Kostas Tsatsaronis
+41 61 280 8082
ktsatsaronis@bis.org

Haibin Zhu
+41 61 280 9164
haibin.zhu@bis.org

What drives housing price dynamics: cross-country evidence[1]

House prices generally depend on inflation, the yield curve and bank credit, but national differences in the mortgage markets also matter. House prices are more sensitive to short-term rates where floating rate mortgages are more widely used and more aggressive lending practices are associated with stronger feedback from prices to bank credit.

JEL classification: G120, G210, C320.

A house is the largest single asset of most households, and assets whose value is linked to residential real estate represent an important component of the aggregate portfolio of financial intermediaries. The behaviour of house prices, therefore, influences not only business cycle dynamics, through their effect on aggregate expenditure, but also the performance of the financial system, through their effect on the profitability and soundness of financial institutions. Understanding this behaviour is thus of key interest to central banks charged with maintaining price and financial stability.

Of particular importance from a policy perspective is the relationship between housing prices and the structure of mortgage finance markets. Because a house purchase generally requires external financing, the cost of mortgage credit and the conditions under which it becomes available play a major role in shaping the pattern of house price dynamics. Conversely, the servicing of outstanding mortgages, determined in part by the dynamics of house prices, has an impact on the health of lenders and their ability and willingness to extend credit.

In this article we use a common empirical framework to analyse the main forces that drive aggregate house prices across a number of industrialised countries. After discussing the common features in house price dynamics, we relate the broad differences across countries to distinguishing features of the national markets for housing finance. The most striking result emerging from this analysis is the dominance of inflation in the determination of real house prices despite marked differences in the individual aspects of national markets.

[1] The views expressed in this article are those of the authors and do not necessarily reflect those of the BIS.

Another important result is that the feedback from house prices to credit growth is stronger in the case of countries with more market-sensitive valuation methods for mortgage accounting. This suggests that prudential rules may have an impact on the co-movement between residential real estate prices and the performance of the financial system.

The rest of this article is organised in two sections. The first section presents an overview of the determinants of house prices and the financing arrangements that prevail in the countries included in our analysis. The second section discusses our empirical findings and maps the variation in the relative importance of the different factors onto the structural characteristics of the various national markets.

The economics of house price determination

House price cycles …

Residential real estate prices are characterised by long swings. Graph 1 plots inflation-adjusted house prices for 17 industrialised economies between 1970 and 2003. Each country experienced about two full cycles over this period of 33 years.[2] Moreover, most of the countries experienced a house price boom after the mid-1990s. In fact, the prolonged increase in house prices has outlasted the run-up in equity market valuations and, despite evidence of a slowdown in its rate of growth, does not show any signs of similar reversal.[3]

… differ across countries

This broad overall picture, however, ignores considerable differences in the experience of individual countries. During this period, housing price growth was particularly strong in Ireland, the Netherlands and the United Kingdom, which experienced average annual growth rates in excess of 11%. This group is followed closely by Australia, Spain and a number of Nordic countries, where the pace of growth has accelerated in more recent years. Residential property prices are currently at record levels in the United States, after a number of years of steady growth. At the other end of the spectrum one finds Germany and Switzerland, where prices have remained rather flat recently even though the latter experienced a boom and bust cycle in the late 1980s and early 1990s. Similarly, there has been a downward trend in real house prices in Japan since the bursting of the so-called “bubble economy” in the early 1990s. In the rest of this section we will discuss the main drivers of house prices that can account for some of the differences in the experience across these countries, paying particular attention to those factors related to the structure of mortgage financing.

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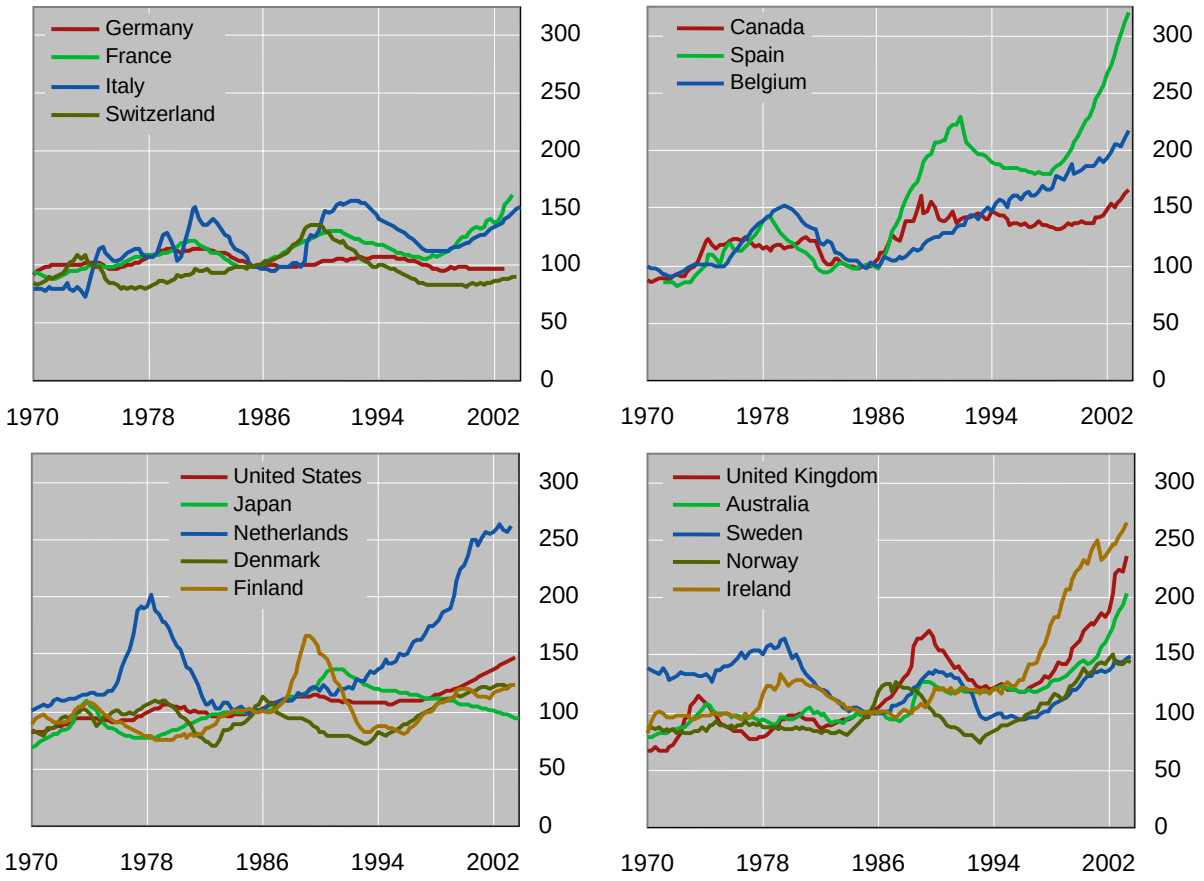
[2] The countries included in this study are: Australia, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, the Netherlands, Norway, Spain, Sweden, Switzerland, the United Kingdom and the United States.

[3] For a more detailed analysis and discussion of the relationship between the turning points in the price cycles of equity and real estate markets, see Borio and McGuire (2004).

Inflation-adjusted house prices[1]

Quarterly data; 1985 = 100



[1] Nominal house prices deflated by the personal consumption deflator. For France, Germany, Italy and Japan, quarterly house price data are derived from lower-frequency data using Ginsburgh interpolation techniques.

Sources: Japan Real Estate Institute; Nomisma; national data; BIS calculations. Graph 1

The determinants of house prices

Long-term determinants ...

A useful distinction in the demand and supply factors that drive real housing prices is between those that have a longer-term influence and those that affect shorter-term dynamics. Factors that influence the demand for housing over longer horizons include growth in household disposable income, gradual shifts in demographics (such as the relative size of older and younger generations), permanent features of the tax system that might encourage home ownership as opposed to other forms of wealth accumulation, and the average level of interest rates (possibly related to the long-run behaviour of inflation). The availability and cost of land, the cost of construction and investments in the improvement of the quality of the existing housing stock are longer-term determinants of housing supply.

... and short-term factors

Housing markets, however, are intrinsically local in character. As such, the growth of the housing stock can be constrained in the short run as a result of a number of factors that include the length of the planning and construction phases and the inertia of existing land planning schemes. This suggests that idiosyncratic, national factors can lead to significant differences in the

dynamics of prices across countries.[4] One set of such factors relates to the prevailing conditions in the provision of financing for the purchase of housing. Another factor affecting the liquidity of the housing market is the specific transaction cost framework such as the level of VAT, stamp and registration duties and inheritance taxes. Finally, the uncertainty about future prospects that follows periods of heightened volatility in housing prices tends to lead to a more cautious response of housing construction to shifts in demand because of the inherent irreversibility of this type of investment.

Housing finance

Predominant reliance on debt financing

Housing investment decisions, more than any other category of household expenditure, depend critically on the availability, cost and flexibility of debt financing. These factors are likely to drive shifts in housing demand in the short term together with returns in other asset classes, which determine the opportunity cost of real estate investments. Given the sluggish response of housing supply, these drivers of demand play a key role in shaping the short-term dynamics of house prices.

The impact of interest rates …

A declining interest rate environment, which keeps servicing costs of ever larger mortgages within the household budget limits imposed by current income, typically boosts the demand for residential real estate. One distinction is between countries where mortgage loans are primarily extended on the basis of floating rate contracts, and hence payments are more sensitive to the gyrations of short-term rates (eg the United Kingdom), and those where fixed rate contracts dominate (eg the United States and many continental European countries).

… securitisation …

The residential real estate market has benefited from the increased reliance on market-based channels of financing. The spread of credit scoring methods and standardised mortgage contracts, coupled with a growing appetite for tradable instruments among portfolio institutional investors, has led to the growing securitisation of mortgage assets. Credit institutions that used to hold a large volume of mortgages on their balance sheets have the option to focus on their comparative advantage in origination and servicing and to sell any unwanted exposure in the secondary market. This market is most advanced in the United States, where the role of government-sponsored agencies, which were created for this purpose, has been instrumental. However, it is also growing rapidly in other countries, benefiting from advances in computing and financial technology and recent innovations in the legal framework that governs these transactions.

… home equity extraction …

Some of the benefits from the reduction in the cost of origination and the improved liquidity of mortgage assets have been passed on to households in the form of lower transaction fees and more flexible mortgage contract terms. A manifestation of this flexibility in the mortgage market has been the withdrawal of home equity by households to take advantage of low refinancing rates and

[4] Another implication is that the behaviour of national price averages obscures the existence of divergent trends in local residential markets within the same country. This analysis is, however, beyond the scope of the present article.

increased house values. The process has been particularly pronounced in the United States, the United Kingdom, the Netherlands and Australia, where house equity extraction has increased household financial resources relative to disposable income. This has recently helped to support aggregate consumption despite the marked slowdown in economic activity.

... and leverage and valuation

Finally, the details of mortgage accounting practices can influence creditors' appetite for exposure to the market and thus the potential feedback from house prices to the availability of finance. Important parameters in this respect are the existence and level of prudential ceilings on the loan-to-value (LTV) ratios that determine the ability of banks to lend against real estate collateral, and the valuation methods of property used in conjunction with these ceilings. Methods that base lending decisions on the current market value of the property would tend to increase the sensitivity of credit availability to market conditions and could possibly help to create a positive momentum in market demand. Conversely, valuations that are anchored to historical levels of prices would tend to lag current market trends, thus exerting a countercyclical influence on credit availability.

There is significant variation across countries in both business practices and the regulatory framework for mortgage finance. Table 1 shows the mortgage finance characteristics of the countries included in our analysis, as they apply to interest rate adjustability, the possibility of equity extraction, valuation and leverage practices, and the depth of the securitisation market.

Characteristics of mortgage markets in 17 industrialised countries

	Interest rate adjustment[1]	Mortgage equity withdrawal	Maximum LTV ratio (%)	Valuation method[2]	Securitisation (mortgage-backed)
Australia	V	Yes	80	OM	Yes
Belgium	F	No	80–85	OM	No
Canada	F	Unused	75	OM	Yes
Denmark	F	Yes	80	ML	No
Finland	V	Yes	75	OM	No[3]
France	F	No	80	OM	No[3]
Germany	F	No	60	ML	No[3]
Ireland	V	Yes	90	OM	Yes[3]
Italy	F	No	50	OM	No
Japan	F	Yes	80	OM	No
Netherlands	F	Yes	75	OM	Yes
Norway	V	Yes	80	OM	No
Spain	V	Unused	80	OM	Yes
Sweden	V	Yes	80	OM	No[3]
Switzerland	V	No	66	ML	No[3]
United Kingdom	V	Yes	90–100	OM	Yes
United States	F	Yes	75–80	OM	Yes

[1] F = fixed mortgage rates; V = variable mortgage rates. The classification is based on the majority of mortgage loans. It should be noted that the division is less clear in Japan and Sweden. Moreover, in the United States and Denmark, the very low cost of refinancing actually allows borrowers to adjust mortgage rates when interest rates fall. [2] OM = open market value; ML = mortgage lending value. [3] Securitisation was introduced at a certain stage but remained very limited.

Sources: Borio et al (2001); ECB (2003); HM Treasury (2003); OECD (2001). Table 1

In the next section we will exploit this diversity in explaining the cross-country variation in the importance of different economic variables in influencing house prices. For this purpose we classify countries into three groups on the basis of these characteristics. To do so, we rely on statistical classification techniques to form groups of countries that are broadly homogeneous with respect to those structural features of their mortgage finance markets.[5]

Three groups of countries

The analysis results in three groups of countries. Table 2 details the composition of the groups and their profiles in terms of mortgage finance characteristics. The first group mainly consists of continental European countries plus Canada and Ireland. In these countries, mortgage equity extraction is never used, and banks' lending practices (as measured by the relatively low LTV ratio and the use of historical property valuation) are more conservative. By contrast, in countries in the second and third groups the mechanisms that allow equity extraction are more developed and lending practices can be characterised as more "aggressive". This is particularly true in group 3, where the market value method is most popular and the maximum LTV ratios are all above 80%. The main attribute that distinguishes between groups 2 and 3 is the duration of mortgage debt. Interest rates are usually fixed for more than five years or until final maturity in the second group (eg the United States and Japan), whereas they are tied to market rates and subject to renegotiation on a regular basis in group 3 (represented by the United Kingdom and Australia).

Profiles of mortgage finance systems[1]

		Mortgage rate[2]	MEW[3]	Maximum LTV[4]	Valuation method[5]
Group 1	Belgium, Canada, France, Germany, Italy, Spain, Switzerland	0.29	0.00	0.43	0.71
Group 2	Denmark, Finland, Japan, Netherlands, United States	0.20	1.00	0.60	0.80
Group 3	Australia, Ireland, Norway, Sweden, United Kingdom	1.00	1.00	1.00	1.00
All countries		0.47	0.59	0.65	0.82

[1] Calculated based on the dummy variables defined below. [2] Floating mortgage rate arrangement = 1; fixed mortgage rate arrangement = 0. [3] Mortgage equity withdrawals. 0 = non-existence or negligible use of such an arrangement; 1 otherwise. [4] 1 = maximum LTV ratios above 75%; 0 otherwise. [5] 1 = use of market value; 0 = use of mortgage lending value.

Sources: BIS; authors' calculations. Table 2

[5] More specifically, we assign categorical numerical variables to each of those characteristics and use a statistical clustering algorithm, which determines the groups so as to maximise the commonality of characteristics for countries within each group and maximise the difference between countries that belong to different groups.

Measuring the impact of different factors: cross-country evidence

In this section we examine the impact of differences in the structure of national mortgage finance markets on the relationship between macroeconomic variables and housing prices. To this end, we employ a vector autoregression (VAR) model which allows us to capture the salient aspects of the dynamic interaction between inflation-adjusted housing prices and these selected mortgage variables on the basis of a minimal number of assumptions about the overall economic structure.

The empirical framework

Variables of interest …

The model includes five endogenous variables besides house price growth: (i) the growth rate of GDP, which provides a measure of the state of the business cycle and household income; (ii) the rate of inflation in consumer prices, which is the only nominal variable in the system; (iii) the real short-term interest rate, which is closely linked with the monetary policy stance; (iv) the term spread, defined as the difference in yield between a long-maturity government bond and the short rate; and (v) the growth rate in inflation-adjusted bank credit.

The economic motivation for the inclusion of these variables is fairly clear from the discussion in the previous section. What merits further discussion is the exclusion of some other factors that arguably have a bearing on the determination of house prices. We found that GDP growth summarises the information contained in other more direct measures of household income, such as unemployment and wages. We thus decided against including these variables on grounds of parsimony of specification. In addition, we experimented with the inclusion of equity market returns, a competing asset in household portfolios. This did not yield any significant coefficients. We interpret this as an indication that, in normal times, the co-movement between equity and housing prices is driven by their mutual link to business cycle dynamics and the yield curve. The regularities in the relationship between the peaks in the two markets obtained by Borio and McGuire (2004) relate to particular phases in their respective price cycles, which are quite distinct.

… and econometric technique

The estimated VAR is complemented by a number of identifying assumptions that allow us to attribute the observed dynamics of the six variables to movements (also referred to below as "innovations") in a set of six distinct factors, each associated with one of the endogenous variables. The full set of assumptions is discussed in the box on page 72. The "decomposition" of the observed variability of the endogenous variables over the sample to the six "innovations" provides a measure of their relative importance in the determination of the overall dynamics of the system. We present the results of this analysis in the next two sections.

What drives house prices?

We first discuss the general lessons that emerge from our empirical analysis, focusing on the commonalities across the 17 countries rather than their differences.

The SVAR (structural vector autoregression) framework

A VAR is a reduced-form linear dynamic simultaneous equation model in which all variables are treated as endogenous. A reduced form representation can be consistently estimated by regressing each variable on a number of lags of all endogenous variables. In this special feature, the variables of interest include house price inflation, the growth rate of GDP, the real short-term interest rate, the term spread, inflation and the growth rate of real bank credit to the private sector. The system is specified with four lags of the endogenous variables.

To examine the dynamic interactions among these variables, we adopt a number of assumptions about the structure of the economy in the form of implied relationships between a set of uncorrelated unobserved shocks (innovations) to the endogenous variables and the observed residuals from the estimated linear equations. Compared with other identification schemes, this method provides more flexibility and the results often turn out to be quite robust.

The constraints we impose are mainly derived from economic explanations of the contemporaneous effects among these variables. We consider output growth as the leading variable in the system, in the sense that its innovations immediately affect all other variables while the converse is not true. For house prices we have assumed the opposite: we allow for innovations in all other variables to have an immediate impact on prices. We further assume that monetary policy, and hence short-term real interest rates, respond to innovations in output growth and inflation, as suggested by a Taylor rule, while the slope of the yield curve is influenced by innovations in output growth and the short rate. Inflation is assumed to respond immediately only to changes in current economic conditions and to fluctuations in house prices since housing costs are an important component of the consumer basket. Finally, there are important connections between bank lending and house prices, which are often reinforced by the usage of real estate as collateral. Rising house prices strengthen the borrowing capacity of households and improve the performance of banks' mortgage portfolios. Conversely, changes in the lending attitudes of the banking sector influence housing demand and prices (see Zhu (2003)).

Based on these identifying assumptions, the key outputs of the structural VAR are the variance decomposition and impulse response functions. The variance decomposition enables the attribution of the observed variance of the forecast error for each endogenous variable to each of the identified structural innovations. Similarly, the estimated impulse responses refer to the dynamic response of the endogenous variables to standardised structural innovations and outline the propagation mechanism for these innovations through the estimated system. For example, in Graph 3 we show the response of house prices to a 1 percentage point change in the short-term interest rate over different horizons.

Overall, inflation is most important …

Our clearest result relates to the importance of inflation as a driver of housing prices. On average, across countries, inflation accounts for more than half of the total variation in house prices at the five-year horizon (Table 3, right-hand column). In the short run, the size of the impact is even larger. Its contribution nears 90% of the total price variation in the one-quarter horizon and drops to about two thirds over the one-year horizon. This strong influence of inflation is more important when one considers that house prices are measured in real terms.

There are two potential explanations for this finding. The first relates to the dual function of residential real estate as consumption good and investment vehicle. As such, it is often used by households as the main hedge against the risk that inflation might erode their wealth. The fact that the purchase of property is typically financed with nominal debt makes it more attractive in this respect. A high degree of inflation persistence (particularly over the sample period for our analysis) also suggests that the effects of innovations in inflation on house prices are likely to be felt over longer horizons. Higher uncertainty

levels about future expected returns on investments in bonds and equities associated with high inflation also contribute to the attractiveness of real estate as a vehicle for long-term savings.

The second explanation is linked to the impact of inflation on the cost of mortgage financing and generally suggests that higher inflation would have a negative impact on house prices. If financing decisions are more sensitive to the nominal yield curve than to real rates, one would expect housing demand, and thus real house prices, to respond to changes in inflation and to expected inflation. Given the specification of the VAR, some of this impact would be picked up by the inflation innovation since we include only real interest rates in the system.[6] In addition, inflation may also proxy for the prevailing financing conditions, which have an impact on the demand for real estate. High inflation and high nominal interest rates backload the repayment of the mortgage principal and increase the real value of repayment in the early part of the repayment period of the loan, thus dampening the demand for housing (see Debelle (2004) for a more elaborate exposition of this mechanism).

It is not easy to distinguish between these two hypotheses in the context of our framework. Our sample includes the 1970s, a period of high and variable inflation, as well as the low-inflation years since the early 1990s. Nevertheless, analysis over smaller samples reveals that both explanations might have been operational in different periods. The importance of inflation in explaining house price variance over the second half of the sample is considerably lower than during the earlier years. While inflation remains the single most important factor, its share in explaining the overall variance is halved, with the financing factors being the main beneficiaries.[7] Moreover, the sign and size of the associated impulse response functions confirm that the inflation hedge motive has not been a strong driver of housing demand over the past decade.

… followed by financing factors …

Second in importance among the drivers of house price dynamics are the three variables related to mortgage finance: bank credit, short-term interest rates and spreads. They are almost equally important, and together they explain about one third of the observed variance of house prices in the long run (Table 3). Regarding the direction of the impact, further results from impulse response function analysis indicate that decreases in real interest rates lead over time to increases in house prices. In particular, a negative 1 percentage point innovation in the real short-term interest rate leads to an increase of 1.2% in house prices over two years. Similarly, a flattening of the yield curve of that size has a positive cumulative impact on house prices in the range of 70–80 basis points over the course of the following two years. As discussed below, there are systematic differences in the impact of short and long rates across countries.

… while income explains little

A surprising result is that household income has a very small explanatory power over housing price movements. Its contribution over the long horizon is

[6] See also Borio and McGuire (2004).

[7] For the sample 1990–2003, inflation explains about 25% of the overall variance of house prices, and the shares of short-term rates and the spread rise to 15% and 18% respectively.

less than 10% of total housing price variability.[8] This sharp contrast with the role of interest rates suggests that purchasing decisions are more sensitive to the nominal amount of monthly payments than to the size of the loan in relation to household income. These results support the view (BIS (2003)) that, in recent years, the historically low interest rates have been the major contributor to the booming housing markets in most industrialised countries.

Mortgage finance arrangements and house price dynamics

Mortgage market structures matter …

While the results highlighted above are broadly shared across the different countries in our analysis, we discuss in this section systematic differences in their detail across the three groups identified on the basis of their mortgage finance structures. In the remainder of this article, we are particularly interested in whether these structural characteristics affect the dynamic interaction between housing prices and the other endogenous variables in our model.

The bottom row of Table 3 shows that the average growth of real house prices ranges between 1.5 and 2.4% per year, across the three groups. Likewise, the variability of this growth rate is roughly comparable with standard deviations hovering at about 5%. Graph 2 and the upper panel of Table 3 demonstrate, however, that the importance of innovations in different variables for the long-term variability of house prices differs substantially across the three groups. We discuss these differences below as they pertain to the relationship between housing prices, on the one hand, and inflation, the yield curve and bank credit, on the other.

Variance decomposition[1]

Impact on housing prices from a shock to:	Group 1	Group 2	Group 3	All countries
GDP	6.9	6.9	9.2	7.6
Bank credit	6.7	19.1	10.3	11.4
Housing prices	5.5	8.9	8.5	7.4
Short rate	10.3	8.7	13.8	10.8
Term spread	8.0	14.2	8.0	9.8
Inflation	62.5	42.3	50.3	53.0
Impact of a shock to housing prices on:	**Group 1**	**Group 2**	**Group 3**	**All countries**
GDP	5.4	3.8	7.7	5.6
Bank credit	6.9	5.2	15.1	8.8
Memo: Average growth rate of real house prices (annualised)[2]	*1.6% (4.9%)*	*1.5% (4.8%)*	*2.4% (5.6%)*	*2.0% (5.0%)*

[1] The numbers refer to the share of one variable's total variation that can be attributed to innovations in another variable, at the five-year horizon. The shares are calculated as averages for the group of countries identified in each column. [2] Standard deviation in parentheses.

Sources: BIS; authors' calculations. Table 3

[8] This result persists even if we use real wages instead of real GDP in the specification.

... for the importance of inflation ...

Our interpretation of the importance of property investments as a hedge to inflation is supported by the fact that the impact of inflation on housing prices is strongest for the first group of countries, which includes a number of countries that experienced long bouts of pronounced inflation rates during our sample. Innovations in inflation account for more than 60% of total house price variability for this group. This, coupled with the observation that the link between prices and credit is the weakest for these countries, suggests that housing values in these regions are more dependent on macroeconomic conditions. This could also be attributed to the fact that the almost exclusive reliance on non-funded pay-as-you-go pension systems in most countries has hampered the development of an equity investment culture among continental European households. Real estate investments offered, therefore, a reasonable defence against the erosion of the nominal value of household savings by inflation.[9]

... sensitivity to interest rates ...

The prevailing practice in the adjustment of mortgage rates is another factor that differentiates the three groups of countries. For those countries that use predominantly floating mortgage rates, the impact of short-term interest rates on house prices is much stronger. This is demonstrated most clearly by the comparison between the second and third groups of countries, which differ primarily on this aspect: floating rate contracts dominate in countries in the third group and fixed rate contracts in those in the second. The opposite is true for the effect of the term spread (and hence, the impact of the longer end of the yield curve) on housing prices. House prices in the group 2 countries, comprising primarily countries with a prevalence of fixed rate mortgages, show the highest sensitivity to innovations in the term spread. The level of the estimated average response of housing prices to innovations in the short-term rate (Graph 3) is also consistent with this analysis. In response to a 1% cut in real short-term interest rates, house price inflation would increase by 2.6% over five years in group 3 compared with only 1.8% in group 2.

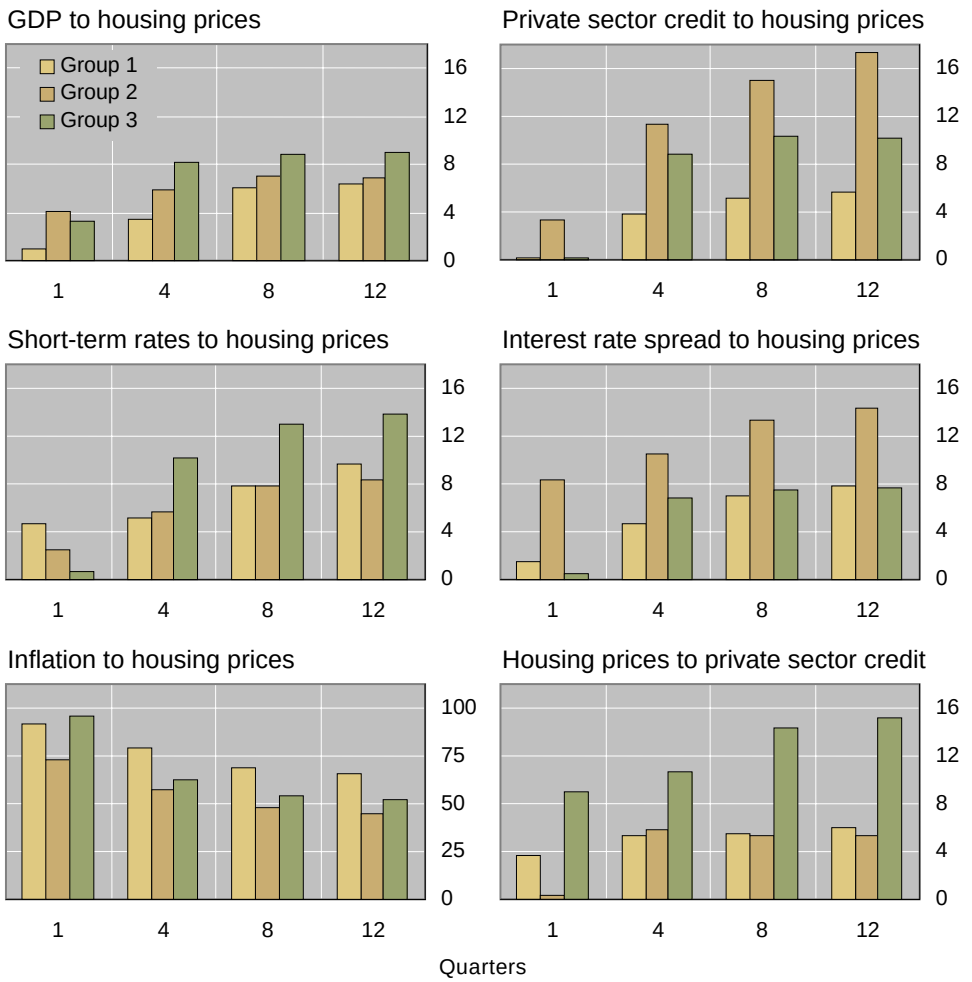
... the strength of the bank credit channel ...

Our results offer evidence that the interaction between bank credit and house prices is affected by the prevalent lending practice of mortgage lenders. The positive feedback between credit and property cycles is further reinforced when bank lending is highly dependent upon collateral values. Table 3 shows that for group 1 countries, where LTV ratios are lower and collateral valuation is more consistent with their long-term values, the links between bank credit and house prices, measured as the share of one variable's variance explained by the other, are the weakest at less than 7% in each direction. By contrast, innovations in credit are able to explain almost one fifth of house price variability for group 2 countries. In the third group, where approaches to valuation are most sensitive to market values and loan leverage is the highest, the amount of bank lending turns out to be most responsive to house price

[9] The analysis of the variance decomposition of house prices for the sample since 1990 shows that the three groups of countries do not differ with respect to the importance of inflation. This confirms our earlier assertion that the inflation hedge motive was stronger only during the high-inflation period of the earlier part of our sample.

Variance decomposition results

In percentages



Note: For a definition of the groups, refer to Table 2.

Source: Authors' calculations.

Graph 2

movements. Interestingly, such an impact occurs almost immediately (lower right-hand panel, Graph 2). This suggests that the risk of mutually reinforcing mechanisms between housing prices and credit giving rise to financial imbalances may be more pronounced for this group of countries.[10] We also conjecture that the relatively closer link between innovations in credit growth and housing prices for the second group of countries is also a factor that explains the greater responsiveness of the latter to interest rate movements. Arguably, lower real interest rates are typically associated with more abundant liquidity in the banking system and more liberal credit expansion.

… but not much for the wealth effect

Finally, our results can offer some suggestive evidence on the effects that structural aspects of national mortgage markets, such as the enhanced possibility of equity extraction and the development of markets for securitised

[10] For a general discussion of the procyclical mechanisms in the financial system which operate through the interaction of asset prices and credit growth, see Borio et al (2001).

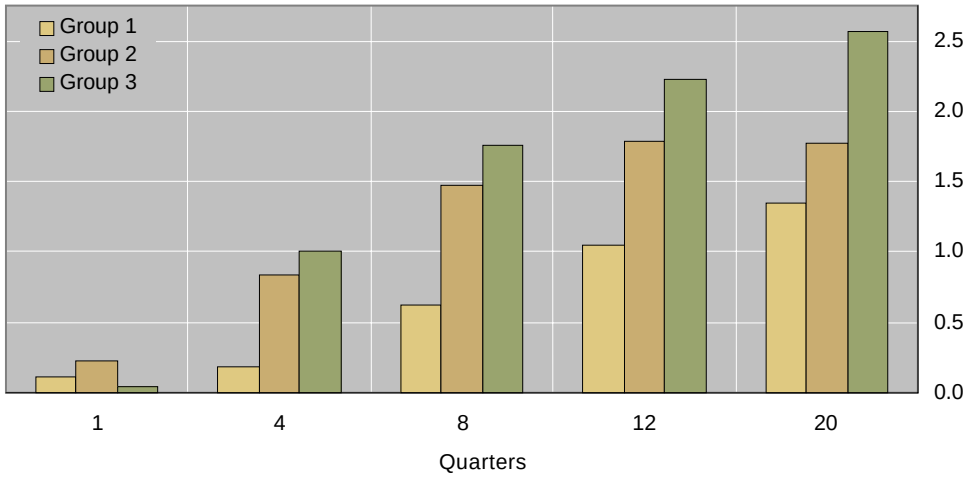
mortgages, have on house price dynamics. During the most recent downturn, the extraction of housing equity is considered to have been a major source of support for household expenditure in countries such as the United States, the United Kingdom and Australia (Deep and Domanski (2002), Debelle (2004)). Keeping in mind that these comparisons are based on sample data that pre-date the introduction of the possibility of equity extraction through mortgage refinancing, we find that the long-term impact of house prices on national income and bank lending does not seem different between countries with or without such arrangements. On the other hand, house price movements do generate more volatility in bank lending activity in the short run if mortgage equity withdrawal is used.[11]

Securitisation contributes to mortgage risk diversification

Regarding the impact of mortgage-backed securities (MBS) markets on the role of the banking sector in real estate cycles, we observe that countries with developed MBS markets (such as the United States, the United Kingdom, the Netherlands and Australia) show a lower effect of housing prices on bank credit.[12] This is consistent with the conjecture that mortgage securitisation allows banks to transfer some of the credit risk associated with mortgage loans to the capital market, hence reducing the sensitivity of the banking sector's lending capacity to the housing price cycle.

Cumulative response of house prices to a 1% fall in real short-term interest rates

In percentage points



Note: For a definition of the groups, refer to Table 2.

Source: Authors' calculations. Graph 3

[11] For countries where mortgage equity withdrawal is used, house price movements explain 8.3% of changes in bank credit over the next year. This number is 5.7% for the other countries.

[12] House price movements explain only 5.2% of the variation in bank credit in these four countries compared with 10% in the other countries.

Conclusions

In this article we have looked at the importance of a number of macroeconomic factors affecting the dynamics of residential real estate prices. Furthermore, we have linked cross-country differences in the intensity of these responses to structural features of the national markets for mortgage finance. While the level of generality of this discussion does not permit us to formulate precise policy recommendations, a number of general lessons emerge from these results.

The main lesson is related to the strong and long-lasting link between inflation and nominal interest rates on the one hand, and housing prices on the other. This link suggests that long periods of elevated inflation followed by a sharp deceleration of price growth may, in the shorter term, breed misalignments between house prices and longer-term determinants of residential real estate values. Situations like this might call for greater caution on the part of monetary authorities. Declines in the level of policy rates might encourage the momentum of house prices.

The second lesson relates to the implications of housing price growth for financial stability. The feedback from property prices to credit growth is strongest in countries with a greater prevalence of variable rate mortgages and more market-based property valuation practices for loan accounting. In these countries the risk of a build-up of mutually reinforcing imbalances in the real estate market and the financial sector is more pronounced, indicating that prudential authorities should closely monitor developments in property values.

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