Transaction Mechanisms, Deregulation, and the Housing Market : Some reflections

Alan Griffiths

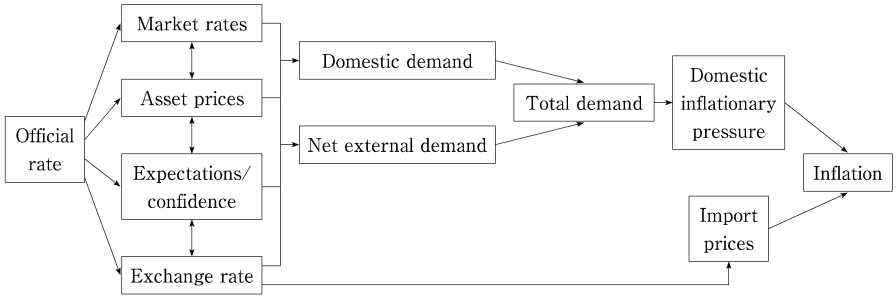
Introduction

By the 1990s many countries prided themselves for having understood how to control inflation in the goods market. Unfortunately, the phenomenon of inflation had not gone away, since its roots had merely shifted to asset prices. This was evidenced by periods of sustained swings in the price of stocks, shares, real estate and land over the last twenty years or so. It is ironic that as economies became more adept at understanding the factors which affected the prices of real goods, an equivalent understanding of financial products and the complex changes occurring in financial markets, was much less complete. This was to have serious consequences for economies especially when periods of assets price inflation were followed by severe asset deflation as price earnings ratios fell and risk premiums rose once more.

Key to this change was the rapid growth of the financial sector and the greater exposure to financial risks. The reasons for such changes were many. First, the financial sector's share of GDP in most developed countries had grown, leaving more countries exposed to changes in financial variables. Second, deregulation of banking and increased competition had provided the opportunity for increased volume of loans and for more risk-taking. Third, banks entered new markets such as asset trading and mortgage finance thus increasing the liquidity of some markets. Fourth, the ratio of lending to the private sector as a proportion of lending to the public sector had risen as fiscal consolidation in the public sector diverted finds into the private sector where investments were, on average, more risky. In other words, the overall risk exposure of the national financial systems of many countries had increased. Finally, the exposure to the property market had increased as this sector grew in size and was perceived as a potentially sound area for investment. The greater the exposure of countries to the various financial factors noted above, the greater the effects of asset market swings on financial institutions and eventually on the real economy through various transmission mechanisms.

The aims of this paper are modest. It attempts, in a general way, to discuss a number of issues which are related to the points made above. Since the whole subject is immense, the objectives of the paper will be to deal with a few relevant interconnected issues. First, it will

Figure 1 The Transmission Mechanism of Monetary Policy



Source : Bank of England, 1999, page 3.

discuss the nature of the transmission mechanism through which financial changes affect the real economy with special reference given to the role of asset prices. Second, an attempt will be made to assess the role of financial deregulation in amplifying some aspects of the transmission mechanism. Finally, within the asset price envelope, special attention will be given to the housing market and effects of housing wealth on consumption. The overall aim is to provide a few general reflections on the complicated interaction between transmission mechanisms, deregulation and the housing market in a small number of developed economies.

Theoretical Framework of the Monetary Policy Transmission Mechanism

The transmission mechanism

According to the New Palgrave Dictionary of Economics (Durlauf & Blume, eds. 2008), the monetary policy transmission mechanism describes how "policy-induced changes in the nominal money stock or the short-term nominal interest rate impact on the real variables … aggregate output and employment. Specific channels of monetary transmission operate through the effects that monetary policy has on interest rates, exchange rates, equity and real estate prices, bank lending, and firm balance sheets'

Figure 1 gives a concise summary of the main sequences involved in the Monetary Policy Transmission Mechanism (MPTM) and explains how a change in the official rate of interest feeds through to the real economy affecting economic activity and inflation

There are three main steps involved with the MPTM which will now be briefly summarised. The first step is the effect of an official interest rate change on the financial markets. The official bank rate is immediately passed on to other short term market rates although the short terms rates do not always move by the same amount as the official bank rate since banks need to maintain a margin for profit. The precise impact on the exchange rate is uncertain although it is generally accepted that, say, an increase (decrease) in the official rate of interest will result in an appreciation (depreciation) of the domestic currency other things being equal (see Burda and Wyplosz 2005 and Gartner 2003). The second step is the transmission from financial markets to spending and aggregate demand mainly through three

channels viz, interest rates, credit availability and the exchange rate. The cumulative impact of monetary policy on spending behaviour through these channels leads to changes in real aggregate demand (HM Treasury 2003a)

The final step in the transmission mechanism process is how changes in aggregate demand is transferred to output and prices. This in turn will depend on the amount of nominal wageo and price rigidity in the economy since in the absence of wage/price rigidity, changes in demand would lead to price changes with no impact on output whereas the presence of some rigidity (as is normal) would lead changes in aggregate demand to result in changes in output. (HM Treasury 2003c). Within this transmission process one should not forget the fact that the impact on the real economy of changes in aggregate demand will, to some extent, depend on the level of the output gap present. For example, if there is a negative output gap then and there is an increase in spending, then there is likely to be only a minimal effect on output and prices. On the other hand when the economy has a positive output gap an increase in spending may have a noticeable effect on output and prices.

The impact of monetary policy on the real economy suggests that some countries may be more sensitive than others to monetary policy transmitted through certain routes but less sensitive to transmission though others (HM Treasury 2003a). The models set up in the UK and Europe to test the speed and extent of the pass through from monetary policy to the real economy have given varied results. Some models indicate that there is little difference between the UK and other EU countries in terms of the responses of countries to monetary policy shocks, for example, Oxford Economic Forecasting (2003), and Deodola and Lippi (2000). Others have found the reverse, for example Gerlach & Smets (1995) find that the transmission mechanism in the UK was more sensitive (i. e. a larger response of output to monetary policy) that other EU countries. A further structural analysis done by HM Treasury in 2003 found that the speed and pass through from official interest rates to bank lending rates; the effects of housing wealth on consumption; the higher exposure to mortgage debt at variable interest and to interest sensitive assets such as equity — all amplified the transmission mechanism as compared to other European countries (HM Treasury 2003a.) In particular, the UK housing market was an important structural difference between the UK and the EU countries which affected the speed of transmission. Unfortunately, many of the models fail to capture the structural features within each economy and so the situation is confusing.

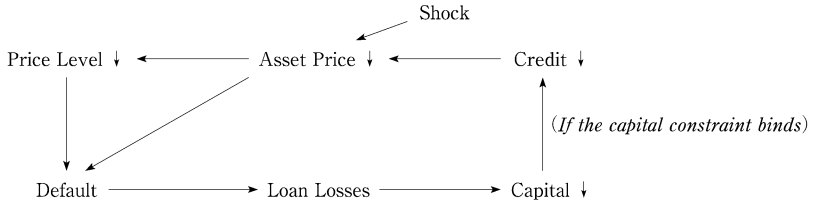
The asset price channel : banking fragility and the real economy

Asset prices and Banking fragility

Asset are usually broken down into two classes viz. financial assets such as various types of securities, and non-financial or physical assets such as property and land.

In a historical context, the role of swings in such asset price is not new, but as noted above, the growth of the financial sector especially in developed countries has made changes

Figure 2 Asset prices and the banking sector



Source: Bank of England, 1999, page 3.

in such prices very relevant to the health of nations. Examples of asset problems abound as with the great depression 1929-1933 initiated by the decline of the Dow Jones (Krugman 2008); the bursting of Japan's bubble and lost decade (Gertler et. al. 1988) and the more recent house price crash in the US and poor management of financial innovations (Cable 2008) (Krugman (2008).

We can investigate the effects of swings in asset prices by first taking the impact of asset price changes on the transmission mechanism via their impact on the banking sector and banking fragility in general. Second, the importance of asset price change on the real economy with special reference to the role of housing wealth in that process will also be discussed. Perhaps at this stage, the work of Goetz (2004) in his article for the Bank of International Settlements entitled *Asset prices and Banking Distress: a Macroeconomic Approach* will help provide a generalised model of banking fragility. He links banking assets to macroeconomic conditions by stressing the vulnerability of banks' asset sheets resulting from a fall in asset prices.

This can be seen in Figure 2 which shows how a productivity shock affects asset prices and hence banks. Decreases in asset prices results in falling prices due to the 'wealth effect' and such fall in prices in the presence of fixed nominal debt can lead to major defaults on loans. Banks then face losses on loans (i. e. non-performing loans), which reduced bank capital and therefore the availability of credit in an economy. The 'credit crunch' then generates a *feedback loop* as the contraction of credit in turn depresses asset prices and drives up the bank loan rate. The effect of a fall in asset prices on the banking system is both indirect and non linear. Indirect in the sense that the banks are vulnerable to falls in the prices of not only their own assets but also the assets of their borrowers. It is non-linear to the extent that small losses may not damage the balance sheet of banks, but larger losses can result in a credit crunch and even a banking crisis. Also, the idea of a feedback loop highlights the fact that a banking crisis has further negative effects on asset prices creating a downward cycle and further deterioration of the balance sheets of banks. Although the Goetz model is relatively simple in that it does not encompass various aspects such as uncertainty and asymmetric information, it points to the forces which create banking fragility in the face of asset deflation.

Asset prices and the real economy

Much of the work in this area has followed the effects of asset fluctuations on the real

economy through its effects on consumer spending and investment IMF (2000), IMF (2008), and Choi (2009). Changes in asset prices can affect consumption because such changes have a *wealth effect*. When the value of a person's assets changes, so does the person's lifetime financial resources (as predicated by the permanent income hypothesis) and hence consumption and spending. In addition, asset prices can have a *collateral effect* in that the assets can also be used as security for further loans — again affecting consumption and spending. From the investment side, changes in asset prices alter the cost of new capital relative to existing capital (Choi 2009). For example an increase in asset prices lowers the cost of new capital compared to existing capital so that the ratio of the market valuation of capital to the cost of gaining new capital rises and so too will investment. Asset prices also affect expectations of the future; rises in asset prices generating confidence and increased tendency to invest while a fall in asset prices leads to low expectations and investment.

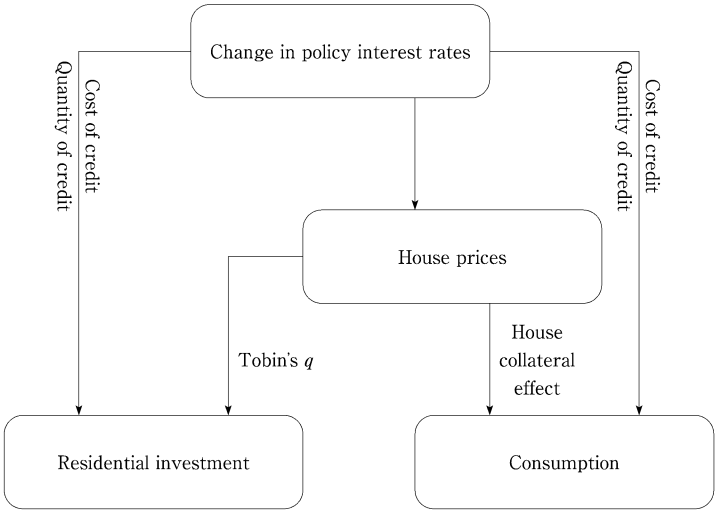
There is sufficient empirical evidence that changes in asset prices can lead to output growth within industrial economies (Asprem 1998), (Choi et. al. 1999) (Choi 2009) but at this stage our interest is mainly in the avenue in which house price and building cycles have tended to coincide since 1970. However, Girouard et. al. (2006) has indicated that house prices in the most recent period of 2002 to 2007 did not follow the business cycle. Evidence presented by the IMF (2008) suggests that the creation of new financial products in the mortgage market and the low interest rates in general have resulted in an over-valuation of house prices beyond their fundamental values.

Housing and the real economy

The effect of housing on an economy emanates from both the investment and consumption side. For example, housing investment in the UK contributed just over 20% of GDP in 2010. However, as noted before, this paper concentrates on the consumption aspects of housing and here we find that housing accounts for around 33% of gross household wealth in UK, Germany and Italy while in France the proportion is greater than 40% (HM Treasury 2003b). The reason for the importance of housing is twofold. Firstly, housing is seen as a key channel for stimulating consumption (Flood et. al. 2008) and second, is housing's role within the Monetary Policy Transmission Mechanism (MPTM). The second reason for the interest in housing's role within the MPTM is the fact that both academic literature and empirical studies have found that the strength of the link between increases in house prices and consumption varies considerably across advanced economies (IMF 2000, 2008, 2009) so that it is necessary to understand the channels through which households' consumption varies with the change in house prices in order to understand the ways in which these differences occur.

Figure 3 summarises how changes in monetary policy is transmitted through various channels from the housing sector to the real economy. Although the figure is relatively simplistic and we are concentration most in this paper on the consumption/collateral effect, it does give weight to the Tobin's q. Tobin's indicates that changes in the price of houses will affect aggregate demand by altering the incentives for housing investment. From our point of view,

Figure 3 Housing and the Monetary Policy Transmission Mechanism



Source: Bank of England, 1999, page 3.

we are more interested here, in the other channel where changes in policy affects the prices of housing and therefore consumption through the wealth and collateral effects.

Housing Wealth effect

For example under the permanent income theory, households would perceive their houses as wealth and base their spending decisions in part on movements in net wealth position (Flood et. al. 2008). In the life cycle models of Ando and Modigliani consumer expenditure depends on human capital and the value of tangible and financial assets so that individuals can 'smooth' their consumption over time by adjusting their consumption accordingly (Cheng & Fung 2008) When adjustments to consumption happen through either of these two reasons, its effects on the economy can be significant since consumption accounts for 50-70% of GDP (HM Treasury 2003b and Girouard et. al. 2006)

However, these theories of consumption have limitations. For example, the permanent rise in house prices have positive wealth effects and negative income and substitution effects on consumption. There is a difference in the experiences of renters who have to save more in order to get onto the property ladder and home owners who benefit from their increased wealth as result of the rise in house prices. Therefore, the housing tenure structure can play an important role in assessing the strength of the transmission from housing wealth to consumption. In sum, the importance of wealth effects tends to decline with the proportion of people who are owner-occupiers (Cheng & Fung 2008).

Secondly, some of the consumption models assume the presence of perfectly competitive capital and mortgage markets, which allow consumers to turn illiquid 'housing' assets into a liquid 'cash' asset to fund consumption. This simplistic assumption is often criticised and has resulted in a lack of empirical support for the life cycle model. Various literature sources (see Deaton, 1991; IMF, 2000; and Catte et. al. 2004 as a sample) identify that imperfections

within credit and mortgage markets restrict the ability of households to fully adjust their current spending according to shifts in house prices. Muellbauer and Lattimore (1995) (cited in Aron et. al. (2006) identify that deregulation of financial markets increases the "spendability" of illiquid assets. This is reinforced by Girouard & Blondal (2001) who believe that even if households regard their property to be wealth, their capacity to adjust current spending in response to shifting house prices is strongly dependent on the functioning of the financial system. Finally, Wyman (2003) focuses on the idea that for consumers to be able to access their housing wealth requires complete mortgage markets, as demonstrated by his *completeness index*. It is therefore clearly evident that for individuals to realise the wealth contained within their houses, a fully functioning financial system must be in place (and which has generally been achieved through extensive financial deregulation).

In terms of empirical studies, many of the life cycle theory ideas have been tested using the econometric models first devised by Davidson et. al. (1978). One of the most comprehensive and recent cross country studies in this area has been written in 2004 for the OECD by Catte, Girouard, Price and Andre who include ten countries in their study and considered the role of institutional differences in the markets. They found considerable heterogeneity for the variables in different countries (Catte et. al. 2004). However, Catte's model is not complete in that it does not take into consideration the role of financial liberalisation or income expectations. Case et. al. (2005) in a study of 14 OECD countries over a period of 25 years find that the financial stock market effect on consumption is smaller than the housing wealth effect although the model has been criticised for omitting a number of importance variables such as growth effects and interest rates. For single countries, results have varied. For example, the finding for Italy was of a negative housing wealth effect (Kennedy & Anderson (1994) which was confirmed by later research (Girouard & Blondal 2001). Some have suggested that the reason for this was a poorly functioning mortgage market. In Japan, cross sectional estimated demonstrated a statistically significant property wealth effects for land and housing wealth (Ogawa et. al. 1996)

The collateral effect (and Home equity withdrawal)

Giuliodori (2005) suggests that the most important mechanism through which house prices can impact consumption is linked to the balance-sheet channel, and the ability of home owners to borrow against the value of their asset. In this way higher house prices raise consumption by relaxing the credit constraints faced by owner-occupier households. (Aron et. al. 2006) The influence of the housing market on household spending thus depends on the extent to which housing wealth can actually be accessed and, in particular, the extent to which homeowners are able to borrow against their housing wealth in practice.

Various studies — including by the Bank of England, (1999); Girouard & Blondal, (2001); Catte et. al. (2004); Giuliodori, (2005); Girouard et. al. (2006); and Smith & Searle, (2007) were concerned with the effect of housing collateral on consumer spending and often highlight the importance of home equity withdrawal. Home equity withdrawal (HEW) is a particular type of collateralised borrowing which essentially turns an illiquid asset into a

liquid asset. According to Smith & Searle (2007), until the mid-1980s the expression referred largely to funds released through last time sales and trading down. More recently, however, refinancing through gaining a larger mortgage or home equity loan has become more commonplace. Within the United Kingdom, the Bank of England has found a close relationship between the level of home equity withdrawal and consumption.

Davey & Earley (2001) state that it is important to understand the underlying characteristics which affect the ability of households to undertake the various forms of home equity withdrawal. Critically, the ability to withdraw equity depends upon the level of liberalisation exhibited by domestic financial markets, and the extent to which home equity withdrawal is facilitated by regulations governing lending behaviour (Davey & Earley, 2001). Furthermore, as discussed by Giuliodori (2005), the market's competitive conditions will also be a major factor — as this affects the average loan to value ratios, and the presence of mortgage equity withdrawal products. Expanding on this, Aron et. al. (2006) cite variations in tax regimes and transaction costs, along with housing tenancy structures, as also being important factors that can impact on the house price to consumption transmission channel. (This is also reflected in Catte et. al. (2004)

Finally, Benito & Mumtaz (2006) highlight that there is an important causal effect of housing in providing collateral. They suggest that because it allows credit to be obtained on more favourable terms than would otherwise be the case, the relationship between home equity withdrawal and consumption is particularly strong as it allows consumption by those who might otherwise have been constrained by their ability to access credit. They thereby conclude that the collateral channel has the potential to amplify the effects of monetary policy on the economy by increasing the number of households sensitive to changes in monetary policy decisions.

Various empirical studies have been undertaken to try and quantify the impacts of the wealth effect and the collateral effect on consumption. According to these authors, the extent to which increase in household spending is in line with an increase in house prices (i. e., the marginal propensity to consume, MPC, out of housing wealth) is *de facto* dependent upon the household's ability to access the wealth contained within their property and the extent to which homeowners are able to borrow against [their] housing wealth. (HM Treasury, 2003b).

This brief review has outlined the complexity of the process by which monetary policy affects the real economy (i. e., the monetary policy transmission mechanism, or MPTM). Although there are issues related to differing modelling techniques employed by individual authors, the overall role of assets and asset prices within this process has been identified, and the importance of housing as a major asset type affecting ability to consume (through two types of effects) has been explained. What is also clear is that there appears to be major differences between advanced economies as regards how the MPTM actually works in practice — and that this is likely to be due (at least in part) to the extent to which households can, in practice, access housing wealth.

It has also been noted that the ability for the wealth effect and the collateral effect to be

fully realised i. e., that households are able to adjust their spending in response to changes in house prices by accessing the wealth contained within their property through home equity withdrawal depends upon a functioning financial system and the existence of 'complete' mortgage markets. Furthermore, it has been identified that these two features have been created (mainly) through financial deregulation.

Now that it has become clear that the features of national mortgage markets are key in determining households' access to housing-related wealth, the next section will compare specific circumstances — most notably the degree of deregulation of financial markets and the resulting mortgage market characteristics that affecting housing equity access across six advanced economies.

MPTM Housing and deregulation

The above review has implied that the mortgage market can be a fundamental factor in the MPTM as changes in house prices will affect consumption and aggregate demand through the ability of the mortgage market to release funds easily. On the contrary, where consumers cannot access housing-related credit because of excessive regulations then the wealth and collateral effects cannot be fully realised within the MPTM process. The argument here is that deregulated mortgage markets will result in lower interest rates being charged to customers while also serving a wider range of borrowers. In essence, access to housing-related finance allows households to turn their illiquid assets (housing) into liquid assets to fund current consumption.

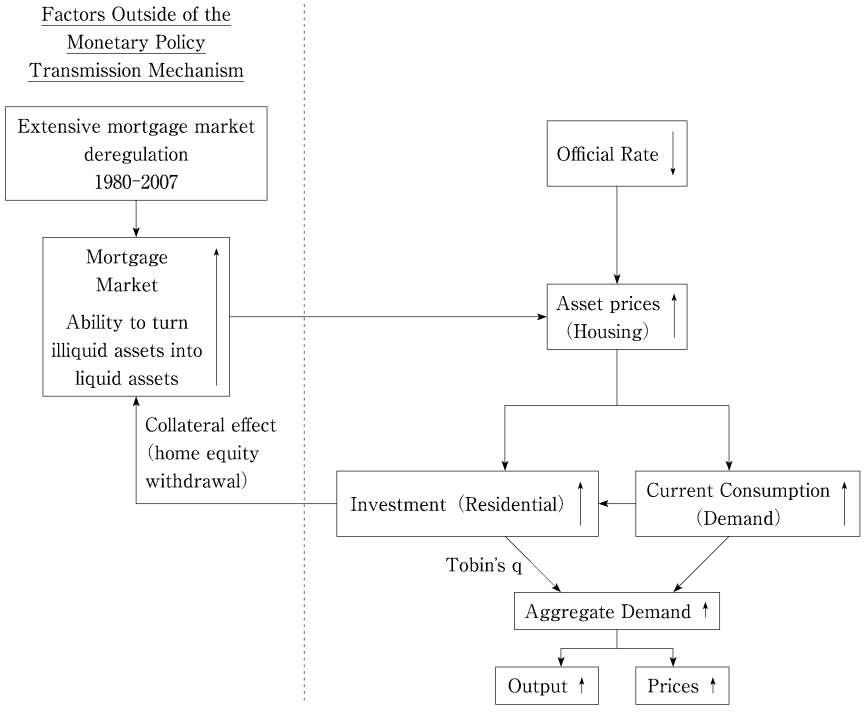
This section has two purposes. First to link the deregulation process with the MPTM model so as to help clarify the interactive 'loop' relationship. Second, to attempt to measure the depth of change in the deregulation process across six countries in order to help identify the relationships between the degree of deregulation and the intensity of the feedback loops

Figure 4 attempts to show how the role of housing within the MPTM is affected by financial deregulation focussing on the asset channel developed in Fig 3. The model indicates how the transmission mechanism can create a self reinforcing 'loop' which can amplify/alter the relationship between consumption, investment and house prices. Although the loop includes the effect of extensive mortgage deregulation on residential investment, the bulk of this analysis will, as noted before, concentrate on the consumption side of the equation. The role of residential investment within the MPTM can be investigated in detail elsewhere e. g. Giroaud & Blondal (2001).

Deregulation and the mortgage markets : an international comparison

There are certain features, inherent within any mortgage market, which can influence the ability of households' to access housing related finance. These features include the following : (i) the loan-to-value ratio ; (ii) the typical mortgage term ; (iii) the existence of secondary mortgage markets ; (iv) the ability to refinance without fees ; (v) the capacity for home equity

Figure 4 The Model of MPTM, Housing, and Deregulation
— The Self-Reinforcing Feedback Loop



withdrawal; and (vi) the proportion of variable rate mortgages. For example, high loan to value ratios allow and encourage borrowers to take out more housing debt; longer repayment periods ensure that the debt-service-to-income ratio remains affordable, despite the large amount of debt taken out; secondary markets for mortgage loans allow lenders to tap funding via capital markets and, all else being equal, to provide credit to household; the presence of early repayment fees constrains households in their ability to refinance their mortgage debt when interest rates decline.

The prevalence and significance of each of these features in any national mortgage market depends upon the extent of deregulation that has been undertaken to date. Because the nature and extent of financial deregulation has varied across major advanced economies, it may be expected that these mortgage market features affecting access to housing-related finance will also vary across countries.

Table 1 below, demonstrates how these features vary considerably across the six countries. Among the major observable points are the following

- The typical loan-to-value ratio varies from a low of 50% in Italy to a high of 82% in the UK. (IMF, 2008; and European Mortgage Federation Hypostat, 2008)
- The typical mortgage contract is longest in the United States at 30 years and lowest in Italy and France at only 15 years. (IMF, 2008)
- Refinancing is easily available in the United States, Australia and the United Kingdom, but in France, Japan, and Italy, early repayment often incurs significant refinancing penalties.

Table 1 Mortgage market features and the modified DI index

Mortgage market features	UK	US	Australia	France	Japan	Italy
Typical loan to value ratio (%)	82	80	80	73.5	80	50
Typical mortgage contract (years)	25	30	25	15	25	15
Mortgage backed security issues[#] (% of residential loans outstanding)	6.4	20.1	9	1.0	4.7	4.7
Refinancing (fee for prepayment?)	Limited	No	Limited	Yes	Yes	Yes
Are home equity withdrawal products available?	Yes	Yes	Yes	No	No	No
Proportion of Variable rate mortgages	72%	15%	84.5%	14%	14%	—
Deregulation Index (DI)	7.2	8.6	7.6	2.6	4.4	2.2

[#]Average of 2003-2006 as according to the IMF, 2008.
Sources Daniel 2008; IMF 2008; European Mortgage Federation Hypostat 2008
Notes: 1) Figures are for 2007 unless otherwise stated;
2) For the feature 'Refinancing (fee for prepayment?) the answers 'No', 'Limited', and 'Yes' each receive values of 10, 5, and 0 respectively. For the feature 'Are home equity withdrawal products available?' the answers 'Yes', 'Limited', and 'No' each receive values of 10, 5 and 0 respectively. For 'Proportion of variable rate mortgages' a value is given equivalent to the proportion (e. g. 14%=a value of 1.4. For all the other features, each country is given a value of between 10 and 0 depending on their position relative to the country with the highest value for each particular feature. An average is then taken of the sum of the six factors for each country). The DI adopts the same approach as, and builds on the findings of, Wyman (2003) and IMF (2008)

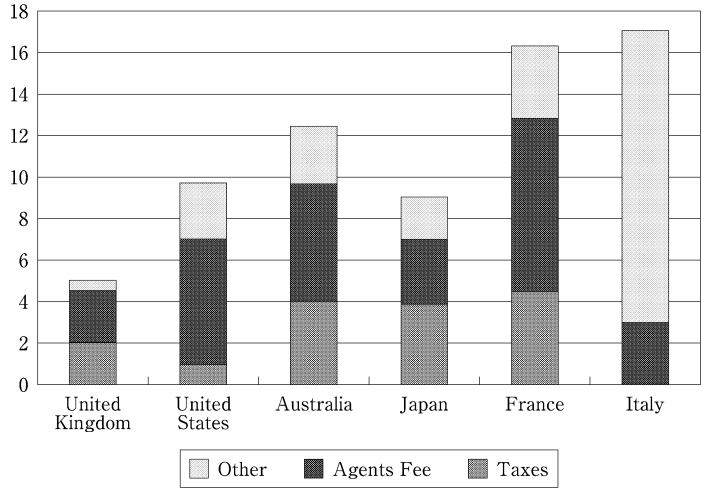
(Catte et. al. 2004), and

- Home equity withdrawal products are easily available and actively marketed in the United Kingdom, the United States and Australia — making it easy for households to access their housing equity. In France, Japan and Italy, on the other hand, the availability of these products are heavily restricted. (Calza, et. al. 2007)

In order to quantify the collective differences in mortgage markets arising from varying degrees of deregulation, a 'deregulation index' has been created based on the earlier measures of the mortgage market's 'completeness' (i. e. Wyman's 2003 Completeness index (CI) and the IMF's 2008 Mortgage Market Index (MMI).The closer to 10, the easier it is for households' to access housing related finance.

From Table 1, the United States, Australia and the United Kingdom clearly have the most 'complete' mortgage markets; deregulation has resulted in an extensive range of mortgage-related products and repayment structures being made available to cover a wide range of potential borrowers (see Wyman (2003). This, coupled with the increasingly competitive lending environment and technological development, has significantly increased households' access to housing-related finance and the equity contained within their homes (Wyman, 2003; Catte et. al. 2004, Girouard et. al. 2006 and IMF, 2008) Effectively, such liberalisation of credit conditions increases the 'spendability' or liquidity of previously more illiquid housing wealth. (Aron & Muellbauer, 2006). Japan, France and Italy however, exhibit 'incomplete' mortgage markets — as they offer fewer products and services to fewer customers, due largely to the regulatory restrictions that remain from a slower and more incomplete deregulation process. Their mortgage markets are characterised by a limited product range with tighter

Figure 5 Transaction costs as a percentage of property value



Source : Global Property Guide (2008)

Note : Transactions costs include the costs of buying and then re-selling a residential property worth 250,000 euros in Europe and $250,000 in the US. The property is located in the administrative or financial capital.
Italy's taxes have been included as part of the 'other' component due to their very complex tax system with regards house purchase

repayment structures and a narrower range of potential borrowers (see Wyman, 2003; and IMF, 2008). Coupled with a less competitive lending environment, and fewer distribution channels, households do not have easy access to housing-related finance or mortgage equity withdrawal. (Catte et. al. 2004, Girouard et. al. 2006, IMF, 2008)

There are of course non-mortgage factors which affect households ability to access housing wealth. For example, the rate of turnover (measured in transactions/year) can be an important determinant the ability of home equity withdrawal (Davey and Earley, 2001). A high turnover rate as in the UK for example obviously creates more opportunities for households to withdraw housing equity by trading down. Also, transaction costs is an important factor to consider since, the price change between properties when households are trading down must be sufficient to cover the fixed and variable components of moving house. Therefore, lower transactions costs makes moving more attractive at low levels of price differentials (HM Treasury 2003b)

Transaction costs vary significantly across OECD countries from 2.05% in Denmark to 22.08% in South Korea and the components of such costs also vary as can be seen in figure above. Clearly, those countries with low transaction costs (and taxes as aproportion of total transaction costs) are also those with the most deregulated mortgage markets with the exception of Japan.

Therefore as can be seen above, the deregulation proces has varied across countries which have fed into the national mortgage markets of the six countries and hence the access to household related finance i.e. they have exaggerated the collateral/wealth effects which, in turn, alters the functionong of the transmission process in those countries. In addition, based on our modified deregulation index it has been shown that the access to housing related

finance appears considerable easier in US, Australia and the UK as compared to Japan, France and Italy. This would suggest that the feedback loop within the transmision mechanism would be more pronounced in the former three countries. Other conditions e. g. transaction costs can affect national ability to access housing-related finance but changes in the variables affecting these types of costs have been secondary, amplifying or reducing the wider house finance deregulation.

Consumption from housing wealth

Now that the DI has been created, it is possible to relate the completeness of the mortgage markets in the six countries to various housing market characteristics to assess the effect deregulation has had on the relationship between house prices and consumption. This will now be undertaken by examining the evidence linking (i) access to wealth from housing (i. e., the collateral effect), and (ii) consumption from housing wealth (i. e., the wealth effect) to the characteristics of national housing finance markets as demonstrated by the DI index. In practice, the latter (the housing wealth affect) is only made possible by the former (the collateral effect) — i. e., households can only consume assets that have been made liquid — and so the extent of home equity withdrawal across countries is considered first. This section also considers the importance of owner-occupancy in amplifying or limiting the scale of consumption from housing wealth (as this was clearly identified earlier as being of importance).

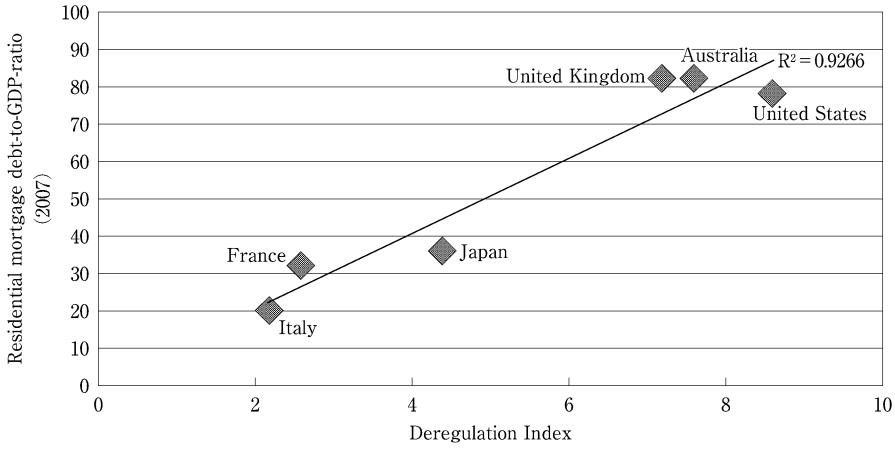
Home equity withdrawal

There appears to be a clear association between mortgage market liberalisation and the growth of mortgage debt outstanding. For example in the more deregulated countries, UK US and Australia, the average ratio of mortgage debt outstanding to GDP rose from of 29% in 1983 to 80% in 2007 while in the less deregulated economies, Japan, France and Italy, the figures were 14% to 28% over the same period. This is more clearly shown in Figure 6 which links the deregulation index with the mortgage/GDP ratio.

The positive correlation (R^2 0.966) is an interesting conclusion in that such a close correlation strongly implies that the varying institutional differences resulting from the uneven liberalisation process could easily be the main contributor to the process of feeding through changes in house prices to spending and output. However, it should not be forgotten that other factors such as the incresed price of housing and also cultural differences/attitudes to home ownership and renting could also have contribute to the strong relationship shown above.

To help resolve this problem a brief comment will be made relating to housing equity withdrawal over the period of 1970 to 2000 across the countries concerned (excepting Australia). (OECD 2000) This publication gives a clearer indication of how the ease with which households are able to access their housing wealth has changed over this period. It is clear that the deregulation undertaken in the United Kingdom, and to a lesser extent the United States, was associated with a large increase in housing equity withdrawal — and

Figure 6 The DI and Residential Mortgage-Debt-to-GDP Ratio (2007)



Source: For Deregulation Index values see Table 1. Residential mortgage-debt-to-GDP-ratio from European Mortgage Federation Hypostat, 2008; and IMF, 2008.

provided households with liquidity to fund consumption. It is generally thought that the increased competition experienced within these markets resulted in lower interest rates being charged to customers, a greater variety of mortgage and home equity withdrawal products being available, and the resultant improved ability of lenders to serve a wider range of borrowers (Catte et. al. 2004) These features further suggest that extensive financial deregulation has meant that it is not necessary to move or to trade down in order to release equity contained within a property

It is also evident from the study that France and Italy, where deregulation has been less widespread, have witnessed injections *into* the housing sector rather than withdrawals, Japan's experience, however has been different. Although the mortgage market reform process was less extensive, during the late 1980s an expansionary monetary meant policy increased liquidity within the financial sector. Housing loan corporations (known as *'jusen'*) increased the amount of housing loans being given, fuelling Japan's 'property bubble' (Krugman, 2008) and leading to positive home equity withdrawal in the late-1980s. (OECD, 2000; and Girouard et. al. 2006) Overall, however, where liberalisation has been extensive, mortgage markets have become competitive and efficient at providing households greater access to housing wealth.

The wealth effect

At this stage it is necessary to consider the relationship between features of the mortgage markets as indicated by the deregulation index and consumption across the six countries concerned. The various research work done on the relationship between mortgage market deregulation and the MPC from housing wealth can be seen in Table 2 below. Using these estimated values for the MPC from housing wealth shown in this table it is possible to identify connections between countries with large housing wealth effects and the main mortgage market features that are found in liberalised, developed mortgage markets.

Table 2 Estimated Marginal Propensity to Consume from Housing Wealth

Country	Long-run MPC from Housing Wealth (%)	Source	Long-run MPC from Housing Wealth Used in This paper**
Australia	6 7	Tang (2006) Catte et. al. (2004)	7
France	Statistically insignificant 4	Catte et. al. (2004) Flood et. al. (2008)	2
Italy	Negative Negative Negative 1	Kennedy & Anderson (1994) Boone et. al. (2001) HM Treasury (2003c) Catte et. al. (2004)	Statistically insignificant (0)
Japan	Between 12 and 20	Ogawa et. al. (1996) and Girouard and Blondal (2001)	16
United Kingdom	2 7 8	London Business School* Catte et. al. (2004) Business Strategies*	7.5
United States	5 11.3	Catte et. al. (2004) and Greenspan* (1999) Palumbo, Rudd, Whelan (2006)	8.15

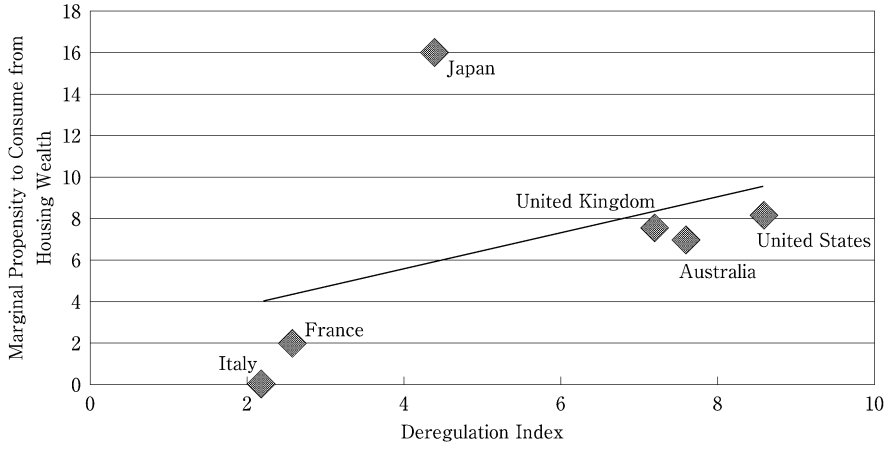
Note * : Sources : London Business School, Business Strategies and Greenspan (1999) cited in (Girouard & Blondal, 2001)
Note** : The study undertaken by Catte et. al. (2004) is a comprehensive study and findings have been reflected in various subsequent documents. The value for Australia will be used. For Italy, a value of 0 has been used due to the large number of studies which find a negative housing wealth effect; only Catte et. al. (2004) has documented a positive value. With regard to France, Japan, the UK and the US, an average of all the studies has been taken (as was done in Flood et. al. (2008). The LBS value for the UK has been left out because its measurement expresses housing wealth net of mortgage debt (not done in any other study); this means that it is not a comparable study.

The overall picture of the relationship between mortgage market deregulation and the MPC from housing wealth can be understood from figure below, which demonstrates that — with the exception of Japan — the countries with more developed or 'complete' mortgage markets (as measured by a high DI value) have a higher MPC from housing wealth. Excluding Japan the R2 value for the correlation between these variables is 0.9661. The reason for this is because the studies used to calculate Japan's marginal propensity to consume from housing wealth (Boone et. al. 2001; and Girouard & Blondal 2001) use data from their liquid, bubble period resulting in significantly higher marginal propensity to consume from housing than found in any other country.

Based on Figure 4 illustrating the 'loop' effects, this close correlation (i. e., $R^2 = 0.9661$) suggests that those countries that have undergone greater financial deregulation (such as the United States, the United Kingdom and Australia) have a more pronounced collateral effect feedback loop — as the deregulation has changed their mortgage markets to encourage the transformation of housing into cash, available for current consumption and hence altering the functioning of the MPTM.

It becomes evident from looking at the various housing wealth effects that there is a split between countries with a high MPC from housing wealth and those with a low MPC wealth.

Figure 7 Housing Wealth Effects and the Deregulation Index



Sources : Deregulation Index taken from Table 1 ; MPC from housing wealth from Table 2..

This split (with the exception of Japan) coincides with the differences between countries with market-based financial systems and bank-based financial systems — see Table 3 below. Those countries with market-based financial systems (i. e., the United States, the United Kingdom and Australia) undertook earlier and more thorough mortgage market deregulation and allowed housing-related funds to be raised on secondary markets and the spreading of risk among financial institutions, encouraging products for the purpose of home equity withdrawal. (Levine, 2002,) This is clearly shown in Table 3, below, where the United States, the United Kingdom and Australia have (relatively) high values for the MPC from housing wealth and all exhibit market-based financial systems in which equity withdrawal products are widely available and freely marketed. (as demonstrated in Table 2 and discussed previously)

France and Italy, however, where the MPC from housing wealth is low or zero, experienced a less thorough deregulation process. As such, their financial systems have remained bank-based and fragmented and therefore as shown previously their equity withdrawal products are either not available or their supply is limited. In conclusion, Table 3 shows that the emergence of market based financial systems has encouraged the use of home equity withdrawal products. This, in turn, had impacts on consumption as reflected in MPC values.

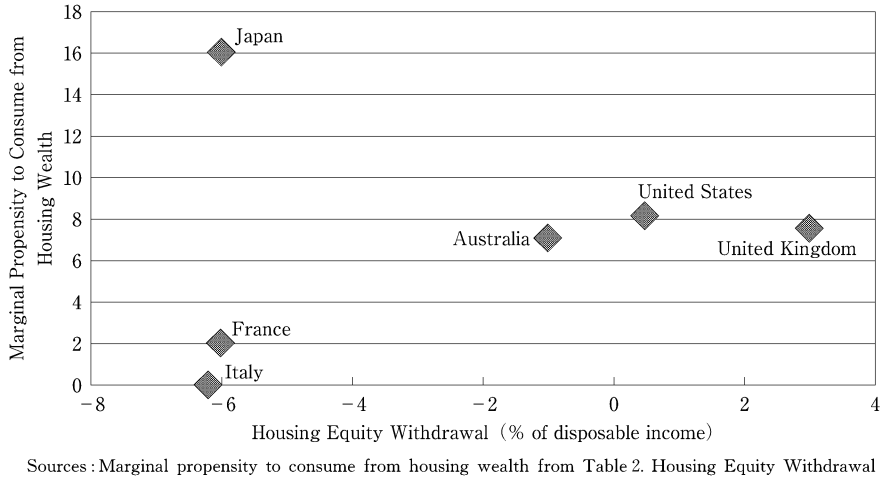
Unsurprisingly, there is a clear relationship between the scale of home equity withdrawal (i. e., the collateral effect — the actual level of housing-related finance which is realised through largely deregulated mortgage markets) and the marginal propensity to consume from household wealth. Fundamentally, the influence of the housing market on consumption [as well as the rapidity of this response] depends on the extent to which homeowners are able to borrow against housing wealth. (Catte et. al. 2004) The amount of home equity withdrawal is more likely to be positive when households are able to renegotiate existing mortgage loans or to contract second mortgages on the same property (Catte et. al. 2004) as this allows the household to take advantage of increases in housing wealth. As Figure 8, below, demonstrates, there is a strong correlation between the impact of housing wealth on con-

Table 3 The Split between Market-Based and Bank-Based Financial Systems.

	Long-run MPC from Housing Wealth	Primarily Market or Bank Based Financial system ?	Are Home Equity Withdrawal products available ?
United States	8.15	Market-Based	Yes
United Kingdom	7.5	Market-Based	Yes
Australia	7	Market-Based	Yes
France	2	Bank-Based	No
Italy	0	Bank-Based	No
Japan	16	Bank-Based	No

Source : Column two from Table 2, column three from Asli & Ross, 1999 ; and Levine, 2002, column three from Table. 1.

Figure 8 The Marginal Propensity to Consume from Housing Wealth and Housing Equity Withdrawal

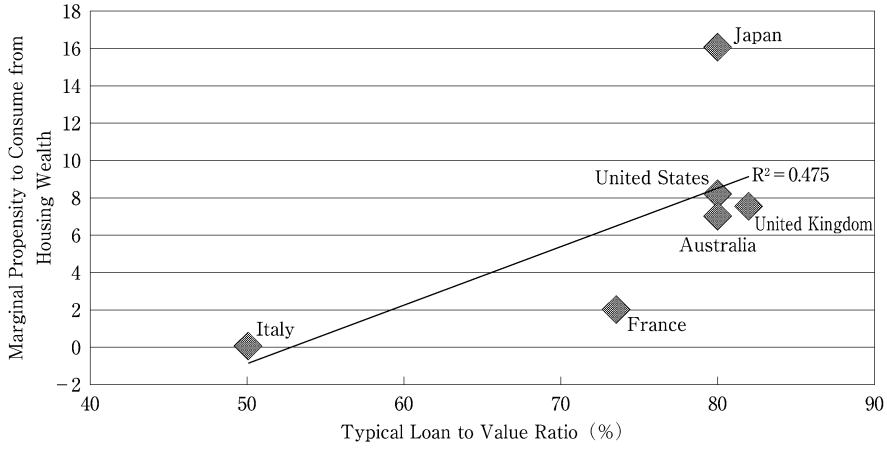


Sources : Marginal propensity to consume from housing wealth from Table 2. Housing Equity Withdrawal (% of disposable income) from Catte et. al. 2004 ; and HM Treasury 2003b. (Averages of 1990-2002)

sumption and the size of housing equity withdrawal (with the exception of Japan). When Japan is removed from the calculation, the correlation is very close — with a calculated R2 value of 0.8603.

One key feature of deregulated housing finance markets is the typically high loan to value ratios which are found. A high loan to value ratio is likely to increase the collateral effect on consumption ; countries such as the United States — with a considerable sub-prime mortgage market (CBC News, 2007) — and the United Kingdom (where 100+% mortgages have become commonplace) (Cable, 2008) are therefore expected to see the closest relationship between the average loan to value ratio and the marginal propensity to consume from housing wealth. Jappelli and Pagano (1989) (discussed in Li, 2001) found that a higher loan to value ratio decreases the number of credit-constrained households within an economy as (i) lower savings are required to gain access to a mortgage, and (ii) larger amounts can be borrowed. Overall, a high loan to value ratio increases the amount of credit available to

Figure 9 Housing Wealth Effects and the Loan to Value Ratio



Source: Marginal propensity to consume from housing wealth from Table 2; typical loan to value ratios from Table 1.

households and will increase consumption from housing wealth (Iacoviello & Neri, 2008) The relationship between the MPC from housing wealth against the typical loan to value ratio for the six countries is shown in Figure 9, above. The calculated R^2 excluding Japan is 0.7722.

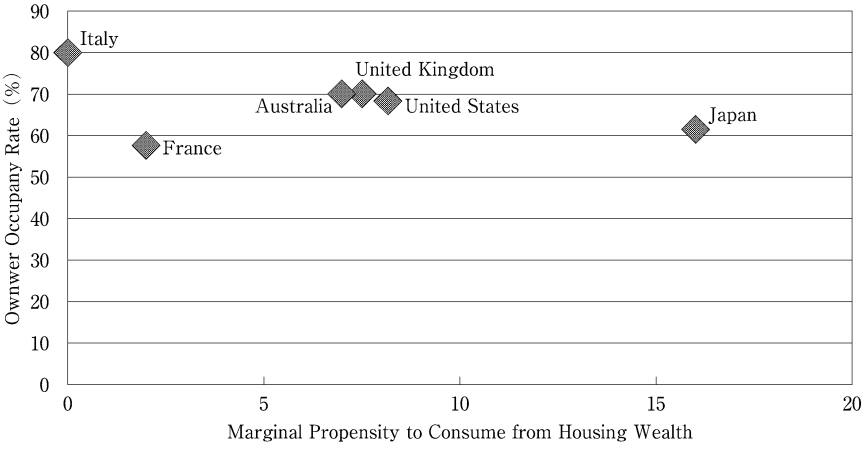
Owner occupancy and Consumption from Housing Wealth

As discussed previously, the life-cycle consumption theory implies both a positive wealth effect and a negative income and substitution effect on consumption. (Aron et. al. 2006); this creates a split between home owners (who receive the positive wealth effect as house prices increase) and renters (for whom only the negative impacts operate (Aron et. al. 2006) as house price rises mean higher rents and also increased savings needed to get onto the 'housing ladder'). The overall proportion of owner-occupied housing within an economy can therefore determine whether the positive wealth effect or negative income and substitution effect will be predominate (e. g., during periods of increases in house prices). Furthermore, a high proportion of home ownership suggests a wide distribution of housing wealth (Wyman, 2003; and European Central Bank, 2009) which, coupled with greater mortgage market liberalisation, is likely to lead to a higher amount of home equity withdrawal as wealth gains or losses through changes in house prices can only arise for households owning a dwelling. (European Central Bank, 2009).

In essence, the higher the owner-occupancy rates, the greater will be the potential number of consumers able to extract wealth contained within their houses and the greater the net consumption come household wealth.

Across the OECD countries, the proportion of owner-occupied housing varies considerably due to variations in tax incentives, conditions attached to planning consents, controls on rents, interest rates and finance structures. (HM Treasury, 2003b) However, among the six countries examined in this dissertation, the disparities are smaller. For example the owner-occupier

Figure 10 Owner Occupancy Rate (%) and the Housing Wealth Effect



Sources : Marginal propensity to consume from housing wealth table 2. Owner occupancy rate Adapted from Hypostat 2008; IMF, 2008; and Flood et. al. 2008.

ratio is around 70% for the US, UK and Australia, while Japan (60%) and France (57%) are lower and Italy (80%) higher. Also, there does not appear to be much of a link between owner-occupancy rates and the marginal propensity to consume from housing wealth — as shown in Figure 10 above. For example, Italy has experienced only minimal deregulation since 1980s and has the lowest housing wealth effect, but has the highest owner — occupied housing rate of all six countries. It has been suggested that this is due to the fact that in some countries (including Italy), inter-generational wealth transfers are common — such that in Italy 23% of homeowners received their house through inheritances, gifts, or dowry, and a substantial number of families owned their homes with the help of direct or indirect wealth transfers (Xiao & Yang, 2002) This implies that the influence of owner-occupation on the wealth effect in certain countries is only minimal, and therefore the link between owner-occupation and the sensitivity of consumption to real house prices is weak. (IMF, 2000)

Therefore, to conclude this section one can say the following. First, that there is clear evidence that aggregate mortgage debt and home equity withdrawal are related to the extent of deregulation in housing finance conditions. Second, that there is also a strong relationship between the MPC from housing wealth and overall financial deregulation, the size of home equity withdrawal, and loan to value ratios. Third, the extent of owner-occupation may *a priori* be expected to amplify the effects of increased deregulation on consumption from household wealth, but this effect is weakened as a result of circumstances in individual countries.

Moreover, it has clearly shown that there are significant cross-country differences with regards to consumption from housing wealth (as represented by the MPC from housing wealth). The close correlation ($R^2=0.9661$) between the varying values of the MPC from housing wealth and the DI implies that the underlying workings of the transmission mechanism (as expressed in terms of Figure 4) vary from country to country — with the United States, the United Kingdom and Australia experiencing a more pronounced feedback loop

than found in France and Italy. Japan has remained an outlier throughout the analysis and is a subject for further investigation elsewhere.

Conclusion

It has been shown in this brief and limited paper that mortgage market deregulation has been most extensive in the United States, the United Kingdom and Australia — creating market-based financial systems, ample home equity withdrawal products, and high loan-to-value ratios. This has facilitated easier access to housing wealth through home equity withdrawal (the collateral effect) to fund current consumption (the wealth effect.) The wealth effect is strong within these three countries. This implies that within these countries, deregulation has amplified the workings of the MPTM — resulting in house price changes having a greater impact on the real economy of these countries (as has been shown to be the case from the current economic crisis).

The converse has been shown for France and Italy — where less comprehensive deregulation has taken place (creating incomplete bank-based mortgage markets, a lack of availability of home equity withdrawal products, and lower loan-to-value ratios). This has limited the ability of the collateral effect to be realised through home equity withdrawal — and as such, has also reduced the wealth effect. Within these two countries, the workings of the MPTM are more closely represented by the traditional theories since, although the feedback-loop is still present, it is not as powerful as found within the United States, the United Kingdom or Australia.

The general evidence provided in this brief paper suggests that the presence of a feedback loop (as demonstrated in Figure 4) will be greatest in the United States, the United Kingdom and Australia where mortgage market deregulation — as measured by the respective DI values has been the most extensive. Furthermore, these countries also have relatively high marginal propensities to consume from housing wealth — suggesting that as house prices increase, households in these countries are more likely to extract the additional equity within their houses to fund current consumption and for purchasing second homes This has been made possible by the complete mortgage markets found in these countries and the wide variety of home equity withdrawal products that are available due to the presence of market based financial systems, and high loan-to-value-ratios, created through extensive deregulation. The higher demand will further increase house prices, encouraging more equity withdrawal and thus a strong self-reinforcing feedback loop.

This effect has the potential to amplify the workings of the monetary policy transmission mechanism, as a decrease in the official rate of interest could lead to a larger-than-expected increase in house prices and inflationary pressure. This is because (in certain countries) the ease of access to housing wealth has been increased through deregulation and, following a reduction in the official rate of interest, credit will be cheaper. The two factors encourage borrowing for current consumption.

In France and Italy however, the feedback loop is likely to be less pronounced — as financial deregulation in these countries has been much less thorough. The incomplete mortgage markets found in these two countries limit the ability of the collateral effect to be realised. This is largely because bank-based financial systems do not allow financial institutions to spread risk freely through capital markets, and therefore housing equity withdrawal products are not freely available (and loan-to-value ratios remain low).

It would therefore seem that the traditional process of the MPTM (See Figure 1) would apply to France and Italy (and some extent Japan) which have incomplete, or poorly functioning mortgage markets, but that understanding of the MPTM process should be refined for countries that have experienced significant financial deregulation such as the United States, the United Kingdom and Australia A more in-depth analysis of a greater number of countries would be required if these conclusions were to be developed in a more mature form.

Note : I should like to thank my tutee Ms E Word, for access to some of her work in this area.

References

Asli, D. & Ross. L., (1999) Bank-based and market-based financial systems — cross-country comparisons. *World Bank Policy Research Working Paper* (WPS no. 2143), July pp. 1-73.

Asprem. M., (1989) Stock Prices, Asset Portfolios, and Macroeconomic Variables in Ten European Countries. Journal of Banking and Finance, Vol. 13, Issue 4-5, pp. 589-612.

Aron. J. & Muellbauer. J., and Murphy. A., (2006). Housing Wealth, Credit Conditions and Consumption. *Centre for the Study of African Economies (CSAE) Working Paper Series* (WPS 2006-08) June pp. 1-62.

Bank of England, (1999) *The transmission mechanism of monetary policy.* Monetary Policy Committee May, pp. 1-12.

Benito. A. & Mumtaz. H., (2006) Consumption excess sensitivity, liquidity constraints and the collateral role of housing. *Bank of England Working Paper No. 306*, August, pp. 1-35.

Boone, L., Girouard. N., & Wanner. I., (2001) Financial Market Liberalisation, Wealth and consumption. *OECD Economics Department Working Paper, No. 308*, September, pp. 1-30.

Burda, M. & Wyplosz, C., (2005) *Macroeconomics A European Text.* 4th ed. Oxford University Press, Oxford.

Cable. V., (2008) The Storm : *The world economic crisis and what it means.* Atlantic Books : London.

Calza. A., Monacelli. T. & Stracca. L., (2007) Mortgage Markets, Collateral Constraints, and Monetary Policy : Do Institutional Factors Matter ? *Centre for Financial Studies : Working Paper Series no.* 2007/10, Frankfurt, pp. 1-61.

Case. K., Quigley. J. & Shiller. R., (2005). Comparing Wealth Effects : The Stock Market versus the Housing Market. *Cowles Foundation Discussion Paper, s No. 1335*, Yale University, pp. 1-26.

Catte, P., Girouard. N., Price. R., and André. C., (2004)., Housing Markets, Wealth and the Business Cycle. *Organisation for Economic Co-operation and Development (OECD), Economics Department*, Working Paper No. 394, December, pp. 1-46.

CBC News, (2007) The US Subprime Mortgage Meltdown. *CBC News Online.* 23rd March.

Cheng. A. & Fung. M., (2008) Financial market and housing wealth effects on consumption : a perma-

nent income approach. *Applied Economics*, Vol. 40, Issue 23, December, pp. 3029-3038.

Choi. J., Hauser. S., & Kopecky. K. (1999) Does the Stock Market Predict Real Activity ? Time Series Evidence from the G-7 Countries. *Journal of Banking and Finance*, Vol. 23, Issue 12, December pp. 1771-1792.

Choi. J., (2009) *From Asset Prices to Macro economy. Money and Banking*, Fall, pp. 1-12

Daniel. J., (2008) A Variable-Rate Loan-Prepayment Model for Australian Mortgages. Australian Journal of Management, Vol. 33, No. 2, December. pp. 277-306.

Davidson, J.; Hendry, D.; Srba, F. and Yeo, S. (1978), "Economic Modelling of the Aggregate Time Series Relationship Between Consumers' Expenditure and Income in the United Kingdom", *Economic Journal*, vol. 88, pp. 661-692.

Davey. M., & Earley. F. (2001) Mortgage Equity Withdrawal. *Council of Mortgage Lenders*, Housing Finance, no. 51, August, pp. 1-15

Deaton A., (1991) Saving and Liquidity Constraint, *Econometrica*, Vol. 59, No. 3, September, pp. 1221-1248

Dedola. L. & Lippi. F., (2005) *The* Monetary Transmission Mechanism : Evidence from the Industries of Five OECD Countries. *European Economic Review* Vol. 49, Issue 6, August pp. 1543-1569.

Durlauf. S., & Blume. L., (eds) (2008). The New *Palgrave Dictionary of Economics*, 2nd edn. Pargrave, London.

European Central Bank, (2009) *Housing* Wealth and Private Consumption in the Euro Area. *European Central Bank*, Monthly Bulletin, January, pp. 1-13.

European Mortgage Federation Hypostat., (2008) *A review of Europe's Mortgage and Housing markets.*

Flood. K., Morin. S. & Kolet. I. (2008) House Prices and Consumer Spending. *Bank of Canada Review*, Summer, pp. 31-44.

Gartner. M., (2003) *Macroeconomics.* Pearson Education, Limited, Essex.

Gerlach, S. & Smets, F., (1995) The monetary transmission mechanism : Evidence for G7 countries, *Bank for International Settlement* (*BIS*,) Working Paper no. 26, April, pp 1-49.

Gertler. M., Goodfriend. M., Issing. O., & Spaventa. L., (1998) *Asset Prices and Monetary Policy : Four Views.* Centre for Economic Policy Research (CEPR), August, pp. 1-121.

Girouard, N. & Blondal. S., (2001). House Prices and Economic Activity. *Organisation for* Economic Co-operation and Development (OECD), Economics Department, Working Paper No. 279. pp. 1-50.

Girouard. N., Kennedy. M., Van den Noord. P, & André. C., (2006) Recent House Price Developments : The Role of Fundamentals. *Organisation for Economic Co-operation and Development* (*OECD*) *Economics Department Working Paper*, No. 475, pp. 1-50.

Giuliodori. M., (2005) The role of house prices in the monetary transmission mechanism across European countries. *Scottish Journal of Political Economy*, Vol. 52, No. 4, September 2005, pp. 519-543.

Global Property Guide (2008) *Housing Transaction Costs in the OCED*, July 10.

Goetz. P., (2004) Asset Prices and Banking Distress : A Macroeconomic Approach. *Bank for International Settlements.* Working Papers, No. 167, December, pp. 1-49.

Greenspan. A, (1999) Mortgage Markets and Economic Activity. Comments made to the Conference of American Community Bankers, Washington DC, November 2nd.

HM Treasury. (2003a) *EMU and the Monetary Policy Transmission Mechanism.* EMU Studies, pp. 1-68.

HM Treasury., (2003b) *Housing, Consumption and EMU*, EMU Studies, pp. 1-108.

HM Treasury. (2003c) *Modelling shocks and adjustments mechanisms in the EMU.* EMU Studies pp. 1-107.

Iacoviello, M. and S. Neri. (2008). Housing Market Spillovers : Evidence from an Estimated DSGE Model. *Banca d'Italia Working Paper*, No. 659. pp. 1-20.

International Monetary Fund (IMF), 2000., Asset Prices and the Business Cycle. *World Economic Outlook :* May pp. 77-112

International Monetary Fund (IMF). (2008) The Changing Housing Cycle and the Implications for Monetary Policy. *World Economic Outlook*, April, ch. 3, pp. 1-30.

International Monetary Fund (IMF)., (2008b) *World Economic and Financial Surveys : Regional Economic Outlook : Asia and Pacific*, October pp 1-103

International Monetary Fund (IMF)., (2009) Country and Regional Perspectives. *World Economic Outlook*, February ch.2, pp. 63-96.

Jappelli, Tullio & Pagano, Marco, 1989. Consumption and Capital Market Imperfections : An International Comparison, *American Economic Review*, Vol. 79(5), December, pp. 1088-1105,

Kennedy. N & Anderson. P., (1994) Household saving and real house prices : an international perspective. *Bank for International Settlements*, Working Paper, No. 20, January, pp. 1-74.

Krugman, (2008) *The Return to Depression Economics.* W. W. Norton & Company Inc : New York

Levine. R., (2002) Bank-Based or Market-Based Financial Systems : Which is Better ? *National Bureau of Economic Research* (*NBER*,) Working Paper, no. 9138, pp. 1-36.

Li. X., (2001) Mortgage Market Development, Savings and Growth. *International Monetary Fund*, Working Paper 01/36, March, pp. 1-27.

Muellbauer. J., (2003) The U. K. And The Euro — The Role Of Asymmetries In Housing And Credit Markets. *HM Treasury : Submissions on EMU from leading academics. EMU Study.* pp. 1-224.

Muellbauer, J. and Lattimore R., (1995) "The Consumption Function : A Theoretical and Empirical Overview." In Pesaran H, and Wickens,M., (edss) *Handbook of Applied Econometrics.* Oxford : Blackwell. pp. 221-231.

OECD., (2000) House prices and economic activity. *World Economic Outlook*, No. 68, Section 6, December, pp. 169-184.

Ogawa, K., Kitasaka. S., Yamaoka. H., & Iwata. Y., (1996 An Empirical Re-evaluation of Wealth Effects in Japanese Household Behaviour. *Japan and the World Economy*, No 18, Issue 4, December, pp. 423-442.

Oxford Economic Forecasting., (2003) The impact of shocks on the UK economy in and out of EMU. *Economic Outlook*, Vol. 26, pp. 10-22.

Palumbo. M, Rudd. J, & Whelan. K., (2006) On the Relationship between Real Consumption, Income and Wealth, *Journal of Business and Economics Statistics* Vol. 24, January, pp. 1-11.

Smith. S. & Searle. B., (2007) Dematerialising Money ? Observations on the Flow of Wealth from Housing to Other Things. *Housing Studies*, Volume 23, Issue 1, January 2008, pp. 21-43.

Tang. K., 2006. The wealth effect of housing on aggregate consumption. *Applied Economics Letters*, Vol. 13, no.3, 189-193.

Wyman. M., (2003) Study on the Financial Integration of European Mortgage Markets, European Mortgage Federation. *Journal of Financial Regulation and Compliance* Vol. 6, No. 1, October, pp. 1-92.

Xiao. Z. & Yang. Y., (2002) Intergenerational Wealth Transfer and its Impact on Housing. *Joint Centre for Housing Studies*, No. W02-1, Harvard University, February, pp. 1-44.