take such a strong hit as in previous price collapses, and that transactions volumes matter too), and avoid a long dragged-out period of depressed confidence, slower transactions and lower MEW (with the argument for this strengthened if cash-flow problems and the rate of mortgage bank default either stay low or are relatively little emendable to interest rate adjustment anyway). The trade-off is certain pain, of indeterminate size, now versus larger, even more indeterminate, pain later. Besides, historical evidence indicates that once correction of an overvalued market is underway, any attempts to cushion it are not likely to be particularly effective even as they impose great costs elsewhere, and sow the seeds of moral hazard.

Thinking of rapid house price rises as a transfer from young to old and as having similar consequences to a sustained budget deficit – a force for depressing the current real capital stock in exchange for current consumption –

allowing house prices to revert to fundamentals, while it harms consumption, at least conceivably puts the economy back on a footing that emphasizes real economic activity over speculative housing activity and ends the distortions that lead to long-term pension missallocation¹⁶². Besides, there is moral hazard in 'bailing out' (via interest rate adjustments and other means) debt-holders (and lenders) from the consequences of their actions (Buy-To-Let bubbles, etc.).

The NIESR¹⁶³ recently sought to calculate the impact of a 10% fall in house prices, and found it to be much smaller in 2003 than in 1989, since housing wealth is a relatively less important proportion of total wealth than it was in the late 1980s after the transfer of council houses. The fall in consumption is found to be 16% less in the three years after the price fall than it would have been in 1989. Taking *all* routes into account, the impact of a fall on output in the first three years after a house price shock are 40% lower after a 2003 shock than after a 1989 shock. Importantly, part of the reason is that the impact falls abroad. In particular, in both periods the lower demand consequent on the fall in house prices impacts net trade, but since net trade is a much larger component of economic activity now, a greater proportion of the impact is absorbed abroad. But this also has to be balanced by the fact that the UK housing sector is also more open to shocks from elsewhere.

¹⁶² Get-rich-quick house price games and makeover programs are televisually more appealing than hard, risky, grind making a business work, so suggesting to TV program makers that they might try developing concepts involving ordinary members of the public setting up, and risking money on, innovative new businesses (or even just genuinely interesting activities making a positive contribution to the sum of human happiness), will no doubt fall on deaf ears.

¹⁶³ Barrell, R, Choy, A., and Riley, R., "Consumption and housing Wealth in the UK", National Institute Economic Review, October 2003, No. 186, pp 53-56.

Under all scenarios, the Bank of England was assumed in the NIESR study to reduce interest rates in response to the shock, and this helps to absorb some of the fall in consumption. How this opportunity might work if there is a global house price bubble is much less clear, and is another reason for taking *that* eventuality more seriously.

This suggests that if a non-domestic shock is sooner or later bound to impact on the UK housing market, then it might be better for the UK housing market to have adjusted domestically as much as possible before the shock, to minimize the impact, and to maximize the chances of a smooth adjustment. Should house prices start to fall domestically, for little apparent international reason, this even strengthens the logic of letting it happen without too much resistance, if it means that the sector is more robust later to international global corrections.

None of this suggests that rebalancing and house price falls do not have potentially painful consequences, just that such consequences should be faced up to sooner rather than later.

Some guesses on interest rates

A personal guess (for what it is worth) is that – given a number of incipient inflationary pressures – there may be a little more room upwards for base rates by late 2005 (max of 5.00%-5.25%). By this time (or indeed before) if the housing market has started to fall, there will be pressure for rates to start falling. Where rates go will depend on whether other parts of the macroeconomic situation also favour lower rates. And given that a major house price correction, driven by the internal momentum of a bubble unwinding, is hardly going to be affected by interest rate adjustments, there may be little point in sacrificing other objectives to make major interest rate adjustments purely on account of defending house prices (and many good reasons have been given above for lower

house prices). Interest rate adjustments might ease cash-flow problems and enable consumption, but it was indicated above that such adjustments might need to be very strong (and are likely not to be strong enough) to counteract the wealth effect of house prices falling on any appreciable scale. The cost of keeping inflation under control is largely dependent on credibility – that is that households believe that inflation will be kept under control in the next period. Abandoning the inflation remit for uncertain short-term gain may have long-term costs.

7.3. Not a Good Time to Run Large Public Sector Deficits

Much of the recent surge in UK growth has been built on public spending and the growth of the public sector (recently over 5% per year in real terms). How does this affect the impact of house price falls, and, indeed, impact *on* such falls?

We suggested above that if house prices start to fall then interest rates could be cut and fiscal policy eased to offset the wealth effects of house price falls. But this could be heavily constrained by already large government deficits that would only become much larger due to the collapse in tax receipts from many possible directions (the fall in housing transactions, the rise in use of pension tax-breaks, the fall in consumption spending, etc.) and by the fact that the UK is already near to breaching its ‘Golden Rule’. Government borrowing is about 4% of GDP for 2004-2005, and 2005-2006, though even this is starting to look conservative.

A different kind of cash-flow problem this time

Previously, housing market corrections, in particular the last one, were associated with large private-sector cash-flow problems. If the consumption and house price arguments above stand up, and if a house price correction

generates falls in confidence, consumption, income, and tax receipts, then this time around the impact may show up more than usually as a public sector cash-flow problem.

But burdens for the public sector are ultimately private sector burdens. It is simply an issue of timing. If house price falls are slow enough, this cash-flow problem can be offloaded onto the private sector at a more timely pace. If price falls are more rapid (and confidence takes a greater hit) then the cash-flow difficulty (or even just expectations of it) may be fed much more quickly to the private sector – especially in the form of higher taxes – reinforcing the private sectors cash-flow problem and putting downward pressure on house prices. The economy finds itself on an even higher tax trajectory at quite the least opportune time for it.

Pressure to abandon the ‘Golden Rule’

An alternative would be to abandon the so-called ‘Golden Rule’ (that debt is not used to fund current spending, such as health service pay). This would allow the deficit to go higher without having to raise taxes in the short term. This might seem preferable (or be statistically ‘fixed’ anyway at some point), but it risks destroying the very long-term fiscal credibility it was designed to create. Furthermore, according to the OECD, the UK’s budget deficit already risks ‘breaching’ the ceiling laid down in the EU’s Stability and Growth Pact; it is not clear that those keen on a pro-Euro stance would tolerate an implicit breaching of the Stability and Growth Pact by abandoning the Golden Rule.

Gradual adjustments without surprises

The greatest problem in the late 1980s was probably that interest rates rose too much too quickly, rather than that interest rates rose *per se*. One of the arguments made for the Bank of England (and we see it also in recent arguments made about how the Fed should be gradually easing rates higher) acting ‘sooner rather than

later’ is so as to get households used to the idea of higher rates, and to start to make adjustments, that can then be followed by gradual manageable rises in interest rates. All kinds of required global and UK domestic rebalancings are hinted at above. The IMF comments that “there is evidence that most house price busts of the past were triggered by a rapid tightening in monetary policy, as reducing inflation become an important policy objective”¹⁶⁴ and suggests a “compromise” of an “early but gradual” tightening in monetary policy, as appears to be happening in the UK, “maximizing the opportunity for households to adjust to higher interest rates”.

A similar logic applies to taxes (and even, on another level, to ‘pensions’). Better to reveal the impact and allow a gradual adjustment to the notion of higher taxes (and pensions), than to put off the moment of revelation, and have to force a sudden larger reaction later for which households are not prepared. This seems to be what is going on in the UK at the moment. A further problem is that, if it is caused by house price falls, the sudden tax rise and the accompanying financial market pressures that build up until tax rises are forced onto the agenda, will be just at the time of a required monetary loosening to protect consumer confidence. Attempts to weaken interest rates might be hindered by attempts to avoid tax rises.

Eventually, tax rises might prove necessary to provide more room for interest rate falls (though one can see the conflicts). Those in debt will then discover that the distributional impact of a tax rise is to put equal burden on all at a given income level – that is, tax rises cannot be targeted away from the more indebted –, whereas interest rate falls impact more on those who are most indebted (and negatively, of course, on those with most saving) though even interest rates cannot differentiate between those

¹⁶⁴ IMF World Economic Outlook April 2003.

relatively more or less solvent¹⁶⁵. Attempts to avoid loss of consumer confidence by the one instrument are thwarted by the other.

Bank of England /Treasury stresses

Theoretically, at least, price stability could be achieved by either interest rate adjustments or active fiscal management through frequent tax rate changes. Policy in the late 1990s settled on the former since it is much easier to set up an institution for the setting of interest rates that is independent of elected government, and hence easier for achieving credibility of monetary policy. But it creates the danger that governments rely on – and even over-exploit – the policy credibility created by the Bank of England, so as to over-stimulate the economy, but generating much later destabilizing inflation expectations and volatile GDP. All the openness about interest rates – and at least the chance for households to think the scenarios through and factor higher interest rates in – contrasts sharply with the complete lack of openness about (and the political nature of) the timing and level of future tax rises.

The fact that central government is engaged in a very rapid expansion of spending and public borrowing even as the state of the housing market is looking increasingly fragile, may turn out to be the defining macroeconomic mistake of the period. At the very least it is a gamble on there being no major correction in the housing market and on the sustainability of government finances. Low-probability large-pain events matter, though it is not usually in the incentive structure of politicians to frame policy around such events – not, at least, until they look a lot more like large-probability, even-more-painful problems (or after they have materialised).

¹⁶⁵ Similarly, interest rate increases are more likely to impact the decisions of those thinking of increasing their indebtedness, the more so the more indebted already. Observe the relatively non-selective impact of falls in interest rates and the self-selection of those who respond to rising interest rates.

Maybe it is also a symptom of too much attention to domestic triggers for house price falls – in spite of the evidence that something much more global might be going on. Not finding enough obvious domestic triggers, and dispelling the notion of a price bubble anyway, it may have led to a certain degree of overconfidence on the fiscal side. It is also likely to create conflict with, and strenuous efforts to defend the reputation of, those charged with stabilizing the economy – the Bank of England – if the gamble does not pay off.

Minimizing the fallout from mistakes

The current framework for controlling inflation relies on the estimation of the output gap. The notion is that, given medium-term inflation expectations, if output is higher than long-run supply conditions suggest can be justified, inflation will rise on average, while if output is below long-run supply conditions, inflation will fall on average. However, it is impossible to measure the output gap in real time (the time when decisions have to be made, and not ‘hindsight time’) with any degree of precision¹⁶⁶. This suggests that mistakes can be made.

It is something often overlooked that having a system more or less robust to the deleterious consequences of mistakes makes for sounder policy than simply ignoring potential mistakes.

¹⁶⁶ Mitchell (2003) finds that the confidence intervals for the output gap are large relative to the gap itself and are poor predictors of future uncertainty. Orphanides and van Noorden (2002) show that revisions to the output gap over time are similar to the output gap itself. Incidentally, these are counter-criticisms to those who claim that setting policy with respect to the possibility of bubbles is misguided since bubbles are hard to detect and their size and duration difficult to judge. Similar criticisms apply to the output gap, a key component of the current system. Mitchell, J. (2003), “Should we be surprised by the unreliability of output gap estimates? Density estimates for the Euro Zone,” National Institute Discussion No. 225. Orphanides, A. and van Noorden, S. (2002) “The unreliability of output-gap estimates in real time,” *The Review of Economics and Statistics*, 84, 569-83.

If much of the analysis above is correct, finding one's economy delicately balanced between two very different outcomes is not such a wise situation to find oneself in. Concomitantly, one useful judge between policy approaches is to ask how robust they are to potential mistakes. Best to have an approach less glowing on average but less prone to damage when mistakes are made, than to have an approach that produces glowing results regularly, but runs the risk of serious upset if a mistake is made.

8. CONCLUSIONS

We come down to three possible stories to explain the apparent global synchronization and rapid growth of house prices. The first is of a global credit constraint reduction consequent on low nominal interest rates. The second is of a global stability story, with inflation lower and house prices somehow having broken out of their long-run historical patterns of volatility. The final possibility is some sort of bubble element, consequent on low nominal interest rates and global financial linkages. There are elements of the first two, but the majority of the explanation falls on the third. The stability story is weakened by the way that a bubble in house prices creates the very measures of stability used to justify the new higher level of prices.

To the extent that the third is true, it suggests some rebalancing at some point, and that expected consumption and GDP response will matter. Much of the analysis of the consumption response is based on efficiently operating bubble-free markets. Once we allow bubble mispricing, consumption responses are generally not well captured.

To the extent that consumption is not connected to house prices, this might suggest a relative soft landing. But we have argued that this is not totally convincing. First, consumption *is* more responsive than sometimes suggested. Although there does appear to be a much lower

consumption response to MEW than in the late 1980s, on closer inspection the data on MEW is slightly less encouraging. And many of the important consumption responses are likely to emanate from re-evaluation by households of their consistently very high level of consumption, as a per cent of GDP, of recent years. Second, expectations are hugely important, especially the likely reaction of savings and pension decisions to price falls, and consumption to the wealth affect of house price falls. There are also large uncertainties about *other* asset prices too. House price and stock markets have not tended to collapse together in the past (in the US and UK). Given the potentially greater synchronisation of global housing markets, are the risks higher of a stock market knock-on effect? Third, interest rates may not be all that powerful at shielding households from house price falls (just as they do not seem to have been all that powerful at stopping price rises¹⁶⁷) if those falls are largely reversals of price rises driven by speculative forces.

The paradox for home owners is that if housing and consumption are relatively uncorrelated, the less confident they should be that central banks will try to resist house price falls; yet the greater the correlation, the greater the dangers to them and to others of self-reinforcing price falls anyway.

A strong thread running through this paper (and the others in this series) is that being better educated about the possibilities is not a bad idea for households. If the first and second explanations for rises in global house prices are valid, there is little harm in such a debate. If the third explanation is closer to the truth, informed debate reduces the forces tending to generate

¹⁶⁷ Even if house price rises have slowed as base rates have recently risen, it is difficult to interpret whether this is because interest rates rose or because the natural dynamics of a bubble have peaked. They both generate the same observationally equivalent data.

bubbles in the first place, and creates social value for those investors likely to lose out the most. A healthy debate about bubbles should be encouraged, and the world of economic commentators should not be caricatured as either ‘optimists’ or ‘doomsters’, ‘experts’ or ‘pundits’.

It would probably be entirely the wrong thing to remove all bubble and froth from the global economy. Some mispricing can actually be useful, though it depends on the nature of what is being mispriced. One of the legacies of the late 1990s was that, amongst much excess capital and over-hyped detritus, some genuinely beneficial investment took place that probably would not have taken place but for the mispricing. And growth and consumer welfare benefited from this. If providers of new technology face asymmetric information problems and credit constraints, some unlocking of constraints by the inefficiency of a bubble may not be entirely a bad thing.

The same cannot be said for a house price bubble, which mostly just redistributes wealth, even as it encourages households to consume at the expense of investing in real wealth-creating activity, while they make misdirected and inadequate pensions contributions. The only way to create genuine wealth is to pour savings into real income-generating assets. It is probably pretty safe to say that house price bubbles have less ‘useful’ aspects than equity bubbles. This author has always argued that being less obsessive about the housing market and more obsessive about genuine wealth creating and social welfare enhancing activities would not be such a bad thing.

Yet, politicians like bubbles too. They love the feel-good factor bubbles generate (while they last) and the badge of approval seemingly bestowed on macroeconomic policy (even if quite the reverse is going on), and they even become bubble participants themselves,

magnanimously encouraging those who have lost out to bubbles – and those who will ultimately lose out to bubbles – to seek to emulate those who have ‘won’ from bubbles before.

The Economist magazine has gone as far as to describe the current state of affairs as possibly the “first ever global house price” bubble, possibly affecting two-thirds of the world economy¹⁶⁸, but especially Australia, Ireland, Spain, and the United Kingdom. For the United Kingdom, “a drop in house prices cannot be ruled out” even a “more pronounced drop in prices”, and that there is a danger that higher interest rates could trigger a much larger downward adjustment in house prices “with considerably more severe consequences for real activity.” There seems to be much evidence for the first set of assertions, but the appropriate response – including that of interest rates – is a lot more complicated than it at first appears.

Previous macroeconomic stop-go cycles took place, essentially, via goods and labour markets (and exchange rates), the markets where, essentially, inflationary pressures showed up. Since asset prices reflect future prices of goods, services, and labour, there is a danger that in the cracking of that stop-go problem, it may have metamorphosised into stop-go via asset markets – a, sort of, Goodhart’s Law for inflation, defined broadly enough to include asset prices¹⁶⁹.

This analysis raises wider concerns, such as whether investors might be misallocating pension resources in housing, and house prices may have sent out wrong signals that have encouraged investors to invest too little in pension provision and savings. To the extent

¹⁶⁸ The Economist 2nd October 2004, p9.

¹⁶⁹ ‘That any observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes,’ in “Monetary Theory and Practice,” Goodhart. C.A.E., 1984, p96.

this is so, any house price correction would be reinforced by a reassessment of this past investment misallocation, and an increase in savings and pension provisions that would only make the housing market performance worse.

One of the consequences of stock market and housing market falls is that at some point investors lose appetite for those sorts of assets. We saw this in the 1930s. For example, when the Dow Jones finally bottomed at 10% of its 1929 high, investors were simply not interested. In the case of housing, this would be aggravated by the fact that many investors would still be working off the high levels of debt that they took on in order to 'win' properties in the first place, depleting yet further those even able to take part in buying activity. Japan in the early 1990s provides a telling case of this.

We also discussed at some length the future possibilities for interest rates, and the possibilities of hard and soft landings. Several things stand out: that interest rate adjustments could not be made only in response to the housing market, and may be constrained by other targets; that the power of interest rates to influence housing prices may be over-exaggerated anyway if speculation has been going on; and that real house price falls would more likely have to translate into large nominal price falls, something the UK economy has never experienced before.

There is some sense in seeking to understand the causes and consequences of house price bubbles before, rather than after, they have unwound. Any major global house price correction is likely to focus attention on a range of issues, including: the tightening of lending requirements; the strengthening of financial surveillance; the causes and consequences of household debt; the creation of a richer set of mortgage contracts; and the extent and desirability of implicit, and even explicit, guarantees of mortgage debt. Many of these

require a great deal of coordination across diverse economies, something usually achieved more easily in stable times, and – in less stable times – something much easier to handle if some thought has gone into them ahead of time. The problem is that such difficult thinking does not appeal, especially to politicians, in the good times of house price bubbles.