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Abstract

The last decade has been marked by cycles of excessive boom and bust in the housing market. However, not all countries have experienced high volatility in their house prices. Indeed, Germany has been unique in retaining flat price levels over the whole period and failing to respond to any of the macroeconomic shocks. The main reason for this stability can be found in real estate finance and in the existence of a sophisticated rental market. While in other countries monetary stimuli are effectively transmitted to the real economy via the housing market, the German insistence on prudential lending isolates the housing market from financial market distortions. By demanding high deposits, aligning lending to the mortgage lending value instead of the market value and by offering predominantly fixed-rate mortgages, banks reduce the risk of defaults and thus contribute to stability in the market. This system has evolved as a result not of regulations but of a sophisticated rental market which enables households to save their own funds for house purchases. This, in turn, explains the preference for fixed-rate mortgages.

Key words: German housing market, housing finance, transmission of monetary policy, rental market

1. Introduction

Residential property markets have proved extremely volatile in recent years. Between 2000 and 2006 house prices in the majority of OECD countries surged, only to plummet again in many countries following the onset of the financial crisis in 2007. The housing markets in the United Kingdom, Ireland and Spain experienced an especially dramatic increase in prices followed by a sharp correction. Yet not all countries have followed this pattern. For instance, house prices in France and Italy seem to have been less affected by all the turbulence. Germany stands out even among these countries, however, since prices remained flat over the entire period. Neither the interest rate decreases at the beginning of the decade nor the subsequent financial turmoil seemed to have any impact on the housing market. As a consequence, with investors looking for safe havens, cross-border investments into Germany are likely to increase in the next few years (Just 2010). Yet why Germany´s market is so robust still seems puzzling. Muellbauer (1992) recognised the importance of this topic as far back as the early 1990s and pointed out the relevance of the design of the mortgage system. However, he left a more detailed analysis to further research. Subsequently, several authors, including Giuliodori (2005), Tsatsaronis and Zhu (2004), Miles (1994) and Kasparova and White (2010) have provided empirical evidence of the relevance of mortgage systems for house price volatility. All studies show, for example, that markets with a higher share of floating mortgage rates tend to have more volatile prices. Nonetheless, since the studies are predominantly empirical with the aim of incorporating the most likely number of countries, simplifications have to be made, so that the precise effects of specific institutions remain unclear. Even more importantly, no analysis has been made of the interplay and interdependence of factors such as a prudential mortgage system and a

low home ownership rate. Recent research in the wake of the financial crisis has clearly demonstrated how housing finance systems and institutions interact and shape the housing market (e. g. Shiller (2008), Jarsulic (2010) and Macdonald (2012). In this respect, however, the German market is still unchartered territory for international journals.

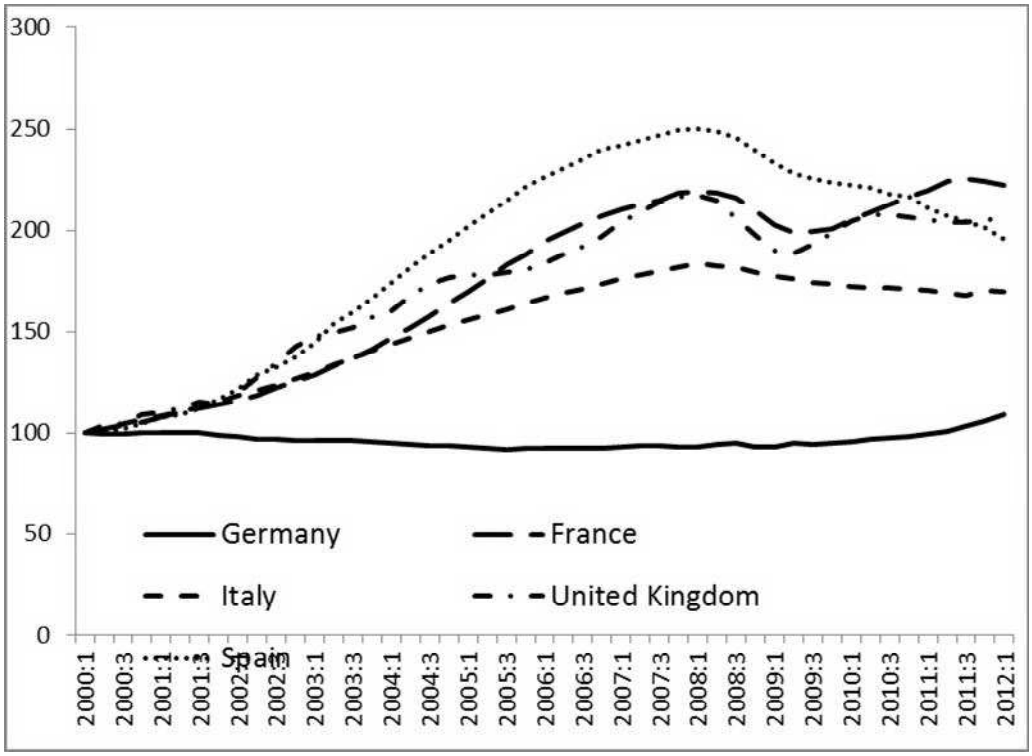
As this paper shows, it is essential for an understanding of the German market to take into account the interplay of home financing and the rental sector. The availability of a large stock of rental homes enables lenders to set prudential lending standards which contribute to resilience in the housing sector. Describing the role of house prices in the transmission of monetary policy, this paper identifies how specific conditions, institutions and legal rules contribute to the stability of the market. To do this, the German market is contrasted with the British market, which is more familiar to most researchers. The paper is structured as follows. In the next section, the performance of the housing market in the last decade is described and contrasted with other markets. Afterwards, the interplay between housing markets and housing finance is illustrated by reference to the transmission of monetary policy discussed, for example, by Iacoviello (2005). Developing this idea, it is argued that the different design of the German property finance market contributes to the stability of the market for real estate. In a further section, the role of the rental sector in shaping the characteristics of the market is highlighted. Conclusions are drawn in the final section.

2. Housing markets and financial crisis

The nominal price developments of selected housing markets are depicted in Fig. 1. The price data was obtained from the OECD, which collects

house prices from different national sources. Catte et al. (2004b) give an overview of this data source.

Figure 1: Nominal price development in selected OECD countries



Source: OECD

Prices have surged in most countries. In the period 2000 to 2005, prices increased by 78 per cent in the United Kingdom and by 102 per cent in Spain. At 56 per cent and 70 per cent respectively, the development was slightly more moderate in France and Italy. In Germany, by contrast, prices remained constant. The same holds true for the period 2006 to 2011. While prices in Spain and United Kingdom fell, the German market again remained constant, showing no signs of reaction to the significant macroeconomic distortions prevalent at this time. Although this phenomenon is most striking in the 2000s, the German market also ranks highest for stability in a longer-term view. Between 1970 and 2010 the German market manifested the lowest volatility of nominal house prices,

measured by the standard deviation of house price growth, as Table 1 suggests. Since the same applies to real prices, it cannot be explained by lower inflation rates in Germany. The markets in the United Kingdom and Spain, by contrast, have values double or even triple that for Germany in this period. Astonishingly, US house prices seem to be as stable as those in Germany, which stands in strong contrast to recent developments. However, until the 2000s house prices grew very steadily in the US, and even in the wake of the savings and loan crisis prices reacted very moderately (Schnure 2005).

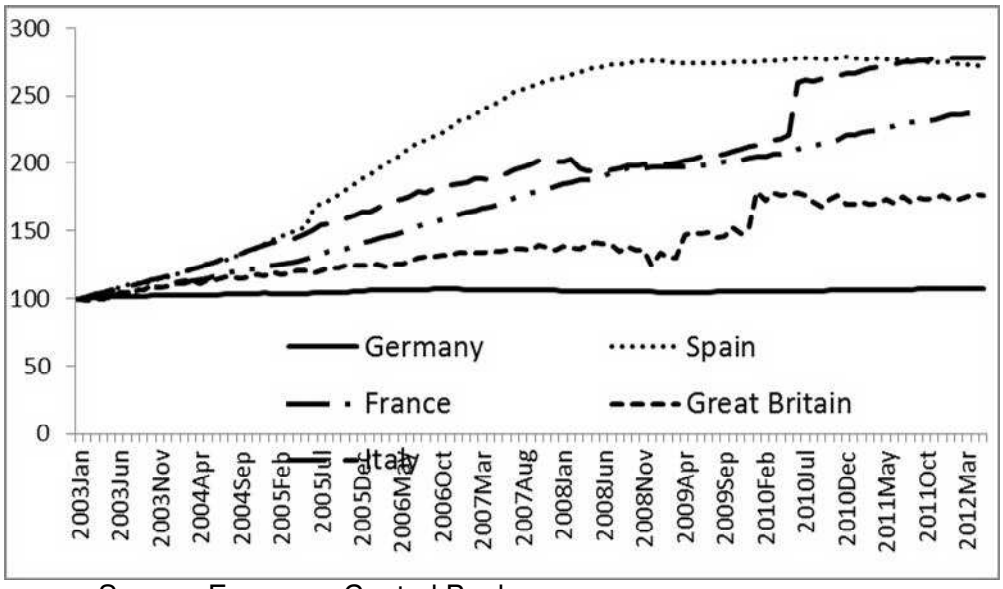
Table 1: Standard deviation of house price growth in percentage points between 1970 and 2010

	Standard deviation of nominal house prices	Standard deviation of real house prices	Observations
Italy	4.22	3.60	167
Ireland	3.52	3.13	169
Spain	3.05	2.78	165
Denmark	2.78	2.82	169
United Kingdom	2.70	2.85	169
Canada	2.69	2.63	169
Finland	2.65	2.74	169
Netherlands	2.52	2.47	169
Israel	2.50	2.11	73
New Zealand	2.39	2.57	168
Norway	2.27	2.41	169
Greece	2.20	3.77	61
Australia	2.18	2.14	169
South Korea	2.17	2.31	105
Japan	2.06	1.69	169
Switzerland	2.02	1.96	169
Sweden	1.94	2.09	169
Belgium	1.80	1.84	168
France	1.63	1.43	169
USA	1.24	1.19	169
Germany	1.04	0.92	169

Source: OECD

As indicated in the introduction, the primary reason for this stability can be seen in the home financing system, which will be explained in detail in the following sections. However, a first glance at the stock of lending for housing purchase highlights the strong correlation between the housing market and the mortgage market (Fig. 2). Whereas in all other countries mortgage lending surged due to low interest rates and lax credit standards, the exposure of German banks to the housing market remained constant.

Figure 2: Lending for home purchase in selected countries (index: 1/2003=100)



Source: European Central Bank

Figure 2 demonstrates that the housing boom was triggered largely by a credit boom. In the wake of the new economy crash and the events of September 11th, all main central banks lowered their rates, thereby significantly spurring housing demand. In almost all countries house prices increased considerably, and the credit boom, at least in Spain and the United Kingdom, resulted in a housing bubble. Germany was decoupled from this development, as will be discussed in the following section.

3. House prices and financial markets

Monetary policy exerts a great influence on asset prices and their volatility (Bernanke and Gertler 2000).The interplay of house prices and monetary policy is illustrated in Figure 3, which is adapted from Giuliodori (2005). First, a textbook version of the interplay of monetary policy, housing prices and the real economy is presented. After this, deviations and the peculiarities of this interplay in the German market are discussed. The presentation of the transmission process is kept deliberately simple, with only an outline of the system provided as a guide to those aspects which are to be the focus of this paper. Giuliodori (2005), Mishkin (2007), Carstensen et al. (2009) and Bjørnland and Jacobsen (2010) give a more comprehensive overview.

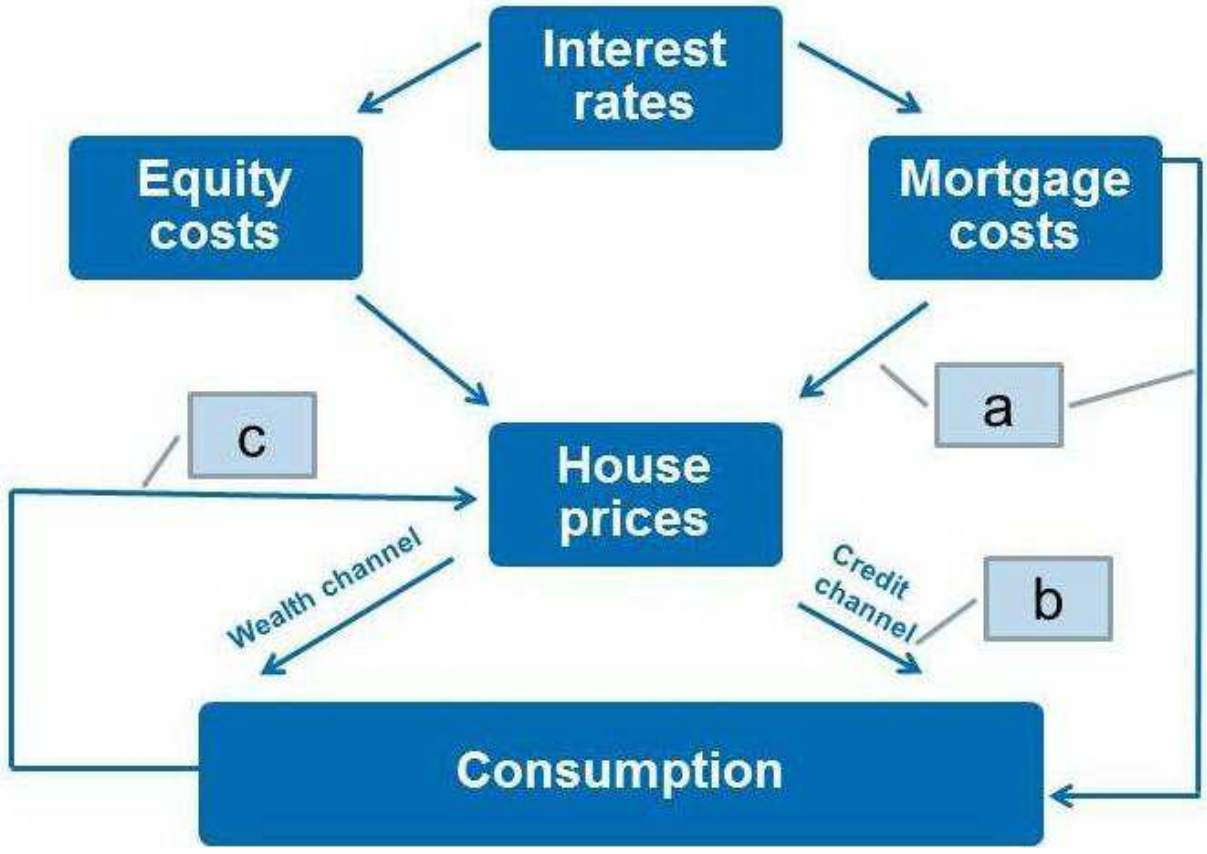
The starting point is monetary stimulus. By cutting their base rate, for example, in order to increase the money supply, banks can reduce the interest rates for mortgages. On the other hand, the attractiveness of fixed interest-bearing assets like bonds decreases. Consequently, the lower interest rates stimulate the demand for assets like stocks or real estate.

In addition, lower mortgage rates have a direct effect on consumption for all households who have a floating interest rate or want to extend the term of their mortgages.

The growing demand for housing encounters a short-term inelastic housing supply, so that house prices increase. The appreciation of real estate stimulates consumption via two different channels: the wealth channel and the credit channel. The wealth channel was first described by Friedman (1957). Households who benefit from appreciation of their assets can increase their life-cycle consumption. More specifically, households can, for example, decrease their current savings when house prices rise so that consumption goes up. Although the wealth channel is plausible, most

economists assume that it is weaker than the credit channel (Miles 1994). Real estate is the most important collateral in an economy. Rising house prices thus increase the opportunities for lending money. This money can be used for various purposes, such as renovations or the amortization of credit card debts, but it can also be used for consumption.

Figure 3: Housing prices and monetary policy transmission



Source: author's own illustration adapted from (Giuliodori 2005)

The increase in consumption stimulates the economy and has a rebound effect on housing demand. Since housing is a normal good, housing demand increases proportionally if households receive extra scope for

consumption. As a consequence of this interaction, a virtuous circle can develop, until housing demand and housing supply match in a new equilibrium. US growth prior to 2005 is a good example of this beneficial interplay (Mühleisen 2003). However, the interplay can also be reversed. Increasing base rates correlate with mortgage and equity costs, dampening the demand for real estate. Depreciation of real estate diminishes the value of the collateral, which in turn narrows lending opportunities. The consequent reduction in consumption has a negative effect on prices. The US and other countries, such as the United Kingdom, have only recently experienced the devastating force of such a vicious cycle.

Germany is seemingly prone to neither virtuous nor vicious cycles. This can be ascribed predominantly to a less effective transmission of macroeconomic shocks to the housing market. Marked A to C, the relevant relations are highlighted in Figure 3 and explained below.

A Mortgage costs, consumption and house prices

As a first step, the relation between mortgage costs and demand is examined. The demand for goods and services (consumption) and the demand for residential property stimulated by a change in mortgage costs are considered jointly, since the overall effect on demand is central for this step of the analysis. How households exploit additional consumption opportunities will be discussed in section C.

While there has been little empirical analysis of the effect of mortgage costs on consumption, there have been a wealth of studies analyzing the relation between mortgage costs and housing prices. Using a SVAR approach, Jäger and Voigtländer (2006) estimate that house prices in the United Kingdom change by 7.5 per cent within two years if interest rates change by 1 percentage point. By contrast, German house prices react to the same

shock by only 0.2 percentage points. Demary (2010) uses a comparable approach, concluding that UK house price reactions exceed German price reactions to monetary shocks by a factor of five. The results of these studies are confirmed by, for example, Carstensen et al. (2009) and Tsatsaronis and Zhu (2004).

The reason for this weak relation lies in the value and term structure of mortgages in the economy. In 2010, the sum of outstanding mortgages in Germany amounted to 46.5 per cent of GDP. By contrast, the corresponding proportion in the United Kingdom is 85 per cent, according to data provided by the European Mortgage Federation (2011). What is more, in Germany fixed-rate mortgages predominate. According to the Deutsche Bundesbank, only 0.5 per cent of all outstanding mortgages have floating interest rates. An additional 3 per cent have a fixed interest rate for one to five years. The overwhelming majority of 96.5 per cent have a fixed rate for five or more years. Unfortunately, the statistics fail to provide data for the sum of mortgages with a fixed term of 10 years and more, although most new mortgages have rates fixed for such a long period. Provisional data for 2012 shows that 71.3 per cent of all new mortgages have interest rates which are fixed for more than 5 years. In 30 per cent of all cases the rate is fixed for more than 10 years. In the United Kingdom, by contrast, most mortgage rates have traditionally floated. According to data provided by the Council of Mortgage Lenders, at the end of 2011 72 per cent of all outstanding mortgages had a floating rate. This has a far-reaching effect on the relation between mortgage costs and potential demand. Given that floating rates predominate in the United Kingdom, during the course of a year all borrowers will be affected by a change in mortgage costs. In Germany, assuming a fixed-rate period of 10 years, an average of only 10 per cent are affected. If, for example, average mortgage costs are reduced

from 5 to 4 per cent due to monetary policy, almost all mortgage borrowers in the United Kingdom will benefit. Thus, the burden from interest payments will shrink by 0.85 per cent of GDP. In Germany, where only those wanting to take out a new mortgage or to extend the term of an existing one are affected, the same change in mortgage costs would result in an additional stimulus of a meagre 0.0465 per cent of GDP. For a similar change in mortgage costs, the effect in the United Kingdom exceeds that in Germany by a factor of 18. Even if we assume an average fixed term period of 2 years in the United Kingdom and 7.5 years in Germany, the factor still amounts to 7. This rough calculation is enough to make clear why housing markets with predominantly floating rates respond much more readily to monetary policy. Of course, the relation also applies the other way round, i.e. increases in mortgage costs burden demand by a factor of 7 or more. Thus, it becomes clear why the German market reacted significantly more moderately to the changes in monetary policy during the 2000s.

B House prices and consumption

Real estate is the most important collateral in an economy. In Germany, some 55 per cent of all loans are secured by real estate. Nevertheless, the transmission from house price appreciations to consumption increases is weak compared with other countries. Catte et al. (2004a) calculate that the contemporary correlation between house price changes and consumption growth is only 0.24 in Germany but 0.85 in the United Kingdom, with an average correlation of 0.57. Miles (1994) confirms these results.

The weak interplay between house prices and consumption can be understood in terms of three factors: Firstly, the comparatively low loan-to-

values in Germany, secondly, the lack of mortgage equity release and, thirdly, the appraisal rules.

Firstly, loan-to-value ratios in the German market are typically low. The European Central Bank (2009) reported an average loan-to-value for Germany of 70 per cent. Only in Italy is the LTV lower. Other statistics, based on bank surveys report German LTVs of 74 per cent. In the United Kingdom, by contrast, average LTVs are 80 per cent and more (Charles 2011). With low leverage ratios, the potential for the transmission of house price appreciations to consumption is limited. This effect is enhanced by the lack of housing equity withdrawal in Germany. In the United Kingdom, if house prices surge, households are used to taking out second loans or raising a further advance on an existing mortgage without improving the property to the same extent (Reinold 2011). These loans can be used for consumption or the amortization of other debt. At the end of 2003, housing equity withdrawal peaked at a value of GBP 15.5 bn. In Germany, households and banks are not accustomed to further advances or second loans. If homeowners have repaid a mortgage, they can take out a new mortgage up to the original value of the first. However, adjusting mortgages to recent price increases is not common.

A major reason for this is the way houses are appraised by banks. While in most countries – including the United Kingdom – bank lending depends on the market price of the collateral, German banks align lending to the mortgage lending value. The mortgage lending value is assessed by appraisers and reflects the minimum price of a property, i.e. the price below which it will not fall even in a severe downswing (Crimmann and Rüchardt 2009). How mortgage lending values are determined is codified in detail in the Covered Bond Act (Pfandbriefgesetz, Verband Deutscher Pfandbriefbanken 2011). As a rule of thumb, the mortgage lending value is

80 per cent of a property's market value. The mortgage lending value thus reflects the prudential approach towards lending in Germany. What is more, it prevents the cyclicality in lending which is common in most Anglo-Saxon countries. Since the mortgage lending value remains fixed over time, home owners cannot easily take out a further mortgage even if market prices are buoyant. New mortgages can only be obtained up to the amount of the current mortgage that has already been amortized. Alternatively, property owners can commission a new appraisal to adjust the mortgage lending value to price developments in the market – if these are sustainable. However, as such an appraisal is costly, most home owners reject this option and take out a consumer loan or none at all. It should be noted at this point that banks that are not funded by Pfandbriefe can depart from these appraisal rules. However, so far not a single German bank has actively offered a product similar to a mortgage equity release.

The absence of mortgage equity releases, in combination with prudential appraisal rules, helps to maintain tranquillity in the property market. However, it also removes the opportunity to take out securitized, and therefore cheap, loans. This is a factor which needs to be considered in an overall assessment of the institutional framework.

C Consumption and house prices

Not only do changing house prices affect consumption, but the stimulation of consumption also influences house prices. This feedback loop is the basis for the occurrence of virtuous circles, as experienced, for instance, by the United States in the first half of the 2000s. Yet in a downswing this same feedback loop leads equally surely to a downward spiral (Akerlof and Shiller 2009). As has already been pointed out, house prices in Germany affect consumption only moderately, so that the feedback is necessarily

weaker than in the United Kingdom, for example. This is only part of the story, however. Although housing is an important consumption good in the United Kingdom as well as in Germany, consumers spend less money on residential property in Germany than in the United Kingdom. A simple comparison illustrates this. In the United Kingdom, over the last five years the annual number of transactions in the property market has averaged 1.185 million. In other words, in this 5–year period on average every 10th inhabitant was active in the real estate market. In Germany, by contrast, average transactions per year amount to only 0.465 million, indicating that on average only every 35th inhabitant purchased property in a five year period (European Mortgage Federation 2010). Even in times of crisis, such as 2009 and 2010, the number of transactions in the United Kingdom was double that in Germany.

Real estate economics has generally devoted little energy to explaining transaction numbers. Nonetheless, there seem to be two straightforward reasons for this difference between Germany and the United Kingdom. Firstly, transaction costs are significantly higher in Germany. As a study by Zander and Faller (2006) shows, transaction costs in the United Kingdom, including notary costs, real estate agents and taxes, represent some five per cent of property costs, while in Germany they range from 9 to 13 per cent (real estate agents' fees or commissions vary from state to state). Secondly, as mentioned above, Germany has a lower homeownership rate, which diminishes the potential for real estate transactions. Yet rented property is also transacted and the larger share of homeowners cannot of itself sufficiently explain the extraordinary difference in transaction numbers. As the figures imply, German homeowners change their property less often than their British counterparts. While climbing the property ladder is a widespread lifecycle strategy in the United Kingdom, most German

households buy only one property, which they use for the rest of their lives (Pfeiffer and Braun 2006). Consequently, in Germany only 28 per cent of all homeowners are under 39 years of age, while the corresponding share in the United Kingdom is 32 per cent. Even more striking is the homeownership rate among the age cohort of 25- to 29-year-olds, which is 59 per cent in the United Kingdom but only 11 per cent in Germany (Chiuri and Jappelli 2003). With fewer transactions, feedback loops due to changing property prices do not arise. This contributes to the resilience of the German housing market.

4. The role of homeownership

The analysis has shown that the German market is less prone to volatility because of a prudential lending system and a low home ownership rate. In the past, international observers often supposed that the low home ownership rate was due to prudential lending induced by excessive regulation. For instance, a study by London Economics (2005) commissioned by the European Commission concluded that laxer lending could stimulate significant growth by enabling low-income households to become homeowners. With the emergence of the subprime crisis, this approach has fallen out of fashion. Yet even the assumption of an over-regulated German market does not hold. German banks are allowed to offer all products which are available in the United Kingdom, for example. If they so wished, they could offer floating mortgages, negative amortization mortgages or mortgage equity release products (Voigtländer 2010). The only significant restriction concerns the prepayment of floating mortgages. In contrast to mortgages with fixed rates, banks are not allowed to penalise premature repayment of floating-rate mortgages by demanding a

prepayment fee. Of course, foregone interest payments caused by changes in the interest level cannot justify a prepayment fee in the case of floating rates, since interest rates always adjust to market levels. However, since this ban on prepayment fees prevents lenders spreading overheads over a longer period, they must demand a high margin on the rate to recoup their costs. Nonetheless, since banks could, but actually seldom do, circumvent the restriction by offering 2-year fixed-term mortgages, this regulation cannot explain the prudential approach to lending in Germany.

While in the past prudential lending was blamed for blocking homeownership demand, the reverse assumption seems to make more sense: that the low homeownership rate in combination with a sophisticated rental market leads to a prudential lending system. In the United Kingdom, households experience difficulties finding a rental home of appropriate quality, so that low-income households and even young trainees apply for mortgages. This high level of demand from non-prime borrowers has spurred the evolution of a subprime market. In Germany, by contrast, such a market cannot develop since households with low creditworthiness choose to rent homes rather than take on mortgages with high risk premiums. The same logic applies to down payments. The higher the down payment, the lower the interest rate of a mortgage is, since risks for the lender are lower and refinancing is cheaper with lower LTVs. Households in Germany therefore save up their money and wait until they can purchase a property with a high proportion of their own funds. However, waiting is only an option if sufficient rental homes are available. Finally, the predominance of fixed rates is connected with the low homeownership rate. While households in the United Kingdom have to be flexible in order to climb the property ladder, German households typically buy only one property and do not take into account the possibility of relocation (Voigtländer 2009). Thus

the security of the monthly payments over a longer period outweighs the disadvantage of an additional fee in the case of prepayment.

In this way, the supply of rental homes shapes the specifics of mortgage lending. The greater the supply, and the higher the quality, of rental homes, the more prudential lending can be. Countries chastened by the recent financial turmoil which now aim to imitate the German property market must therefore first improve and stimulate their rental markets. Since this takes time, the implementation of prudential lending without restricting the housing consumption of low-income households can only be a long-term goal. In Germany, the rental market has flourished since German law managed to balance the interests of tenants and landlords. For instance, rents cannot be raised freely but, since the 1960s, landlords have always had the possibility to adjust to market levels with a minor time-lag. In other countries, like the United Kingdom, so-called fair rents undermined the economic incentives to invest in rental homes, which were therefore sold to owner-occupiers (Coleman 1988). In addition, in Germany the level of home-ownership subsidies has always been significantly below that of countries like the United Kingdom, Spain or the United States (van Noord 2005).

5. Conclusion

The German housing market is extremely stable compared with that of most other OECD countries. This stability can be attributed to a whole complex of reasons, not all of which have yet been alluded to. For example, the competition among at least 7 large German cities keeps prices down, as do Germany's decentralised planning systems and the incentives they provide for the allocation of land (Evans and Hartwich 2005).

Nonetheless, the most striking aspects of this stability remain the market's resilience to financial turmoil (especially during the 2000s) and its unresponsiveness to monetary policy. As has been shown, the prudential lending system is mainly responsible for isolating the German market from financial market distortions and fluctuations. By consistently demanding down payments, by relying predominantly on fixed-rate mortgages and aligning mortgages to the mortgage lending value rather than market prices, default risks are kept low and households are ensured a long-term planning horizon. This makes the housing market less prone to macroeconomic shocks of all kinds. Such a system could only develop because German households do not rely entirely on home purchases but can also choose to rent. The rental and home-owner markets are on the same footing in Germany, so that households can find appropriate residential property not only as a potential buyer but also as a tenant. As a result, households can afford to wait until they have saved up a considerable down payment and gained some certainty about their future location.

The aim of this paper was to explain the stability of the German housing market, not to assess the superiority of this system. Of course, in the wake of the financial crisis, households and politicians have a desire for stability and some countries, like Sweden, are currently discussing how they can benefit from German experience. However, stability also has its price. For instance, German households cannot easily adjust their mortgages to increasing property prices, which makes their loan costs high. In addition, volatility is not a negative characteristic per se, since it offers opportunities, too. Generally, German households view homes simply as a consumption good, thereby ignoring the opportunities which arise from treating "housing" as an asset class. Here it should be noted that, even taking the recent

recession into account, British households' experience of volatility is far from universally negative, with many realising large appreciations of their homes. More research, based on case studies, theoretical analyses and empirical investigations, is thus required to derive an optimal framework for mortgage lending. Such a framework might, for example, incorporate the advantages of both the British and the German systems.

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