House Prices and Consumer Spending

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- *The apparent overvaluation of house prices in several advanced economies is an ongoing concern for policy-makers, since a significant downturn in prices would have adverse effects for consumer spending and the aggregate economy.*
- *House prices influence consumer spending through two main channels: a direct housing wealth effect and a collateral effect.*
- *The evidence cited in this article suggests that the link between house prices and consumer spending is stronger in countries with more-developed mortgage markets characterized by lower down payment ratios, increased availability of home-equity borrowing products, longer average mortgage terms, and a higher degree of mortgage securitization.*
- *The liberalization of mortgage markets since the early 1980s has resulted in a stronger link between house prices and consumer spending.*

The most recent increase in real house prices around the globe, which for some countries now appears to be over, has significantly outpaced previous episodes. Although some studies (e.g., IMF 2008c) suggest that the rapid rise in house prices was not in line with economic fundamentals, the extent of this overvaluation is highly uncertain. Moreover, the impact on global economic growth of a broadly based correction in house prices is not clear. Although some advanced economies have already begun to experience declines in real house prices, consumption expenditures and other measures of demand have not yet fallen appreciably. Nevertheless, the likely adverse effects on consumer spending and the aggregate economy of a significant downturn in house prices are an ongoing concern for policy-makers.

Movements in house prices can affect consumer spending in two ways: through a direct wealth effect implied by the life-cycle and permanent-income theories, or through a collateral effect, by allowing greater access to credit. Under the permanent-income theory, households perceive their houses as wealth, and base their spending decisions in part on movements in net wealth positions. As well, if access to credit for some consumers is contingent on their housing wealth or equity, these credit-constrained households will be able to borrow and spend more, based on an increase in the collateral value of their homes.

The purpose of this article is to examine estimates of the effect of housing wealth on consumer spending in a group of advanced countries, and how institutional differences in national mortgage markets lead to different effects on consumption. The article is organized as follows. The next section contains a brief review of

recent developments in house prices in advanced economies and a discussion of whether, at current prices, houses are overvalued. Next, we summarize the key reasons why house prices might enter into household consumption decisions and explain the role of institutional differences in mortgage markets in the link between house prices and consumer spending. We then discuss how the effect of housing wealth on consumer spending may have changed as mortgage markets in advanced economies have undergone significant deregulation. We conclude with our views on the potential impact on consumer spending of a global slowdown in house price appreciation.

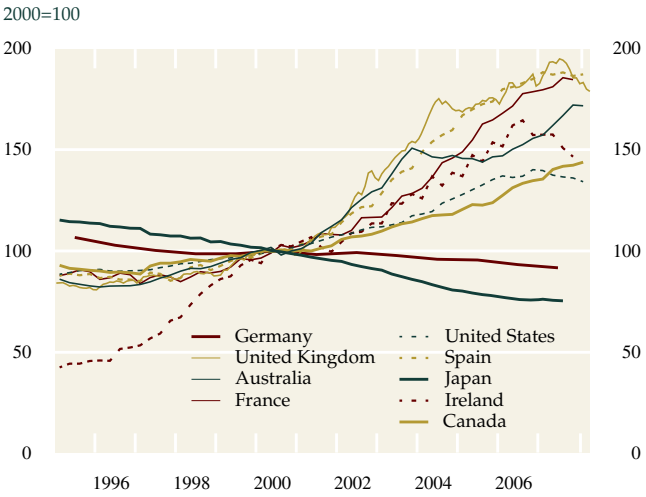
Housing Prices in Advanced Economies

The recent boom in house prices across advanced economies is unprecedented in its size and duration and appears to have been more synchronized across advanced countries than in the past. In a study of 16 countries belonging to the Organisation for Economic Co-operation and Development (OECD), Girouard et al. (2006) find that, since 2000, 13 countries experienced a real increase in house prices that exceeded 25 per cent. Substantial increases in existing house prices occurred in Ireland, the United Kingdom, Spain, France, Australia, the United States, and Canada (Chart 1).[1] In contrast, some countries, such as Germany and, more importantly, Japan, have experienced declines in real house prices over the past 10 years. In Germany, the weakness of the housing sector followed the unification boom and is also related to the withdrawal of tax subsidies in the late 1990s; while in Japan, house prices have been stagnant since the collapse of the housing bubble in the early 1990s. Notably, the countries recently experiencing strong appreciation in house prices have also experienced robust growth in consumer spending, raising the possibility that higher home equity is a key channel stimulating consumer spending (Chart 2).[2]

More recently, the global pace of appreciation in existing house prices has slowed, or reversed (Charts 3 and 4).

Chart 1

Real Residential Property Prices

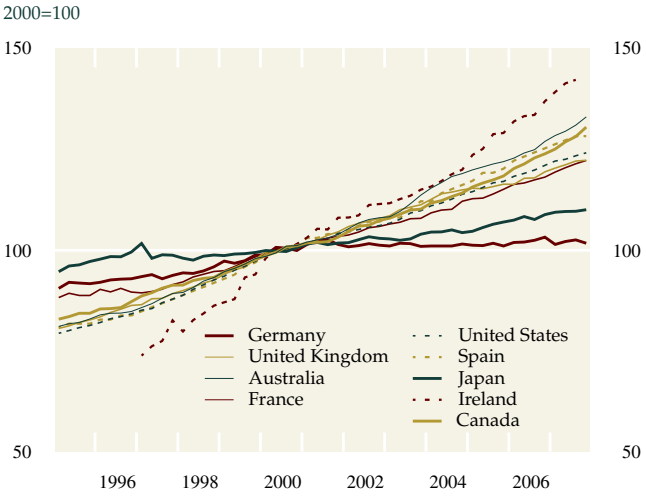


Note: Prices for Japan include land only.
Source: BIS + Datastream

In the United States, the slowdown began in mid-2005, and real house prices have fallen since mid-2007.[3] Signs are also emerging of a cooling in European housing markets, with growth in prices moderating in most countries. In Ireland and, more recently, the

Chart 2

Real Household Consumption



Source: BIS

1. Unlike earlier episodes, where housing booms have been limited to a few regions, for many countries, including the United States, the most recent boom was nationwide (Shiller 2007).

2. The comovement between house prices and consumer spending may also reflect the influence of common factors, such as an improvement in income expectations that will increase demand for consumer spending and housing. This article considers the literature that examines a causal link between consumer spending and house prices and does not examine common factors driving both house prices and consumer spending.

3. Real house prices in the United States are measured using the Office of Federal Housing Enterprise Oversight (OFHEO) index deflated using total consumer price inflation.

United Kingdom and Spain, prices have begun to fall; the International Monetary Fund (IMF 2008a) expects further declines in house prices in these countries over 2008–2009. In Canada, the growth in house prices is expected to moderate, since affordability has deteriorated and economic growth is expected to slow. With few signs of excess supply at the national level, the growth in prices is expected to remain positive (Bank of Canada 2008).

Assessing Global Overvaluation in House Prices

Whether, and to what extent, house prices are likely to experience a pronounced correction is hard to determine. To address this issue, it is necessary to examine prices in light of their underlying fundamentals (or determinants). Typically, these can be decomposed into demand factors (affordability, real disposable income growth, real interest rates, household formation rates) and supply factors (housing stock, land scarcity, and the availability of skilled labour). Countries that have experienced the greatest run-up in house prices, and for which a large share of the increase cannot be explained by fundamentals, are likely to be the most at risk of experiencing a severe correction.

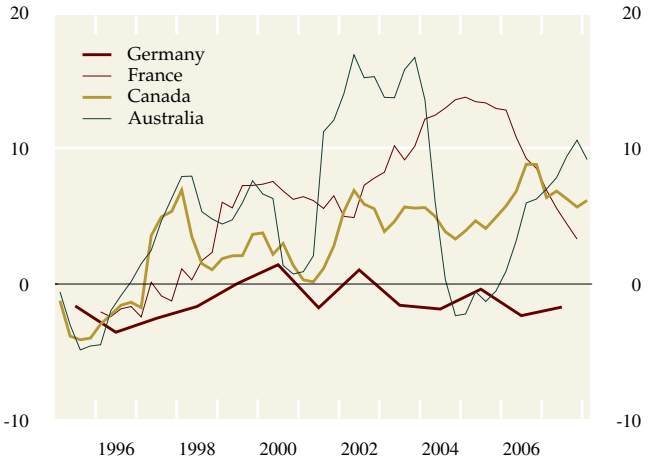
In many advanced countries, a large proportion of the house price increases over 1997 to 2007 does not seem to be accounted for by changes in fundamentals.

A recent IMF study (2008c) finds that, in many advanced countries, a large proportion of the house price increases over 1997 to 2007 does not seem to be accounted for by changes in fundamentals, such as affordability, growth in real disposable income, and real interest rates.[4, 5] Housing prices appear to be most overvalued in Ireland and the United Kingdom, where they are estimated to be about 30 per cent higher than can be justified by fundamentals (Chart 5).[6] The second group of countries where roughly 20 per cent of house prices cannot be explained by fundamentals includes France, Australia, and Spain. The

Chart 3

Real Residential Property Prices

Year-over-year percentage change

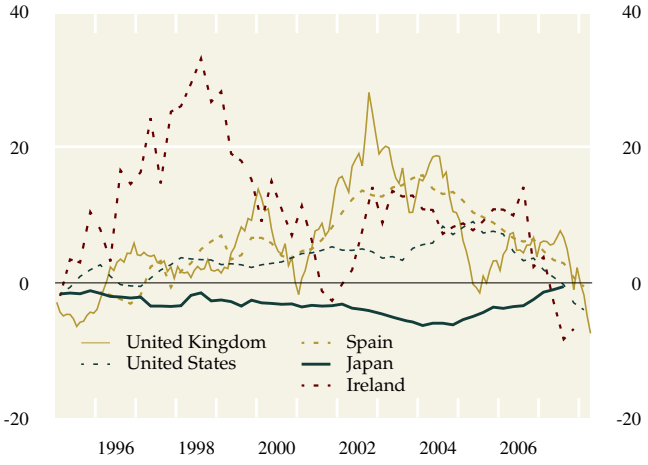


Source: BIS + Datastream

Chart 4

Real Residential Property Prices

Year-over-year percentage change



Note: Prices for Japan include land only.
Source: BIS + Datastream

4. See the IMF's *World Economic Outlook*, April 2008, Box 3.1 "Assessing Vulnerabilities to Housing Market Corrections." Growth in house prices is modelled as a function of an affordability ratio, growth in disposable income per capita, short-term interest rates, long-term interest rates, credit growth, and changes in equity prices and working-age population.

5. Several criticisms can be made of this study; e.g., credit growth is not part of fundamentals, it is a facilitator at best, and it can be an amplifier of house prices.

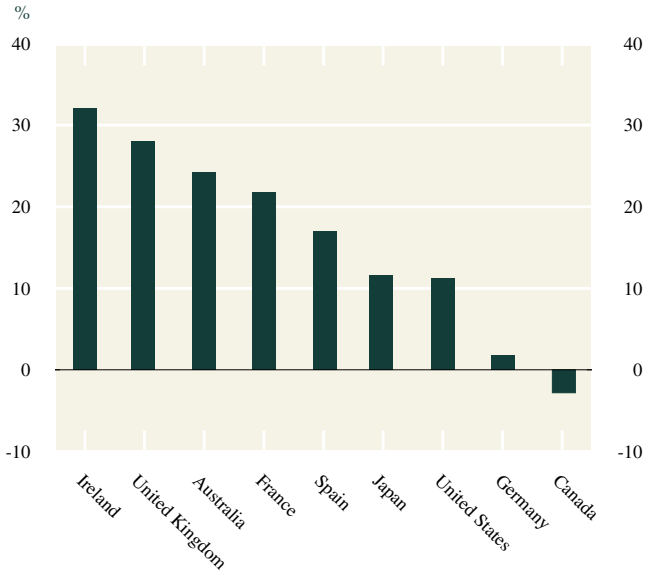
6. The IMF study does not include supply factors. The overvaluation in countries with land scarcity (e.g., the United Kingdom) may therefore be overestimated.

overvaluation appears to be more limited in the United States (about 10 per cent), where a decline in house prices has already begun.[7] In Germany and Canada, recent price levels appear to be roughly in line with fundamentals. Consistent with the IMF's findings, the OECD (2008) finds that prices in the United States, the United Kingdom, Ireland, and Spain are overvalued relative to fundamentals.

Considerable uncertainty surrounds these estimates, however, since house prices can be affected by specific features of national housing markets that are not captured by the IMF's model. In the United Kingdom and Ireland, for example, homebuilders' ability to respond to higher house prices is constrained by complex zoning rules and slow administrative procedures.[8] Fiscal incentives in some countries, such as the Netherlands, have also played a role by creating favourable conditions for those choosing to invest in housing. Nevertheless, given the risk that housing may be overvalued in many advanced economies, it is important to evaluate the effect of house prices on consumer spending.

Chart 5

House Price Gaps



Note: Gaps are the percentage of increases in house prices that cannot be explained by fundamentals.
Source: IMF staff calculations

The Effect of Housing Wealth on Consumer Spending

A well-developed literature based on the permanent-income hypothesis or the life-cycle model has established a link between consumption and wealth (Friedman 1957; Ando and Modigliani 1963). According to the permanent-income hypothesis, a household's consumption in any given period is equal to its permanent income, defined as the annuity value of household wealth.[9] The current value of household wealth is the sum of human wealth and non-human wealth. Non-human wealth includes both financial and housing wealth, with housing wealth often forming the largest component of household assets.[10]

Housing wealth may have a larger effect on consumption than changes in financial wealth, since it is spread more evenly across the population.

Unexpected wealth shocks change the permanent income of households and thereby affect the life-cycle pattern of saving and consumption which, in its most basic form, implies that the marginal propensity to consume (MPC) out of wealth should be the same across different categories of wealth, including financial, housing, and human wealth.[11] A companion literature has argued, however, that shocks to different forms of wealth can elicit varying consumption responses. For example, the effect of housing wealth on consumption may be larger than the effect from other forms of wealth. First, households may view some forms of wealth as more uncertain (Lettau and Ludvigson 2004; Case, Quigley, and Shiller 2005), and since house prices are typically less volatile than stock

7. Real house prices as measured by the OFHEO index have already declined by 4 per cent since 2006Q4. Other measures, such as the Case-Shiller index, suggest that much larger declines have taken place.

8. The United Kingdom has also experienced a less-pronounced increase in residential investment, which may indicate that recent price appreciation has been driven by supply shortages.

9. Assuming that older generations do not plan to leave money behind to younger generations (i.e., a bequest motive).

10. In Canada and the United States, housing wealth accounts for approximately 20 and 30 per cent, respectively, of total gross household assets, while in most major European countries it accounts for between 30 and 40 per cent of household assets. In Japan, housing wealth represents only about 10 per cent of household assets.

11. The MPC is the ratio of a change in consumer expenditure to a change in either disposable income or in any measure of wealth.

prices, households may view gains in housing wealth as more permanent. Second, these differences in cross-asset wealth effects may be related to distributional effects. Empirical evidence suggests that the MPC out of wealth is lower for higher-income households (Souleles 1999), suggesting that housing wealth may have a larger effect on consumption than changes in financial wealth, since it is spread more evenly across the population.

There are also reasons why the effect of housing wealth on consumption may be smaller than that from other forms of wealth. First, for homeowners, an increase in the value of their housing wealth will be matched by an increase in their implicit rental cost and should not raise the volume of their spending.[12] Second, for households saving to buy a house, higher house prices could reduce consumption, since these households must increase their savings to finance the more expensive purchase. Third, unlike increases in financial wealth, increases in housing wealth may reflect supply constraints rather than an increase in the productive potential of an economy or an improvement in economic conditions. Finally, housing wealth may be less liquid than other types of wealth because of high transactions costs (e.g., refinancing fees) when borrowing against home equity to finance consumption.

The effect of house prices on consumer spending may also reflect the important role played by housing wealth as collateral for borrowing. In many countries, it is common for households to finance their spending through debt, which is often obtained through secured consumer loans that require the borrower to put up collateral.[13] The primary form of collateral available to most households is their housing equity, so that the borrowing capacity of some households may be tied to the value of their homes.[14] An increase in the value of their homes thus increases the amount of collateral available, which can increase the quantity and improve the price of credit available to these households (Mishkin 2007). Rising house prices may therefore encourage consumers to borrow more, causing an increase in consumer spending.

Overall, several factors suggest not only that the effect of housing wealth on consumption is likely to differ from that of other forms of wealth but, like other wealth effects, it is uncertain. Moreover, even if households view an increase in house prices as an increase in their wealth, they may not adjust current spending because of financial constraints. In particular, consumers may be precluded from consuming their housing wealth if they cannot draw on other liquid assets or borrow to finance their consumption of housing wealth.

Empirically, estimates of the effect of housing wealth on consumption vary across countries (see Table 1). The housing wealth effect is estimated to be the strongest in Japan, the Netherlands, the United States, Australia, the United Kingdom, and Canada. Spain and France, however, have relatively low MPCs out of housing wealth. This may be related to the less-developed mortgage markets in the latter countries, which constrain the ability of consumers to borrow against their housing wealth.

Some studies also examine whether consumers' responses to changes in housing wealth are asymmetric. Case, Quigley, and Shiller (2005), using a panel of U.S. states, find that increases in housing wealth have positive and significant effects on consumption, but that declines in housing wealth have no effect. In contrast, Skinner (1996) and Engelhardt (1996) find that declines in housing wealth have a larger effect on consumption (2.5 times stronger, by Skinner estimates) than increases in housing wealth. Although most of these studies use U.S. data, there is also some international evidence. For example, Disney, Gathergood, and Henley (2007), using U.K. data, find no evidence

Table 1

Estimated MPCs out of Housing Wealth across Advanced Economies

	Marginal propensity to consume (MPC) (%)
Australia	7 (Catte et al. 2004)
Canada	5.7 (Pichette and Tremblay 2003)
France	4 (Catte et al. 2004)
Japan	between 12 (Ogawa et al. 1996) and 20 (Girouard and Blöndal 2001)
Netherlands	8 (Catte et al. 2004)
Spain	2 (Catte et al. 2004)
United Kingdom	7 (Catte et al. 2004)
United States	between 2 (Girouard and Blöndal 2001) and 11.3 (Palumbo, Rudd, and Whelan 2002)

12. Since consumer spending includes imputed rent, higher housing wealth automatically increases consumer spending. However, this would be reflected in the deflator, rather than in the volume of consumer expenditures.

13. Secured loans are often preferred to unsecured loans, since collateral reduces the agency costs associated with borrowing and reduces the price of credit for borrowers.

14. The fact that most secured borrowing is based on housing equity helps to explain why housing wealth has a bigger effect on spending than other types of wealth in some countries.

of significant asymmetry in response to unanticipated changes in house prices, but find that the response of households with negative equity is five times stronger than the response of those with positive equity. This finding likely reflects the impact of credit constraints on these households. The authors therefore conclude that an increase in prices that lifts households out of negative equity induces a disproportionately large consumption response.

Other authors examine the effect of house prices on consumer spending through the collateral channel. Most economic models for households that include an explicit role for collateral or credit-market effects on consumption do so by adapting for households the financial-accelerator model of Bernanke and Gertler (1995) and Bernanke, Gertler, and Gilchrist (1999), where endogenous developments in credit markets modelled as variations in net worth or collateral amplify and propagate shocks to the macroeconomy. In the context of housing wealth, fluctuations in house prices significantly alter the value of houses as collateral, influencing the borrowing capacity of credit-constrained households. In one of these studies, Iacoviello and Neri (2008) find that housing collateral effects increase the reduced-form elasticity of aggregate consumption to housing wealth in the United States by around 2 basis points, from 0.10 to 0.12.[15] Results from Aoki, Proudman, and Vlieghe (2002) suggest that, in the United Kingdom, the collateral channel also increases the sensitivity of consumption to changes in house prices. Overall, it is likely that the increased use of houses as collateral has strengthened the feedback effect of rising house prices on consumption via increased household borrowing (IMF 2008b).

The effect of housing collateral on consumer spending has often been analyzed by taking into consideration home-equity borrowing, which is a particular type of collateralized borrowing. Home-equity borrowing occurs when homeowners extract equity from their homes by increasing their mortgage debt, thus transforming an illiquid asset (housing) into a liquid asset (cash).[16] This transformation of wealth can occur through the refinancing of property with a larger mortgage, by obtaining a home equity loan, or through housing turnover. Housing turnover can result in a reduction of home equity because consumers might make a down payment on the new home that is smaller than the equity accumulated in the old property and obtain a new larger mortgage to finance the difference.

Whether home-equity borrowing boosts consumption spending or is used to acquire financial assets or to finance investment is an important issue, since house prices are widely considered to be the main determinant of home-equity borrowing. This implies that, as house prices decelerate among the major advanced economies, home-equity borrowing will also fall, potentially depressing consumption expenditures by more than the amount suggested by the traditional wealth effect.[17] On the other hand, home-equity borrowing can be seen as a new source of financing that merely operationalizes the wealth effect. In this case, consumers' use of home-equity borrowing implies that they were previously constrained in their ability to consume their wealth or that home-equity borrowing represents a lower-cost means of financing the consumption of housing wealth. Finally, home-equity borrowing may also be used by households as a means to rebalance their portfolios by diversifying away from housing wealth.

Evidence on the effect of home-equity borrowing on global consumption expenditures is mixed.

Empirical evidence on the effect of home-equity borrowing on global consumption expenditures is mixed. In the United States, although most research finds that home-equity borrowing does not play a significant role beyond that of the traditional housing wealth effect, other analysts find the reverse. Belsky and Prakken (2004) note, however, that when a significant effect on consumer spending from home-equity borrowing is found in the United States, the coefficients are very sensitive to the sample period and to the equation specification. Furthermore, studies citing

15. This difference is found to be statistically significant.

16. Home-equity borrowing can be divided into "active" and "passive" types. Active home-equity borrowing is the reduction in home equity on a current property and is so termed because the homeowner intends to use the cash generated from the additional debt for consumption or investment purposes or to pay down other debt. Home-equity borrowing resulting from housing turnover is referred to as passive because relocation provides homeowners with the opportunity to reduce home equity, which might not have been their original intention.

17. Importantly, home-equity borrowing may also provide financing for other types of spending such as spending on home renovations. Therefore, the studies that examine only the effect of home-equity borrowing on consumer spending would not capture the complete effect on aggregate spending.

survey evidence suggesting that homeowners spend the funds they receive through home-equity borrowing (e.g., Canner, Dynan, and Passmore 2002) often ignore whether consumers used the funds to finance purchases they otherwise would not have made or to finance investment and diversify portfolios.

Not surprisingly, the international evidence suggests that the effect of home-equity borrowing differs across countries. In two cross-country OECD studies (Boone, Girouard, and Wanner 2001; Catte et al. 2004), home-equity borrowing is found to be strongly associated with a high estimated marginal propensity to consume from housing wealth. Indeed, Catte et al. (2004) find that 89 per cent of home-equity borrowing is spent in the United Kingdom, 63 per cent in Canada and Australia, and 20 per cent in the United States. For Canada, these results are consistent with evidence from the Bank of Canada (2007) that suggests that home-equity borrowing has been an important contributor to growth in consumer spending since 2001. Catte et al. (2004) conclude that households use the equity extracted through home-equity borrowing primarily to acquire financial assets or to repay other debts. Spending intentions were focused principally on home improvements, with less than 20 per cent of home-equity borrowing generally used to finance consumption. Hence, although some home-equity borrowing is consumed, it appears to be used primarily as a tool for acquiring financial assets, repaying more expensive debts, improving the housing stock, or financing unincorporated businesses.

The Role of Institutional Differences in Mortgage Markets

The deregulation of housing finance systems (see Box) has led to significant heterogeneity in the institutional characteristics of national mortgage markets across advanced economies that could affect the magnitude of the observed housing wealth and collateral effects. Such institutional characteristics include the typical duration of mortgage contracts, the required levels of down payment, the existence of equity-release products such as home-equity lines of credit, and the interest rate structure of mortgage contracts (Table 2).

Across countries, there is a high degree of dispersion in all the indicators considered in Table 2. The ratio of mortgage debt to gross domestic product (GDP) varies from a low of 32.2 per cent in France and 45.3 per cent in Canada to a high of 98.4 per cent in the Netherlands. Refinancing (fee-free prepayment) is easily available in some countries, but is either unavailable or its availability is limited in others, including Canada. Likewise, in some countries (e.g., Canada, the United States, and the United Kingdom), households can easily access their housing equity through home-equity borrowing products, while in others (e.g., Japan) these products do not exist or have limited availability. There is also a large degree of dispersion across the average term of mortgage loans, which range from 15 years in France to 30 years in the United States.

Despite deregulation, mortgage markets remain primarily domestic in nature.

Significant heterogeneity exists in the interest rate structure of mortgage loans across countries. In the United Kingdom and Spain, variable or adjustable-rate mortgages predominate, while in Canada, France, the Netherlands, and the United States, fixed-rate mortgages are more popular.[18, 19] Finally, the home ownership rate varies, from 43.2 per cent in Germany and 68.4 per cent in Canada, to as high as 86.3 per cent in Spain. Despite deregulation, mortgage markets remain primarily domestic, reflecting national traditions and cultural factors as well as the institutional setting of the local banking sector (Calza, Monacelli, and Stracca 2007).

The characteristics of mortgage markets across countries play an important role in determining the strength of the link between house prices and consumer spending. Calza, Monacelli, and Stracca (2007) find that the correlation between private consumption and house prices in the main industrialized countries is larger in those that feature more-developed mortgage markets with lower down payment ratios, lower rates of repayment, and a greater share of variable-rate mortgages. In a similar vein, the IMF (2008b) has developed a mortgage market index that measures the

18. Heterogeneity also exists across countries in the tax deductibility of mortgage-interest payments; for example, mortgage interest is tax deductible in the United States, while in Canada it is not.

19. In Canada, the popularity of variable-rate mortgages varies with the slope of the yield curve.

Mortgage Market Deregulation

The recent period of rapid appreciation in global house prices has occurred alongside substantial innovations in mortgage markets across advanced economies. Before 1980, mortgage markets were highly regulated by national authorities and were characterized by weak competition among lenders. Mortgage lending was often largely controlled by specialized mortgage lenders that received significant tax or funding subsidies. Although regulations differed across countries, they often included the fixing of lending and deposit interest rates, limited access to consumer loans secured on the value of housing collateral, and restrictions on the quantity of mortgage credit available through ceilings on permissible loan-to-value ratios and limits on mortgage credit extension. In light of these regulations, it was difficult for households to increase consumer spending in response to increases in their housing wealth, since their borrowing capacity was often constrained by credit rationing in the mortgage market (Girouard and Blöndal 2001).

In Canada, mortgage market deregulation began somewhat earlier than in other advanced countries and occurred mainly via the removal, in 1967, of ceilings on lending interest rates and restrictions on the involvement of commercial banks in housing finance. These measures have stood the test of time and have served Canada well. For example, early liberalization in Canada has meant better matching of terms of mortgages and deposits (mostly five years and less); it also helped the Canadian mortgage market to avoid the upheaval when interest rates rose between 1979 and 1981. The legislation also aimed at establishing a level playing field for banks and trust and mortgage loans companies by allowing banks to enter the mortgage lending market.

In the United States, the regulation of mortgage lending largely occurred through restrictions on the activity of the savings and loan associations that monopolized the mortgage market. Before the 1980s, regulation and tax advantages forced these institutions to concentrate their lending operations in long-term, fixed-rate mortgages, which they funded with short-term deposits insured by the Federal Savings and Loan Insurance Corporation (FSLIC). At the same time, the Federal Reserve's Regulation Q set strict interest rate ceilings on their deposits. Savings and loan associations therefore faced a sharp outflow of low-rate deposits when money market rates rose above the ceilings set on deposit interest rates and were forced to restrict lending activity and reduce credit availability to households.

Banks in Australia were required to follow guidelines on the composition of their balance sheets and faced controls on their deposit and lending rates. In the United Kingdom, housing finance was primarily funded by building societies that charged below-market rates on mortgage loans and rationed mortgage debt, partially as a result of explicit government requests to limit its growth. Likewise, in France, the banking system was highly specialized and segmented, limiting the ability of banks and other financial institutions to enter the housing finance market. As well, access to mortgage credit was restricted by the use of credit controls and interest rate ceilings.

Over the 1980s, mortgage markets in most advanced economies were deregulated, increasing competition among lenders and improving households' access to mortgage credit and their ability to borrow against their housing equity. Mortgage market deregulation began in the United States with the gradual phasing out of Regulation Q between 1980 and 1986. At the same time, tax advantages for savings and loan associations and the development of a secondary mortgage market increased competition by encouraging the entry of a broader range of financial institutions. Mortgage market deregulation also occurred relatively rapidly in the United Kingdom and Australia, where credit controls were removed in the early 1980s.

In contrast, in some countries, including Germany, France, and Japan, the reform process was slower and less extensive. Although interest rate restrictions have been removed, competition in the mortgage market remains limited in these countries because public sector financial institutions continue to benefit from substantial advantages. In Japan, interest rate restrictions and credit controls were removed very gradually and were not eliminated completely until the mid-1990s.

Since early 2000, one noticeable innovation in mortgage markets has been the rapid growth of subprime mortgage borrowing. In 2006, the U.S. subprime mortgage market accounted for about 14 per cent of the total mortgage market. Subprime mortgage lending has also grown rapidly in Canada and the United Kingdom, although to a much smaller degree than in the United States. In the United Kingdom, subprime mortgages represent between 3 and 4 per cent of the total mortgage market, while in Canada, they account

Mortgage Market Deregulation (cont'd)

for less than 5 per cent of total mortgages outstanding.[1] A common feature of subprime mortgage lenders is their reliance on securitization as their primary source of funding. More recently, subprime lending, most notably in the United States, has collapsed as declining house prices led to a sharp increase in default rates on subprime mortgages. These developments triggered turmoil in financial markets as investors became concerned about which institutions and investors were exposed to these types of securities. As a result, U.S. subprime mortgages have declined dramatically as a share of total mortgage originations.

1. Moreover, subprime mortgages in Canada are more conservative than in either the United Kingdom or the United States, since lenders in Canada focus more on near-prime and Alt-A customers and offer more conservative mortgage products (Bank of Canada 2007). Near-prime customers are borrowers just outside the comfort zone of major financial institutions. Alt-A customers are borrowers with a good credit history but a lack of income documentation.

Table 2

Characteristics of Mortgage Markets

Country	Ratio of mortgage debt to gross domestic product (2006) (%)	Refinancing (fee-free prepayment)	Home-equity borrowing availability	Average term (years)	Loan-to-value ratios, typical (%)	Interest rate adjustment	Home ownership rate (%)	Mortgage market index
Australia	81.4	Limited	Yes	25	80	Mainly V	70.0	0.69
Canada	45.3	No	Yes	25[a]	80–100	FL and FS (77%) V (23%)	68.4	0.57
France	32.2	No	No	15	73.5	FL/FS/Other (86%) V (14%)	56.5	0.23
Germany	51.3	No	No	25	70	Mainly FL and FS	43.2	0.28
Ireland	70.1	No	Limited	20	70	V (70%) Rest mostly FS	74.5	0.39
Japan	36.5	No	No	25	80	FL (36%) FS and V (64%)	60.9	0.39
Netherlands	98.4	Yes	Yes	30	90	FL (74%) FS (19%) V (7%)	54.2	0.71
Spain	58.6	No	Limited	20	70	V (75%) Rest mainly FS	86.3	0.40
United Kingdom	83.1	Limited	Yes	25	75	FS (28%) V (72%)	70.0	0.58
United States	76.3	Yes	Yes	30	80	FL (85%) FS (15%)	67.8	0.98

a. Recently, however, longer amortization periods (for up to 40 years) have proven successful. These extended amortization periods are available for insured mortgages. Beginning in October 2008, the maximum amortization period on insured mortgages will be 35 years.

Source: Column (2) and part of column (8) are from the European Mortgage Federation (2006) supplemented with data from Statistics Canada, the U.S. Census Bureau, and the Japanese Statistics Bureau. Columns (1), (3), (4), (5), (6), and part of column (8) are from IMF (2008b), and column (7) is from Calza, Monacelli, and Stracca (2007). In column (7), mortgages are classified according to the rate structure, where FL = fixed-rate mortgage, in which interest rate are fixed for more than five years or until expiry; FS = mixed mortgages, in which interest rates are fixed for one to five years; and V = variable mortgages, in which interest rates are renegotiated after one year or are tied to market rates, or are adjustable at the lender's discretion.

degree of mortgage market development in a given country.[20] The IMF (2008b) finds that mortgage markets in the United States and Australia are the most flexible and complete. Canada and the United Kingdom also have well-developed mortgage markets; Canada's solid mortgage market has a variety of terms (mostly five years or less) and conservative lending practices that have stood the test of time. The mortgage market in the United States generally consists of fixed-rate loans with long maturity and prepayment options. These characteristics may lead households to underestimate the long-term risks, resulting in overborrowing. Access to financing is more limited in France and Germany. Moreover, the MPC out of housing wealth is generally found to be higher for countries with more-developed mortgage markets, as measured by higher values of the mortgage market index; Japan, however, is a notable outlier (Chart 6).

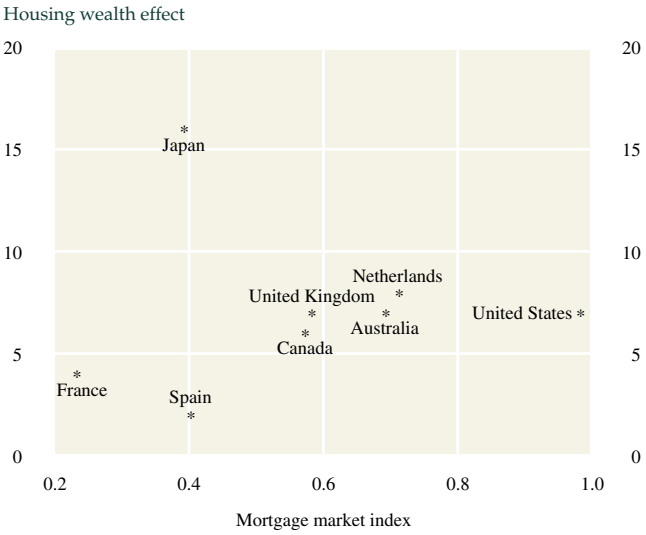
The MPC out of housing wealth is generally found to be higher for countries with more-developed mortgage markets.

Although the level of development in a country's mortgage market is a significant determinant of the strength of the housing wealth effect, it is also important to consider the role played by institutional differences across national mortgage markets. As mentioned previously, home-equity borrowing is used more extensively in the United States, the United Kingdom, and Australia, but its availability is limited in Germany (see Table 2). This country split coincides with that between countries with market and bank-based financial systems and may suggest that the availability of home-equity borrowing products depends, in part, on lenders' ability to raise loanable funds and transfer risk through capital markets. Furthermore, this may be related to the fact that mortgage market liberalization and deregulation generally took place earlier and

20. The index is constructed as a simple average of the availability of home-equity borrowing, refinancing, the typical loan-to-value ratio, the average term of a mortgage contract, covered bond issuance as a per cent of residential loans outstanding, and mortgage-backed securities as a per cent of residential loans outstanding. The index lies between 0 and 1, with higher values indicating easier household access to mortgage credit.

Chart 6

Housing Wealth Effects and the Mortgage Market Index



was more extensive in market-based financial systems. Consequently, the MPC out of housing wealth tends to be higher in countries with access to home-equity borrowing, again with the exception of Japan (see Table 2).

The collateral effect on consumer spending is likely to be the largest in countries with a high loan-to-value (LTV) ratio, such as the United States, which also have more-developed subprime mortgage markets. As suggested by Iacoviello and Neri (2008), a higher LTV ratio increases the maximum borrowing capacity of households (measured by the expected present value of their home multiplied by the LTV ratio). At the same time, a higher LTV ratio has been found to decrease the share of credit-constrained consumers in an economy (Japelli and Pagano 1989). Therefore, the larger the LTV ratio, the higher the liquidity of housing wealth and the larger the effect of housing collateral on consumption (Chart 7).

The wealth effect on consumer spending may also be larger in countries with a higher rate of home ownership, since owner-occupiers and renters may react differently to an increase in house prices. A rise in house prices increases the wealth of homeowners and can induce a positive effect on consumer spending. For renters, however, a rise in house prices raises expected future rents and the down payment requirement for

Chart 7

Housing Wealth Effects and the Loan-to-Value Ratio

those saving to purchase a house, which may cause them to reduce their spending.

Other institutional features of mortgage markets, including the degree of securitization, the magnitude of transactions costs, and the use of credit-scoring techniques, also affect the magnitude of the collateral and housing wealth effects on consumer spending. First, the ability of lenders to securitize mortgages and other consumer loans can reduce the cost of mortgages and increase the availability of mortgage credit by providing lenders with access to a wider range of investor capital and increasing their ability to manage their capital (Klyuev and Mills 2006). As well, advances in credit-scoring techniques reduce the problem of asymmetric information and have improved borrowers' access to credit. Such developments are prevalent in the United States, where a large share of mortgages is securitized. Recent events there suggest, however, that securitization can come at the cost of reducing the lender's incentive to practise prudent lending standards, since the originator of mortgages does not hold the securities on its balance sheet. Transactions costs are another important factor governing consumers' ability to spend their housing wealth. When it is costly to withdraw housing equity, more homeowners are likely to face credit constraints. To summarize, in countries with a high degree of securitization, lower transactions costs, and better credit-scoring techniques, such as the United States and the United Kingdom, the collateral and housing wealth effects are likely to be larger.

Overall, based on their mortgage market characteristics, the countries considered can be split into two groups. Countries in group one, including the United States, the United Kingdom, and Canada, have more-developed mortgage markets and tend to have higher ratios of mortgage debt to GDP, higher LTV ratios, and access to home-equity products. Countries in group two, including Germany and Italy, have less-developed mortgage markets. The effect of housing wealth on consumer spending is generally estimated to be larger in the group of countries with more-developed mortgage markets. Japan is a notable exception, with a relatively high MPC and a relatively less-developed mortgage market.

Has the Link between House Prices and Consumer Spending Changed?

The link between housing wealth and consumer spending has evolved in parallel with the deregulation of mortgage markets (see Box), which has been achieved through changes in prudential and wider capital market regulations, improvements in technology and reductions in its cost, developments in the sharing of information on credit histories, and the deepening of markets for securitized contracts and derivatives (Muellbauer 2007). As a result, households have gained greater access to unsecured and secured credit, reducing the number of credit-constrained consumers (Dynan, Elmendorf, and Sichel 2006; Iacoviello and Neri 2008). These developments have also significantly reduced the costs associated with accessing home equity (Bennett, Peach, and Peristiani 2001). Furthermore, household debt levels have increased as households have taken advantage of their greater ability to borrow against their home equity, resulting in a stronger link between house prices and consumer spending.

Mortgage market deregulation may have also increased the responsiveness of consumption to a given change in house prices by increasing the average LTV ratio across countries. Campbell and Hercowitz (2005), for example, argue that by reducing the equity requirements associated with collateralized borrowing, the recent changes in housing finance systems may have enhanced the ability of households to borrow as well as strengthening the collateral effect on consumer

spending. In addition, as LTV ratios have increased, it is likely that younger households saving to buy their first home have reacted by lowering their savings as the amount needed for their initial down payment has declined. It is possible that this has reduced the negative impact of house prices on the consumption of this demographic group (Muellbauer 2007).

The link between housing wealth and consumer spending has evolved in parallel with the deregulation of mortgage markets.

The empirical evidence across countries confirms that financial deregulation has likely strengthened the wealth effect of rising house prices on consumption.[21] For the United States and the United Kingdom, Boone, Girouard, and Wanner (2001) find that, beginning in the 1980s, financial deregulation strengthened the effect of house prices on consumer spending. In continental Europe, where financial reforms were implemented later, they find that the same effects did not begin until the early 1990s. This is consistent with evidence from Case, Quigley, and Shiller (2005), who find that the effect of housing wealth on consumption in the United States has increased with the greater availability of home-equity loans. Overall, evidence from Bayoumi and Edison (2003), who examine a panel of 16 advanced countries, suggests that the size of the housing wealth effect has risen as financial deregulation has taken place, from an MPC of 4 cents per dollar between 1970 and 2000 to an MPC of 7 cents per dollar between 1984 and 2000.

Conclusion

Over the past 10 years, many advanced economies have experienced a tremendous increase in house prices and, not surprisingly, a concomitant increase in consumption expenditures. While some of this increase is likely related to fundamentals, including low borrowing rates, increased incomes, and financial innovation, at times the increases have been outside of the range suggested by these fundamentals. The recent decline in house prices in some major economies, most notably in the United States, has raised concerns about potential spillover effects on consumption and growth. From reviewing a broad spectrum of literature, we find that house prices play an important role in household spending decisions for several countries. This link is stronger in countries like Australia, Canada, the United States, and the United Kingdom, which have more-developed mortgage markets, than it is in countries like Spain and France, which have less-developed mortgage markets. These results suggest that, in the event of a major global correction in house prices, the link between house prices and consumer spending can pose serious challenges for policy-makers. In particular, rapid decreases in the price of housing can have serious implications for aggregate output and should help to contain inflation, particularly if a house price correction is followed by a significant downturn in consumption expenditures. Furthermore, the negative consequences associated with a general decline in global house prices would be expected to be greatest for those countries where house prices are seriously overvalued and where consumption expenditures and house prices are closely linked (e.g., the United States, the United Kingdom, the Netherlands, and Australia).

21. Although not examined in this article, it is also likely that financial deregulation has had a direct effect on house prices, contributing to the recent global increases.

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