The Costs and Benefits of Integration of EU Mortgage Markets

Report for

European Commission, DG-Internal Market and Services

By

London Economics

August 2005

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1 Executive summary

This section summarises the context, objectives and results of this report. The report studies the costs and benefits of initiatives that would fully integrate European markets for residential mortgages.

The markets under study

It is important to clarify our use of the term 'mortgage'. We use this term to refer to the primary loan products used to fund house purchases and improvements in each country. In some countries, the typical loan used to purchase a residential property is secured on that property, and is thus described as a mortgage. In other countries, the typical loan used to purchase a residential property is secured by a personal guarantee, and is thus described as a home loan. We use the term 'mortgage' to refer to both mortgages and home loans, despite the technical and legal differences between these products.[1]

The report is concerned with the market for residential mortgages, but not that for commercial mortgages. Commercial mortgages include 'buy-to-let' mortgages, where the borrower intends to act as a landlord. However, it is sometimes hard in practice to separate 'buy-to-let' mortgages from residential mortgages. For example, some national statistics agencies report joint totals of borrowing for 'buy-to-let' and conventional residential mortgages.

Background

The agenda set out by the EU's Financial Services Action Plan (FASP) focused primarily on capital and wholesale financial markets, paying less attention to retail financial markets. In the post-FSAP era, the Commission has indicated that it will place a greater focus on retail financial markets.

There is considerable evidence that European markets in retail financial services are not yet integrated. Most consumers still buy retail financial services from domestic suppliers, cross-border entry of financial services firms is rare, and the range of products available differs substantially across EU Member States.

Of these retail services, the European Commission has judged mortgage credit to be a priority area for assessment of the state of integration and of the case for new initiatives that would deepen the integration of these markets.[2] Developments in European mortgage markets are important to citizens and

[1] Section 2.1.1 discusses the difference between mortgages and home loans.

[2] See for example the speech by Mr. Charlie McCreevy, European Commissioner for Internal Market and Services, *Retail Financial Services and the Consumer* given at the Lloyds TSB Reception in Brussels on 26 January 2005.

policymakers because mortgage markets are so large. As of 2003, €4.26 trillion of residential mortgage debt was outstanding in the EU overall, representing 44.6% of EU GDP. Thus, in March 2003 the Commission set up the Forum Group on Mortgage Credit and mandated it to identify the barriers to further integration, assess the impact of those barriers on integration, and to make recommendations to the Commission to tackle those barriers. The Commission published the Forum Group's report in late 2004.[3]

Objectives

Our terms of references state that the current study's main objective is to analyse the costs and benefits for the European economy of integrating the European mortgage credit market, taking into account the impact on both European lenders and consumers.

The terms of reference also specified that the study was to provide:

- A description of the current situation of mortgage markets and the extent to which they are (not) already integrated, including an assessment of cross-border trade[4] in mortgage credit services,
- An examination of current trends and an analysis as to how these might impact on the cross-border situation,
- An assessment of consumer and lender appetite for a pan-European market, and
- A discussion of all aspects of the pros (and cons) of an integrated mortgage market, including a quantitative assessment of the benefits and costs of integration of European mortgage markets and the cost to the economy and consumers of the current situation of market fragmentation.

The terms of reference did not require an analysis of specific measures to bring about integration. Therefore, our analysis is necessarily at a high level. An advantage of this high-level approach is that we can focus on the larger picture of how mortgage market integration might affect the EU economy.

Structure of this report

To meet the goals outlined above, the report adopts the following structure:

- Section 1 is the current executive summary to this report,
- Section 2 defines key terms and concepts, including mortgage market integration and measures of the resulting benefits,

[3] EC (2005) gives a more detailed overview of the Commission's activities in the area of mortgage credit.

[4] We define what we understand as cross-border trade in mortgages in section 2.2.

- Section 3 discusses from a theoretical point of view the linkages between mortgage markets and the wider economy,
- Section 4 provides an overview of EU mortgage markets,
- Section 5 provides some evidence on consumers' appetite to borrow from foreign lenders, wherever they may be operating, and lenders' appetite to conduct business outside their home country,
- Section 6 discusses the key obstacles to EU mortgage market integration,
- Section 7 defines a hypothetical package of legislative measures that would be sufficient to achieve full integration of mortgage markets,
- Section 8 describes how integration would affect several key aspects of European mortgage markets,
- Section 9 describes the macroeconomic benefits of full integration of EU mortgage markets, using a macroeconomic model provided by Oxford Economic Forecasting (OEF),
- Section 10 analyses the costs of EU mortgage market integration, and
- Section 11 combines our estimated costs and benefits of integration to construct the net present value of new initiatives to promote integration. This section also contains our conclusions from this report.

In addition, the report contains several annexes:

- Annex 1 provides a more detailed description of EU mortgage markets, focusing both on the current situation and trends,
- Annex 2 provides some additional information on EU housing markets,
- Annex 3 gives an overview of the development and characteristics of US mortgage markets, in order to explore whether lessons can be derived for the EU,
- Annex 4 describes in detail a theoretical model of how mortgage markets affect the wider economy,
- Annex 5 gives a technical description of the OEF model,
- Annex 6 lists the respondents to our survey on the characteristics of EU mortgage markets,
- Annex 7 discusses some difficulties that arise in comparisons of APRCs (Annual Percentage Rates of Charge), and
- Annex 8 explains our tests for whether mortgage interest spreads and product availability are converging across countries at present.

Definition of integration

We define mortgage integration to imply the ideal case that the same mortgage products are available in all EU countries at the same prices. This condition could come about through extensive cross-border trade, where the borrower and lender are in different countries, but could also come about through other mechanisms. Thus, banks could physically enter foreign markets, either by building new branch networks or setting up or acquiring subsidiaries in the target country. Alternatively, domestic lenders could imitate foreign lenders. Finally, in some countries, greater development of markets for mortgage financing would permit domestic lenders to offer similar products to those available elsewhere, at similar prices. The Commission asked us to review all these potential mechanisms of integration.

We understand the same mortgage products being available in all countries to imply that, for example, flexible mortgages, interest-only mortgages and mortgages aimed at retirees are available in all markets. We view the persistence of some differences in contracts to account for differences in national property laws as being consistent with this definition of integration.

Strategy of study

Our strategy for measuring the benefits of integration is to forecast the evolution of key mortgage market variables under both baseline and integration scenarios. We then use these projections as inputs to Oxford Economic Forecasting's macroeconomic model of the EU. Given these inputs, this model provides forecasts of aggregate economic variables such as GDP and consumption under each scenario.[5]

The baseline scenario is a projection of how markets would evolve without major new legislative initiatives to integrate mortgage markets. Under this baseline, EU mortgage markets would continue to develop and integrate to some extent. There would also be some convergence of EU economies, particularly between the EU15 and the New Member States. Both theory and recent trends in national mortgage markets suggest that, without major new initiatives, there will be slow and partial integration of EU mortgage markets.

Our projection of mortgage market variables in the integration scenario derives from our definition of integration. We forecast integration would lead the spreads of mortgage interest rates over lenders' cost of funds to equalise at the lowest level currently existing in the EU. We also forecast that the range of mortgage products available in all countries would increase to the widest range currently existing.

To estimate the cost of mortgage market integration, we construct a hypothetical package of measures we believe would be sufficient to fully integrate EU mortgage markets. We then estimate the cost to lenders of

[5] Other models of the EU economy exist, and might produce slightly different predictions.

implementing this package, using an extrapolation of recent studies of the cost of implementing new mortgage regulations in the UK.

We stress that we do not claim that our hypothetical package of measures is the only one that could achieve full integration. Similarly, we take no position on the merit of the measures in this package relative to potential alternatives. For the purpose of the study, we simply needed to develop a package of plausible measures for achieving full integration that we could use in our assessment of the costs.

Results – costs of integration

Using the approach described above, we estimate the costs of integration to be €2.4bn on a one-off basis in 2005, and €2.48bn in each subsequent year in 2005 prices. We consider this estimate to be an upper range of feasible estimates of the cost of integration. This is because we assume the combined measures in our hypothetical package are several times as costly to implement as the FSA's regulation of the UK mortgage market, and then scale these costs up from the UK case to reflect the size of the entire EU market. These costs are fairly small relative to the large size of national mortgage markets, and relative to our estimate of the benefits of integration.

Results – benefits of integration

Also using the method described above, we estimate full integration of EU mortgage markets would raise EU GDP by 0.7% and EU private consumption by 0.5% in 2015. At 2005 prices, this implies mortgage integration would raise EU GDP by €85.8bn and EU private consumption by €38.7bn in 2015. Private consumption is our preferred measure of the effect of integration because it includes only activities that increase personal welfare, while GDP also includes activities such as maintaining capital that do not directly contribute to personal welfare. We find that, under the integration scenario, private consumption would initially fall below the baseline level to enable housing investment to increase. Private consumption would rise fairly strongly above the baseline level from 2009 onwards, however, as the increased housing stock permitted greater private consumption.

The macroeconomic effect we estimate as a result of further convergence in mortgage spreads alone is small, with private consumption increasing by only 0.01% and GDP by 0.1%. This benefit is small because mortgage spreads are fairly similar across the EU already.

These effects of spread convergence on consumption and GDP represent the overall effects of a change in mortgage interest rates. At the level of the representative consumer, on average across the EU25, we project new initiatives to integrate EU mortgage markets would reduce mortgage interest rates by 47 basis points in 2015 relative to the baseline case. This would reduce the interest payable on a €100,000 mortgage by €470 per year. However, this €470 saving reflects only one effect of spread convergence on

the representative consumer. Since new borrowers are likely to devote a constant fraction of their incomes to mortgage payments, lower mortgage interest rates could lead borrowers to take out larger mortgage loans and thus bid up house prices. Further, a reduction in banks' profit margins on lending would, all else equal, reduce the value of banks' shares. Consumers, overall, own all the shares of banks, so it must be the case that the representative consumer holds some bank shares and would thus be affected by a fall in their value.

We estimate that increases in product availability, resulting in the same mortgage products becoming available in all countries, would achieve most of the benefits of full mortgage market integration. We estimate that an increase in product availability alone would increase EU consumption by 0.4% and EU GDP by 0.6%. Increases in product availability would have this effect by increasing consumers' demand for mortgages and thus for housing. Young borrowers might move from rented to owned accommodation or from their parents' house to one they owned themselves, but the key point is that we expect increased product availability to have the net effect of increasing the total demand for housing.

Results – net present value of initiatives to induce integration

We combine these estimated costs and benefits of new initiatives to integrate EU mortgage markets to form a net present value of these new initiatives through the year 2015. Using a standard discount rate of 3.5%, we calculate this net present value to be €94.6bn, equal to 0.89% of EU GDP in 2005. We note that this net present value of mortgage integration would be larger were we to extend our analysis beyond 2015. However, forecasting both the baseline and integration scenarios would become increasingly difficult as we moved into the more distant future. Thus, we consider this calculated net present value of the benefit to be a conservative estimate.

We stress that this estimated net benefit of new initiatives of €94.6bn reflects the benefits of integration beyond the gradual integration we expect would occur in the absence of new initiatives. Thus, this figure of €94.6bn is an estimated cost of not undertaking the appropriate initiatives at this point.

Explaining the benefits

It is useful to understand how mortgage integration would raise EU GDP, since this is reveals how measures to induce mortgage integration would interact with other policies. Our understanding of how mortgage markets affect the wider economy is based on articles in the leading economics journals. These articles recognise that consumers typically use mortgages and home loans to buy housing. Individuals can also rent housing, but for several reasons home ownership may be superior to renting as a means of buying housing services, which we define as the right to live in a residential property. Thus, theory suggests that the development of a more sophisticated mortgage market would encourage consumers to increase their

total demand for housing. This prediction is consistent with recent evidence from Spain, where strong growth in mortgage debt (see Figure 4.8) has been associated with a heavy increase in housing demand and thus new house building (see Annex 2). It is also consistent with recent experience in the UK, where the introduction of mortgages with high loan-to-value ratios is widely thought to have contributed to high housing demand and thus high house prices.

Economic theory, as expressed in academic literature, predicts that an increase in housing demand will induce increased housing investment and, in the long run, greater housing supply. However, since the productive capacity of the EU economy is limited, for housing investment to increase, some other economic activity must be reduced. In particular, theory predicts the production of non-housing consumption goods will fall, as the capital and workers used to produce and maintain houses are drawn away from producing non-housing consumption goods.

Thus, economic theory predicts mortgage market development will, in the long run, increase an economy's consumption of housing services and reduce its consumption of non-housing goods. This would be of benefit to consumers in most EU countries, where we believe the lack of development of mortgage markets has constrained housing demand. It is possible, however, that an increase in housing consumption would make consumers worse off in some countries. This is because, in these countries, the tax system probably already induces an overconsumption of housing.

By inducing increased product availability, mortgage market integration might also allow consumers to reduce the risks they face under their mortgage contracts. For example, mortgage loans with flexible repayment terms would allow consumers to reschedule payments after an unexpected family event. Like most economic projection models, however, the OEF model does not capture the effect of policy changes on the perceived risk of households' consumption flows. Thus, this benefit does not form part of our estimate of the benefits of mortgage integration to the EU.

Current conditions and trends in EU mortgage markets

Our descriptive work focuses on four main aspects of EU mortgage markets: mortgage interest spreads, mortgage debt outstanding, mortgage product availability, and lenders' business models.

Mortgage interest spreads are the difference between mortgage interest rates and benchmark interest rates such as the central bank's overnight rate. We find spreads to be fairly similar across the EU. Indeed, nominal mortgage interest rates have converged greatly across EU countries in recent years, in part due to countries' adoption of the Maastricht criteria in the run-up to their adoption of the Euro.

By contrast, mortgage debt outstanding, as a share of GDP, differs greatly across countries. For example, in 2003 this share was 70% in the UK but only

13% in Italy. There has been some convergence in debt levels in recent years, particularly due to the convergence of nominal mortgage interest rates mentioned above. However, many of the cross-country differences in the volume of mortgage borrowing do not appear to be disappearing over time. This suggests that the underlying conditions for mortgage lending differ greatly across countries, though differences in national culture and tax systems may also play some role.

The availability of mortgage products also differs substantially across countries. In particular, compared to the more developed markets such as the UK and the Netherlands, some countries have few products that would allow consumers with poor credit records to contract mortgage loans. In addition, the availability of mortgages that allow flexible repayment schedules differs greatly across countries, and the availability of specialized products such as 'lifetime' mortgages aimed at retirees is limited to only a few markets.

Our survey of the business models of mortgage lenders active in multiple EU markets revealed a variety of approaches to loan distribution in lenders' home markets. Lenders' approaches to making mortgage or home loans in EU countries outside their home country were similar, however. Almost all relied on acquiring subsidiaries that already had many branches. Lenders' survey responses stressed the importance of face-to-face meetings with borrowers during the origination process, and of local employees familiar with national legal systems. Thus, no lenders made a significant number of loans to borrowers in countries where they had no physical presence. Most lenders also had little interest in expanding lending to borrowers in countries where they had no physical presence, due to concerns about differences in national legal systems and over how they would assess the credit risk posed by foreign loan applicants.

Appetite for a pan-European market

We analysed the appetite of consumers and lenders for a pan-European mortgage market using both existing surveys and our own surveys of borrowers and lenders. The Commission requested that we conduct our own research because previous surveys concentrate largely on the desire to engage in transactions where the lender has no physical presence in the borrower's country. Since mortgage integration could occur through other mechanisms, such as cross-border entry, the Commission felt it was important to study borrowers' and lenders' desire to transact with foreign market participants through all the possible mechanisms of integration.

Previous surveys found little interest on the part of borrowers to contract mortgage loans from foreign lenders with no domestic presence, though there were some national variations in this level of interest. Our survey found a greater interest from borrowers in buying products from foreign lenders. In general, however, borrowers were only willing to transact with foreign-based lenders if those lenders were actively promoting mortgage products in their country or were subject to the laws and regulations in the borrower's country.

Almost half the respondents to our survey of lenders engaged in pure cross-border mortgage lending, as defined in section 2.2 below, at least on occasion. However, lenders had little interest in expanding pure cross-border lending. This is consistent with the concern several lenders expressed that borrowers who contact them from countries in which they have no physical presence might already have been denied credit by lenders in their own country. This problem is termed 'adverse selection' in economic theory.

Lenders did, however, express significant interest in expanding into foreign markets either by using networks of brokers, by establishing subsidiaries or by setting up new branches.

Obstacles to integration

To understand the measures that would need to be taken to achieve our definition of integration of EU mortgage markets, we examine current obstacles to mortgage integration. We consider obstacles to each of the mechanisms of integration we identify above: cross-border trade, cross-border banking entry, imitation of foreign lenders by domestic lenders, and development of markets for mortgage financing.

At present, 'pure' cross-border trade poses problems for both borrowers and lenders. Borrowers may well be wary of entering into contracts with unfamiliar terms. The fact that mortgage prices are hard to compare tends to make the true characteristics of products obscure to borrowers who are not familiar with that product. Borrowers may also be concerned that, any disputes over the terms of a mortgage contracted with a foreign lender would be complicated to resolve. Lenders tend to be discouraged from lending across borders by the fact that they would be bound by the legal system of the borrowers' country, and, as noted above, by concerns over adverse selection among borrowers who approach them from foreign countries.

Cross-border banking entry poses fewer problems than cross-border lending, but still faces some obstacles. For example, market participants often perceive that national competition authorities would frustrate attempts by foreign lenders to acquire domestic banks. Further, restrictions on the types of mortgage products that can be sold in a country reduce the potential for entrants to recoup economies of scale from selling the same products across several countries. Finally, lenders may be deterred from entering foreign markets by their unfamiliarity with foreign legal systems, by high tax rates on house sales in these countries, or by the fear that foreign legal systems may not allow lenders to foreclose on mortgages quickly if borrowers fail to make the required payments.

Imitation of foreign lenders by domestic lenders can be observed in some EU markets at present. However, restrictions on permissible mortgage products in some countries' national consumer protection laws prevent lenders from introducing mortgage products that exist in other markets. In addition, it may also be difficult for domestic lenders to introduce products with which they have little familiarity or experience.

Similarly, while some development of markets for mortgage financing can be observed at present, several obstacles remain. These include national regulations that promote the use of deposits to finance mortgages over the use of secondary market instruments. Further, regulation of banks' capital requirements typically does not reward banks for the reduction in solvency risk they can achieve by using secondary market instruments. Finally, legislation establishing the legal status of covered bonds and mortgage-backed securities differs across the EU and does not exist in some countries.

The path from current conditions to integration

This report was not charged with recommending future initiatives to integrate European mortgage markets. To assess the cost of integration, however, we construct a hypothetical package of measures that we believe would be sufficient to bring about the full integration of EU mortgage markets. We do not claim that this package is the ideal or only package that could achieve integration. However, we are careful not to include measures in the package that would be unnecessary or damaging, since this would lead to an over-estimate of the costs of integration.

The measures in our hypothetical package are designed to encourage each of the mechanisms of mortgage integration described above. Some measures would promote several mechanisms of integration, however. In particular, measures to promote product availability, by removing some restrictions contained in current consumer protection law, would encourage cross-border trade, cross-border entry and the imitation of foreign lenders by domestic lenders. For consumers to be protected from mistaking the characteristics of new products or the risks they entail, we envisage the 'hard' restrictions in some current consumer protection laws being replaced by a 'soft' regime in which lenders are obliged to explain the terms and risks of their products clearly to consumers.

Our hypothetical package also contains measures to promote integration of secondary markets. These would remove current disincentives to the use of capital markets to finance mortgages, and provide incentives for lenders to pool collateral across EU borders. The package would also create a consistent legal environment for the issuance of covered bonds and mortgage-backed securities across countries.

The hypothetical measures to promote cross-border entry divide into measures to ensure fair competition between domestic and foreign lenders and measures to improve the legal infrastructure supporting mortgage lending. The former include the removal of differences in the fiscal treatment of foreign and domestic lenders, the removal of government subsidies from particular types of lender, and equalising the terms of access to credit bureaux and property transaction databases. The latter include setting a common European standard for property valuation, improving cross-border and within-border enforcement of collateral, and improving land registers.

Conclusion

The context of our report has necessitated that it assess the costs and benefits of new initiatives to integrate European mortgage markets at a high level. We estimate that the full integration of EU mortgage markets would be of net benefit to the EU. We estimate that new measures to integrate EU mortgage markets would have small effects in the short term, but by 2015 would increase EU consumption by 0.5% and GDP by 0.7%. The net present value of all the costs and benefits of new initiatives that we estimate over the years 2005-2015 is €94.6bn, equal to 0.89% of EU GDP in 2005. We consider this to be a conservative estimate of the net benefits of new measures to integrate EU mortgage markets, since this total does not include the additional net benefits we expect would obtain in years after 2015. This total also excludes any benefits consumers would obtain through the role of more flexible mortgage products in allowing them to schedule their consumption more smoothly over time.

Acknowledgements

Several parties assisted London Economics in the preparation of this report. Mr. Achim Duebel, an independent mortgage consultant, contributed particularly to sections 6 and 7. Oxford Economic Forecasting (OEF) provided model outputs using their model of the EU-25 economy. OEF's work is discussed in sections 3 and 9 and in Annex 5. PricewaterhouseCoopers conducted the surveys of mortgage borrowers and lenders reported in section 5. Further, representatives of several mortgage lenders and federations of mortgage lenders responded to our survey soliciting data on national mortgage markets in response. Annex 6 lists the respondents to this survey.

2 Definitions

To clarify the subsequent discussion, this section defines some key terms and concepts. We use particular definitions that are workable in the context of this report; in some cases other definitions are possible.

This section defines:

- EU markets for residential mortgage loans,
- Cross-border trade in mortgages,
- Mortgage market integration,
- The properties of an optimal or desirable integrated mortgage market, and
- Our measures of the costs and benefits of mortgage market integration.

While this report is about mortgage integration, rather than optimality, it is necessary to define an optimal or desirable integrated market since EU mortgage markets could potentially integrate around models that in some ways were not desirable.

2.1 EU markets for residential mortgage loans

We define the mortgage product itself, and the distinction between primary and secondary mortgage markets. We then also define the subprime mortgage market and mortgage equity release.

2.1.1 Residential mortgages

Practice differs across EU countries as to whether home loans are secured on property. While some countries define residential mortgages as loans to individuals secured on residential property, in France and Belgium personal suretys typically guarantee loans intended for house purchase.

This difference in the method of securing loans makes it impossible to define mortgage or home loans in a manner satisfactory for all EU countries. For example, consider the definition of a home loan in the EU's Code of Conduct on Home Loans (EU 2001):[6]

> a credit to a consumer for the purchase or transformation of the private immovable property he owns or aims to acquire, secured

[6] The full title of this Code is the European Voluntary Code of Conduct on Pre-contractual Information on Home Loans. Its objective is to introduce transparency and consistency in the provision of information to consumers by lenders about mortgage credit offers. It creates the European Standardised Information Sheet (ESIS). The Code is a voluntary document, and exists alongside binding national rules in some countries, such as France and Ireland.

> either by a mortgage on immovable property or by a surety commonly used in a Member State for that purpose.

Even this definition, however, would not include some products commonly understood as mortgage loans in some countries. For example, second mortgages or other transactions to increase mortgage debt may be intended to fund consumption or investment in a small business rather than the acquisition or improvement of a residential property. National data typically do not describe the purpose of loans secured on residential property.

Faced with this variety of definitions of a residential mortgage or home loan, this study follows the definitions commonly used in each country. Thus, for example, our data on UK mortgage debt include all loans to individuals secured on residential property, but exclude unsecured personal loans. By contrast our data on 'mortgage' debt in France and Belgium include all loans intended for house purchase, however they are guaranteed. While our approach permits this type of inconsistency across countries, it prevents us from viewing a country as having little mortgage market activity when in fact it has considerable activity based around a definition of a mortgage that differs from that used elsewhere.

Annex 1 provides more detail on the national definitions of mortgages and home loans we use.

2.1.2 Primary mortgage markets

Commentators often distinguish between primary and secondary mortgage markets. The primary market describes transactions surrounding a borrower's decision to enter into a new mortgage loan agreement.

Actors in the primary market include borrowers, banks, building societies and other quasi-banking entities that make mortgage loans to borrowers, and mortgage brokers, who are sometimes described as mortgage intermediaries or third-party operators. The key difference between brokers and banks is that brokers do not themselves act as lenders. Rather, brokers typically provide advice to borrowers and help arrange mortgage loans, without actually providing funds to borrowers.

Mortgage transactions also involve other parties, such as valuers and insurers. In some countries, lenders require that valuers check that the property on which the mortgage is based has sufficient market value to provide collateral for the loan. Many lenders also require borrowers to purchase insurance either from the lender or from an independent insurer. The contracts required may include insurance against the house being damaged by fire or flood, and insurance against the borrower becoming unable to keep up the mortgage payments.

2.1.3 Secondary mortgage markets

The secondary mortgage market trades the rights to the borrower's agreed stream of repayments. Secondary markets are very small in some countries, since banks typically retain mortgages rather than selling them on to other investors.

Actors in the secondary mortgage market include banks, securitisers and investors. Banks may sell mortgage-based securities directly to investors, or a securitiser may act as an intermediary between the two. Insurers may also play a role in the secondary market, by insuring mortgage contracts against default. Actors holding mortgage-based securities may also purchase interest-rate options from financial markets that effectively insure against changes in interest rates.

The body of this report distinguishes between two types of securities traded in the secondary market: *mortgage bonds* and *mortgage backed securities* (MBS). We define these securities as follows:

- **Mortgage bonds:** debt instruments issued by mortgage lenders that are covered by the lenders' asset pool of mortgage loans.
- **Mortgage backed securities:** lenders sell their mortgage loans to a separate entity, a 'special purpose vehicle' (SPV). The SPV in turn issues securities that pass on the cash flows accruing to its pool of mortgage loans.

Thus, an important difference between these instruments is that a lender removes mortgage loans from its balance sheet if it funds them using MBS, but retains them on its balance sheet if it issues mortgage bonds.

2.1.4 Nonconforming and subprime loans

The word 'subprime' is typically used to refer to borrowers who have poor credit records, and thus to whom lenders would not grant the standard mortgage product on the standard terms. For example, some subprime borrowers have filed for bankruptcy in the past. Definitions of subprime borrowers may differ across countries and times, however, according to the different practices of national lenders in accepting and rejecting prospective borrowers of traditional mortgage loans.

We follow industry practice in using the term 'non-conforming' to signify loans that are not the standard product issued in the national market in question. Thus, we understand subprime loans to be a subset of all non-conforming loans. Non-conforming loans would also include loans to borrowers with less than the standard level of documentation and borrowers who want very large mortgages, who may be very wealthy and present little credit risk. The term 'non-conforming mortgage' can thus be used to describe a different set of products across countries and even across lenders in the same country.

A particular reason for the use of the term 'non-conforming' is the existence of national standards for the mortgage loans that can be securitised and sold on the secondary market. These standards for example define the maximum loan values, loan-to-value (LTV) ratios and the acceptable collateral types. Loans are then referred to as 'conforming' or 'non-conforming' based on how they adhere to these standards. This is for example the case in the US market (see Annex 3).

2.1.5 Mortgage equity release

Mortgage equity release requires careful definition, since the term is sometimes used to describe different phenomena. These are

- Individual homeowners expand the size of their mortgages in order to finance consumption of non-housing goods. This includes retirees who own their houses outright taking out 'lifetime mortgages', where the lender recovers the interest and principal of the loan from the value of the house upon the owner's death.
- At the aggregate level, new mortgage lending expands faster than the value of new housing construction. The difference is described as mortgage equity release and is a flow concept.

This report uses the second, aggregate concept of mortgage equity release. This concept is commonly defined as

Equation 1 $$MER_t = \left(M_t - M_{t-1}\right) - p_{h_t}\left(h_t - h_{t-1}\right)$$

Where MER_t represents the flow of mortgage equity release in year t, M_t represents the amount of mortgage debt outstanding in year t, p_{ht} is the price of housing that year, and h_t is the number of housing units in the total housing stock in that year.

It is important to remember that *MER* at the aggregate level can be positive even if no individual borrows against his house in order to finance consumption. For example, if an individual inherits a house and sells this to a first-time buyer who takes out a mortgage loan in order to buy the house, this loan adds to aggregate *MER* even though it was not intended to finance consumption.[7]

2.2 Cross-border trade in mortgages

We now define two terms we use throughout the report: 'cross-border activity' and 'cross-border trade'. We intend 'cross-border activity' to refer to a wide range of means by which lenders based in one country can conduct mortgage business in other countries. Within the broad range defined as

[7] See Davey (2001) for more discussion of this point.

'cross-border activity', we use the term 'cross-border trade' to refer to a specific class of transaction.

This study defines 'cross-border trade' in mortgages to imply transactions in which

- The lender is located in country A,
- The borrower and the property on which the loan is secured or which the loan is intended to purchase are in country B, and
- The lender has no physical presence in country B, either through branches, subsidiary firms or distribution agreements with local brokers or other firms.

We define the term 'cross-border activity' to include a range of activities, including cross-border trade as defined above, and also:

- **'Holiday-home' purchase:** the lender is located in country A and the relevant property in country B. The borrower is normally resident in country A. The relevant property may not strictly be a holiday home.
- **Cross-border entry via branching:** a lender with headquarters in country A opens branches in country B and conducts mortgage business through these branches.
- **Cross-border entry via establishment of subsidiaries:** a lender with headquarters in country A establishes a subsidiary in country B, perhaps through a merger or acquisition. The lender then conducts mortgage business through the branches of this subsidiary.
- **Cross-border distribution agreements:** a lender with headquarters in country A agrees with a broker or other financial institution in country B that the latter will sell the lender's mortgage products in country B.
- **Cross-border secondary-market transactions:** a lender with headquarters in country A buys or sells mortgages, mortgage bonds or mortgage-backed securities originated or issued by a lender in country B.

We stress that all the types of transaction falling under our definition of 'cross-border activity' could lead to integration of European mortgage markets and thus are studied by this report, as the Commission requested.

2.3 Mortgage market integration

Since European mortgage markets are large and complex, 'mortgage market integration' could be defined in several ways. Debates over EU mortgage markets commonly ascribe the following two characteristics to an integrated mortgage market:

(1) The same range of mortgage products is available in all Member States at the same prices.

(2) Lenders based in or originating from each Member State are willing to lend funds to borrowers in all Member States on the same terms, and consumers are equally happy to borrow from domestic and foreign lenders

Condition (1) is the definition of financial market integration adopted by the Cecchini report (CEC 1988). Condition (2) would imply that condition (1) held; it implies that no EU citizen would be denied opportunities available to other citizens or scared away from taking such opportunities by the foreign residence of the lender. Thus, condition (2) is sufficient for condition (1) to hold. Condition (2) is not, however, necessary for condition (1) to hold, since at least four mechanisms could lead to the same mortgage products could becoming available across Member States at the same prices:

- Cross-border trade in mortgage products,
- Cross-border entry into banking markets,
- Imitation of foreign lenders by domestic lenders, and
- Development of deep secondary markets in countries that lack them at present, permitting a greater variety of mortgage products and lower mortgage prices.

This study adopts definition (1) of mortgage market integration above. We intend this to mean that products of the same type, such as interest-only mortgages with flexible repayment terms, would exist in all markets at the same prices. We view the survival of some minor differences between these contracts across countries to account for differences in national property laws as being consistent with this definition of integration.

The study does not take a position on which mechanisms would bring this definition of integration about. We adopt this approach for three reasons. First, if mortgage markets across EU countries offered the same products at the same prices, all EU citizens would face the same borrowing opportunities, and there would not appear to be any further case for actions to integrate markets. Second, all the mechanisms described above are likely to contribute to price and product convergence. Third, lenders' appetite to engage in cross-border mortgage transactions appears so low (see section 5) that a focus purely on such transactions appears unwarranted, and in any event is not sought by the Commission.

We note that, even were the same mortgage products available in all countries, the take-up of these products might differ across countries, due to the familiarity of consumers in some countries with particular types of mortgage product or due to other cultural factors such as differences in the age at which young people leave the parental home.

2.4 Properties of an optimal integrated mortgage market

As we note above, one can imagine some models of mortgage integration that would not be desirable. For example, EU mortgage markets would be integrated if a narrow range of products were available in each country at the same price, with all other products being prohibited.

Thus, to establish an optimal or at least desirable path that mortgage integration could take, we must consider the properties one would wish an integrated mortgage market to have. We now consider what would constitute optimality of three central characteristics of a mortgage market: the level of mortgage prices, the range of mortgage products available, and the tax treatment of housing transactions and mortgage borrowing.

2.4.1 Level of mortgage prices

The first desirable feature of an integrated mortgage market is that mortgage spreads are low. Low mortgage spreads will tend to reduce the price of housing, when this is measured as the cost of interest on a typical mortgage.

To be more precise, economic theory states that optimality in any market requires that prices for identical goods be equal across locations at a level that equilibrates supply and demand. Optimality also requires that this price level allow lenders to make (only) normal profits. Economic theory defines normal profits as those that reward owners of capital at market rates for their patience and the risks they take. Thus, in an optimal integrated EU mortgage market, mortgage interest rates and fees would be too low to allow lenders to make 'supra-normal' or monopolistic profits.

Economic theory predicts that either of two conditions is sufficient for market prices to allow firms to make only normal profits. The first is the presence of many competing suppliers in a market. The second is that a market be contestable, meaning that entry is easy. In this case, even were there only a few incumbent suppliers, the threat of new entry would deter incumbents from charging monopolistic prices.

We would expect mortgage market integration to increase competition between lenders and the contestability of mortgage markets. In an integrated market, lenders would find it relatively easy to enter foreign markets where they observed high prices and profits, perhaps by building branch networks or establishing subsidiaries. Thus, market integration would tend to reduce lenders' ability to charge prices that produce supra-normal profits, to the extent that they have this ability at present.

2.4.2 Range of products available

A second desirable feature of mortgage markets is that consumers can borrow as much as they want at prevailing interest rates, so that borrowing is not

rationed. It is plausible that many individuals are rationed from borrowing in the EU at present. For example, mortgage lending to subprime borrowers is far more limited in the EU than in the US. For this and other reasons, analysts have estimated large 'latent demand' for mortgage borrowing among consumers in several EU countries.[8]

In many countries, removing rationing from mortgage markets would require two extensions of the range of mortgage products available: first an increase in maximum loan to value (LTV) or loan-to-income (LTI) ratios, and second the introduction of mortgages for nonconforming borrowers with poor or poorly documented credit histories. The introduction of further, flexible mortgage products, such as interest-only mortgages, might also reduce borrowers' perceptions of the risks involved with mortgage borrowing.[9]

While there would likely be benefits from a spread in the availability of mortgage products, there could also be some risks. Some consumers might contract more debt than was appropriate for them or enter into contracts without understanding all the applicable charges or risks.

Given this possibility for both benefits and risks from an increase in product availability, it is not clear what level of restrictions on product variety would be optimal in an integrated market. Indeed, current approaches to the regulation of product characteristics differ across EU Member States. Some countries take a more 'liberal' view, under which most products are permitted, while other take a more 'protective' approach and consequently restrict products more extensively.[10] All countries outlaw some lending practices as abusive, however.

Under the liberal economic philosophy that has underpinned free-market economic thinking since its origins in Adam Smith (1776), an optimal integrated EU mortgage market would contain as many mortgage products as the market would support. This view is based on the assumption that individuals know their own circumstances well. Thus, consumers can choose the products that best suit them, and government restrictions on these choices would merely make consumers worse off.

The 'protective' economic philosophy is less optimistic about the ability of individuals to make decisions, and more optimistic about governments' ability to do so. Under this view, there might for example be a rationale for

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[8] See Mercer, Oliver Wyman and MITA (2005) Ch.4.

[9] There have been some allegations of miss selling of endowment mortgages in the UK. Endowment mortgages are arguably a kind of interest-only mortgage because it is intended that the proceeds of an insurance policy, sold alongside the mortgage, will repay the loan principal at the end of the mortgage term. Standard interest-only mortgages, however, are not sold with such an insurance policy. The borrower is then free to repay the mortgage principal in any way, including by reselling the house.

[10] For example, Table A.1.9 describes the range of restrictions on mortgage interest rates contained in national usury laws.

governments to restrict mortgage interest rates or LTV ratios to prevent consumers from borrowing more than was appropriate.

This report takes the fairly liberal view that an optimal integrated EU mortgage market would have few product restrictions, and therefore that the range of products available would be at least as wide as that existing in any country today. Thus, we anticipate that one of the key benefits of mortgage integration would be an expansion in the range of mortgage products available in most countries.

We take this liberal view for three reasons: first, the spread of a wide range of mortgage products around the EU appears to offer the main channel for benefits from integration. Second, if integration required that lenders in some countries cease to supply some products, the costs of foregone transactions would add considerably to the costs of integration. And third, as an economic consultancy London Economics attempts to give an analysis grounded in conventional economic theory, which presumes that individuals are able to make choices in their own best interests.

2.4.3 Tax treatment of house sales and mortgage debt

An optimal integrated mortgage market would have tax systems that did not discriminate between foreign and domestic lenders. Indeed, the absence of such discrimination is likely to be a prerequisite for integration.

An optimal housing and mortgage market would also not distort households' choices between the consumption of housing and non-housing goods. The income tax systems of many countries are thought to encourage overconsumption of housing (see Gervais 2002). The key distorting features are that implicit rental income from owner-occupied housing is not taxed,[11] and that (in some countries) income tax relief is granted on mortgage interest payments. However, a lack of development in mortgage markets is likely to have the countervailing effect of discouraging housing consumption. The size and sign of the net distortion to housing consumption, once the effect of taxes and mortgage inefficiencies are combined, are unclear.

We considered a study of the distortions between housing and non-housing consumption in all EU25 tax systems to be beyond the scope of this study. Thus, our calculation of the net benefit of mortgage-market integration on the EU economy assumes there are no pre-existing distortions in tax systems. However, a theoretical possibility remains that, because of pre-existing distortions in tax systems, a reduction in lenders' mark-ups of mortgage rates

[11] To explain why the non-taxation of implicit rental income from owner-occupied housing is distortionary, note that shares in private companies provide dividend income, which is typically subject to income tax. Similarly, a house let to tenants provides taxable rental income to the owner. An owner-occupied house can also be thought of as providing a stream of payments to the owner – namely, the rental payments that the owner saves by having the right to live in the house. Thus, creating an equal tax status for owner-occupied housing, shares, and houses let to tenants would require that the owner pay tax on the implicit rental income he earns by owning the house.

over funding costs could actually make EU consumers worse off in the long run. Section 3 and Annex 4 explain this point in more detail.

An optimal integrated mortgage market would also have the optimal level of taxation on house sales, though this level is hard to define. Some countries' high taxes on house sales, while non-discriminatory between foreign and domestic lenders, tend to impede integration, since by depressing the rate of house sales, they reduce the incentive for foreign lenders to enter mortgage markets in the high-tax country.

2.5 Costs and benefits of integration

We now outline what, conceptually, the costs and benefits of mortgage integration would be to the EU. Aggregate costs and benefits to the EU will exclude transfers between individuals. This report's use of general equilibrium modelling ensures that the benefits measured are indeed net benefits to the average or representative consumer. We also set out how this report measures the costs and benefits of integration.

2.5.1 Costs

The costs of mortgage market integration include lenders' costs of implementing new systems and the costs of any business foregone. Any changes to lenders' profits would be captured in the cost-benefit calculation by changes in consumers' consumption of housing and other goods.

Implementation costs

Lenders' costs of implementing and complying with new legislative measures represent a cost to the EU overall. This is because, had lenders not had train staff to follow new procedures, rewrite software, produce new advertising materials, and train staff to follow new procedures, they could have used resources to achieve other goals. Section 10 estimates lenders' costs of implementing legislative measures intended to integrate mortgage markets.

Since the costs and benefits of integration occur at different dates through time, we calculate the net present value of the costs of integration using an appropriate discount rate. Given this approach, the timing of costs and benefits is important. It is plausible that many of the costs of mortgage integration, such as those of writing and implementing new legislation, would occur before the benefits.

Costs of business foregone

If new measures to promote mortgage market integration either prohibited certain mortgage products or discouraged lenders from offering them, these measures could create social costs. Mortgage-lending activity could be reduced, or borrowers could be denied the choice of mortgage loans that

particularly suited them. To give an illustrative example, when the UK's Financial Services Authority (FSA) assumed regulatory powers over UK mortgage markets in 2004, one major UK lender stopped making mortgage loans to UK residents denominated in Euro (and also Dollars and Yen). The lender viewed such loans as having insufficient volume to justify the cost of embedding them in procedures that would be compliant with the new regulatory procedures. Those UK residents with a particular demand for Euro-denominated loans are still free to borrow in Sterling, but are probably worse off since this lender withdrew Euro loans. Section 10 provides more detail on the effect of FSA regulation of UK mortgage markets.

Our assessment of the costs of integration excludes any costs of reduced mortgage activity. This is because we assume that full integration of EU mortgage markets would be achieved in a manner that did not impose any additional restrictions on the range of products that could be offered. We do assume, however, that the package of integrative measures would include measures to better inform consumers about the characteristics of the products they were buying and the risks associated with them. These disclosure requirements would have to be well designed for them not to persuade some lenders to withdraw partially or completely from mortgage-lending activity.

Changes to lender profits

One might imagine that changes in lenders' profits would represent a net cost or benefit to society. In fact, since lenders' profits are by definition income to some individuals, and typically the owners of these lenders, the effect of any changes in profits would already be captured in the assessment of how integration would affect individuals' consumption of housing and other goods. (Annex 4 describes this argument in detail).[12] Thus, our total estimate of the costs of integration excludes any changes in lenders' profits.

2.5.2 Benefits

Economic theory assumes individuals derive utility from their consumption of various goods through time. We now explain this theory in some detail. This explanation suggests that the benefits of mortgage integration must show up in higher individual consumption, and should be calculated in a net present value sense. We then consider how familiar concepts such as GDP and employment relate to consumer welfare.

Consumers' preferences

Formally, economists typically assume individuals attempt to maximise a welfare or utility function such as the following form:

[12] This argument assumes that EU citizens wholly own all lenders active in EU mortgage markets.

Equation 2 $$Utility = \int_{t=0}^{t=\infty} \left(c_t^{\theta} h_t^{1-\theta} \right)^{\sigma} e^{-\rho t} .dt$$

Here, c_t and h_t represent the individuals' consumption of non-housing and housing goods respectively at time t. The parameter θ measures individuals' preference for housing as compared to non-housing consumption, σ reflects individuals' desire for stability in their total consumption over time, and ρ reflects their impatience, or their desire to consume sooner rather than later.

The specification of consumers' preferences in Equation 2 implies that mortgage integration would benefit consumers if it allowed them to consume more of either housing or other goods. A more subtle point is how consumers would be affected by reforms that reduced consumption today but increased consumption in the future. Equation 2 implies consumers discount future gains in consumption at the rate ρ, and thus only benefit from gains in future consumption that are large relative to the loss of current consumption. Thus, it is vital to calculate the net present value of gains in consumption using an appropriate discount rate. We calculate and compare the net present values of the costs and benefits of integration in section 11.

Equation 2 also implies that consumers wish to smooth their consumption of both housing and other goods over time. Thus, consumers would desire flexible mortgage products that allowed them to reschedule mortgage payments in the event of an unexpected cost or dip in income, and thereby keep consumption relatively stable across these episodes.

The OEF macroeconomic model does not allow us to capture these benefits of mortgage product completeness in allowing smoother consumption paths. This is because it projects aggregate variables rather than focussing on individual consumption paths. Assessing the value consumers would place on flexible mortgage contracts would also require detailed information on the variability of household income and expenses.

Relationship to GDP

Since statistics agencies cannot measure individuals' well-being, economic debate often uses Gross Domestic Product (GDP) as a measure of economic welfare. Gross domestic product attempts to measure all the productive activity that occurs in a country, including activities that do not produce new consumption goods.

Net National Income (NNI) or private consumption would be preferable to GDP as measures of aggregate welfare. This is because GDP, unlike NNI, includes capital depreciation as an element of output. This is analogous to counting commuting costs as an element of desired consumption, whereas they are actually costs of a nuisance necessary to fund consumption of desired goods. Thus, NNI is closer to a measure of the total supply of goods that contribute directly to individuals' welfare.

Employment

The discussion above might appear to ignore gains in employment that might derive from mortgage market integration. However, time spent at work is merely a means to earn the funds necessary to purchase housing and non-housing goods. Thus, in economic theory, knowing an individual's consumption through time is sufficient to know his or her well-being. Indeed, conditional on a given level of consumption, time spent at work is typically thought of as a nuisance than something that provides additional utility. Equation 2 takes the neutral view that time spent at work does not affect utility.

3 Linkages from mortgage markets to the wider economy

We argued in section 2.5.2 that EU citizens plausibly wish to maximise their consumption of housing and non-housing goods over time. Therefore, benefits from mortgage integration must ultimately allow EU citizens to increase their consumption of some goods. The goal of this chapter is to explore how this increase in consumption could occur.

The linkages from mortgage-market variables to personal consumption are quite complicated in practice. For example, a decrease in mortgage interest rates could lead to a proportionate increase in house prices. In this case, lower mortgage interest rates would make new borrowers no better off. An increase in the total housing stock is necessary for new borrowers to be able to consume more housing with their given incomes. A formal economic model is necessary to trace how, for example changes in mortgage market variables could lead to an expansion of the EU's housing supply. Annex 2 gives an overview of current housing supply in the EU.

This section explores the implications of economic theory for the effects of mortgage market integration on the EU economy. Our use of theory ensures that the mechanisms described in this report are consistent with academic debates. To produce quantitative estimates of the effects of integration, however, we use the OEF macroeconomic model of the EU, which is better suited to estimating the effects of a given change on a 25-country system than models in academic literature. Therefore, this section also discusses the relationship between the OEF model and standard economic theory.

A necessary input to our models is a sense of how integration would affect key mortgage market variables. Based on the differences between national EU mortgage markets (see section 4), we believe integration would have two main effects. First, through strengthening competition, it would reduce mark-ups of mortgage interest rates over funding costs. Second, it could increase the range of mortgage products available in many countries.

Thus, this section contains the following four parts:

- A discussion of the types of economic effect we examine. This discussion describes how we treat effects occurring at different times, and our distinction between supply-side and demand-side effects,

- An analysis of the wider economic effects of lower mortgage spreads. This analysis describes a formal model in a non-technical manner; Annex 4 describes this formal model in detail,

- An analysis of the wider economic effects of greater mortgage product availability. This analysis draws on recent academic literature that describes the effects of credit constraints in mortgage markets, and

- An explanation of how the OEF model relates changes in mortgage market variables to wider economic variables. This explanation allows us to explain the mechanisms underlying the OEF simulation results. Annex 5 describes OEF's model in more detail.

3.1 Types of economic effects examined

We now explain this study's treatment of costs and benefits occurring at different times, our time horizon, and our distinction between supply-side and demand-side effects.

Treatment of effects occurring at different times

EU citizens will be concerned with the effects of mortgage integration on the EU economy at all dates. However, both economic theory and data suggest consumers value current consumption more highly than future consumption. Due to this impatience, theory predicts consumers will apply a discount rate to future events when evaluating options with lasting consequences (see Equation 2 in section 2.5.2). For this reason, we apply a discount rate to both the costs and benefits we estimate from mortgage market integration. Section 11 discusses our choice of discount rate.

Our consideration of events occurring at different dates makes the distinction between GDP and consumption particularly important (see section 2.5.2). This is because a policy that increased investment would initially make GDP rise but private consumption fall. Consumption would have to fall initially because, for an economy of given capacity to increase investment, resources must be redirected from the production of consumption goods. We expect the main effect of mortgage integration to be to increase housing investment in the short term and thus the consumption of housing services in the long term. Since individuals ultimately care about their own consumption paths rather than GDP, an exclusive focus on policies that increased GDP would lead to more investment than was socially desirable.[13]

Time horizon

This study assumes initiatives to promote mortgage integration are enacted in 2005. While ideally we would examine these initiatives' effects on the EU economy into the distant future, this would be problematic. Our forecasts

[13] In particular, in the neoclassical model capital investment beyond a point defined by the 'golden rule' of investment would increase GDP but decrease consumption and welfare.

would become increasingly speculative as the time horizon increased, and therefore readers would not find a forecast for economic changes in, say, 2050 valuable. Thus, we examine the effects of new initiatives to integrate EU mortgage markets only through the years 2015. This may lead us to understate the net benefits of new initiatives, since their costs would tend to occur quickly but their benefits mainly in the longer term. However, one might also expect EU mortgage markets to largely integrate at some future date without any new legislative initiatives, so the benefits of new initiatives in 30 or more years after their introduction may be small.

Supply-side and demand-side effects

This study focuses on what might be termed the supply-side effects of mortgage-market integration. In doing so we follow standard economic theory, under which economic output and consumption are constrained only by an economy's supply of labour, housing and capital, and price distortions due to taxes or firms' mark-ups.

Within the supply-side framework of economic theory, all suppliers produce as many goods as they wish at prevailing prices. A change in prices due to a reduction in taxation or in firms' mark-ups can bring forth increased supply, for example of housing investment. Such price changes will also increase demand, in that households will wish to consume the additional goods produced. However, increases in consumption can only occur if the economy's productive potential has been increased for a fundamental reason.

By contrast, in Keynesian, demand-side models, economic output can be deficient because of dislocations between supply and demand. In these models, suppliers (particularly unemployed workers) can find they are unable to supply as many goods as they wish at market prices.[14] This type of model often predicts governments can increase economic output dramatically at essentially zero cost, merely by coordinating supply and demand, perhaps by increasing the confidence of consumers.

Despite the observation that dislocations between supply and demand depress economic output at times, this study does not adopt a Keynesian, demand-side analysis. This is for two reasons. First, most economists believe dislocations between demand and supply are temporary. Second, governments can use fiscal and monetary policies to counter such temporary dislocations. It would not appear appropriate to use mortgage policy to counter temporary dislocations or losses of confidence, since the effects of mortgage reforms will continue long after the dislocations have ended.

[14] Thus, for example in Keynesian models it is possible that, at market wages, each employment vacancy will attract a large number of job applicants. Special arguments are needed, however, to explain why market wages would not fall in this circumstance.

The supply-side and long-run focus of the current report is similar to that adopted by previous studies of measures to achieve economic integration within the EU economy, such as London Economics' analysis of the effects of financial integration in the EU (London Economics 2002). However, our approach differs from the demand-side and short-term analysis of the UK Miles Review, which considered mortgage markets' effects on the amplitude of the business cycle or the speed of the economy's responses to changes in the central bank's interest rate.[15]

3.2 Economic effects of lower mortgage spreads

We expect one effect of mortgage market integration would be to further reduce mortgage lending spreads. Since EU citizens will be concerned about the effect of mortgage integration on private consumption of housing and non-housing goods (see section 2.5.2), this section traces the effect of spread reductions on private consumption and welfare.

The standard economic theory of economic growth is the neoclassical model. This model was adapted to include housing markets particularly by Greenwood and Hercowitz (1991). We now outline a model based on that work; Annex 4 provides the full model equations. In this model, an economy's stocks of business capital k and housing h, and its labour supply l determine its productive capacity. The model assumes consumers and firms optimise their behaviour in an environment of well-functioning markets. Thus, any effects of mortgage markets on the wider economy in this model result from economic fundamentals rather than particular market failures.

Predicting the amount of mortgage debt consumers will contract represents a puzzle for economic theory. Clearly, mortgage loans permit young households to own the property they inhabit. However, theory does not indicate why young households wish to own rather than rent, or how quickly young households will repay mortgage principal. Thus, some assumptions are necessary for a model to predict a level of mortgage debt.

We assume the tax system induces all households to own the houses they inhabit. Recent academic literature makes the same assumption.[16] More fundamentally, young households would desire to own some housing, as well as stocks and bonds, for portfolio reasons. Mortgage loans are the typical means by which young households own residential property.

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[15] The Miles Review examined the effect of mortgage borrowing at fixed and variable interest rates on the UK economy's short-term response to monetary policy. The Review does not indicate how mortgage markets would affect economies in the long term, since it did not focus on the long consequences of monetary shocks, which in any case were negligible. The Miles Review's Interim Report (HM Treasury 2004a), Ch.6, gives the results of this modelling work.

[16] See, for example, the discussion in Davis and Heathcote (2004).

The assumption that young households need mortgages to gain portfolio exposure to residential property will probably become less realistic over time. Increasingly, other mechanisms allow the young to own property without contracting mortgage debt. New Internet property exchanges in the UK allow investors to hold very small shares in rental properties. Further, the UK government is also considering providing tax incentives for the introduction of Real Estate Investment Trusts (REITs) in the UK (HM Treasury 2005), which would be similar to housing-backed mutual funds.

Theory also says little about the rate of mortgage principal repayments.[17] Repayments of principal are one of many saving vehicles available to households, and households' optimal use of each will depend on the tax status and risk properties of all available vehicles. These tax and risk considerations are complicated and thus hard to model. For simplicity, we assume all households always hold interest-only (100% LTV) mortgages. This implies that the stock of mortgages outstanding equals the value of the housing stock.

Sources of mortgage lending spreads

We assume banks or other lending institutions borrow funds from consumers at the interest rate r and lend at the rate r to firms that wish to invest in physical capital k. Thus, the market for corporate finance is efficient.

We assume further that mortgage lenders lend to households at the mortgage interest rate $r+s_1+s_2$. Thus, s_1 and s_2 create a spread of mortgage interest rates over market interest rates. This spread will tend to depress the amount of housing constructed.

The two components of the mortgage spread have different origins. s_1 covers banks' costs of business. Plausibly, mortgage integration could reduce banks' costs by enabling banks to operate at a larger scale and thus to spread fixed costs over a greater number of customers, by reducing banks' cost of raising funds, or by encouraging greater competition between banks and thus more efficiency in their practices.

By contrast, s_2 is a pure mark-up over costs. Thus, s_2 enables banks to make profits on their mortgage lending. Banks' profits are by definition income to some set of consumers. We assume banks return their profits to consumers in share dividends. Mortgage market integration could reduce banks' mark-ups by inducing greater competition between lenders in some or all countries.

The effects of falls in the two spreads s_1 and s_2 differ, as we show below. As might be anticipated, a fall in pure inefficiency s_1 is more advantageous for

[17] Note that consumers may have great flexibility over when to repay principal; with an interest-only mortgage there is no obligation to repay the loan principal at all.

the economy because it would reduce mortgage rates without reducing banks' profits.[18]

Consumer behaviour

We assume consumers derive utility from their consumption of housing h and non-housing goods c over time (as in Equation 2, section 2.5.2). Thus, consumers choose how to allocate their incomes between housing consumption h, consumption of other goods c, and savings. Their choices depend on their preferences, the post-tax prices of housing and other goods, and the post-tax interest rate. The efficiency of the economy will thus depend on whether these post-tax prices reflect actual scarcities or are distorted by tax systems, inefficiencies or firms' market power.

The effects of mortgage spreads on the economy through time

The discussion above emphasised that households care about their consumption at all dates, and prefer current to future consumption. However, within the neoclassical model, to understand how a policy affects consumer welfare, it is only necessary to analyse the effects of this policy on the economy's long-run steady state.

It is sufficient to analyse the long run of the neoclassical model because the model's structure does not allow the economy to go through a period of over-investment. Rather, the model assumes households will only sacrifice consumption in the short run if the increased investment and increase in long-run consumption this induces is to their benefit.

It is not the case, however, that any change policy induces in the neoclassical model will be beneficial. Rather, policies that distort households' choices between the consumption of housing and non-housing goods could potentially reduce consumer welfare. Thus, a key part of our analysis of the effects of mortgage integration is how integration affects consumers' consumption of both housing and non-housing goods.

In this model, four key long-run effects of the mortgage spreads are:

- Neither mortgage spread affects the size of the capital stock k.
- A fall in either mortgage spread will increase the housing stock h.
- A fall in the mortgage spread s_1 due to pure inefficiency will increase households' consumption of non-housing goods c.
- A fall in the mortgage spread s_2 due to banks' profits will decrease the consumption of non-housing goods c. This is because the spread s_2

[18] The mortgage spread s_1 is equivalent to a government tax on housing that is used to finance an activity that does not benefit consumers. The mortgage spread s_2 is equivalent to a government tax on houses that is used to pay transfers back to consumer.

does not affect consumers' total consumption, but induces them to substitute away from houses towards other goods.

Annex 4 shows the mathematics of the equations underlying these effects. We now examine the consequences of each effect for consumer welfare.

Welfare implications of changes in mortgage spreads

Since a decline in the mortgage spread s_1 increases households' consumption of both housing and non-housing goods in the long run, it follows that a fall in this mortgage spread increases individuals' overall welfare.

Since a decrease in the mortgage spread s_2 due to lenders' mark-ups raises h but reduces c, the effect of a fall in this spread on welfare is more ambiguous. There are two important cases to consider.

Were mortgage spreads the only distortions to the economy, reducing banks' profit s_2 would reduce net distortions and thus increase consumer welfare. In this case, the spread s_2 would distort households' choice between housing and other goods, and reducing or removing this distortion would increase households' welfare.

If taxes distorted consumers' choice between housing and non-housing goods, however, a reduction in s_2 could increase or decrease this distortion, and thus consumers' welfare. Intuitively, the net effect of the tax system and banks' profit spread might be to induce households to overconsume either non-housing or housing goods. Were the latter true, a further increase in housing consumption (due to a fall in s_2) would reduce consumers' welfare. Annex 4 explains this possibility in more detail. Consistent with this analysis, many US economists believe that that country's tax system induces US residents to consume more housing than would be optimal. [19]

The role of land scarcity

The neoclassical model described above and in Annex 4 indicates that lower mortgage spreads would increase the long-run housing stock. This result might appear to conflict with the observation that many countries restrict the building of new houses due to environmental concerns.[20] The model described above does not consider land to be a scarce resource.

If we add land to the model described above, the effects of changes in mortgage markets are very similar. A reduction in the mortgage spread again leads to a larger housing stock and less consumption of non-housing goods. This would occur even if the government prevented building on previously

[19] See Gervais (2002) and Frame and White (2005).

[20] In the UK, the Barker Review of Housing Supply (HM Treasury 2004b) considered the merits of further house-building in the UK given the conflicting concerns for higher GDP and environmental protection.

undeveloped areas (green fields), because a fall in the mortgage spread would induce firms to convert business capital (such as warehouses) into residential buildings.[21]

3.3 Effects of greater mortgage product availability

We project that mortgage market integration would increase the range of mortgage products available in many EU countries (see section 8.3). Indeed, we expect this effect to be larger than that of lower mortgage spreads, since mortgage spreads are already low in most EU countries at present. By contrast, the amount of mortgage debt outstanding varies greatly across countries. This is consistent with the cross-country differences in the range of mortgage products available.

The neoclassical model does not indicate the effect of an increase in mortgage product availability. The model assumes markets function well, so that all mortgage products are available at all times. Therefore, to predict the effect of greater mortgage product availability, we refer to recent academic work that makes particular assumptions about the loan-to-value ratios available from mortgage lenders. The following paragraph summarises the work of Gervais (2002).

If the income tax system made house ownership preferable to renting, young households would wish to own housing as soon as possible. If mortgage lenders offered a maximum LTV of 80%, however, young households would save heavily to build up the necessary 20% downpayment. Once they had bought a house, their saving rate would fall. In this context, the availability of mortgages with greater LTV ratios would permit households to buy housing at a younger age. Because the tax system induces house owners to consume more housing than renters, this would increase the demand for and supply of housing. Higher LTV mortgages would also decrease the need for the young to save. The national saving rate would not fall, however, since households would still need to save to fund their retirements.

3.4 Mortgage markets in the OEF macroeconomic model

In OEF's macroeconomic model, an economy's long-run GDP is determined similarly to the theoretical model described above. In the long run, GDP is determined by the economy's productive potential, and thus by the stocks of

[21] Were land a scarce resource, a loosening of government restriction on building on undeveloped green space would increase GDP. Both the housing stock and the consumption of non-housing goods would increase. Consumers' well-being would not necessarily increase, however, since consumers are likely to attach value to land that is not built on. Policy on building restrictions is beyond the scope of this study.

business capital and housing and the labour supply. GDP can deviate temporarily from this potential level due to demand deficiencies, however.

The OEF model differs from the neoclassical model described above in four ways:

- It allows credit restrictions to affect the amount of mortgage debt outstanding,
- It assumes that consumers can rent as well as buy housing,
- It allows households' consumption of non-housing goods to depend on the flow of mortgage equity release, and
- The OEF model is a multi-country model, so particular issues arise over deciding which citizens are affected by changes in mortgage lenders' profits.

We now explain these effects in a non-technical manner; Annex 5 gives a technical description of the OEF model.

Credit restrictions on mortgage borrowing

In the theoretical model described above, the amount of mortgage debt outstanding depends on households' incomes, mortgage interest rates, and the tax system. The amount of mortgage debt outstanding then determines the size of the housing stock. In the OEF model, the amount of debt outstanding depends on all of these factors and also on an index X measuring the degree of completeness of mortgage markets in a country. The wider the range of mortgage products available, the fewer credit restrictions will exist and thus the greater will be the share of mortgage debt in GDP.

The effect of increasing mortgage market completeness is very important to the effect of mortgage integration on the EU economy that we estimate using OEF's model. We project that integration would bring about a large increase in product availability in some EU countries, leading to a large increase in mortgage debt and a considerable increase in the housing stock.

Possibility of renting instead of owning housing

In the theoretical model described above, we assumed that households always owned rather than renting housing because the tax system favoured ownership. This created a tight linkage between mortgage debt and the demand for housing. This linkage will be somewhat weaker in the real world, however, since in practice mortgage debt allows young households to move from rented to owned accommodation, with their total housing demand increasing only slightly.

The OEF model assumes that, when the availability of mortgage products increases, the share of housing services purchased using mortgage debt also increases. Thus, the OEF model assumes

Equation 3 $M/p_h h = nX^{\lambda}$, where $0<n<1$ and $0<\lambda<\beta$.

Where M is the amount of mortgage debt outstanding and $p_h h$ is the value of the housing stock. This formulation ensures that an increase in mortgage availability increases both mortgage and housing demand, but that the effect on housing demand is smaller than that on mortgage demand.

Mortgage equity release

It has been argued that an expansion of the range of mortgage products availability would lead to an increase in the consumption of non-housing goods. One way this could happen is through an increase in mortgage equity release (MER). As section 2.1.5 explains, we define mortgage equity release to be an aggregate flow of new lending in excess of new building.

The OEF model allows flows of mortgage equity release to affect households' consumption of non-housing goods by overcoming liquidity constraints. The intuition of this effect is that households may previously have been consuming less than they would have liked. Mortgage equity release, at an aggregate level, transfers housing wealth into financial assets, which are likely to be more liquid. Thus, flows of MER may enable households to increase their consumption to their desired level.

While the OEF model assumes flows of MER have a positive effect on consumption, any such effect is likely to be only temporary, for two reasons. First, greater mortgage equity release implies that mortgage debt is rising. Second, greater consumption in the short run leads to lower wealth and thus lower consumption in the long run.

Allocation of lenders' profits across countries

In our theoretical model of a single, closed economy, lenders' profits accrue to individual consumers. Thus, consumers are the beneficiaries of any increase in lenders' profits. While this remains true in OEF's multi-country macroeconomic model, a problem arises in deciding which consumers are affected by any change in lenders' profits.

The problem of allocating profits across countries has two aspects. First, it is difficult to forecast the shares of mortgage business in any country that domestic and foreign lenders will conduct. Second, it is also difficult to forecast the nationality of these lenders' shareholders. Rather than make detailed assumptions on these points, the OEF model assumes that any profits from mortgage lending are income to residents of the country in which the borrower resides.

In contrast to this modelling assumption, in reality it is plausible that both UK and US citizens would receive substantial shares of any increased profits from increased mortgage lending in the EU. This is because we would expect lenders from these countries to conduct a considerable share of mortgage lending in an integrated EU market. We would expect UK lenders to do considerable business in products that at present are common in the UK and rare in other EU countries, such as flexible mortgages and lifetime mortgages. We would expect US lenders to conduct a substantial amount of business in the sub-prime sector, where US firms have particular expertise. While citizens of any country could own the shares of UK and US lenders, these shares are likely to be largely owned by UK and US citizens, perhaps through their pension funds.

Since the OEF model does not allow for profits from mortgage lending business to flow across borders, it may slightly overstate the effect of mortgage market integration on private consumption in the EU. To the extent that US citizens rather than EU citizens receive increases in profits from mortgage lending, US rather than EU citizens will be able to increase their consumption. Similarly, within the EU, the OEF model is likely to overstate the benefits of mortgage market integration for consumers in countries with less developed mortgage markets, and understate the benefits for consumers in countries with well-developed markets, such as the UK.

This problem in allocating profits does not change the fact, however, that citizens in EU countries that currently have less developed mortgage markets would benefit from the development of these markets. They would benefit primarily by being able to consume more housing once the availability of mortgage products rose.

3.5 Summary of macroeconomic linkages

The analysis above suggests the main effect of mortgage market integration would be to increase the housing stock. This could occur because either

- Falling mortgage interest spreads encourage consumers to buy bigger houses, or
- A greater availability of mortgage products enables some consumers to borrow who previously could not, and allows others to take out loans with larger LTV ratios than they previously could.

A negative effect of mortgage integration could be a reduction in the consumption of non-housing goods. This could occur because the larger housing stock would require more of the economy's labour and capital to maintain, leaving less labour and capital to produce consumption goods.

While we expect mortgage market integration to reduce lenders' profit margins, the analysis of the effect on the consumption of housing and other goods includes this effect. A reduction in lenders' profits would reduce the dividends lenders pay to the consumers who are their shareholders, but consumers would on average benefit were lenders' mark-ups to fall.

The net effect of the increase in housing and reduction in non-housing consumption could be to increase consumer welfare. This is because mortgage interest spreads distort consumers' choices between housing and other goods. A reduction in this distortion would benefit consumers. It is possible, however, that consumer welfare could fall. This could occur if tax systems previously created a distortion in favour of home ownership. Since lenders' mark-ups are essentially a tax on home-ownership, a reduction in these mark-ups could increase the degree of distortion to consumers' choice between housing and non-housing goods.

Mortgage market integration would raise GDP via the increase in the value of housing services consumed. However GDP is not the ideal measure of consumer welfare, since GDP is a gross concept that includes expenditure to maintain housing. Thus, the change in private consumption is our preferred measure of the effects of integration.

4 Key features of EU mortgage markets

This section describes four key features of EU mortgage markets: the extent of cross-border activity, the business models of lenders active in multiple EU markets, mortgage prices, and mortgage debt outstanding. Other aspects of EU mortgage markets are described in Annex 1.

We gathered information on EU mortgage markets from national statistics agencies, national central banks, and other statistical sources. We also solicited information from national mortgage and banking federations using a survey of mortgage markets that we designed. Annex 6 lists the organisations that responded to this survey.

4.1 Cross-border activity

Cross-border activity in the primary mortgage market can take several forms. We now discuss the extent of three major forms in the EU, to the extent that the data allow. These are: cross-border trade, cross-border entry, and cross-border mergers and acquisition (M&A).

4.1.1 Cross-border trade

As we state in section 2.2, we define cross-border trade in mortgages in the pure sense of a loan from a lender to a borrower usually resident in a country where the lender has no physical presence. Thus, this definition of cross-border trade excludes transactions such as holiday home purchases, where the lender and relevant property are in different countries, but the borrower is normally resident in the same country as the lender.

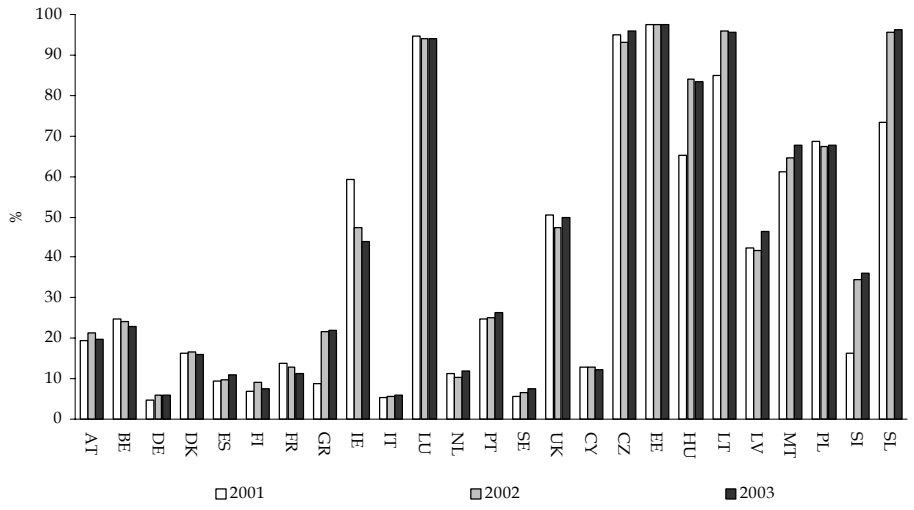
The Eurobarometer surveys provide the only data of which we are aware on the extent of cross-border trade in mortgage loans in the EU. The 2004 survey found that less then 1% of mortgage holders had had obtained a mortgage in a foreign country (see section 5.1.1). This picture that genuine cross-border trades are very rare is supported by survey evidence gathered by the EMF (EMF 2002a), and by evidence collected for the present study on the business models of lenders active in multiple EU mortgage markets (see section 4.2).

4.1.2 Cross-border entry

Cross-border entry into foreign banking markets can be observed much more frequently in the general banking sector than in the mortgage subsector. Foreign credit institutions have a considerable presence in most Member States, although growth has been static over recent years. As Figure 4.1 shows, foreign presence is particularly significant in the Eastern European New Member States. Of the old EU15 only Luxembourg has a similarly high foreign presence. The UK and Ireland make up a middle group where foreign institutions hold about half of all assets in the credit sector, whereas in

the majority of countries this figure lies between 10 and 25%. In Finland, Germany and Italy non-domestic institutions hold only about 5% of assets.

Figure 4.1: Market share of foreign credit institutions
Share of total assets (branches and subsidiaries)



Source: ECB

The total numbers of branches and subsidies of foreign institutions (both EEA and third-country) are shown in Figure 4.2. With the exception of the United Kingdom, the presence of institutions from other EEA countries is much greater than the presence of institutions from countries outside the EEA.

Any inference about the situation in the mortgage sector based on the situation in the wider financial sector can only be tentative. Surveys conducted by the European Mortgage Federation in 1996 and 1998 are still to date the most comprehensive investigations into cross-border activity, and even they cover only a handful of countries. The surveys found that American, Belgian, British, Danish, French, German, Norwegian, and Portuguese mortgage lenders operate in other EEA countries and that foreign lenders operate mainly through branches set up in the host country.[22] Foreign entry in the mortgage market has been more frequent than attempts at direct cross-border trade. In some countries it has been significant, for example in the Netherlands, where foreign lenders had captured a market share of 11% in 2001.[23] Overall, however, it remains rare.

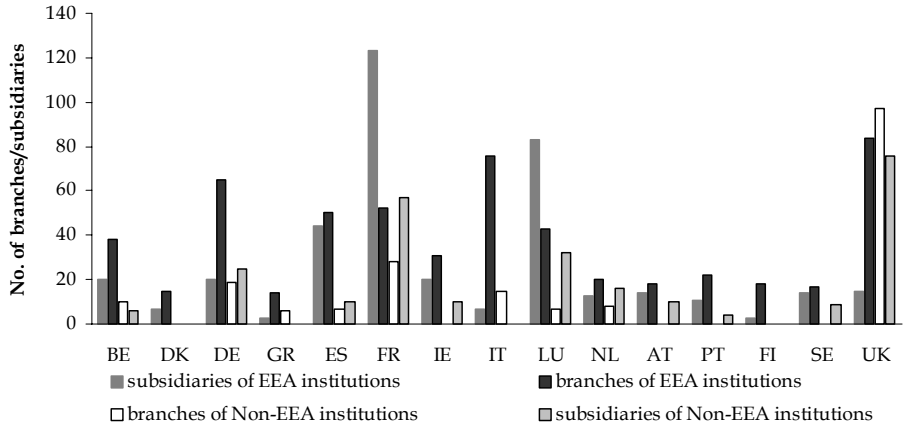
There are examples where cross-border entry has had a lasting impact on the host country market. For example, in Italy British entrants Abbey National

[22] EMF (2002).

[23] Merrill Lynch (2003).

and Banca Woolwich (part of Barclays Group) have been credited with driving product and process innovations such as monthly instead of semi-annual repayments and credit scoring as part of the underwriting process. In the Netherlands foreign lenders have introduced new distribution methods, such as call centres and Internet lending.

Figure 4.2: Presence of foreign credit institutions



Source: ECB

Moreover, barriers to entry, and low margins in many markets mean that the scope for increased entry may be limited in many countries. Of particular consequence is likely to be that barriers to entry in the high-margin, high-growth segments of the mortgage market face are particularly severe. These barriers stem particularly from problems of cross-border access to information on consumers' credit records (see section 6).[24]

4.1.3 Cross-border mergers and acquisitions

M&A in the wider European financial industry has been frequent. As Figure 4.3 shows, incidents of M&A number in the hundreds in the larger European markets. In the larger countries domestic M&A is most common. The fast increase in concentration in the markets of France, Germany and Italy is mostly merger-driven.

M&A between parties from different EEA countries represents a minority of cases in most countries. This might suggest that economies of scale are more difficult to achieve in inter-European cross-border M&A than in M&A where both parties are from the same country. Alternatively, this lack of cross-

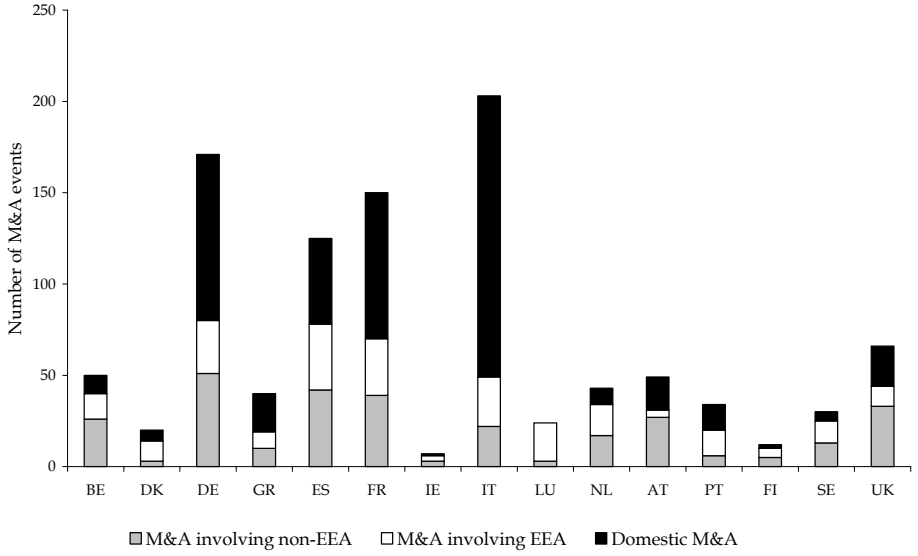
[24] As an example, lending to non-conforming borrowers requires even more sophisticated knowledge and risk management than lending to other borrower groups, so established lenders with access to superior market information are at an even greater advantage than in other segments.

border M&A might simply reflect some governments' reluctance to see foreign firms take over domestic banks.

Any conclusions as to the state of integration of Europe's financial markets must be ambiguous. The high proportion of mergers involving EEA as opposed to third-country institutions can be seen as proof of integration, while the prevalence of domestic mergers over mergers with foreign involvement indicates that integration has not yet advanced much.

Although some examples exist of M&A in the mortgage sector, for example HSBC's acquisition of French lender CCF, the available data do not permit us to assess how the frequency of M&A in the mortgage sector differs from that in the financial sector overall.

Figure 4.3: M&A between credit institutions, EU15 (1997-2004)



Source: ECB

4.2 Business models of multi-country lenders

The strategy adopted by lenders to expand with a pan-European approach is of particular interest in the context of this study, and therefore we solicited lenders about the business models they applied. In fact, we believe few if any lenders conduct mortgage business in all EU countries. Therefore we focus our analysis on the business models of lenders that conduct mortgage business in several EU countries.

Our objective was to gain a sense of how difficult these lenders found conducting mortgage business in several countries, and whether they found making mortgage loans in a country required having a physical presence in it.

We now describe our survey approach and our findings on current business models and anticipated changes.

Survey approach

To gather data on business models, we sent a short survey to representatives of firms making mortgage loans in several EU countries. To clarify some of the points made, we supplemented the survey replies with conversations with the respondents. We received survey replies from eight lenders, whose home countries (where their headquarters are located) were Austria, Denmark, Germany (two firms), Spain, the UK (two firms) and the US.

Use of physical presence to conduct foreign mortgage business

Most of the lenders that responded based their foreign operations on subsidiaries with a large branch presence. Lenders explained their preference for buying subsidiaries by the following reasons:

- Physical presence is important for mortgage business since most sales are conducted within bank branches.
- Buying an existing lender with hundreds of branches is a more attractive proposition than taking the risk of building new branches in a foreign country. The various fixed costs of entry imply entry into a foreign market would have to be on a large scale to make sense.
- Buying an existing lender also provides an entrant with a workforce with language skills and knowledge of the foreign country's legal system, which is expensive to acquire.
- Lenders were worried about the credit risks of pure cross-border trades. Lenders stressed they were concerned that they did not have good access to foreign credit databases to check the credit histories of foreign loan applicants.
- Lenders were concerned that, in the event of a dispute over a cross-border loan, one party could become party to proceedings in a foreign court.

Overall lenders rarely made loans to borrowers in a country where they had no presence. This type of lending seemed mainly to take place when the lender and borrower are from similar cultural backgrounds, for example Ireland and the UK, Germany and Austria, and within Scandinavia. However, lenders were quite cautious about making such loans due to the risk of adverse selection. For example, one respondent noted that they had made loans to residents in another country, but that due to problems with these transactions, it now had a policy of refusing loans to borrowers resident abroad.

It was slightly more common for lenders to make loans to citizens of their home country for the purpose of purchasing property in another country.

The volume of this type of loan was still small for most borrowers, however; one respondent reported making a substantial number of such loans.

Choice of products in home and foreign markets

Multi-country lenders tend to offer similar products in foreign markets as in the home market. Only one lender (from the UK) reported offering substantially different products in foreign and home markets.

Several lenders' business models exploited their expertise in products that were rare in the foreign markets they entered. This has for instance been the case for the sub-prime segments in several European countries and flexible mortgages (with the option to draw down principle previously paid) in France.

Distribution

As in the home market, multi-country lenders tended to use branch networks as the primary channel of distribution in foreign markets.

In both home and foreign markets, the great majority of mortgage contracts are closed using meetings within bank branches. However, brokers and other third party distributors also account for a considerable share of loan closures.[25] The Internet and telemarketing remain relatively insignificant distribution channels.

When asked which distribution channels they would like to expand in future, however, lenders were more interested in expanding their use of the Internet than of other channels in both home and foreign markets. Few multi-country lenders reported an interest in expanding distribution through brokers or telemarketing apart from one, who is rapidly expanding its lending through brokers in foreign markets.

Foreign lenders active in Eastern Europe were particularly sceptical of expanding lending through means other than face-to-face contact within branches. In their survey responses and our conversations with them, some of these lenders stressed the importance of physical presence in Eastern Europe due to the absence of reliable credit history information and the subsequent risk of adverse selection in loan issuance.

Funding

The responses to our survey showed that the lenders used a variety of approaches to raising funds. In accordance with their entity-structure as savings banks, the two German lenders did not use secondary funding methods at all or only slightly. On the other hand the Danish respondent (due to legislation) exclusively uses mortgage bonds and the Spanish lender

[25] Other third-party distributors, particularly in southern Europe, are real estate agents.

raises most funds with mortgage-backed securities. The remaining respondents used a more mixed approach between secondary funding and deposits.

Loan servicing

Lenders used a variety of approaches to loan servicing. Some lenders kept loan administration in-house in their home market, while outsourcing this task to a separate lender in foreign markets. Other lenders have streamlined their large-scale operations in their home market and outsourced the servicing of debt, while keeping administration in foreign markets in-house, since the scale of operations was not yet significant enough to justify outsourcing.

Future trends in business models

Most respondents believed physical presence would be as important in 2010 as it is today for conducting mortgage business in the EU. Only two lenders, one from Germany and one from the UK, stated that they believed that physical presence will be slightly less important.

Consistent with this belief in the continued importance of branch networks, lenders reported that the main avenues of foreign expansion in which they were interested was an expansion of the number of mortgages they sold through their own foreign branch networks or through the branch networks of their foreign subsidiaries. Lenders had considerable interest in expanding their foreign operations in these ways.

By contrast, lenders' interest in expanding mortgage business to markets where they currently have no presence was moderate. In general lenders showed some interest for such expansion through either own branches or subsidiaries, but had very little interest in direct cross-border trade.

4.3 Mortgage prices

This section describes the level of mortgage prices in the EU, the trend in these levels, the degree of variation in mortgage prices across countries, and the trend in this degree of variation.

The price of a mortgage to a borrower is its interest rate plus any fees lenders charge. Lenders' cost of funds will typically be closely related to national benchmark interest rates such as the yield on government bonds or the central bank's overnight interest rate. Thus, it is typical to express mortgage interest rates as a spread over such a national benchmark rate.

Lenders typically express mortgage fees separately from the mortgage interest rate. Interest rates can also be constructed, however, that include the

effect of all fees. One example is the 'Annual Percentage Rate of Charge' that the 1990 amendment to the EC Directive on Consumer Credit defined.[26]

4.3.1 Broad trends in mortgage rates

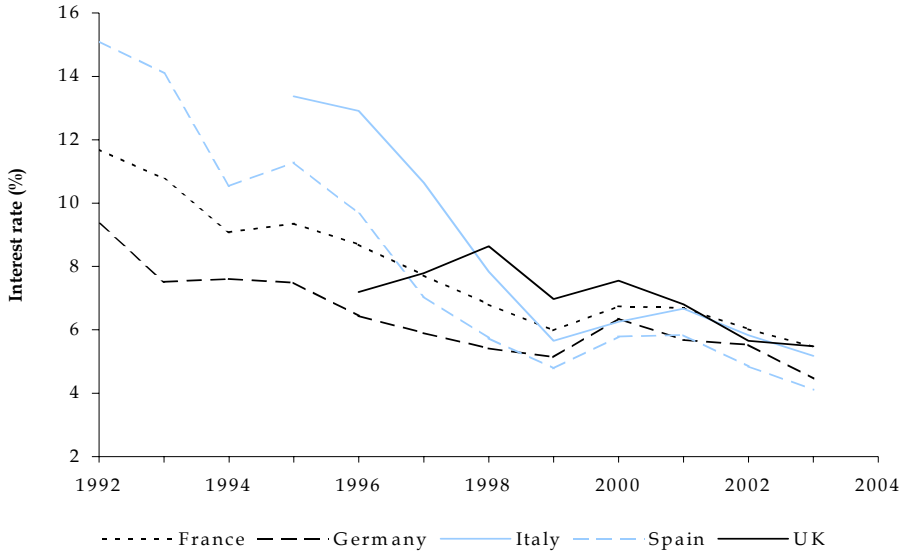
Over the last ten years, mortgage interest rates have generally fallen and converged across countries. This trend is consistent with the decline in nominal interest rates in the EU over this period, described in section A1.1.

Mortgage rates in the EU's five largest economies, shown in Figure 4.4, exemplify this downward and convergent trend. The data in this figure are the ECB's series of National Retail Interest Rates, which are not completely comparable across countries.[27] Nevertheless, the downward and convergent trends are clear. Mortgage interest rates have also fallen in the New Member States, but still differ considerably across these countries, as Figure 4.5 shows.

[26] The original Consumer Credit Directive was Council Directive 87/102/EEC (22 December 1986); it was amended by Council Directive 90/88/EEC of 22 February 1990. This amendment contained a mathematical appendix defining the construction of the Annual Percentage Rate of Charge.

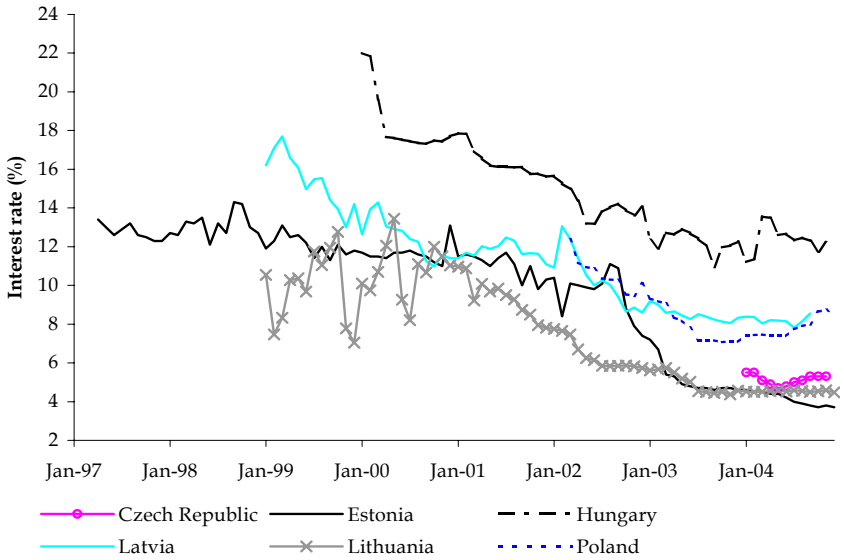
[27] See the ECB's website at http://www.ecb.int/stats/money/interest/html/retail.en.html#info. The mortgage rates are series N2 of the National Retail Interest Rates. One reason for rates to be not comparable across countries is that, some countries' rates are for fixed, and others for floating-rate mortgages.

Figure 4.4: Mortgage interest rates, five largest EU economies



Source: ECB.

Figure 4.5: Mortgage interest rates, EU New Member States



Source: National central banks.

4.3.2 Mortgage interest spreads

Defining a mortgage interest spread requires selecting the correct benchmark interest rate. This has particular implications for our study.

In practice it is difficult to calculate the correct benchmark interest rate for a fixed-rate mortgage. The correct benchmark rate would be the yield on a combination of government bonds with the same duration (or time of weighted average repayment) as the mortgage. The duration of a mortgage loan depends both on its terms and on the rate of prepayment by borrowers. Unfortunately, however, data on prepayment rates are not widely available.

It is easier to calculate the appropriate benchmark for variable-rate mortgages. Banks' cost of funds for variable mortgages is closely linked to the central bank's overnight interest rate, or to an inter-bank swap or 'prime' rate itself closely related to the central bank rate. For these reasons, this section focuses on the spreads of variable-rate mortgages over national central banks' overnight interest rates.

Mortgage spreads in MFI data

The ECB's 'Monetary and Financial Institutions' (MFI) series appear to be the best available for comparing mortgage rates across countries. Indeed, the ECB regularly publishes the average and variance of MFI interest rates across Eurozone countries, implying that the ECB considers these rates to be comparable across countries. The MFI data also have the advantage of being based on very large samples of lenders. Eurozone national central banks (NCBs) have collected MFI data since 2003, under procedures set out by the ECB. The NCBs of some non-Euro countries also publish MFI interest rates constructed on identical or similar lines.

The MFI series classify together mortgage loans with variable rates or rates fixed for one year or less. We refer to this class of mortgages as (quasi) variable-rate mortgages. As explained above, these mortgage rates appear to be those most comparable across countries. Some product differences could reduce the cross-country comparability of even these rates, however; for example, these rates exclude lenders' fees.

Column 3 of Table 4.1 shows the spreads of these (quasi) variable mortgage rates over the local central bank base rate. The lowest spread, at 111 basis points (bp) is in the Netherlands, while the highest spreads are in the New Member States. The spreads are fairly similar among the Eurozone countries, but differ more widely across the EU overall. The range of spreads is 111 bp among Eurozone countries and 255 bp among all EU countries. Thus, we take the 111 bp range of spreads within the EU15 as the best estimate available of the range of same-product spreads.

Spreads including fees

Comparisons of Annual Percentage Rates of Charges (APRCs) on mortgages are of interest, since in principle APRCs include all fees lenders charge.[28] National central banks publish APRCs as part of the MFI series, but give little information on the underlying products. APRCs are also essentially non-comparable between countries with different base rates (or within countries across times when the base rate has been changing) as Annex 7 explains. It might also be argued that, differences in the underlying mortgage products mean there are problems in comparing APRCs even across countries with the same base rate.

Due to these problems, we use the APRC data only as a check on the consistency of the data on (quasi) variable-rate mortgage rates. Column 4 of Table 4.1 shows the spreads of these APRCs over the ECB base rate (and the identical Danish base rate). These spreads differ by 95 basis points among the Eurozone countries. Spreads based on APRCs for countries with different base rates are not shown, due to their comparability problems.

Thus, data on APRCs are consistent with the view that mortgage spreads within the Eurozone differ by around 111 basis points.

4.3.3 Trends in mortgage spreads

We are concerned with two aspects of the time trend in mortgage spreads: whether the level of spreads has declined over time, and whether the variation in spreads across countries has declined over time.

[28] ECB (2003b) explains the ECB's requirements for the construction of APRCs used in the MFI interest rate statistics. This document clarifies that the APRC is intended to reflect 'the total costs of credit to the consumer', but that some cross-country differences in the types of costs reported within APRCs may remain.

Table 4.1: EU mortgage interest-rate spreads, December 2004

	Central Bank Base Rate (%)	Variable-Rate Mortgage Spread (%)	APRC Spread (%)
Euro countries			
Austria	2	2.17	2.16
Belgium[2]	2	1.36	
France[2]	2	1.53	
Finland	2	1.14	1.21
Germany	2	1.45[1]	2.08[1]
Greece	2	2.21	2.54
Ireland	2	1.39	1.42
Italy	2	1.66	1.82
Luxembourg	2	1.38	2.08
Netherlands	2	1.10	1.85
Portugal	2	1.39	2.06
Spain	2	1.19	1.39
Non-Euro countries (EU 15)			
Denmark	2	1.30	2.1
Sweden[2, 3]	2	1.12	
UK[2]	4.75	1.85	
New Member States			
Czech Rep.	2.5	2.67	
Estonia	2.22	1.48[4]	
Hungary	9.8	2.27	
Latvia	4	3.51	
Lithuania	3	3.40	
Poland	6.5	0.96	
Slovakia	4	2.82	
Range – Euro Countries		**1.11**	**0.95**
Range – All Countries		**2.55**	

Note: APRC spreads are omitted for countries where the central bank base rate differs from the ECB rate, due to comparability problems with these spreads (see Annex 7).
[1]The figure is for November 2004. [2]No APRC data available. [3]Average interest rates for the fourth quarter 2004. [4]Average interest on all EEK denominated housing loans.
Sources: National central banks' series on MFI interest rates, or national equivalent. For the UK, Bank of England series of average Standard Variable Rates on fixed-rate mortgages.

Trends in levels of spreads

Trends in mortgage spreads indicate whether the baseline case is that spreads are declining as the sophistication of primary mortgage markets and the depth of secondary mortgage markets increase.

The longest series available of mortgage rates are the ECB's National Retail Interest Rate series. These suggest mortgage spreads have been stable over time in most EU countries. Taking the German market the largest in the EU, as an example, Figure 4.6 compares interest rates on German fixed-rate mortgages with a maturity of five years or more, with the yield on 5-year German government bonds. The spread of mortgage rates over the government bond yield is roughly constant.[29]

Other data confirm this sense of stable spreads over time. The MFI mortgage interest rate series, covering January 2003 to November 2004, show no significant downward trend in spreads. Similarly, US data suggest US mortgage spreads have been stable over a long period (see Annex 3).

Trends in cross-country variation in spreads

Overall, the ECB's National Retail Interest Rate series and MFI interest rate series provide weak evidence of convergence in mortgage interest spreads across countries.

We find no evidence of a convergence of mortgage spreads within the Eurozone since the Euro's adoption in the ECB National Retail Interest Rate series. This contrasts with the clear convergent trend in average mortgage interest rates across US states (see Figure A.11). This confirms our sense that mortgage-market integration is occurring less rapidly in the EU at present than it has in the US in recent years.

By contrast, we find some evidence of a convergent trend in MFI mortgage interest spreads (Annex 8 explains our methodology and results). Figure 4.7 shows these spreads. The parameters we estimate suggest a continuation of current trends would eliminate around half of the current differences between mortgage spreads within the EU15 by 2015. Insufficient data on mortgage spreads in the New Member States are available to test for a convergence of mortgage interest spreads in the EU25 overall.

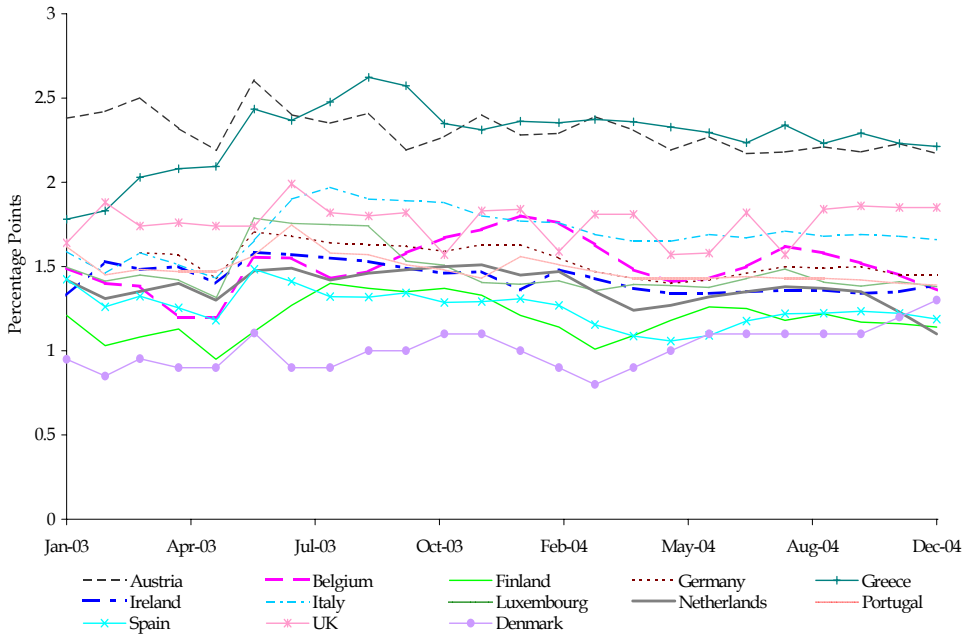
It is notable that mortgage spreads within the EU15 do not appear to have converged across countries to the degree that US mortgage rates have converged across states in recent years (see Annex 3). This reinforces the impression that EU mortgage markets are not yet as integrated across countries as US markets are integrated across states.

[29] We caution that, since we do not know the exact maturity or duration of the mortgages underlying this price series, the 5-year government bond yield may not be the ideal benchmark.

Figure 4.6: Time series of German mortgage interest rates

Sources: ECB, Bloomberg.

Figure 4.7: Eurozone mortgage spreads, MFI data



Source: National central banks.

4.4 Mortgage debt outstanding

The amount of mortgage debt outstanding in a country reflects the amount of current and past activity in its mortgage markets. Mortgage activity will tend to be higher in countries with more sophisticated mortgage lenders that offer a greater range of products and lend to a wider range of borrowers. We would expect other factors, including the income tax treatment of mortgage interest, also to affect the level of mortgage lending activity.

We now briefly discuss the size of mortgage markets in the EU25 overall and compare mortgage markets across the EU25 countries. To give some explanation of differences in the amount of mortgage debt across countries, we discuss differences in the range of mortgage products available. We then describe past and expected trends in the level of mortgage debt outstanding.

The total EU mortgage market

The total EU mortgage market is very large. In the EU25 countries approximately €4.26 trillion of residential mortgage loans were outstanding in 2003.[30] These loans represent 44.6% of EU25 GDP. By comparison, total government debt in the EU25 represents 63.3% of EU25 GDP.

The EU mortgage market is smaller relative to GDP than that of the US, where in 2003, mortgage debt equalled 71.6% of GDP. Most economists agree that US public policy encourages excessive mortgage borrowing, however. Nevertheless, some EU countries have a similar or higher ratio of mortgage debt to GDP than the US: this ratio is 70% in the UK, 88% in Denmark and 100% in the Netherlands. Thus, arguably some EU countries have more extensive markets than the US.

Comparisons between EU countries and recent trends

EU mortgage outstandings are fairly concentrated in Germany and the UK, which have 27% and 26% of EU15 outstandings respectively. The Netherlands has the next highest share, with nearly 11%. By contrast, available data show that mortgage outstandings are a very small relative to GDP in most of the 10 new EU Member States.

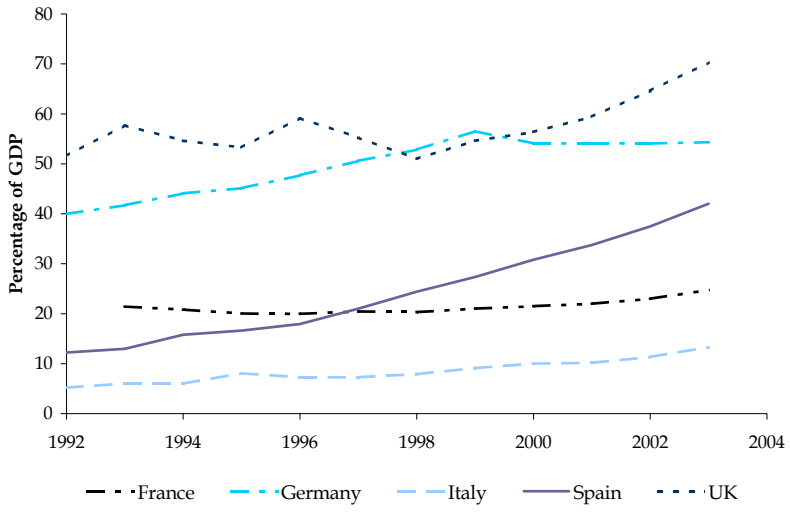
The EU's five largest economies are described in Figure 4.8. The amounts of mortgage debt outstanding differ greatly across countries, with France and Italy having far less debt than the UK and Germany.[31] Spanish mortgage debt

[30] EMF (2004a) and national central banks.

[31] For France the broader definition 'home loans' is used. This includes home loans secured by a mortgage, personal or other guarantee, as well as non-secured home loans. Approximately 46% of home loans are secured by a mortgage, 30% by a personal guarantee and 9% are non-secured. The remainder are covered by other guarantees.

grew dramatically between 1992 and 2003, but much more slowly in France. Thus, some, at least, of the differences across countries appear persistent.

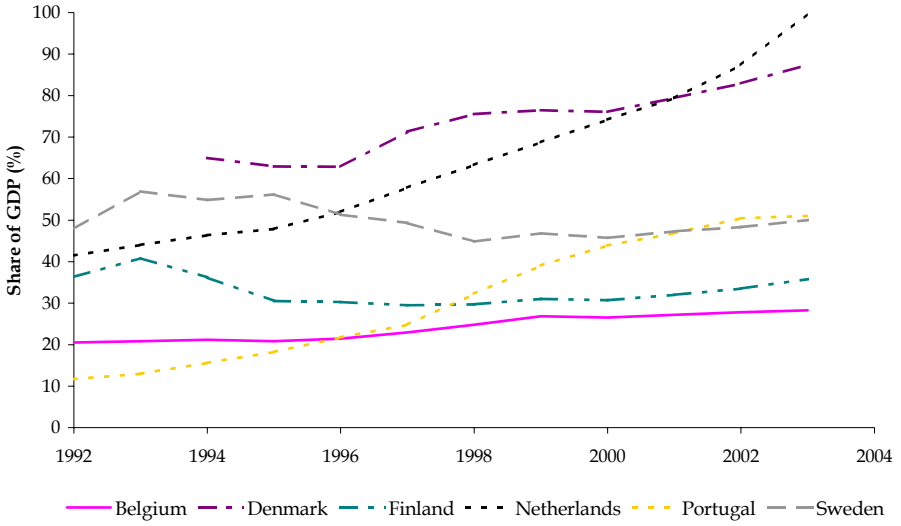
Figure 4.8: Mortgage debt outstanding, five largest EU economies



Source: EMF.

Recent trends in mortgage debt in some other EU15 countries are shown in Figure 4.9. Again large, persistent differences across countries in the level of mortgage debt outstanding are evident.

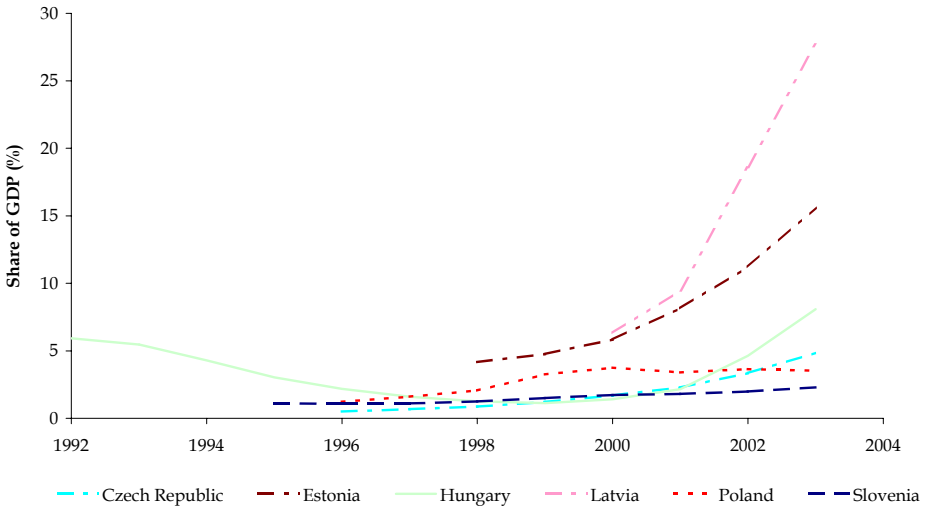
Figure 4.9: Mortgage debt outstanding, other EU 15 countries



Source: EMF

Figure 4.10 shows recent trends in some of the New Member States. In these countries, outstanding mortgage debt typically represents a much smaller share of GDP than in the EU15 countries; this share is only 5% in Poland. Mortgage activity has grown rapidly in some of these countries recently, however, as might be expected as these countries catch up with the EU15.

Figure 4.10: Mortgage debt outstanding, New Member States



Source: EMF

Explaining the differences between countries

Some of the differences between countries' ratios of mortgage debt to GDP reflect obvious developmental differences. For example, many of the New Member States have only recently emerged from communism, and consequently have a legacy of low home ownership levels and unfamiliarity with the legal processes surrounding mortgage lending and private property ownership.[32] Also, many new members experienced high interest rates and macroeconomic uncertainty during the transition period of the 1990s.

We also observe significant differences in mortgage debt outstanding as a share of GDP among the EU15 (see Figure 4.8 and Figure 4.9). The lower levels of mortgage debt in Austria, Belgium, France and Italy than in other EU15 countries are particularly striking. These cross-country differences in mortgage debt plausibly reflect differences in the range of mortgage products available, which in turn partly reflect restrictions imposed by consumer protection law (as section 6.1 describes). Cultural factors relating to the age at which children move out of the parental home may also affect debt volumes.

The range of mortgage products available differs substantially across EU markets. These differences include variations in the maximum size of loan available and in the availability of loans to borrowers with poor credit records. Both these and other differences are likely to affect the amount of mortgage debt consumers contract.

To summarise the width of the range of mortgage products available across EU countries, we constructed a product availability index using data from our survey of national mortgage markets. The index summarises the availability of mortgages of several types and for several categories of borrowers. These were:

- Young households (under 30)
- Older households (over 30)
- Low-equity borrowers (LTV> 90%)
- Self certified income borrowers
- Previously bankrupt borrowers
- Credit impaired borrowers
- Self employed borrowers
- Second mortgages
- 'Buy-to-let' mortgages

Annex 1.5.7 describes the construction of this index in more detail. The values of this index calculated for EU countries are shown in Table 4.2.

[32] During the 1990s many of the Eastern European countries privatised much of the communal housing developments (Annex 2). However, public dwellings were sold at a subsidised rate, which meant that the extensive privatisation was not fully reflected in increasing levels of mortgage debt.

According to our survey responses, the UK has the most developed mortgage market at present. We stress that our index attempts to measure the supply-side point of whether mortgage products are available, and not the demand-side point of how popular these mortgages are in each country.

4.4.1 Trends in mortgage debt outstanding

Within the EU15, the recent growth in mortgage debt shown in Figure 4.8 and Figure 4.9 may be a misleading guide to future trends. We would expect mortgage debt to grow in periods where the interest rate is falling, as has occurred in, for example, Spain in recent years. Since these declines in interest rates cannot continue, we would not expect Spanish mortgage debt to continue expanding as it has in the past. We develop an analytical model of mortgage debt outstanding in section 8.3 below. Empirical tests of this model suggest that, controlling for interest rates, the level of mortgage debt outstanding has not been converging in the EU15 countries.

By contrast, we would expect past growth in mortgage debt in the New Member States to continue in the future. The growth of mortgage debt in these countries is likely to reflect an improved legal framework for mortgage borrowing, in addition to falling mortgage interest rates. As the framework of property law continues to improve in these countries, and their citizens become increasingly familiar with mortgage products, mortgage borrowing is likely to continue to expand. Thus, our baseline forecast of mortgage debt outstanding, explained in section 8.3, includes continued growth of mortgage debt outstanding in the New Member States.

Table 4.2: Mortgage product availability index

Country	Product Availability (Index score)
Austria	0.77
Belgium	0.82
Czech Republic	0.82
Cyprus	0.77
Estonia	0.77
Denmark	0.82
Finland	0.94
France	0.77
Germany	0.82
Greece	0.77
Hungary	0.77
Ireland	0.88
Italy	0.82
Latvia	0.77
Lithuania	0.77
Luxembourg	0.82
Malta	0.77
Netherlands	0.88
Poland	0.77
Portugal	0.82
Slovakia	0.65
Slovenia	0.59
Spain	0.82
Sweden	0.94
UK	1

Notes: The approach used in constructing the product availability index is similar to the one in MOW (2003).
Source: The product availability index was constructed by using the replies to the LE Survey (2005)

5 Consumer and lender appetite for a pan-European market

This section analyses consumer and lender appetite for trade with foreign lenders and customers using existing surveys and new surveys that we conducted. The Commission suggested we conduct our own surveys of lenders and consumers in several European countries, because the existing work in the field focuses on cross border trade only. The Commission also wanted to measure market participants' appetite for conducting trade with foreign entities through other means.

The remainder of this section first discusses the findings of existing survey and then analyses the results of the responses that consumers and lenders gave us.

5.1 Existing surveys

5.1.1 Eurobarometer report 2004

At the request of the European Commission the Standard Eurobarometer 2004 was intended to specifically look at European public opinion in relation to various aspects of financial services.[33] The report is based on a series of surveys that assessed public opinion in 2003 in the EU15. The main areas of focus included perceptions of the size of cross-border trade in financial services and of the obstacles to such transactions.[34]

At a broad level, the Eurobarometer's results were as follows:

- An overwhelming majority of those questioned were hesitant towards cross-border trade in mortgages. Many found mortgage products difficult to understand and hard to compare.
- Men, professionals, more educated people, and people under 55 tended to be more receptive to the idea of cross-border trade. They were also more likely to feel that it was easy to understand and compare mortgages.
- There was little change in public sentiment towards cross-border trade in mortgages between 2002 and 2003.

[33] Between 2 November 2003 and 12 December 2003, the European Opinion Research Group, a consortium of Market and Public Opinion Research Agencies, carried out wave 60.2 of the standard Eurobarometer at request of the European Commission, Directorate-General Press and Communication, Opinion Polls.

[34] The Eurobarometer defines cross-border trade as the transaction whereby a consumer obtains a financial product from an established provider in another EU country.

We now discuss some of the Eurobarometer results that particularly add to our understanding of consumers' appetite for cross-border mortgage transactions.

Cross-border mortgage transactions

In most EU15 countries, of those respondents who had a mortgage, at most 1% reported that they had obtained a mortgage in another EU country.

Luxemburg was the only country where the number of borrowers obtaining mortgages abroad appeared to be increasing. Of those asked in 2003, 4% had a mortgage from another EU country, whereas the same figure was 2% 2002. Luxembourg, however, is rather dissimilar to other EU countries because of its small size and the strong presence there of foreign financial institutions.

Consideration of obtaining a mortgage abroad

In the EU15, 5% of people surveyed who held a mortgage, were considering obtaining a mortgage in another EU country within 5 years. However, this share varied substantially between countries. In 2003, the Swedes were most likely to consider a mortgage in another EU country (21%), whereas in the other EU15 countries less than 9% considered obtaining a mortgage abroad. The Greeks, Dutch and Italians were least likely to do so (2% each).

Obstacles to cross-border trade in financial services

At the EU15 level, about a quarter of survey respondents saw no obstacles to cross-border trade in financial services. However, perceptions of obstacles varied substantially between countries. Thus, 61% of Danes solicited, but only 15% of Germans, saw no obstacles to cross-border trade.

The most commonly cited obstacles to cross-border trade in financial services were: *'Lack of information', 'Risk', 'Distance' and 'Language barriers'*.

Changes between responses to the Eurobarometer over successive years suggest that some obstacles to cross-border trade in financial services have become less severe in recent years. The areas of improvement are:

- Availability and quality of information.
- Legal protection in event of something going wrong.
- Language problems.

Information and understanding of mortgages

Less than 50% of those asked in the Eurobarometer survey thought that mortgages and the risk are easy to understand and compare.

Respondents from Germany, France and Italy were least likely to think that mortgages and the risk are easy to understand and compare.

Respondents from Luxemburg, the Netherlands, and Finland were most likely to feel that mortgages and the risks involved were easy to understand, whereas the Greeks, Dutch and Finns were most likely to find mortgages easy to compare.

5.2 London Economics' survey of consumers and lenders

Here we present the result of interviews that were conducted with borrowers and lenders across Europe. In contrast to the Eurobarometer findings our survey of European borrowers aims to capture both their interest in engaging in business with foreign lenders who have a physical presence on borrowers' home markets and those who do not. Through these interviews we also aimed to get a better understanding of lenders' activity in foreign markets and interest in expanding their lending outside the home market.

Borrowers

We contacted consumers from four EU countries (Germany, Poland, Spain and the UK) who we presented with questions that aimed to capture their openness towards borrowing from a foreign lender.[35]

We found that:

- most respondents were willing to change their loan financier when presented with an interesting mortgage/home loan alternative,
- many respondents would not be deterred from changing to a foreign-based provider who was liable under regulation in the respondent's country, and
- most respondents would consider a cross-border mortgage transaction so long as the foreign-based lender approached them.

To provide more detail on these results, Table 5.1 lists three of our main questions and summarises the responses to them. Question 1 was designed to capture respondents' overall willingness to changing mortgage/home loan provider. While a majority were willing to switch, 30% of respondents were not. Question 2 was intended to give a sense of consumers' attitudes towards foreign-based lenders who were liable under regulation in the respondent's country. Only 21% of respondents said they would be discouraged from switching mortgage to a foreign-based provider under these circumstances.

Question 3 attempted to measure consumers' attitude towards cross-border borrowing. As Table 5.1 shows, only 30% of respondents said they would not be interested in switching mortgage to a product being offered in a foreign

[35] In 2005 PWC interviewed 217 people in Germany, Poland, Spain and the UK on behalf of London Economics.

EU state. However, of those who said they would be interested in switching to such a product, 81% agreed with the qualifying statement

"Yes, but only if financial service provider in other EU Member State is actively marketing its products in my country of residence"

while the remaining 19% agreed with the following statement:

"Yes, even if I have to seek information myself about the financial mortgage/guaranteed residential loan products offered in other EU Member States."

Thus, a majority of consumers were open to cross-border borrowing. However, most would only consider contracting such loans if the foreign-based lender approached them through marketing.

Table 5.1: Consumer interest in borrowing from foreign lenders

No.	Question	Yes (%)	No (%)
1	*"Would you consider switching mortgage/guaranteed residential loan provider if another provider in your country of residence were to offer a lower rate and/or greater product flexibility and/or other features of interest to you?"*	59	30
2	*"If the provider offering these improved conditions is a foreign-based financial institution offering financial services under the laws and regulations of your own country, perhaps even through a branch/subsidiary/broker based in your country of residence, would that discourage you from switching?"*	21	54
3	*"Would you be interested in switching to products with a lower rate and/or greater product flexibility and/or other features of interest to you which are being offered in other Member States?"*	70	30

Note: The remainder of the respondents to each question answered 'Don't know' or 'Not applicable'.
Source: London Economics Survey 2005

Lenders

We contacted lenders to attain an idea of their level of foreign market activity as well as interest of expanding in foreign markets.[36] Our sample consisted of 63 lenders from 18 EU countries[37], of which eight were New Member States.

We asked initially about lenders' activity in cross-border lending. This level of activity was low overall, but appeared higher than previous surveys such

[36] In 2005 PWC surveyed of mortgage lenders in border regions on behalf of London Economics.

[37] The participants in the survey were from Cyprus, the Czech Republic, Estonia, Finland, Germany, Greece, Hungary, Ireland, Italy, Latvia, Poland, Portugal, Slovakia, Slovenia and the UK.

as the Eurobarometer suggest. 11% of respondent lenders reported making a substantial number of loans to borrowers in countries where they neither had a branch nor subsidiary. A further 32% said they did so rarely. The remaining 57% of respondents said they did not make such loans at all.

We also asked about lenders' attitudes towards expanding their mortgage lending in countries where they had a presence, but not their headquarters. 37% stated that they had 'some' or a 'strong' interest in expanding in foreign markets where they had a presence, whereas 11% said they had little interest, and a further 23% said they had no interest in expanding this lending. The remained could not form an opinion. Thus, lenders' interest in expanding mortgage lending in these countries was significant but not overwhelming.

Other questions asked about lenders' interest in entering foreign markets where they have no presence as yet, where entry could take a variety of forms. Table 5.2 lists the precise questions and our results.

A significant minority of lenders expressed some or a strong interest in pursuing some mechanisms of entering foreign markets. There was particular interest in establishing new branches in foreign countries. This conflicts slightly with the evidence of our survey of pan-European business models, which found a predominant interest in acquiring subsidiaries (see section 4.2). A feature of the survey described in this section was that lenders in the New Member States expressed substantially more interest in entering foreign markets than those in the EU15 countries, particularly through using credit intermediaries or through cross-border trade. Among respondents from the EU15, interest in establishing subsidiaries was higher but interest in cross-border trade much lower. Thus, the responses from lenders in the EU15 were more consistent with our findings from other sources.

Table 5.2: Lender interest in expanding in foreign markets

In your opinion, in the next 5 years, is your firm interested in doing any of the following in EU countries where you have no subsidiary or branch presence?

	None (%)	Little (%)	Some (%)	Strong (%)
Establish subsidiaries	29	21	19	14
Acquire an existing lender	39	15	12	3
Merge with an existing lender	40	13	12	3
Establish branches	27	27	22	10
Make more loans through credit intermediaries such as brokers	33	16	16	15
Make more loans using neither branches, subsidiaries nor intermediaries	37	9	10	11

Note: The remainder of the respondents to each question answered 'Don't know' or 'Not applicable'.
Source: London Economics Survey 2005.

5.3 Conclusion: appetite and benefits

The results from the Eurobarometer report contrast with our findings from a series of interviews with borrowers and lenders.

The Eurobarometer report concludes that many consumers in the EU find mortgages hard to compare and understand and that other barriers such as concerns about legal protection and information in part explain the small share of respondents who were considering obtaining a mortgage loan abroad.

In contrast we found that the borrowers we interviewed were quite willing to engage in business with a foreign lender if presented with a more attractive mortgage product. In general, however, borrowers were only willing to transact with foreign-based lenders if those lenders were actively promoting mortgage products in their country or were subject to the laws and regulations in the borrower's country.

The results of the interviews with European lenders showed that about half were active on foreign markets on at least rare occasions, and that many had interests in expanding in foreign markets. This interest for expansion seems strong with regards to both markets where they have and do not have physical presence. However, most lenders, particularly in the EU15 countries, would prefer to expand by establishing a physical presence in the target country rather than through pure cross-border trade.

Overall the result of our interviews with borrowers and lenders gives a positive view of the potential for future cross-border activity in mortgage lending, though the potential for this activity appears to lie in mechanisms whereby the lender has some physical presence in the country where the borrower and the property are located.

6 Obstacles to EU mortgage market integration

This section discusses the obstacles to an integrated EU mortgage market, bearing in mind that such integration could occur through several mechanisms.

As section 2.3 discusses, we define a fully integrated market to be one in which the same mortgage products are on offer to consumers in all Member States, the prices of these products are identical or very similar across Member States, and the range of products on offer is at least as wide as that obtaining in any Member State at the present.

Currently, several obstacles stand in the way of such integration and below we discuss several these.

We first discuss obstacles to the sale of a wide range of mortgage products in all EU countries.

We then discuss obstacles to the development of an efficient pan-European secondary mortgage market in the EU, which would tend to lower mortgage prices.

We then discuss general obstacles to cross-border entry. This includes a discussion of general barriers to cross-border activity, as well as the specific obstacles faced by cross-border trade, cross-border *de novo* entry or merger and acquisition.

6.1 Obstacles to wider product availability

The range of mortgage products offered is much wider in some EU countries than in others, as section 4.4 describes.[38] This is in part because many countries place legal restrictions on specific aspects of mortgage products. For example,

- French lenders are not permitted to charge borrowers for the full cost of prepayment, while in Germany prepayment can be excluded altogether,
- In Spain, variable rates must be pegged to an official index, while lenders can adjust rates fairly freely in the UK,
- Belgium restricts the frequency of rate adjustments, and
- Italy's usury law places a cap on permissible interest rates.[39]

[38] Further detail is provided in Annex 1 subsection 4.

[39] For more details on variability across the EU of product availability see Section 4 of Annex 1.

The immediate effect of the various restrictions is to limit the range of products available and, in some cases, to exclude some groups of consumers from mortgage borrowing. Box 1 below discusses some specific issues surrounding restrictions on variable-rate mortgage contracts.

The wider effect of product restrictions is to prevent or make it more difficult for lenders to introduce their core products to new countries. These restrictions may thereby prevent lenders from reaping economies of scale in the sale of their core products. Absent product restrictions, the potential for such economies of scale would be a major rationale for entry into new markets. Thus, product restrictions plausibly increase lenders' average costs and, by discouraging entry, the degree of competition between lenders.

In line with this view that product restrictions impede the functioning of EU mortgage markets, representatives of mortgage lenders on the Forum Group recommended the removal of some restrictions.[40] However, representatives of consumer organisations on the Forum Group did not support these recommendations, and made separate recommendations on consumer rights that industry representatives, in turn, did not support. Representatives of lenders and consumer organisations also agreed some common recommendations to enhance consumer confidence in mortgage products.[41]

6.2 Obstacles to secondary-market development

The secondary market for mortgage funding is still highly fragmented within the EU. However, the markets for mortgage-backed securities and covered mortgage bonds have been growing rapidly in several Member States.[42]

The use of such instruments on a larger scale could facilitate cross-border entry, since such instruments represent the only means of funding loans in a new market without incurring the high costs of gaining access to a local deposit base. This holds particularly true for mortgage specialists, which usually do not have access to large deposit networks even in home markets.[43]

Yet many obstacles to the development of a truly pan-European secondary market development remain. For example:

- In several countries, banking regulations and practices discourage the use of secondary market instruments vis-à-vis deposits.

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[40] Industry representatives on the Forum Group recommended (FGR) 17 the removal of interest caps and compulsory indexation of variable rate loans (FGR 17), and an end to caps on early repayment fees (FGR 18). Representatives of consumer organisations did not support these recommendations.

[41] FGRs 2-7 were common recommendations, while only consumer representatives supported FGRs 8-12.

[42] Both instruments are defined in section 2.1.3.

[43] A truly pan-European secondary market would also benefit domestic lenders as it would bring about both higher instrument liquidity (and thus reduced spreads) and collateral/risk pooling.

Box 1
Restrictions on variable-rate mortgages

European regulatory regimes concerning interest rate adjustment in existing contracts differ significantly and establish a significant cross-border lending barrier. For example, the standard variable rate (SVR) contracts that are the norm in the UK would be illegal in Spain.

Debates over permissible adjustment regimes involve three main questions: first, which type of cost-of-funds adjustment mechanisms lenders should be allowed to use; second, whether spreads charged over those cost-of-funds should be allowed to vary, and third, whether caps should be mandatory when using variable-rate contracts.

Regarding the first two questions, Spanish regulators have mandated the use of official indices for adjustment and the use of fixed lifetime spreads over those indices. By contrast, the UK still allows lenders to use their discretion in adjusting interest rates.

Official indices can provide lenders with a relatively broad choice of benchmark interest rate. For example, in Spain lenders can choose from five indices, including indices closely related to the cost of funds for each subsector of the banking industry. The UK Miles Review (HM Treasury 2004a) did not recommend such restrictions. Rather, it recommended measures to reduce discrimination between new and existing borrowers, which may arise under lender discretion. Lenders would be required to offer all products to new and existing borrowers simultaneously and provide more information about the process of prepayment.

Besides the issue of discrimination, a question remains over the risk of various lending approaches for the consumer and lender. Consumers face two risks when lenders have discretion. First, lenders could decline to pass on declines in the central bank interest rate to consumers. While it would appear that UK SVR contracts create this risk, empirical evidence presents a more subtle picture. Empirically, UK SVRs have trailed both interest-rate increases and declines. This suggests lenders do not make systematic large profits from the SVR mechanism, but rather smooth the cycle to stabilize demand.

A second risk consumers face under any variable-rate mortgage is that interest rates become very high. Contractual – usually lifetime - caps to variable rates have become widespread in Denmark, Germany and France, but remain rare in Spain and Britain. It appears that since in the former countries fixed rate lending is the norm for mortgages, both the demand for and supply of interest rate protection is high. This leaves Spain and Britain with the question of whether risk protection for borrowers is adequate. The UK Miles Review proposed to raise consumer awareness of the risks of variable-rate financing and promote fixed-rate lending. In addition, lenders could be mandated to offer contracts containing interest-rate caps. In this way, consumers would be educated about the potential risks they assume in exchange for saving the premium charged for fixed-rate loans.

Regulations regarding variable-rate mortgages must also consider risks to lenders. Lenders face the risk that credit restrictions will change in a manner not reflected in the permissible index interest rate. Under SVRs, lenders can pass such changes on to the entire portfolio of loans, while in the Spanish case lenders can pass them only to new borrowers. This suggests that strict rate-adjustment limits may shift risks between borrower groups. Thus, it may be desirable for rate-adjustment laws to permit adjustment on the basis of an interest rate or index that reflects identifiable changes in risk premia.

- Some countries, for instance, subsidise the generation of deposits, of which a significant part is subsequently recycled into the mortgage sector.[44]
- Capital requirements that are inconsistent with the goal of providing benefits of portfolio diversification to banks and other investors reduce the demand for the services of capital market intermediaries.[45]
- Banking regulations do not discourage mismatched funding of long-term mortgage loans through short-term deposits.[46]
- The situation with respect to separation of assets and pooling of collateral from the balance sheet of universal bank originators for the creation of capital market instruments is also problematic.[47]
- All these factors increase the costs of the design of appropriate funding instruments.
- The secondary market instruments themselves require minimum standards in order to become permanent credible alternatives to deposits in the long run. So far, covered bond legislation does not exist in some Member States (see A1.4.3) and there are no European minimum standards. Also, the development of a market for mortgage-backed securities is hampered in some countries by inconsistent regulation.

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[44] Examples are France, which earmarks deposits for social housing finance, and subsidised contract savings for housing schemes in both France and Germany.

[45]. The key issue here is the lack of recognition of the risk mitigation, management and transfer services that capital market intermediaries in mortgage finance may perform for banks and other investors.

Consider as an important example a swap transaction in which a number of banks sell mortgage assets to a wholesale (mortgage) bank acting as capital market intermediary and repurchase pro-rate a mortgage bond backed by a diversified portfolio of their assets from it. Under Basel II rules proposed to be implemented in the EU (see Proposed Amendment of Codified Banking Directive (2000/12/EC) and Capital Adequacy Directive (93/6/EEC)), more regulatory capital has to be held by the swap transaction parties together (by the bond issuing bank for asset default risk, and by the investing banks for issuer counterparty risk) than by the individual banks investing in their non-diversified portfolio alone (for asset default risk).

Thus, the Basel II regulations appear to assume that, from the perspective of final investors (e.g. bank depositor), the diversification service provided by the capital market intermediary would increase, rather than decrease, the overall risk content relative to the non-diversified exposure. In typical applications in mortgage finance this assumption is highly unrealistic: capital market intermediaries in mortgage finance, due to their scale and focus, are in fact able to diversify over large numbers of jurisdictions with different economic and housing market profiles.

[46] While the Basel Committee has issued recommendations for supervisory review of interest rate risk mismatch on the banking book, there is no explicit capital charge foreseen for this risk under the new Basel II framework (Basel 2004).

[47] The Forum Group Report addresses the problems regarding separation and pooling of assets and bankruptcy remoteness in paragraphs 45, 46 and 48 and calls for harmonisation of the respective laws.

- There is finally in Europe a pronounced lack of large capital market institutions in mortgage finance with diversified value-added functions. European secondary market liquidity could benefit from larger and operationally more diversified issuers without suffering from an overly concentrated market structure, as the U.S. does.[48] A new type of institution, contrasting with the currently prevailing multi-collateral, single-product institutions, could even focus on residential mortgage finance alone.[49]

6.3 Obstacles to foreign entry in mortgage markets

As section 2.2 notes, foreign entry into national mortgage markets could occur through several different mechanisms, of which pure cross-border trade is only one.

At present many barriers to entry into foreign markets still exist. Some are common to all forms of entry, while others are more specific to particular forms of entry. We discuss these various barriers below, beginning with a review of the more general barriers.

6.3.1 General obstacles to cross-border activity

Difficulties stemming from differences in language and culture affect many cross-border business activities. In the mortgage sector, additional obstacles include low margins, consumer preferences, transaction costs, and national property, and consumer protection legislation and enforcement of this legislation. A deterrent effect of low margins on entry will concern policymakers only if these low margins result from government subsidies.

Consumers of financial services often favour incumbents over newcomers. Consumers are often reluctant, albeit to a deceasing degree, to switch providers and prefer an integrated service. Such behaviour also explains the continued importance of branch-based distribution, with resulting difficulties for foreign providers. Moreover, consumers tend to focus on headline prices, at the expense of new products that try to compete on other consumer options, such as risk mitigation.

In addition to these general considerations, several legal and regulatory barriers impede cross-border entry into mortgage markets.

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[48] In the covered bond market alone, there are currently in Europe over 70 issuers (EMF estimate), a figure that is likely to rise in the short term.

[49] National regulation assumes that the current classes of bond issuers from all EU countries offer a narrow risk transformation and pool conceptually unrelated risks (such as commercial and residential loans). Risk transfer is underdeveloped, with few issuers transferring mortgage credit risk to investors. The major exception is the German public agency KfW, with its Europe-wide Provide programme). However, it is not clear that it is appropriate for the German government to effectively guarantee mortgage assets through KfW.

Transaction costs in buying and selling houses are further barriers to entry. Taxes on house purchases and registration costs, all else equal, will lead to a lower transaction rate. In turn this will diminish the opportunity for borrowers to seek out new providers and hence for new competitors to establish themselves in the market.[50]

Transactions costs incurred for establishing or altering mortgage agreements, for example in switching lenders in the event of prepayment, are significant barriers to both domestic competition and cross-border entry.[51] Notary fees, legal fees and registration taxes are the most significant components of such costs, which average around 3% of the loan amount in the EU.[52] Box 2 overleaf discusses how accessory mortgages (security instruments that are directly tied to the loan contract) create barriers to establishing or altering mortgage agreements.

European property legislation exhibits many idiosyncrasies. Profound differences continue to exist in national frameworks for valuation and registration of collateral. Different standards, or no standards at all may apply, which make it difficult for outsiders unfamiliar with the market to assess the risk of a loan accurately. In response, FGR 27 recommends high mandatory valuation standards, FGR 35 recommends further funding for the EULIS initiative,[53] and FGR 37 advocates the creation of a better interface between registers and lenders in the form of a permanent Mortgage Register Representative.

[50] Stamp duties, for instance, range between a minimum of 1% in the UK and 12.5% in Belgium. There are also some special cases of zero-rated transactions in the UK.

[51] Moreover, a reduction of those costs is likely to contribute to price transparency (i.e., less of a price distortion would arise in cases where third-party costs are not be included in lenders' price information) and thus amplify the benefits from better information mentioned above.

[52] See Lambert (2003).

[53] EULIS (the European Land Information System, www.eulis.org) was a joint initiative to pool the resources of national registers from Austria, Finland, England and Wales, Scotland, the Netherlands, Lithuania, Norway and Sweden to make them accessible online on a cross-border basis. This initiative is now over and its funding stream has ended. The EULIS project was successfully finished on schedule in June 2004. The project partners have decided to continue their co-operation and are aiming to set up a live operational service in 2005.

Box 2
Accessory mortgages, legal transactions costs and the Eurohypotec proposal

The legal tradition in some European countries of accessory mortgages, i.e. security instruments that are directly tied to the loan contract, is increasingly viewed as incompatible with the financing requirements of mortgage finance of today. The main issue is that altering mortgages, in contrast to changing loan contracts, triggers high legal transactions costs such as registration, notary and legal fees. A second issue is that existing mortgage lenders can block under certain circumstances the use of the collateral for a different lender or purpose.

These issues matter in a large number of circumstances. To give just a few examples:

- A borrower may want to prepay and refinance with the same or another lender. She/he would both incur transactions costs for a new mortgage and may have potential difficulties to release the existing mortgage from the old lender.

- A borrower may want to use the same mortgage to fund both the building and investment phase of a project. While assigning the first registered mortgage is an option in many systems, doing so is not perfectly secure for the investment phase lender.

- A lender and a borrower may want to agree on changing the loan amounts or the financial conditions over time - examples are adjustable mortgages, flexible mortgages and home equity loans – raising legal questions in case of accessory mortgages.

Special securitisation legislation is necessary to help lenders to assign loans or servicing rights to new investors in a cost-efficient way. Such problems would not exist if the loan contract were not tied to the mortgage. Lenders may also wish to create cross-border portfolios (and perhaps securitise them), which is technically almost impossible given the different values of the national accessory mortgage instruments.

In Europe three different approaches currently address these and other cases:

1) Gradual remedy of the negative consequences of accessoriness, e.g. by creating overriding legislation. These initiatives usually address only selected issues of high political priority for the domestic banking system.

2) A reduction of legal transactions costs, which, given the large actual differences should carry large savings potentials for several countries. However, given the need *inter alia* to invest in new land register systems and overcome the opposition of stakeholders benefiting from high transactions costs, such as notaries, this route seems rather theoretic.

3) Introduction of an alternative concept that limits or eliminates the accessoriness and creates a 'clean' legal architecture with respect to the above mentioned and other cases. This is the thrust of the Eurohypotec proposal (Drewicz-Tulodziecka 2005). The Eurohypotec is based on the land charge concept. This fiduciary instrument in the hand of the borrower is linked to the loan contract only through a security agreement. Loan contracts thus can be changed without affecting the validity of the security, which eliminates transactions costs beyond the initial registration.

Clearly, the replacement and even the gradual reform of a basic property law concept such as accessory mortgages raises problems of compatibility with several other types of law. Moreover, according to the EU Treaty, the Member States retain control of much of the affected law, which makes a European initiative difficult. The proponents of the Eurohypotec proposal thus mainly interpret it as an optional add-on to the existing national security concepts, which must be tailored to fit the national legal system. Because of this dual nature it might initially be focused on assisting cross-border trade.

6.3.2 Obstacles to cross-border trade

Pure cross-border trade in mortgage products within the EU is very limited at present, accounting for less than 1% of the EU market (see section 4.1.1). Several economic and regulatory factors render cross-border trade less attractive than direct entry for both borrowers and lenders.

Borrowers' concerns

Borrowers' will likely fear that their inferior knowledge of foreign contract law makes them vulnerable to exploitation by foreign lenders operating in their market with unfamiliar clauses or legal provisions.

Rules standardising the provision of product information can protect borrowers from this risk, up to a certain degree. Initiatives such as the EU's Code of Conduct on Home Loans (EU 2001, and see footnote 6 above) are an important step in the direction of creating cross-border price transparency. However, the Code is a voluntary document and has typically not been incorporated into national law, so that national information provision requirements still differ.

A major problem is that mortgage prices are difficult to compare between products, and by implication between jurisdictions with different standard products. While it is now standard for lenders to publish APRC figures, these can be intrinsically misleading due to the nature of products. Box 3 overleaf discusses problems with comparing APRC figures across mortgages.

The potential for cross-border disputes acts as another deterrent. Consumers who seek redress from a lender situated in a different country are faced with difficulties akin to those met by lenders in foreclosure proceedings abroad. Although the European Commission created a cross-border out-of-court complaints network for financial services (FIN-NET[54]) in 2001, fear of lengthy and unfamiliar complaint proceedings may still deter consumers from entering into weighty financial commitments with a foreign provider.

Lenders' concerns

On the lender side the most important barrier to cross-border trade is likely to be distribution. Distribution in Europe is still primarily branch-based, and even where fee originators exist they are often tied to individual producers.[55]

[54] As EC (2002) describes, FIN-NET is a cooperation network of national complaint schemes. The network allows consumers to register complaints with their domestic scheme, which then forwards them to the relevant body in the country where the addressee of the complaint is situated.

[55] An example would be insurance or real estate agents tied to mortgage lenders via a financial group.

Box 3
Problems with comparing APRCs across mortgage loans

A major concern with regulation of mortgage loans is that the price of the loan be expressed in an all-inclusive manner that is comparable across loans. The central concept of price calculation in the context of both mortgage loans and other consumer loans is the annual percentage rate of charge (APRC). However, achieving comparability of APRCs is difficult in practice, probably more so in the case of mortgage loans than of other personal loans.

There are essentially two reasons for this. First, the terms and conditions of a mortgage loan can change over time according to borrowers' behaviour. Second, the mortgage sale process includes a variety of costs payable to third parties. It is not clear whether the quoted mortgage price should include all these associated costs.

Mortgage terms and conditions are likely to change over the contractual lifetime of the loan, because this is so long. For example, compare the typical Danish product, a 30-year prepayable fixed-rate loan, with the typical German product, a 10-year fixed-rate loan with a prepayment indemnity or exclusion. Since Danish borrowers frequently exercise the prepayment option, the effective duration of a Danish loan is between 3 and 8 years, after which a new loan is closed. Thus, the German loan with shorter contractual maturity has a longer effective maturity than the Danish loan, so closing costs will be amortized over longer periods. Applying an APRC based on contractual maturity will lead to misleading results. This would present problems for a borrower trying to choose between standard Danish or German loan contracts.

When consumers enter a mortgage loan contract, they typically also face up to six prices for associated mandatory services, including insurance and valuation. Guttentag (2005) argues that in this context, for a mortgage lender to quote only the loan price is analogous to a car seller quoting a price for a new car that does not include the costs of the car's tires or brakes. Whether this is a fair analogy or not, the process of shopping for loans on a cross-border basis will certainly be impeded by differing national standards as to what elements of the cost of a house purchase the quoted mortgage price must include.

Consequently the absence of independent intermediation and distribution represents a considerable barrier to entry. There is growing evidence that further development of direct lending over the Internet or increased use of mortgage brokers might erode this barrier in time.[56]

A second entry deterrent is the risk of adverse selection, i.e. the risk that entrants end up lending to mostly higher-risk clients who were unable to obtain credit elsewhere. It is clear that, to some degree, this risk is unavoidable, and in fact entrants use lending to this group as a market entry strategy. However, where such risk cannot be compensated through sufficient risk-based prices, and in particular where there is risk about the

[56] Such platforms are IT intermediation solutions that allow lenders to trade with fee originators (e.g. personal finance advisors, loan brokers, other lenders) or with consumer directly through a virtual broker. This structure enables foreign lenders to save fixed investment costs in distribution and front offices when entering a new market. For an example, see the description of the developing German intermediary market by Damaske and Kretschmar (2003).

cost structure due to lengthy and unfamiliar repossession processes, entry can become costly.

A third, complex entry deterrent, related to the previous one, is the requirement to operate within the legal and regulatory environment of the host country. In other words, entrants need to devote special resources to understand the idiosyncratic legal and regulatory features of each mortgage market target for entry. Such features comprise, among others, the commercial codes, financial sector legislation and regulation, consumer protection legislation and regulation, appraisal processes and taxation. Clearly, except for the largest European lenders that have subsidiaries in all or almost all Member States, multiple-country entry is therefore prohibitively expensive. Lenders with products of interest for several countries have thus adopted a piecemeal rather than a comprehensive entry approach. They have varied their strategies by country[57], and often ended up creating local subsidiaries or working through local originators/servicers.[58]

Some industry commentators have also raise the issue of tax discrimination as a barrier to entry, although the importance of this factor as a barrier to entry is unclear at the present time. For instance, some have argued that, in some countries, it can be difficult to benefit from tax deductibility of mortgage interest rates when this interest is paid to a foreign bank.[59]

Finally, exchange rate risk still remains between countries inside and outside the Eurozone. A factor that makes exchange rate risk particularly important is that the UK, which has several mortgage products that are absent or rare in the rest of the EU, does not use the Euro. Thus, while considerable potential exists for UK firms to sell unusual mortgage products in the rest of the EU, exchange-rate risk may impede such transactions.[60]

To summarise, in light of the complexity of national legal and regulatory environments and the costs involved in understanding and adjusting to them, it is likely that only the largest lenders would be in a position to engage in cross-border trade in mortgages in the near future. Smaller lenders are also less likely to be willing to pay the large costs of entry via building new

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[57] An example would be GMAC, a finance company in the U.S. that is established as mortgage finance company or bank, depending on the bank regulatory environment, and uses different products and targets different socio-economic groups in different entry country.

[58] The expansion strategy of the Spanish-French lender UCI, one of the most advanced specialists in cross-border entry, is an interesting case in that regard. UCI selected a Southern European group of countries as entry targets in order to participate in the second home purchase boom there. The company, after thorough analysis, decided to work with local origination and servicing partners.

[59] For instance, deduction of interest payments for tax purposes may only be available for accounts with a bank established in the Member State granting the deduction. (Source: EMF website, 'Frequently Asked Questions' section, accessed April 11 2005).

[60] For example, in conversation with London Economics, a UK supplier of mortgage equity release schemes stated that exchange-rate risk was a major consideration in their decision not to trade in EU countries besides the UK.

branches or M&A. Thus, there appear to be significant obstacles to smaller lenders engaging in cross-border activity of any kind.

6.3.3 Obstacles to cross-border entry

Cross-border entry, through mergers and acquisitions or *de-novo* entry, can mitigate some of the difficulties associated with cross-border trade in mortgage products.[61] Through having a physical presence in the same country as the borrower, the lender is likely to gain a better understanding of national law and to be better able to assess the value of the properties on which loans are based and the credit risk posed by prospective borrowers.

Cross-border direct entry through acquisitions or new branching also appears to be more common than cross-border trade. Despite several impediments, cross-border entry has occurred in several European mortgage markets (see section 4.2).

Despite these positive developments, several legal and regulatory obstacles continue to stand in the way of even deeper integration.

Regarding the mode of *de-novo* entry, setting up subsidiaries under the host country's law remains an important mechanism as it can involve legal and tax advantages over opening branches.[62] This is this case despite the neutrality of the Second Banking Directive[63] between both options.

Although there are no formal restrictions on merger and acquisition, legal and regulatory impediments remain:

- National banking law and regulations appear to be used at times in Europe to discourage cross-border entrants. Alternatively, mergers of domestic entities of potential interest to foreign institutions appear to be encouraged to thwart potential foreign acquirers.
- Multiple voting rights and non-contestable ownership structures of banks such as foundations and public-law ownership remain an issue in several jurisdictions (Sweden, Germany, Spain).

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[61] In addition to direct investment, foreigners can hold strategic or minority portfolio investment positions in local lenders in order to participate economically in a given market. This pure capital market activity is not further considered here.

[62] An example is Sweden. Swedish mortgage lending institutions are legally separated banking entities that operate within a clearly defined business framework. However, most Swedish mortgage banks are owned by bigger commercial banks and cross selling of products is common. Because of this regulation foreign banks have no choice but to enter the Swedish mortgage market by setting up a subsidiary or taking over an existing specialized mortgage lender. Currently Danske Bank, a Danish bank, is the only foreign bank that has presence on the Swedish market through a subsidiary (Sveriges Riksbank 2005).

A second example is France, which requires entering German Bausparkassen to open subsidiaries and formally register with the French regulator.

[63] Directive 89/646/EEC of 15/12/1989.

- The levels of subsidisation and subsidy-dependency of domestic mortgage lenders have declined in Europe, but the playing field is not yet entirely level. The public debt guarantees for the German *Landesbanken* and *Sparkassen* will become illegal in July 2005, but the appropriateness of the capitalisation measures their public owners used to support their rating is still contentious. Similar questions may arise in other parts of the public or non-profit banking sector that are characterised by varying mandates associated with equally varying benefits and commitments. Some European countries also still practice subsidised earmarked funding systems, which directly benefit lenders and only indirectly benefit consumers, such as in the French and German examples noted above.

It would be wrong to conclude that anticompetitive policies are always to blame for the lack of entry or failed direct investment in the mortgage sector. A host of other market-based difficulties are likely to make cross-border acquisitions hazardous. Integrating banking structures from different countries is likely to be difficult, and transparency problems may make it hard to find the right price for a foreign bank. Finally, with the tremendous release of capital due to the minimum capital reduction that Basel II[64] brings about for mortgage lenders, the risk of capital misallocation in exclusively intra-sectoral cross-border expansion strategies obviously rises.

[64] The full title for Basel II is Basel Committee on Banking Supervision (2004), *International Convergence of Capital Measurement and Capital Standards: a Revised Framework*, www.bis.org/publ/bcbs107.htm.

7 A hypothetical package of measures to integrate EU mortgage markets

This section describes a hypothetical package of measures which we believe would be sufficient to achieve a fully EU mortgage markets and address the issues raised in the previous section. Our package is necessarily hypothetical because we do not know what measures, if any, the European Commission will propose. We do not aim to be prescriptive in terms of policy but, for the purpose of assessing the costs of integration, we require some information on the policies that may be necessary to achieve integration.

Further, we acknowledge that other policy packages may also achieve full integration of European mortgage markets.

However, we believe our high-level assessment of costs and benefits reported in later sections would be largely unaffected by changes in the composition of the package.

Many of the measures in our package are also recommendations contained in the Forum Group report, but we add others based on our own analysis. The recommendations fall into three categories:

1) Measures to promote product availability. These include:
   a) Measures to facilitate cross-border trade
   b) Measures to amend consumer protection laws to allow a greater range of mortgage products
2) Measures to develop and integrate secondary mortgage markets
3) Measures to promote cross-border entry. These include
   a) Measures to improve the legal infrastructure supporting mortgage lending, particularly to improve the legal use of housing as collateral
   b) Measures to ensure foreign and domestic lenders compete on level terms

We now present the measures of each type in our hypothetical package. We briefly discuss how the measures of each type would encourage integration of mortgage markets through imitation, cross-border trade, cross-border entry and integration of secondary markets. A final table summarises this discussion.

7.1 Measures to promote product availability

Consumers can benefit from mortgage market integration through greater choice of mortgage products. Three mechanisms could induce an increase in product availability: cross-border trade, cross-border banking entry, or

imitation of foreign lenders by domestic lenders. In some cases, consumer protection law currently obstructs the introduction of new products. Thus, we now discuss measures to improve consumers' and lenders' confidence in cross-border trade, and measures to make consumer protection laws less restrictive.

In fact, many other measures that facilitated cross-border banking entry would tend to promote a spread of mortgage product availability, since such measures would allow foreign entrants to introduce products from their home markets. We describe measures to promote cross-border entry separately below.

7.1.1 Measures to promote cross-border trade

- **Improve pre-contractual information** on product characteristics and risks. An important practical step would be to render mandatory the adoption of the information provision suggestions in the EU's Code of Conduct on Home Loans (see footnote 6). Universal availability of this information would increase transparency for borrowers. A second step would be to officially classify European mortgage products by their risk and options profile and adopt uniform APRC calculation procedures on the basis of such classification.[65] Consumers finally could be provided with two APRC figures, one reflecting the total lending rate and the other the borrowing rate.[66]
- **Provide adequate redress mechanisms** for borrowers with complaints against lenders situated in another Member State. An adequate measure would be to expand the FIN-NET system (EC 2002), particularly allowing for more robust advocacy on behalf of consumers in cross-border disputes.

7.1.2 Measures to reform consumer protection law

- **Remove 'hard' product restrictions** and **replace them by a 'soft' regulatory response** ensuring that borrowers are adequately informed and, if necessary, warned about the risks inherent in different mortgage products.[67] The 'hard' product restrictions obtaining at

[65] As argued in Box 3, allowing APRC to be applied to any European mortgage product without classification will lead to misleading price comparisons. It may be very difficult to ensure that comparisons of APRCs are straightforward, however. Also see the recommendations Dübel, Lea and Welter (1997) make on this issue.

[66] For definitions see the 2002 CCD reform proposal. Going beyond two prices can lead to confusing multiple pricing quotations that consumers are unable to process; problems exist in the U.S. where borrowers are routinely confronted with 4-5 price quotes when signing up for a mortgage contract. Consolidating all mandatory costs apart from widely known public taxes and fees into one additional price quote through the lender, the concept behind the total lending rate, appears necessary in order to assist the consumer in solving his information problem.

[67] It is conceivable to move beyond a heightened disclosure approach and allow for the limitations to

present include statutory limits on interest rates, compulsory indexation of compulsory caps on variable rate loans, and restrictions on prepayment fees covering economic damages. Removing these restrictions would permit wider product availability in many countries. The 'soft' consumer protection approach could require lenders to provide specific examples of the risk of a particular product under plausible interest rate, house price and income scenarios, in addition to the information provided through the ESIS.[68]

7.2 Measures to integrate secondary markets

Capital market integration enjoys widespread support among stakeholders, as the Forum Group report showed. Capital market integration could help reduce risks, reduce funding costs, and also facilitate cross-border entry.

- **Remove disincentives to use capital market finance.** Increased use of capital market instruments has the potential to lower overall funding costs, which could result in lower rates for borrowers. Also, it could reduce the risk for taxpayers that implicitly back the financial system, by reducing the mismatch between assets and liabilities of mortgage lenders and enhancing market discipline.
- **Provide incentives for European cross-border collateral pooling** (FGR 48), recognising the risk mitigation effect of a pan-European mortgage portfolio for capital and investment regulations of investors. This would allow better risk diversification resulting in lower prices and stimulate entry of capital market intermediaries, as it would reduce costs for providers without deposits.
- **Create a consistent legal environment for a market in mortgage-backed securities (MBS).** This would include encouraging legislation generating certainty with regard to segregation of assets (FGR 45) and legal recognition of the bankruptcy remoteness of SPVs (FGR 46).[69] Current regulation discouraging institutional investors from holding highly rated MBS constrains the development of the market.[70]

certain particularly risky products, provided that strict criteria are observed and procedures followed. In particular, the methodology of any risk assessment should be standardized and the treatment in consumer protection be synchronized with financial regulation. This implies the use of empirical credit risk models that calibrate risk with sufficient accuracy.

[68] See also preceding footnote.

[69] Such certainty cannot always be in the spirit asked for by the Forum Group, in which national regulators were not represented. For instance, public receivers of banks will likely continue to preserve rights to unwind a securitisation transaction that was undertaken under fraudulent or grossly detrimental (low asset prices) terms for the bank.

[70] For a list of typical restrictions on ABS/MBS holdings for insurance companies, see the formulation of Germany's regulation in BaFin (2002).

- **Create minimum standards for covered bonds.** Creating minimum standards would support the quality of the instrument and encourage industry consolidation. A European, rather than national, issuer structure could achieve higher instrument liquidity and reduce the need for liquidity enhancement through pooling of different asset classes that are hard to price for investors.

7.3 Measures to promote cross-border entry

Two types of measures would particularly promote cross-border banking entry: measures to improve the legal infrastructure underlying mortgage lending, particularly relating to the use of residential property as collateral, and measures to ensure equal competition between domestic and foreign lenders.

7.3.1 Measures addressing collateral issues

Different national standards and cumbersome legal arrangements in the areas of collateral valuation, registration, and enforcement as well as the linkage between mortgage and collateral represent major obstacles to integration. The following measures, by improving information and adapting national legal provisions to the requirements of an EU-wide mortgage market could help to mitigate these problems:

- **Weaken the link between collateral security and mortgage debts** (FGR 36) in the interest of both lenders and borrowers. Strong ties or even identity between loan and security agreement (accessoriness) often necessitate considerable transaction costs that prevent borrowers from switching properties and lenders more frequently.[71] Such ties also severely impede development of the secondary market. De-linkage of mortgage and collateral, for example by supporting the Eurohypotec/Euromortgage concept discussed before, could be an adequate solution. Alternatively an initiative to significantly lower the costs of registration and re-registration of accessory mortgages could be started.
- **Set a common European standard for property valuation**. Nationally defined valuation standards are historically motivated[72] and differences between such standards bear no economic justification. Common standards would facilitate cross-border trade as they would

[71] Notary fees duties and registration taxes can be a significant part of the total cost of a house purchase. Reducing them would benefit new entrants in particular by reducing switching costs and thus increasing opportunities for market entry. Moreover, reduction of those costs is likely to contribute to price transparency (no distortions through third-party costs that may not be included in lenders' price information) and thus amplify the benefits from better information mentioned above.

[72] Often these were introduced to protect a particular funding instrument, such as the mortgageable value.

diminish incumbents' advantages due to their familiarity with a particular valuation system. In conjunction with an improved incentive structure of the appraisal profession[73] they could lead to better protection of consumers from the risk of overoptimistic valuations, for which there is evidence in several European jurisdictions.[74]

- **Improve cross-border and within-border enforcement of collateral.** Fear of adverse selection of credit risk as newcomers and the prospect of a lengthy and complex foreclosure process in another country are major deterrents for lenders wanting to sell mortgages across borders. Limiting the length of the foreclosure process to a maximum of 2 years (FGR 29) would reduce such fears.
- **Improve land registers** in terms of information content and accessibility, both across borders and within countries.[75] Incomplete registration of charges or uncertainty as to the rank of charges considerably heightens the risk for mortgage lending in countries with inefficient registry systems. FGRs 30, 32 and 34 highlight the problem. Practical measures could include further support for the EULIS initiative (FGR 35, and see footnote 53 of the current report) and a review of the access conditions and pricing structure in Europe.

7.3.2 Measures to remove barriers to competition

As discussed earlier, potential foreign entrants occasionally face a variety of barriers to entry. The following measures could help ensure that domestic and foreign lenders compete on level terms:

- **Ensure equal treatment of foreign and domestic banks** (FGR 40). Apparent discrimination by national regulators against foreign entrants has hampered cross-border acquisitions in the past.[76] Stricter enforcement of existing EU entry and takeover regulations, as well as the freedom to open subsidiaries guaranteed by the Second Banking Directive[77], would help to open the mortgage market up to competition.

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[73] In most European markets, appraisers are paid in proportion to the value of the property rather than, for instance, for the time spent on an appraisal. This creates implicit incentives to overvaluation.

[74] See The Economist, June 16th 2005, for a review of the large fluctuations of house prices to rents.

[75] Germany maintains separate regional registers that do not permit pooling of their respective information by third parties. Many European registers are not yet electronically accessible or exhibit other access restrictions (e.g. enforcement to use notaries, fee structure).

[76] See section 6.3.3.

[77] See footnote 63.

- **Remove differences in fiscal treatment between domestic and foreign lenders** (FGR 47). If mortgage transactions involve actors in several Member States, double taxation of certain elements of the transaction chain can result.[78] Further, tax-deductibility of interest rates for borrowers or tax breaks for investors in mortgage-related securities may not apply in cross-border transactions.[79] Eliminating these differences would increase cross-border competition.
- **Move towards a functional approach to mortgage market regulation.** This approach would permit all financial institutions satisfying certain criteria to engage in mortgage lending and related capital market activities, under the same regulations. This measure would remove the privileges some lenders enjoy and would play a key role in creating a level playing field in the mortgage market.[80]
- **Strengthen the role of credit bureaus and property transaction databases** by facilitating cross-border access and ensuring the comparability of information. This would entail that competition authorities ensure that the price of access to such information is reasonable and does not foreclose market entry. Credit bureaux could be universally allowed to collect both positive and negative information (FGR 23) in order to make information content comparable and maximise usefulness for lenders and borrowers.[81] The build-up and improvement of accessible property transactions databases would allow a more accurate assessment of property values and thus reduce the scope for negative equity and thus credit risk.[82] This would be conducive to entry, as well as representing a safeguard for consumers in danger of over-indebtedness.

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[78] Examples are taxes on house purchases, registration fees, and foreclosure procedures (Forum Group report, paragraph 179).

[79] Examples with regard to tax deductibility of interest are given in the FG report, for example in paragraph 179 on p.42. The accession countries Czech Republic and Hungary operate with tax exemptions exclusively for domestic covered bond investors.

[80] A successful example for this policy is the mid-80s UK reform that allowed banks, instead of just building societies, to make mortgage loans. Many EU Member States still restrict the types of firm that can issue mortgage bond instruments or provide second mortgage loans or insurance.

[81] With regard to data protection concerns, similar caveats with regard to the need for empirical risk calibration apply as in the case of product regulation. As U.S. experience in the mortgage sector has shown, both positive and negative consumer information carry the risk of errors of false exclusion and inclusion. Protecting consumers from becoming excluded from access to credit through false entries requires that databases be accurate and regularly updated, the relevance of variables used for the risk profile of lending be verified, and that an appeals process for the consumer be established.

[82] Meaningful property transaction databases and related econometric ('mass') property valuation techniques stand just at the beginning in Europe. Transactions data are usually recorded for tax or other public surveying and statistical purposes rather than for the specific interest of lenders and consumers, and seldom made public. As a result, lending activity depends primarily on individual appraisal and selective, usually private market surveys. Published data of real estate agents and other particular sources tend to be non-representative and fraught with statistical problems.

- **Eliminate state aid for mortgage lenders**. State aid without clearly defined limits continues to damage competition in the European retail banking sector. A positive definition of admissible state aid in the sector would help reduce new threats to competition.[83] We note that Article 87 of the EU Treaty prescribes that state aid be focussed on social and developmental purposes.

7.4 Summary of the hypothetical package

To summarise the measures set out in this section and our discussion of their effects, Table 7.1 below describes in a qualitative manner the benefits of each component of the hypothetical package.

[83] The current approach is flawed by its limitation to case law. Such case rulings could be condensed for the (retail) banking sector and turned into a specific interpretation of the rules set out Article 87.

Table 7.1: Qualitative assessment of the benefits of the hypothetical package

No.	Measure	Benefit
1	Improve pre-contractual information	Encourage cross-border trade in mortgage products, and the purchase of unfamiliar products from lenders with lenders with domestic presence
2	Provide adequate redress mechanisms	Encourage cross-border trade
3	Remove hard product restrictions	Encourage cross-border trade in non-standard products, cross-border entry and imitation of foreign lenders by domestic lenders
4	Introduce soft regulatory approach to mortgage risk	Aimed to ensure that the removal of product restrictions does not lead to over-borrowing by some consumers
5	Remove disincentives to capital market finance	Encourage lenders to use more sophisticated funding mechanisms and remove bailout risk from taxpayers
6	Provide incentives for EU cross-border collateral pooling	Encourage investors to hold mortgage bonds and MBS issued in a range of Member States
7	Create consistent legal environment for MBS	Encourage the use of MBS and thus cross-border entry by lenders without a large branch base
8	Create minimum standards for covered bonds	Encourage lenders to enter foreign markets and thus operate on a multi-country scale
9	Weaken link between collateral security and mortgage debts	Encourages mortgage switching and thus cross-border entry. Also encourages securitisation of mortgage loans, reducing costs
10	Set common European standard for property valuation	Encourage cross-border trade by protecting lenders from excessive valuations. Also promotes cross-border entry.
11	Improve enforcement of collateral	Encourages cross-border trade, cross-border entry and strengthens national mortgage markets
12	Improve land registers	Encourages cross-border trade, cross-border entry and strengthens national mortgage markets
13	Ensure equal treatment of domestic and foreign banks	Encourages cross-border entry, particularly through M&A
14	Harmonise fiscal treatment of domestic, foreign lenders	Encourages cross-border trade
15	Adopt functional approach to market regulation	Encourages cross-border entry, liberalises national markets
16	Strengthen credit bureaux and property transaction databases	Encourages cross-border trade
17	Eliminate state aid to lenders	Promotes cross-border entry by permitting competition on equal basis between domestic and foreign lenders.

8 Mortgage market evolution under baseline and integration scenarios

To estimate quantitatively how mortgage integration would affect the wider EU economy, it is necessary to forecast how integration would affect mortgage market variables. Thus, this section forecasts key mortgage market variables under both baseline and full integration scenarios. We believe full integration could be achieved by new measures such as the hypothetical new package of legislative measures described in section 7.

We expect mortgage integration to affect two mortgage variables directly: mortgage spreads and product availability. We explain this choice below. Other features of mortgage markets, such as the amount of mortgage debt outstanding, would be affected indirectly by changes in these variables.

Our forecasts for mortgage spreads and product availability under the full integration case follow our definition of mortgage market integration (section 2.3): all products become available in all countries at the same prices. The degree to which consumers use these products could still differ across countries, however, due to cultural and tax differences.

Our forecasts for mortgage spreads and product availability under the baseline scenario are based on extrapolations of recent trends. To the extent that these trends show some integration in mortgage variables, we predict that further integration would occur even without new legislative measures.

Thus, this section has the following outline:

- A focus on the key mortgage market variables we forecast, and how other variables relate to them
- Forecasts of mortgage spread convergence under the baseline and integration scenarios
- Forecasts of trends in the minimum spreads under each scenario
- Forecasts of product availability under each scenario

8.1 Focus on key mortgage market variables

We model the integration of EU mortgage markets as affecting two variables:

- Mortgage spreads: the difference between mortgage interest rates and national benchmark interest rates

- Product availability: the range of mortgage products available, including the LTV of available loans and the existence of loans for sub-prime borrowers. Wider product availability tends to reduce credit constraints on mortgage borrowing.

Our focus on these two variables derives from theory and from our comparison of mortgage markets in EU countries at present (see section 4 and Annex 1.4). This comparison reveals small differences in mortgage lending spreads across countries, but large differences in product variety and debt outstanding. We expect mortgage integration to mean the most developed features of mortgage integration in any EU country at present apply to the entire EU. This, we expect some changes in mortgage rate spreads and large differences in product variety.

We do not model market integration as affecting debt outstanding directly. This is because the amount of debt outstanding is an endogenous variable that will also depend on GDP and interest rates. The paths of both mortgage spreads and product availability affect the amount of debt outstanding, however.

Similarly, we do not directly model the effect of integration on the flow of mortgage equity release. This flow is endogenously determined by the paths of debt outstanding and residential investment.

8.2 Forecasts of mortgage spread convergence

We believe that mortgage integration could affect the spread between mortgage interest rates and national benchmark interest rates in two ways:

- Mortgage spreads on identical products in all EU countries would converge to the lowest spread existing in the EU.

- The lowest spread existing in the EU would itself be lower than the lowest spread currently existing.

This sub-section and the next explain our forecasts of spread convergence and reductions in the minimum spread respectively.

In November 2004, available data suggest mortgage interest rate spreads differed by 111 basis points (bp) within the Eurozone and by 255 bp within the entire EU (see section 4.3.2). A visual inspection of mortgage spreads from MFI interest-rate data suggest that EU15 mortgage spreads converged slightly between January 2003 and December 2004 (Figure 4.7).

Spread convergence in the baseline scenario

We assume that, in the absence of new legislative measures (the baseline scenario) mortgage spreads will continue to converge within the EU25 in the same manner as spreads within the EU15 have converged in the MFI data, which cover the period 2003-2004. We make this assumption because we believe past spread reductions in some of the New Member States could not be repeated and thus would be a misleading guide to future trends.

To test formally for convergence in the MFI interest-rate series, we adapt a standard model used to test the convergence of per capita GDP across countries.[84] Annex 8 explains this model and our results in detail; here we briefly summarise them. The model tests for convergence in interest-rate spreads among EU15 countries to the lowest spread existing in December 2004, which was 110 bp in the Netherlands.

Our empirical results give weak support to the view that spreads have been converging in recent years. The evidence for convergence is not statistically significant at traditional confidence levels, but we have so few data points (given usable data for 13 countries) that we feel a lower confidence threshold is appropriate. Thus, we proceed with our estimated coefficient as a measure of baseline convergence trends.

Our estimated convergence coefficient implies that, were recent trends to continue, about half the differences in EU15 mortgage spreads would disappear by 2015 in the baseline scenario. For example, were the Dutch spread to remain constant at 110 bp to 2015, the Greek spread (the highest in the EU15 in 2004) would fall from 221 bp in 2004 to 166 bp in 2015. Thus, the range of mortgage spreads within the EU15 would fall from 110 bp in 2004 to only 55 bp in 2015.

Spread convergence under full integration

We assume full integration of EU mortgage markets would lead mortgage spreads to equalise across all EU countries.[85] Since we predict considerable convergence of spreads under the baseline, the incremental effect of new measures on spreads would be modest. In particular, since we predict the range of mortgage spreads would fall from 111 bp to 55 bp in the baseline scenario, the new package of measures would make spreads converge only by these additional 56 basis points.

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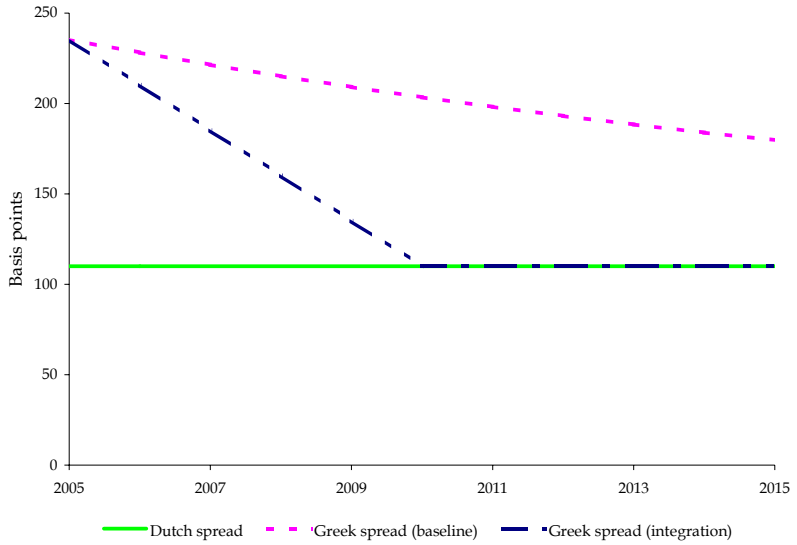
[84] For example by Barro and Sala-I-Martin (1992).

[85] Equalisation of prices would occur for two main reasons. First, integration would introduce more intense competition in markets that potentially have been protected from entrants. Second, the spread of technology and managerial best practices would harmonise administrative costs.

The timing of spread convergence differs under the baseline and integration scenarios, however. Under the baseline, spreads continue to converge gradually until 2015. Under the integration scenario, we assume mortgage spreads would converge in a straight-line fashion between 2005 and 2010, with all spreads equal from 2010 onwards. As an example, Figure 8.1 shows the predictions of mortgage spreads for Greece, assuming that the minimum spread observed, in the Netherlands, remains constant over time.

Figure 8.1: Convergence of mortgage spreads under baseline and integration scenarios



Source: London Economics' calculations.

8.2.1 Forecasts of reductions in the minimum spread

It is plausible that an increase in market size would lead the minimum mortgage spread to fall, for two reasons:

- The development of deep, pan-European markets for secondary mortgage funding would reduce mortgage lenders' cost of capital.
- The emergence of large banks with operations in several countries would enable fixed costs to be spread over a larger number of borrowers.

While these arguments are plausible, verifying their accuracy requires subjecting them to the tests available in current data. The theory of returns to scale in mortgage lending implies that

- Mortgage spreads would be lower in countries with larger mortgage markets.
- Mortgage spreads would have fallen over time in countries with expanding mortgage markets.

Testing the first prediction, cross-country data show that German and UK mortgage spreads are higher than those in some smaller EU markets, whether measured on an interest-only or fee-inclusive basis (see Table 4.1). Thus, cross-country data show no sign of returns to scale in mortgage lending.

Testing the second prediction, time-series data suggest that increased market size does not reduce headline mortgage interest rates. Headline mortgage spreads have remained constant in Germany and the UK (see section 4.3.3), and also in the US, despite these markets' expansion over time.

Mortgage prices may have fallen through reductions in fees rather than headline interest rates. US data on fees as a percentage of loan value suggest that this measure of fees has fallen considerably over time (see section A3.4). However, this apparent fall may be mostly due to an increase in the size of the average loan. Given little data on lenders' fees in the EU, the case for arguing that mortgage integration would reduce EU mortgage fees is weak.

In the absence of evidence for past reductions in minimum mortgage spreads, we assume the lowest mortgage spread in the EU, towards which other spreads would converge, would be the same in both the 'baseline' and 'full integration' scenarios.

8.3 Forecasts of product availability

Ideally, we would assess trends in product availability using time-series data on the range of products available in EU markets. However, our data on product availability only refer to the current situation (see Annex A1.5). Thus, we estimate recent trends in product availability by comparing recent trends in mortgage debt outstanding across countries, since we believe that greater product availability will increase consumer's mortgage borrowing.

To assess the degree of convergence in mortgage debt as a share of GDP across countries, we use an empirical model that controls for changes in interest rates, since theory suggests interest rates will also affect mortgage borrowing. Annex 8 explains our methods and results. We find no evidence that the ratio of mortgage debt to GDP has been converging across countries, controlling for trends in interest rates. This finding is consistent with there being no trend for the range of mortgage products available to converge across countries. This finding informs our baseline projection.

Product availability in the baseline scenario

Despite this overall finding of no convergence in the amount of mortgage debt outstanding across countries, controlling for GDP and interest rates, some convergence between the New Member States and the EU 15 countries is plausible as the New Member States develop institutionally and economically. Our results on debt convergence in Annex 8 do not invalidate this prediction, since our sample included only one new Member State (Hungary). Thus, our baseline forecast for mortgage debt includes some convergence between the New Member States and the EU 15 average, as column 3 of Table 8.1 shows.

Product availability under mortgage integration

One feature of our definition of full mortgage integration is that the range of products available in every EU country would be as wide as that of the country with the most developed mortgage market at present. We assess current mortgage product availability in EU markets using the responses to our survey of mortgage federations (see A1.5.7). We construct an index of product availability ranging from 0 (no availability) to 1 (the country with the greatest availability in 2004). Under our full integration scenario, we project that this availability index would gradually move to 1 for all countries.

As we note above, we believe greater product availability would increase mortgage borrowing. Thus, we translate our projections for product availability into terms that shift the amount of debt outstanding in the OEF model. We construct these shift terms using empirical analysis of the relationship between debt outstanding, interest rates, and our product availability index (see Annex 8). Column 4 of Table 8.1 shows the effect of these shift terms on mortgage debt outstanding, holding other factors constant. In the model simulations other factors, such as mortgage interest rates, change, so the amount of debt outstanding differs from the amounts shown here.

A comparison of the baseline and integration scenarios in Table 8.1 shows that the effects of increased product availability are very large for some countries, smaller for others, and zero for the UK. This is consistent with the fact that some countries have further to catch up with the UK in terms of product availability than others. Even with the same level of product availability across countries in 2015, the ratios of mortgage debt to GDP differ. This is because our empirical analysis finds that our product-availability index only partially explains cross-country differences in debt levels (after controlling for GDP and interest rates).[86] It is, indeed, plausible

[86] In our regression for debt shares across countries and time (Equation 21 in Annex 8), the explanatory variables together explain 58.9% of the variation in debt shares across countries and time. The t-statistic on the mortgage product availability index is 6.9, suggesting that the share of mortgage debt in GDP in any country is strongly related to the range of mortgage products available.

that national cultural factors and income tax systems would continue to affect the amount of debt outstanding across countries in an integrated market.

Table 8.1: Projections of mortgage debt as a share of GDP Effect of increased product availability.

	Mortgage Debt as Share of GDP (%)		
	Actual 2003	*Projections for 2015*	
		Baseline	*Integration*
Austria	41.2	41.2	104.6
Belgium	28.3	28.3	43.7
Cyprus	26.8	26.8	68
Czech Republic	4.9	19.1	37.5
Denmark	87.5	87.5	135.1
Estonia	15.6	15.6	39.6
Finland	35.8	35.8	44.2
France	24.8	24.8	62.8
Germany	54.3	54.3	106.6
Greece	17.3	17.3	44
Hungary	8.1	31.8	80.7
Ireland	44	44	67
Italy	13.3	13.3	26.2
Latvia	27.7	27.7	70.3
Lithuania	12.7	12.7	32.3
Luxembourg	32.7	32.7	64.1
Malta	24	24	60.8
Netherlands	99.8	99.8	154.1
Poland	3.5	13.9	35.3
Portugal	51	51	100
Slovakia	4.1	16.1	73.1
Slovenia	2.3	9	56.9
Spain	42	42	82.4
Sweden	50	50	61.8
UK	70.3	70.3	70.3

Sources: LE calculations based data from the LE survey (2005), EMF and national central banks.

9 Macroeconomic impact of mortgage market integration

This section gives the OEF model's estimates of the effect of new measures that would achieve full integration of EU mortgage markets on aggregate variables describing the EU economy. The OEF model measures the effects of changes in mortgage prices and of increased mortgage product availability on these aggregate variables. The OEF model does not, however, measure the cost to new lenders of complying with new mortgage regulations. Macroeconomic models typically are not structured in the fine detail that would be required to estimate these costs. Thus, these compliance costs are estimated separately in section 10.

This section focuses on the following aggregate economic variables:

- Private consumption. This is the key measure of the benefit due to integration, since individuals desire greater consumption.
- GDP. While economic gains are typically quoted in terms of GDP, in the current context GDP is inferior to private consumption as a measure of changes to individuals' welfare (as section 2.5.2 explains).
- The housing stock. Increases in the housing stock explain how mortgage integration increases private consumption, since the flow of housing services is a component of private consumption.
- Lenders' net revenue. The OEF model constructs lenders' revenue net of financing costs, but does not construct lenders' profits. This is because we lack reliable data on lenders' profit spreads. Nevertheless, the forecasts of lenders' revenues give a sense of the potential scale of the effects of integration on lenders' profits.

The structure of this section is as follows:

- A description of the OEF model baseline
- An analysis of the total effect of mortgage integration
- An analysis of the effect of increases in product availability alone
- A summary of our results

The macroeconomic effects of mortgage-spread convergence alone are very small, so we do not show them separately. Thus, the majority of the benefits from integration derive from increased product availability.

9.1 The OEF model baseline

In terms of aggregate real variables, OEF's baseline forecast is for long-run annual growth of EU25 GDP of 2-2.2% (in real terms). The forecast for growth in consumer spending is similar. Given the weak economic conditions

prevailing at the baseline's starting point in 2005, this growth rate is insufficient to bring the EU25 unemployment rate down substantially. Thus, unemployment remains above 7% in 2015 despite the growing impact of the projected decline in working age population over this period. This implies that EU labour markets remain relatively weak, with subdued wage pressure.

In terms of nominal variables, the baseline has EU25 consumer price inflation growing at around 2.0-2.2% over the course of the forecast. Having fallen from its recent peak, we assume the Euro will remain at about the present rate of $1.20 through 2015. Although exchange-rate volatility cannot be ruled out, most estimates for the long run equilibrium for the Euro are clustered in the 1.10-1.30 range. With inflation on 'target', interest rates in the Eurozone and the remainder of the EU will settle at a neutral level of 4.5% by 2010-2015.

The baseline forecast envisages significant differences in performance across countries. In general, the New Member States are expected to continue to grow at significantly faster rates (3-5%) than the EU15 countries (1-2%). However, the fast-growing countries have a very small share of EU25 GDP at present, so their impact on EU growth rates is slight.

In terms of housing markets, both demand and supply are expected to remain subdued in the long run. This is particularly because EU population is expected to grow very slowly until around 2010, and then start to decline. House prices are expected to increase on average by around 6% a year in the baseline, with faster growth in the New Member States offsetting slower growth in the EU15.

Having conducted some sensitivity analysis, we found that the macroeconomic benefits of new measures to integrate EU mortgage markets relative to the baseline of no new measures were relatively insensitive to the changes in the baseline forecast for GDP growth across the 25 EU economies.

9.2 The gains from new measures that would induce full integration

While we are interested in the benefits of integration at all dates, the effects in 2015 provide a useful characterisation of the results. These effects are shown in Table 9.1. The results are expressed as percentage real increases over the baseline scenario of no new legislative measures.[87]

Gains for the EU25 overall in 2015

The gains for the EU25 overall in 2015 are shown in the first row. The OEF model predicts integration would raise overall EU25 consumption in 2015 by 0.5% and GDP by 0.7%. The gain in consumption is smaller than that in GDP

[87] While the OEF model allows prices to change during the forecast period, the results are expressed here in constant 2005 prices, so that the increase in GDP and consumption reflect real increases.

since some of the increase in GDP reflects additional efforts spent maintaining housing. As section 3.4 explains, the OEF model may slightly overstate the likely gain in EU consumption, since it assumes any increase in profits from mortgage lending in the EU accrues to EU citizens. It is more likely that some of these profits would accrue to US citizens, due to the likely role of US lenders in the development of EU mortgage markets.

Distribution of gains across countries in 2015

Table 9.1 also shows the gains in consumption and GDP for each EU country. Since we assume an equalisation of mortgage market conditions across the EU, the gains are larger for countries with less developed mortgage markets at present. The gains are particularly large in Hungary, where we expect a large increase in mortgage debt. The countries with the most developed mortgage markets at present, which our survey results suggest are the UK, Finland and Sweden, benefit very little from mortgage market integration. We observe that Finland experiences a slightly bigger increase in GDP above the baseline than Sweden, even though we rank these countries as having equally developed mortgage markets. However, the greater growth in GDP in Finland arises from the larger initial interest spread.

As section 3.4 explains, the OEF model may slightly understate the benefits of mortgage integration for countries with well-developed mortgage markets. This is because lenders from these countries will plausibly receive a large share of the increased profits produced by an expansion in mortgage lending in other EU countries. For the same reason, the OEF model may slightly overstate the benefits of integration for countries with less-developed mortgage markets at present.

Effect on the housing stock

The primary means by which we expect mortgage integration to benefit the EU is by increasing the supply and consumption of housing. The predicted percentage increases in housing units in 2015, relative to the baseline, are shown in column 2 of Table 9.2. The increase in the total EU housing stock, at 3.7%, is fairly substantial. The predicted increases in the housing stock are larger in countries where we expect a greater expansion of mortgage debt.

Table 9.1: Effects of mortgage integration on consumption and GDP
Percent increase over baseline in 2015

	Consumption	GDP
EU25	**0.5**	**0.7**
Austria	0.8	1.1
Belgium	0.2	0.3
Cyprus	0.5	0.8
Czech Republic	0.8	1.1
Denmark	0.4	0.4
Estonia	0.8	1
Finland	0.1	0.1
France	0.7	1
Germany	0.4	0.5
Greece	0.1	0.3
Hungary	2.3	2.5
Ireland	0.2	0.3
Italy	0.6	0.8
Latvia	0.8	1
Lithuania	0.8	1
Luxembourg	0.5	0.6
Malta	0.8	1
Netherlands	0.1	0.2
Poland	0.7	1.2
Portugal	0.1	0.1
Slovakia	1.1	1.9
Slovenia	1.5	2.6
Spain	1.1	1.3
Sweden	0	0.1
UK	0.1	0.2

Source: OEF macroeconomic model

Table 9.2: Effect of mortgage integration on housing stock, mortgage debt, and lenders' net revenue
Percent increase over baseline in 2015

	Housing Stock	Mortgage debt outstanding	Lenders' net revenue
EU25	**3.7**	**91.1**	**46.5**
Austria	6.8	209.1	76.9
Belgium	1.7	65	31.9
Czech Republic	6.5	140.5	22.4
Denmark	0.5	69.3	39.4
Finland	0.3	26.6	13.4
France	5.5	169.1	113
Germany	2.8	100.5	53.5
Greece	4.1	115.5	21.5
Hungary	6.3	214.1	83.3
Ireland	2.3	66.7	31.3
Italy	4	124.2	56.2
Netherlands	1.4	55.3	55.3
Poland	8.4	181.6	100.5
Portugal	0.8	96.2	56.8
Slovakia	14.2	485	184.9
Spain	3.7	151.7	125.4
Sweden	0.3	29	27.5
UK	0.5	13.6	-26.8

Source: OEF macroeconomic model

Effect on the mortgage debt stock

The predicted increases in mortgage debt are shown in column 3 of Table 9.2. The total stock of mortgage debt in the EU is expected to increase by 91%. The model predicts mortgage debt will increase for three reasons:

- Consumers switch from renting to owning property
- The price of residential property rises
- The amount of residential property increases

Thus, the stock of mortgage debt can increase much more rapidly than the supply of housing itself. This is consistent with the rapid expansions in mortgage debt observed in some countries in recent years (see section 4.4).

Effect on lenders' net revenue

The OEF model calculates lenders' net revenue as

Lenders' net revenue = mortgage debt × mortgage spread.

Net revenue is therefore mortgage lenders' earnings net of their financing costs. Dividing net revenue into profit and cost would require establishing what parts of mortgage spreads were profit margins, which is hard to achieve reliably. Thus, the OEF model does not predict lenders' profits directly.

Column 4 of Table 9.2 shows the predicted effect of mortgage integration on lenders' net revenues for each EU country. The increases in net revenue are typically very large, though smaller than the increases in mortgage debt, because spreads have narrowed. These large increases in net revenues make it possible that lenders' profits would also increase.

The predictions of net revenue in Table 9.2 are the gains in revenue from loans to borrowers in that country. For example, the model predicts that new measures to promote mortgage integration would lead to a 113-percent increase in net revenues from mortgage loans to French residents. It is possible that lenders from a variety of countries both inside and outside the EU could receive part of this increase in revenues and thus a share in any increase in profits.

Time-path of gains in consumption

To evaluate the total effect of mortgage integration on EU citizens, we must consider the effects at all dates. Table 9.3 shows the OEF model's prediction of the effect of integration on private consumption in the EU25 through time.

Table 9.3: Time path of gains in EU private consumption. Gains in integration scenario relative to baseline

Year	Percentage of baseline consumption that year	€Millions in 2005 prices
2005	0	0.0
2006	-0.15	-9,646.0
2007	-0.12	-7,939.0
2008	-0.03	-2,163.1
2009	0.11	7,304.4
2010	0.23	15,831.2
2011	0.31	21,893.4
2012	0.38	27,475.1
2013	0.43	31,813.6
2014	0.46	34,817.2
2015	0.50	38,725.3

Source: OEF macroeconomic model

Table 9.3 shows that, relative to the baseline, integration of mortgage markets causes private consumption to fall sharply initially, before rising fairly strongly from 2009 onwards. This is because mortgage integration increases borrowing, housing demand and thus, initially, house prices. This leads to a sharp increase in housing investment. For this investment to occur, productive resources must be pulled away from other parts of the economy, and particularly from the production of consumption goods. Thus, consumption must fall in the short term to allow more housing to be constructed.

In the longer-run, however, integration increases consumption by around 0.5% of EU GDP. This is because the larger housing stock permits households to consume more housing services. Further, as the housing stock increases, house prices will stabilise or fall, so that investment in housing decreases. This decline in housing investment will then free resources that can be used in the production of non-housing consumption goods.

9.3 Gains from increased product availability

We model mortgage integration as affecting mortgage markets in two ways: provoking a convergence of mortgage spreads and an increase in product availability. To give a sense of the role of these two effects in driving the overall gains from integration, Table 9.4 shows the gains in consumption and GDP that would occur in 2015 were product availability to increase but mortgage spreads remain at their 2004 levels.

The gains from an increase in product availability alone are substantial: for the EU overall consumption increases 0.5% and GDP 0.6%. Since the gains from integration overall were a 0.5% increase in consumption and a 0.7% increase in GDP (see Table 9.1), this shows increases in product availability are responsible for most of the gains from integration. The gains from spread convergence alone were small, and to one decimal place zero for several countries. Thus, we do not show the effects of spread convergence separately.

9.4 Implied cost of current non-integration

The answer to the question 'What is the cost of the current situation of non-integration of EU mortgage markets?' is conceptually different to the question 'What would be the benefit of new measures to integrate EU mortgage markets?' New initiatives would take some time to induce an integration of European mortgage markets. As section 8 explains, we expect a partial integration of EU mortgage markets over this period even without new legislative initiatives, due to cross-border entry and imitation of foreign lenders by domestic lenders. Thus, the cost of the current non-integration of EU mortgage markets will exceed the benefit to be expected from new initiatives.

This being the case, we consider the effects of new initiatives on UE GDP and private consumption in 2015, which we estimate to be 0.7% and 0.5% respectively, to be lower bounds of the costs of the current non-integration of EU mortgage markets. This cost, however, cannot be removed without new initiatives, which would take time to take effect. Thus, we consider the net present value of new initiatives to be the key output of this study that is relevant for policy analysis.

9.5 Summary of results

To summarise, the OEF model predicts the integration of EU mortgage markets would raise private consumption in the EU in 2015 by 0.5% in real terms above its baseline level, and GDP by 0.7%. These gains largely arise because a greater availability of mortgage products would lead to increased demand for mortgage debt, increased demand for housing and thus, in the long run, an increased housing supply.

Of particular interest in comparing the costs and benefits of integration is the time-path that the benefits would have. We find that, under the scenario of new initiatives to integrate European mortgage markets, private consumption would initially fall below the level in the baseline scenario of no new initiatives. This is because the integration scenario would induce a large increase in housing investment, which would draw productive resources away from the production of consumer goods. From 2009 onwards, however, due to a reduction in the rate of housing investment and the existence of a larger housing stock, consumption under the integration scenario would rise above that under the baseline scenario.

Table 9.4: Gains from increase in product availability
Percent increase over baseline in 2015

	Consumption	GDP
EU25	**0.5**	**0.6**
Austria	0.7	1
Belgium	0.2	0.3
Cyprus	0.5	0.7
Czech Republic	0.6	0.8
Denmark	0.3	0.4
Estonia	0.8	0.9
Finland	0.1	0.1
France	0.7	1
Germany	0.4	0.5
Greece	0.1	0.3
Hungary	1.8	2
Ireland	0.3	0.3
Italy	0.5	0.7
Latvia	0.8	1
Lithuania	0.8	1
Luxembourg	0.5	0.6
Malta	0.8	0.6
Netherlands	0.1	0.2
Poland	0.7	1.1
Portugal	0.1	0.1
Slovakia	1	1.7
Slovenia	1.4	2.3
Spain	1.1	1.3
Sweden	0	0.1
UK	0	0

Source: OEF macroeconomic model

10 Costs of EU mortgage market integration

The model simulation of the effects of integration reported in section 9 reflects our forecast that integration would cause mortgage spreads to converge to the lowest level now prevailing in the EU, and product availability to increase. Those estimates of the net benefit of integration thus include the effect of lower mortgage spreads on lenders' profits.

The exercise reported in section 9, however, omits four conceptual elements of the costs of integration. These are

(1) Lenders' costs of complying with new mortgage market regulations

(2) A reduction in market activity due to an increase in lenders' spreads to recoup the costs of compliance with new regulations

(3) Costs within legislatures and regulators of writing new laws and enforcing these laws

(4) Economic distortions caused by additional taxes to fund legislatures and regulators

In order to assess more fully the costs of integration, this section estimates costs (1) and (2) above at the level of the EU level. Our estimates are based on the contents of the hypothetical package outlined in section 7 and recent research on the costs of implementing changes to the regulation of mortgage markets. We do not estimate costs (3) and (4) above, since there is little precedent for costing time spent within legislatures and regulators. Costs of writing and enforcing new legislation are typically thought to be small, however.[88]

We note that our assessment of costs in this section is consistent with our definition of the costs of integration in section 2.5.1. Thus, we attempt to include only those costs that reduce the welfare of society overall. Thus, we omit costs for individual actors such a lender's loss of profit as its market becomes more competitive. Such items are not costs to society overall.

This section is structured as follows:

- We review qualitatively the likely costs of the hypothetical package described in section 7.
- We review recent analysis of mortgage lenders' costs from regulation in the UK.
- We adjust and scale up the relevant costs in the UK studies to produce an estimate for lenders' costs from integration of all EU markets.

[88] For example, the three recent UK analyses (FSA 2001, FSA 2003a, FSA 2003b) ascribed no cost to time spent within the Financial Services Authority analysing mortgage lenders' behaviour.

10.1 Qualitative assessment of the costs of the hypothetical package

Table 10.1 shows our qualitative assessment of the costs of the individual components of our hypothetical package of measures to promote integration. For reasons we describe above, we focus on costs to lenders, but also note where costs would arise to legislatures and regulators.

Measures 1-4 are intended to promote consumers' confidence in products that are new in their market or that are bought from foreign lenders with no domestic presence. Measures 1 and 4 may create considerable costs, since they require lenders to provide a substantial amount of information to consumers. The costs of complying with these requirements will include not only the physical costs of printing leaflets, but also lenders' costs of analysing their systems to ensure they are not fined ex-post for non-compliance.

Measures 5-8 are intended to develop and integrate EU secondary markets. While this would require some lenders to developing expertise in unfamiliar funding products, this expertise could be centralised within lenders rather than being transmitted to each branch or broker. Thus, we believe lenders' costs of adapting to new secondary-market legislation would be fairly small. There would also be some small costs to legislatures of writing new secondary-market laws.

Measures 9-12 are intended to improve and harmonise the legal and information infrastructure for mortgage lending across the EU, and thereby promote cross-border banking entry. These measures require fairly little of lenders, other than some additional disclosures to credit and property transactions databases. Again the costs of these measures would largely occur within legislatures and regulators, though we expect these costs to be small.

Measures 13-17 are intended to remove barriers to equal competition between domestic and foreign lenders. These measures largely require changes to the regulatory approach to mortgage lending, and changes to tax policy. While these measures would create some costs of writing new legislation, their requirements of lenders appear small. While increased competition or reduced state aid might be detrimental to some lenders, these costs are transfers within society rather than net costs to society.

Thus, overall the major costs of the measures in our hypothetical package appear to derive from the obligation on lenders to provide a greater range of information to borrowers. These would appear the largest costs because mortgage lenders engage in a very large number of transactions each year. Consequently, they have large workforces and complex IT systems. Thus, compliance with new requirements would involve considerable retraining of staff and potentially costly overhauls of IT systems.

Table 10.1: Qualitative assessment of the costs of the hypothetical package

No.	Measure	Cost to Lenders	Other costs
1	Improve pre-contractual information	Cost of additional disclosures, staff retraining, changes to IT systems	To regulator in measuring compliance
2	Provide adequate redress mechanisms	Depends on amount of cross-border trade	Moderate costs of expanding FIN-NET system
3	Remove hard product restrictions	None	Writing new legislation
4	Introduce soft regulatory approach to mortgage risk	Significant cost of explaining potential risks to borrowers	To regulator in developing approach and monitoring compliance
5	Remove disincentives to capital market finance	None on net	Writing new legislation
6	Provide incentives for EU cross-border collateral pooling	None	Adapting legislation and regulatory approaches
7	Create consistent legal environment for MBS	None	Writing new legislation
8	Create minimum standards for covered bonds	Minor cost of adapting to new standards	Writing new legislation
9	Weaken link between collateral security and mortgage debts	Minimal	Writing new legislation
10	Set common European standard for property valuation	Minimal	Writing new legislation and for valuers in adapting to it
11	Improve enforcement of collateral	None	Writing and enforcing new legislation
12	Improve land registers	Minor cost of making additional disclosures	Minor cost of changing regulatory approach
13	Ensure equal treatment of domestic and foreign banks	None on net	Minimal; interventions in markets reduced
14	Harmonise fiscal treatment of domestic, foreign lenders	None on net	Rewriting tax legislation
15	Adopt functional approach to market regulation	None on net	Writing new legislation and adaptation by regulator
16	Strengthen credit bureaux and property transaction databases	Minor costs of additional disclosures	New actions by competition authorities
17	Focus state aid to social or developmental purposes	Some withdrawal of state support	Equal benefit to taxpayer of reduced state support

10.2 Studies of the cost of UK mortgage regulation

The UK Financial Services Authority (FSA) has commissioned three cost-benefit analyses of changes to mortgage regulation in the UK. Each analysis studied the effect of the introduction of statutory regulation of the UK mortgage lending industry by the FSA on October 31 2004. The UK mortgage industry had been self-regulated prior to this date.

The UK cost-benefit analyses are relevant to the costs of our hypothetical package, since some of the measures the FSA introduced to the UK market are similar to those contained in our hypothetical package. In particular, the FSA's conduct of business rules make the information provision requirements in the EU's Code of Conduct on Home Loans (see footnote 6) mandatory in the UK.[89] The FSA also required all mortgage lenders and brokers to go through a registration and authorisation process.

The analysis of the FSA's conduct-of-business rules (FSA 2003a) found this would create costs to UK lenders and brokers of £73m on a one-off basis, and of between £39m and £110m each year thereafter. The cost-benefit analysis (FSA 2003b) of the registration and authorisation process for mortgage lenders estimated this would cause costs to lenders of between £66m and £76m on a one-off basis and £45m every year thereafter. Thus, the total costs of FSA regulation were estimated at £139m-£150m (€206m-€222m) on a one-off basis and £84m-£155m (€124m-€229m) on a recurring basis.

These analyses account for lenders' costs of producing new documents, retraining staff, and overhauling IT systems. They also include an assessment of increased costs within the FSA itself, which were small.

These studies did not attempt to estimate costs from any reductions in business as a result of the regulation of the industry. Indeed, the extent of any change to the volume of business would be hard to assess. Still, one would expect costs of regulation, like taxes, to lead to lower activity, both through higher prices that discourage consumer borrowing, and a reduction in mortgage supply. Indeed, there is some evidence that UK lenders have increased their mortgage fees since the FSA began regulating the market.[90] There is also anecdotal evidence of reduced mortgage supply, though insufficient data are available as yet to establish in a more rigorous sense whether regulation has reduced supply.[91]

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[89] On this point, see FSA (2003a) Chapter 4.

[90] A survey by Moneyfacts magazine showed that 53 UK mortgage lenders increased mortgage repayment fees between May 2004 and May 2005, with 23 increasing these fees by more than 100 percent.

[91] A major UK lender told us it had stopped making mortgage loans in Euro, Dollar and Yen within the UK so as to avoid the costs of compliance with FSA rules on these low-volume products. One small UK lender exited the UK mortgage market entirely rather than undergo FSA regulation.

10.3 Estimating costs of the hypothetical package from UK experience

We now attempt to estimate the costs of our hypothetical package of measures to promote mortgage market integration, using an extrapolation from the costs of UK regulation estimated by previous studies. The figures constructed are intended only as rough approximations of the costs of this package. A more accurate assessment of the costs of integration would require knowledge of the actual package and considerable resources to study the circumstances of each country.

As the previous section noted, studies published in 2002 estimated the cost of regulation of the UK mortgage industry by the UK Financial Services Authority to be £139m-£150m on a one-off basis and £84m-£155m on a recurring basis. These costs are small compared to the large volume of gross lending in the UK, which stood at £277bn in 2003.[92] At this loan volume, an increase in mortgage rates by only 0.06 of one basis point would recover £155m, the upper range of the estimated recurring costs of regulation.

So as not to understate the costs of integration, we make the conservative assumption that the costs of introducing all the measures in our hypothetical package would be three times the upper estimates of the costs of imposing regulation on the UK market. Thus, at the level of the UK we assume they would be £450m on a one-off basis and £465m on a recurring basis. Relative to 2003 values, this recurring cost represents 0.17% of UK gross mortgage lending, 0.06% of UK mortgage debt outstanding, and 0.04% of UK GDP.

In principle, extrapolating these UK costs to the EU level represents many difficulties. A first class of costs, such as those of writing new legislation, would be fairly similar across countries, though differing due to variations in national wage rates. A second class of costs, such as lenders' revision to their IT systems, would be proportional to the number of lenders active in markets at present. A third class of costs, such as the cost of lenders' providing new documentation to consumers, would be proportional to the number of transactions in each country. Rather than explore these difficulties, we assume simply that the costs of regulation would be proportional to the amount of mortgage debt outstanding in each country. This figure is one of the few available describing the size of EU mortgage markets, and is loosely related to the number of transactions that take place in each.

In 2003, outstanding mortgage debt in the EU25 was around €4.26 trillion, or around 44% of EU25 GDP (as section 4.4 notes). UK debt represented around 26% of total EU outstandings. Thus, scaling up our estimated UK costs of integration to the total EU in 2003, and translating into 2005 prices,[93] we

[92] This figure is taken from material publicly available on the website of the UK Council of Mortgage Lenders, www.cml.org.uk.

[93] We update the 2002 UK cost estimates to 2005 prices using UK CPI inflation rates for 2002-2004.

estimate the total cost to be a one-off €2.4bn and a recurring annual cost of €2.48bn. These figure include a downward adjustment to the estimated costs of integration in the UK, to account for the fact that FSA regulation has already imposed some parts of the integration package on the UK market.

We were concerned that extrapolating from costs measured in the UK to the rest of the EU might be inappropriate. For example, the costs of complying with given regulatory requirements could be different for UK lenders than for lenders elsewhere, due to varying levels of automation in the mortgage origination process. Thus, we sought a means of comparing mortgage lenders' costs across EU countries.

To gain some sense of mortgage lenders' overall costs of business, we examined efficiency ratios, defined as net revenue divided by non-interest expenses, for 34 mortgage lenders from seven European countries (Austria, Germany, Hungary, France, Italy, Spain and the UK). We found that the efficiency ratios of UK mortgage lenders were no different to these of mortgage lenders from the rest of the EU on average.

Although mortgage lenders' cost of complying with new regulations may not be strictly proportional to their overall cost of business, we believe they are likely to be closely related. Thus, we interpret this evidence on mortgage lenders' overall costs as suggesting that compliance costs for lenders in other EU countries would be comparable to those in the UK.

10.4 Summary of findings on costs

There is little evidence on which to estimate the costs of integration of EU mortgage markets. Using available studies of the cost of mortgage market regulation in the UK, and extrapolating from the size of the EU market to the entire EU, we estimate a cost of integration of around €2.4bn on a one-off basis and an annual flow of €2.48bn (in 2005 prices). To give a sense of scale, this annual flow cost represents around 0.02% of EU25 GDP.[94]

These costs of integration are fairly small compared to the benefits of integration estimated in the previous section. However, the fact that we expect many of the costs to occur before the benefits means these costs have a relatively high weighting in the net present value calculation described below.

[94] This figure relates costs in 2005 prices to EU25 GDP in 2005. We use a projected value of EU GDP in 2005 from Eurostat.

11 Conclusion: the costs and benefits of EU mortgage integration

This section brings together the benefits of integration estimated in section 9 and the costs of integration estimated in section 10 to produce one overall value of the net benefit of new measures that would induce full integration of EU mortgage markets. As section 9 emphasises, while the macroeconomic model used in that section measures many of the effects of integration, including the effect of changes in mortgage spreads on lenders' profits, it cannot measure the cost to lenders of complying with new regulations. Thus, we estimate these costs separately in section 10.

Since both the costs and benefits of new measures to integrate EU mortgage markets would occur over several years, we summarise them by constructing the net present value of their effects. This net present value is the answer to the question "If we had to choose between having all the costs and benefits over time of new measures to integrate EU mortgage markets, and having a sum of money today, what sum of money would make us indifferent between the two choices?" Net present value calculations are the standard means of evaluating a project with costs and benefits at different times. Table 11.1 shows our net present value calculation in this case.

Our net present value calculation adds up the costs of integration through 2015, shown in the second column of Table 11.1, discounting each back to the present by an appropriate interest rate. These costs are those calculated in section 10. Our calculation also adds up the benefits of integration, shown in the third column of Table 11.1, in terms of increased private consumption through 2015, again discounting each by the same interest rate. These benefits of increased private consumption are those calculated in section 9 (and reported in Table 9.3). The lower panel of Table 11.1 shows the net present value calculated by adding up all these costs and benefits, both as a monetary sum and as a percentage of EU GDP in 2005.

Clearly, the net present value calculated depends on the discount rate used. Ideally, we would use the market discount rate on projects of equal risk to EU mortgage-market integration. Since we lack good information on the risks of mortgage integration, however, we adopt the same discount rate the UK Treasury uses to assess investment projects, which is 3.5%.[95] At this discount rate, we estimate the net present value of new initiatives to integrate EU mortgage markets over the years 2005-2015 to be €94.6bn, equal to 0.89%of EU25 GDP in 2005. As Table 11.1 shows, the calculated net present value of mortgage integration would be higher were a lower discount rate used.

[95] See HM Treasury (2003).

Table 11.1: Comparison of costs and benefits through time
€ Millions in 2005 prices

Year	Cost	Benefit (Gain in Consumption)
2005	2,398.5	0.0
2006	2,478.4	-9,646.0
2007	2,478.4	-7,939.0
2008	2,478.4	-2,163.1
2009	2,478.4	7,304.4
2010	2,478.4	15,831.2
2011	2,478.4	21,893.4
2012	2,478.4	27,475.1
2013	2,478.4	31,813.6
2014	2,478.4	34,817.2
2015	2,478.4	38,725.3

Discount rate (%)	Net present value of net benefit through 2015	NPV of net benefit as % of EU GDP in 2005
3	99,067.1	0.93
3.5	94,567.1	0.89
4	90,268.2	0.85

Note: the value of EU GDP in 2005 used is a Eurostat projection.

In some respects a longer time horizon to the net present value calculation would be desirable. A comparison of the estimated costs and benefits of integration in the year 2015 shown in Table 11.1 suggests the net present value of integration would be larger were the horizon extended beyond 2015. In 2015 the estimated benefits of integration, particularly the greater supply of housing services, greatly exceed the estimated costs. One would expect a similar analysis to apply to the effects of integration in subsequent years.

As we argue in section 3.1, however, there would also be considerable problems in extending the time-horizon of our analysis further into the future. In particular, a longer forecast will depend crucially on the path of mortgage market developments under the baseline of no major new initiatives to integrate EU mortgage markets. We expect mortgage markets to develop and integrate under this baseline, but more slowly than were major initiatives taken in 2015. The speed of mortgage development in the baseline case in years beyond 2015 is very hard to predict, however. Rather than make speculative forecasts of the distant future, we forecast the effects of integration only until the year 2015.

The net present value of integration we calculate at our preferred discount rate is fairly large, at 0.89% of EU GDP in 2005. This gain is largely explained by the large disparity in the amount of mortgage debt currently outstanding

across EU countries. This disparity plausibly results from the different degree of sophistication of mortgage markets across countries, and the variations in the strength of the legal and informational infrastructure supporting mortgage lending. Were condition in mortgage markets to equalise across the EU, we would thus expect a large expansion of mortgage borrowing in many countries. This would lead to an increase in housing demand, and thus greater housing investment. In the long term, this investment would increase EU citizens' ability to consume housing services.

The net present value of mortgage integration calculated in Table 11.1 is a high-level estimation based on incomplete data. We do not know what initiatives will be proposed to help integrate EU mortgage markets, and available data do not permit us to distinguish the importance of different aspects of the legal infrastructure for the growth of mortgage markets. Thus, we recognise that the true costs and benefits of mortgage market integration could differ from those we estimate.

Nevertheless, we believe this report provides a useful definition of mortgage integration, a view of how integration would affect mortgage markets, a sense of how changes in mortgage markets would affect the EU economy, and an approximate sense of the rough size of the benefits to be expected. Thus, we believe that this report can contribute usefully to future debates on the development of EU mortgage markets.

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Annex 1. EU mortgage markets

This section provides additional description of the characteristics of EU mortgage markets, and recent developments in their characteristics, to that contained in section 4 of the report.

A1.1 Macroeconomic context

A1.1.1 The EU economy

The European Union is a very large political unit, with a population of 452 million and a total GDP of over €10 billion. Table A1.1 shows how the EU's population and economy are distributed among its Member States.

Economic activity is concentrated in the old Member States. The EU15 contributes 95% of EU GDP, and 75% of the total are made up by the five largest economies alone. The New Member States, though significant in terms of population, make only a small contribution to the EU's economy now at the start of their membership.

Rates of GDP growth, by contrast, are comparatively high in the New Member States. Since 1996, growth in these ten countries has averaged 3.9%, higher than the 2.1% average for the EU15 countries. In the five largest economies, growth over the same period averaged 2.3%.

Table A1.1: Distribution of EU population, GDP and growth

	Population (m)	GPD (€ bn)	GDP (% of total)	Annual GDP growth (%)
EU25	452	10.2	100	2.2
EU15	377	9.7	95.3	2.1
Accession Countries	75	0.5	4.7	3.9
5 Largest Economies	298	7.7	75.2	2.3

Source: Eurostat; the five largest economies in terms of GDP are Germany, the UK, France, Italy and Spain.

The trend in interest rates is crucial to the development of mortgage markets in much the same way as the trend in GDP growth. Where interest rates are volatile, borrowers will be less likely to commit to floating-rate mortgages. Further, when the future inflation rate is unknown, borrowers will be less willing to commit to long-term contracts fixed in nominal terms.

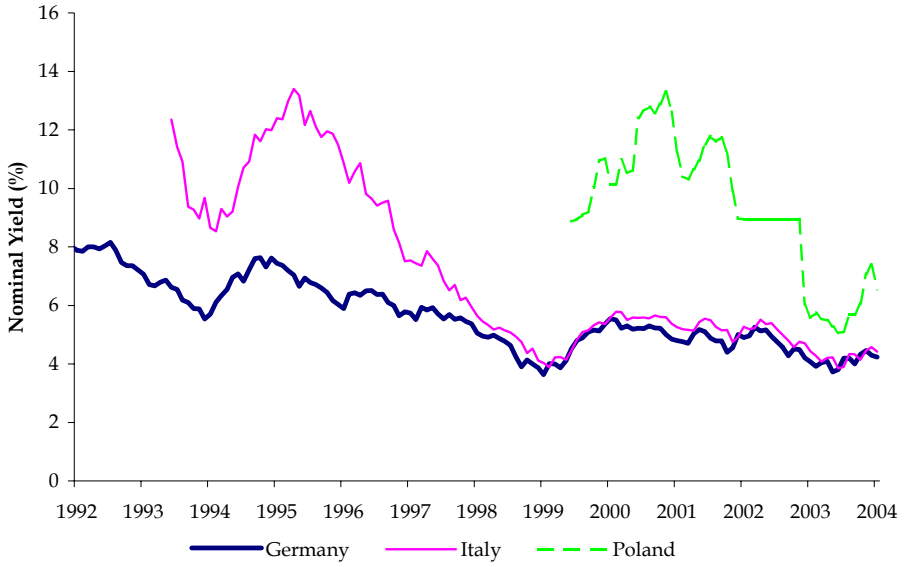
In all EU countries, nominal interest rates have declined and become more stable over the past ten years. Since interest-rate levels have differed greatly across countries, however, we now discuss trends in three types of countries,

as illustrated by Figure A.1 developed countries that gained little by joining the Euro (using Germany as an example), developed countries that gained more from joining the Euro (using Italy as an example), and transition economies that do not yet use the Euro (using Poland as an example).

Interest rates in the three countries converged towards a lower value over the last decade. This was partly due to the preconditions for European Monetary Union set out in the 1992 Maastricht Treaty.[96] The downward trend in interest rates was more pronounced in Italy and Poland, where the discipline imposed by the Maastricht criteria seems to have had a greater effect.

The experience of interest-rate volatility has differed across the three countries. Volatility declined in Italy, towards the traditionally low level of volatility in Germany. The available data show no clear trend in the volatility of Polish interest rates, with large yield fluctuations in recent years.

Figure A.1: Selected nominal 10-year government bond yields



Source: Bloomberg

A1.1.2 Exchange-rate volatility

Exchange-rate volatility may affect borrowing from countries that use different currencies.[97] Further, in countries with a history of macroeconomic

[96] The treaty imposed an obligation on counties wishing to join EMU to keep their long-term rate of interest at no more than 2% above the average of the three countries with the lowest inflation rates.

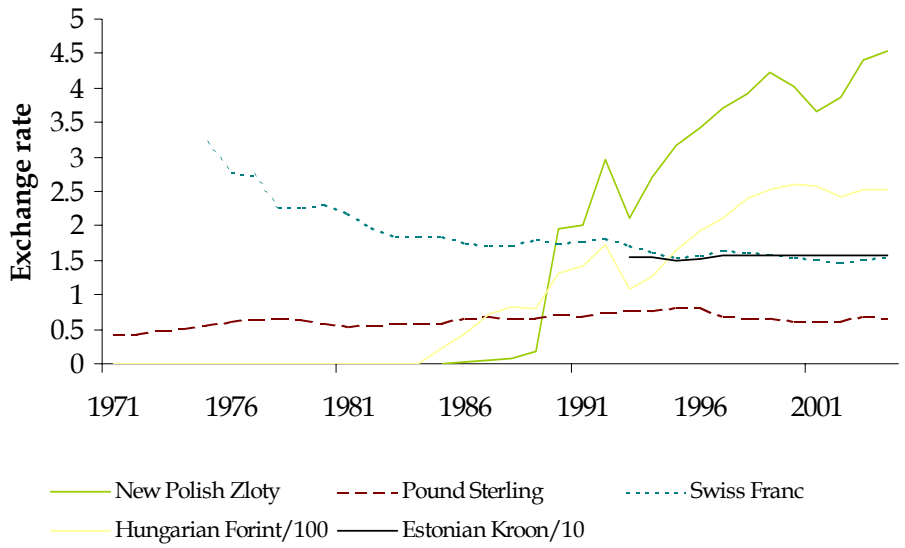
[97] After the introduction of the euro in 2002 there are still 14 currencies in use in the EU.

instability, lenders may prefer to lend in 'hard' currencies. An example is Poland, where in 2003 almost two thirds of all mortgages were denominated in Euros, Dollars or Swiss Francs.[98] Volatility of the exchange rate between the domestic currency and these hard currencies would then be a deterrent to mortgage borrowing in these countries.

The currencies of the three EU15 countries that do not use the Euro have had stable exchange rates against the Euro over time. For example, the exchange rate of the British pound against the Euro has been almost constant over time, as Figure A.2 shows. This figure also shows that the Swiss Franc has had a fairly stable exchange rate against the Euro.

The currencies of the larger accession countries have experienced more turbulent exchange rates relative to the Euro. For example, Figure A.2 shows that the Hungarian Forint and the New Polish Zloty have fluctuated quite severely against the Euro. The currencies of many of the smaller accession countries have been more stable against the Euro, however. The Estonian Kroon and the Lithuanian Litas for example have been pegged to the Euro through a currency board since 1999 and 2002 respectively.

Figure A.2: Selected exchange rates against the Euro/ECU



Source: Eurostat

[98] Laszek (2004).

A1.2 Use of terms 'mortgage' and 'home loan' across countries

As section 2.1.1 discusses, some EU countries use mortgages, while others use home loans that are similar in purpose but are not technically secured on property. It is therefore difficult to define a mortgage or home loan in a way that is appropriate across all EU countries. While most mortgages may be intended for home purchase or improvement, some mortgages or some parts of mortgages may have other purposes. Thus, when we quote data on mortgage debt or mortgage interest rates, we are constrained to using the definitions used by each country's statistics agency or central bank. These definitions are described in Table A.1.2.

Table A.1.2: Definitions of mortgage debt used by country

	Collateral Based	Purpose Based	Notes
Austria	✓		95-99% of the loans are secured on property.
Belgium		✓	
Cyprus	✓		
Czech Republic		✓	
Denmark	✓		Only accounting for loans issued by specialist mortgage lender institutions.
Estonia	✓		
Finland		✓	
France		✓	
Germany		✓	Mortgage loans accounted for around 75% of housing loans outstanding in 2003.
Greece	✓		
Hungary		✓	Almost all of the house loans are secured on property.
Ireland	✓		
Ital		✓	Majority of housing loans are secured on property.
Latvia		✓	
Lithuania		✓	Majority of housing loans are secured on property.
Luxembourg		✓	
Malta		✓	
Netherlands	✓		
Poland		✓	Approximately 60% of outstanding housing loans are secured on property.
Portugal		✓	
Slovakia		✓	Housing loans to households for both residential and commercial purposes.
Slovenia		✓	
Spain	✓		Loans secured on any immovable asset
Sweden	✓		
UK	✓		

Source: National Statistics Agencies, Central Banks and LE Survey (2005)

A1.3 The primary market

The primary market is that for the negotiation and distribution of loans to borrowers. We now briefly summarise the range of institutions that make mortgage loans in the EU. We also summarise how institutions make loans, including their use of mortgage brokers, advertising and the Internet.

A1.3.1 Lenders active in mortgage markets

Several types of institutions originate mortgage loans. These include:[99]

- *Commercial Banks*: Limited liability banks with private shareholders.
- *Mortgage Banks*: Special lending institutions that in some cases enjoy a regulatory advantage in the mortgage market.
- *Co-operative banks (mutuals/ savings banks/ building societies)*: Associations designed to conduct banking activities on behalf of their members (no shareholders).
- *Government banks and funds*: banks the government wholly owns.

We regard mortgage brokers as loan distributors rather than originators, since brokers close loans with borrowers on behalf of mortgage lenders.

The European mortgage market is mainly split between commercial and co-operative banks, however, in some markets specialist mortgage lenders have a significant presence due to the regulatory framework.

Commercial banks dominate the mortgage lending in Italy, the Netherlands and the UK, some of the biggest mortgage markets in the EU (accounting for 41% of outstanding loans). The three biggest markets in Eastern Europe (Hungary, Poland and the Czech Republic) are also dominated by commercial banks.

By contrast co-operative banks are the single biggest lenders in France and Germany. Together, these two countries account for 36% of the European mortgage market in terms of outstanding loans.

Three other major markets: Denmark, Sweden and Spain are characterised by the presence of specialised mortgage lenders. Actually, in Denmark and Sweden they issue almost all mortgage loans. This is due to the fact that legislation there requires mortgage lending to be conducted by specialised institutions. In Spain the business activities of lenders who wish to raise funds in the secondary market is restricted by legislation. Thus, since secondary funding is popular in Spain specialised mortgage institutions are common there.

Foreign lenders have a small share of national mortgage markets, however, foreign entry seems to have been more common in certain markets. Our

[99] These definitions are taken from Sveriges Riksbank (2004).

survey of multi-market lenders in Europe (see section 4.2) shows that especially Eastern-European markets seem to have been targeted by German and Swedish lenders.

A1.3.2 Distribution of mortgage loans

Mortgage loans are normally closed face to face in originators' retail branches[100], however, the biggest mortgage markets also utilise other distribution channels.

In the Netherlands, Spain and UK, brokers and other intermediaries close at least 40% of mortgages. Countries where mortgage brokers and other intermediaries have a significant presence tend to be easier for foreign lenders to access. Given that face-to-face contact is important in mortgage lending, broker networks provide a way to reduce the costs of entering a new market.[101]

In fact the Survey of Lender Appetite that we conducted in 2005 showed that lenders are most interested in expanding their operations in markets where they currently have no presence through intermediaries such as brokers (section 5.2).

Other alternative channels of distribution such as the Internet and telemarketing seem to only account for a significant share of closures in the UK. In 2003, 15 % of mortgage loan closures in the UK were conducted either through either the Internet or by telephone (Mercer Oliver Wyman 2003).

A1.3.3 Market concentration

European credit markets have consolidated, which affects the level of concentration in mortgage markets (Table A.1.3). In several countries (France, Germany, Netherlands and the United Kingdom) the number of credit institutions fell by over 20% during a six-year period (column 4 of Table A.1.3). This also reflects the level of concentration we observe in mortgage markets, Germany being the only country where the biggest five lenders share less than 50% of the mortgage market (column 2). Since mortgage markets are geographically segmented in Germany, this is the only country expected to experience any significant consolidation in the near future.

[100] European Commission (2004).

[101] Mercer Oliver Wyman (2003).

Table A.1.3: Concentration in EU mortgage and credit markets

	Mortgage Market share in 2003 (5 biggest lenders, %)	Change in No. of Credit Institutions 1997- 2003 (%)[1]	Aggregate Branch Network Size 1997 – 2003 (%) [2]
Denmark	95	-4.7	-7.2
France	75	-25.4	1.3
Germany	45	-34.9	-25.1
Italy	65	-11.8	19.1
Netherlands	75	-25.8	-46.0
Spain	50	-16.3	4.5
Sweden	95	-6.3	-18.2
UK	60	-20.7	-13.2
Czech Rep.	80 [3]	-7.9	-4.6
Hungary	70 [3]	-5.2	13.1
Poland	80	-15.5	8.3

Notes: [1]All credit institutions, except for the New Member States, where the ratio refers to commercial bank branches. [2] Branch networks of all credit institutions. For the new Member State the shares are calculated for the period 2001-2003. [3] Three lenders dominate the market in the Czech Republic and Hungary.
Sources: ECB (2004a, 2004b), Mercer Oliver Wyman (2004).

A1.3.4 Origination technology and procedures in European mortgage markets

Barriers to automating the mortgage lending process may lead to increased costs that are transferred to consumers. This would be reflected in the form of higher interest premiums on mortgage loans and thus in part explain the differing spreads we observe between national markets. Our definition of integration as involving the same price for the same mortgage product across the EU implies that, under integration, the cost of origination would equalise across Member States.

Since automation of mortgage origination appears most advanced in the US, this section first discusses how the adoption of new technologies in the US has affected mortgage spreads. It then discusses the extent of automation in EU mortgage markets, using evidence on the time the origination process requires, the access to electronic information, and the use of automated procedures and IT. We conclude that scope exists for technological improvements and best-practice transfers in European markets.

Use of new technology in the USA

Technological advancement and the transfer of best practices has occurred parallel to convergence of interest rates in the USA (see section A3.5). Thus, one might expect the same impact in Europe. It appears that some of the

convergence in the US can be accredited to scale affects that have arisen as a result of consolidation in the financial services industry following cross-state integration. However, such scale effects are unlikely to arise in Europe, as national mortgage lending markets are characterised by the presence of relatively few actors.[102] On the other hand, there are some interesting points to be made from the US experience, and these are:

- Automated model-based risk evaluations have cut the credit assessment of borrowers to minutes.
- It has been estimated that loan underwriting software distributed by Freddie Mac has cut the cost of origination by between $300 and $650 depending on the size of loans originated.
- Lender costs have decreased as the Internet is more widely used. Borrowers are now able to apply for a loan, receive loan approval, and lock in an interest rate online.

We now examine to what extent European mortgage markets differ in their origination procedures and assess whether there is any scope for harmonisation thereof across Europe.

Mortgage origination procedures in Europe

By looking at several aspects of the mortgage purchase process we evaluate whether differing procedures may explain the presence of mortgage spreads in Europe and consequently whether standardisation of procedures must occur for one price to prevail across European markets. Aspects we look at are the time the process requires, the access to electronic information, and the use of automated procedures and IT. Overall the picture seems to be that there is a great difference in these factors across Europe and that there is considerable room for harmonisation.[103]

The time taken by the mortgage purchase process differs widely across Europe. The time from application to purchase of a mortgage loan can be as short as 2 days in the UK, whereas it can take up to 12 weeks in France.[104] Variation in the degree of automation may partly explain these differences.

Looking at the availability of electronic information, for example the existence of a credit bureau that allows for access to borrower credit history (Table A.1.10) reconfirms that lenders face quite different origination conditions. This forces French and German lenders, among others, to collect a large number of documents and extends the time the credit assessment procedure takes.

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[102] Section A8.2 tests for scale effects in European markets.

[103] This section draws heavily on Annex 4 of Mercer Oliver Wyman (2003).

[104] Mercer Oliver Wyman (2003).

Spain in particular has been successful in implementing model-based credit assessments. By using 'score-cards' and the information provided by credit bureaux Spanish lenders have been able to cut the time the evaluation process takes considerably.

The use of the Internet as a way to make the underwriting process more efficient has not been very significant across Europe. In general the UK seems to be at the forefront of online marketing of mortgages. Currently it is possible to lock in quotes and to some extent close loans online. However, most other European countries lag behind in this respect.

Overall there seem to be significant scope for improvement and harmonisation in the costs and procedures of issuing mortgage loans across Europe.

A1.4 Funding sources

Lenders' methods of financing mortgage loans may be important for several reasons. Secondary market financing can decrease the risk lenders face, encourage competition, exert downward pressure on costs and thus prices in mortgage markets, and enable lenders to offer new mortgage products. It has been argued, for example, that secondary market funding enables lenders to make longer-term fixed-rate loans. This is further explained below. [105]

The main funding methods are typically classified as retail, wholesale and secondary, with definitions as follows:

- Retail funding: Loans from individuals (deposits).
- Wholesale funding: Loans from banks and corporations through various debt instruments.
- Secondary funding: Issuance of mortgage bonds and mortgage backed securities (MBS) that are covered by housing loans.

This section first analyses the current composition and trend in funding among European mortgage lenders, and outlines factors that influence lenders' choice of funding mix. We then survey the current status of and recent developments in legislation regarding secondary funding. Finally we discuss the impacts on mortgage lending of the Basel II Accord.

A1.4.1 Current situation in funding

This section discusses mortgage funding in the EU using data from 2003. For secondary funding instruments we use the definitions for mortgage bonds and mortgage backed securities (MBS) as defined in section 2. The available data on mortgage bonds and MBS is not very comprehensive, therefore we

[105] This section draws heavily on Suarez and Vassallo (2004), and CML (2005).

refer to mortgage bonds and MBS as shares of outstanding mortgage loans and new mortgage loans, respectively.

Mortgage lenders rely heavily on savings from private individuals and companies. Thus, mortgage bonds and MBS finance a minority of mortgage loans. In 2003, mortgage bonds financed 17.5% of outstanding EU mortgage loans, while MBS accounted for 11.6% of newly issued mortgage loans.

An overwhelming share of the European mortgage market has access to secondary funding. Only Estonia and Slovenia have no legal framework for either mortgage bonds or MBS.[106] Other countries show low levels of secondary market activity,[107] but these countries account for only 5% of total EU mortgage debt outstanding.

In most countries, a minority of mortgages are financed with mortgage bonds. The notable exception is Denmark, where regulation stipulates that mortgage institutions have to issue mortgage bonds against the entire value of mortgage loans. Sweden and Germany also have substantial mortgage bond markets. However, as Figure A.3 shows, mortgage bonds only accounted for more than 5% of the outstanding residential loan value in six countries. By 2003, Belgium, Italy, Estonia and Slovenia had not established mortgage bond funding systems.

The EU's most active MBS markets were in the Netherlands, Spain, Italy, UK, Ireland and Belgium (Figure A.4). By contrast, MBS activity was insignificant in other EU countries. A comparison of Figure A.3 and Figure A.4 suggests that countries concentrated secondary market funding on either mortgage bonds or MBS. Only Spain had mature markets in both instruments.

A1.4.2 Trends in funding composition

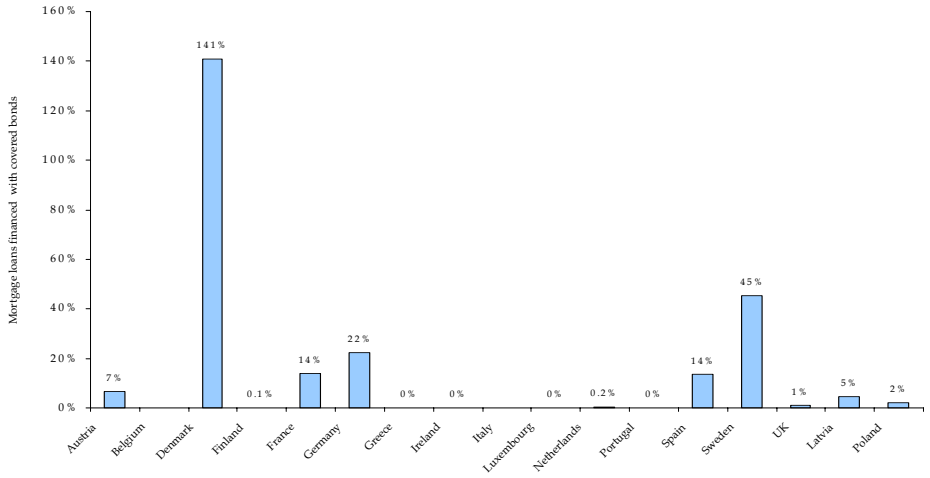
In recent years, both mortgage lending to consumers and the issuance of secondary funding instruments have expanded rapidly within the EU.[108] However, within the EU15, the proportion of mortgage loans financed with retail and wholesale funds relative to secondary funding remains largely unchanged. This is shown by the upper line in Figure A.5.

[106] Our sample includes all EU countries except, Cyprus and Malta, for which we lack data.

[107] The Czech Republic, Finland, Greece, Hungary, Luxembourg, Latvia and Poland.

[108] From 1996 to 2002, the EU15's total mortgage bond market expanded from €89bn to €159.5bn, while its MBS market grew from €0.5 bn to €80 bn.

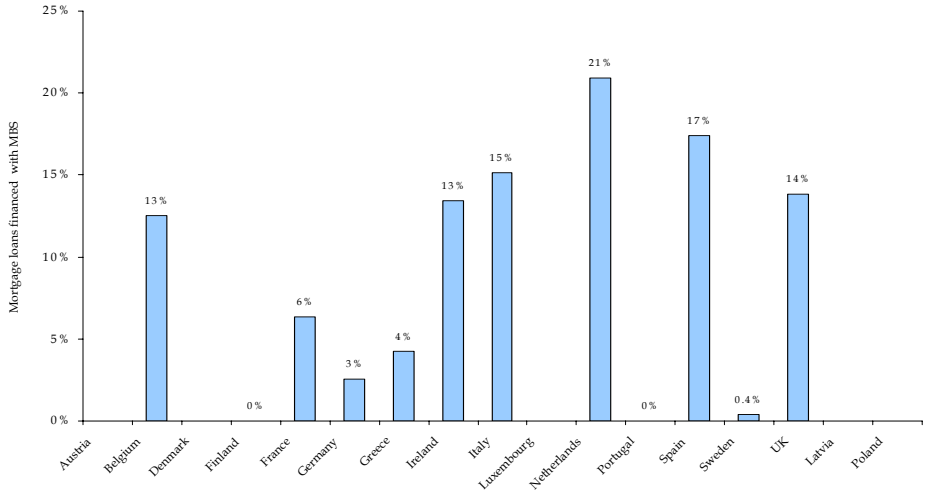
Figure A.3: Use of mortgage bond finance
Outstanding mortgage bonds relative to outstanding mortgage loans, 2003



Notes: Belgium and Italy do not use mortgage bonds. The Czech Republic and Hungary use mortgage bonds, but the shares could not be computed. Data for Austria and the Netherlands are from 2002.

Sources: EMF (2004a), Lassen (2004).

Figure A.4: Use of MBS finance
New issued MBS relative to new residential mortgage loans, 2003.

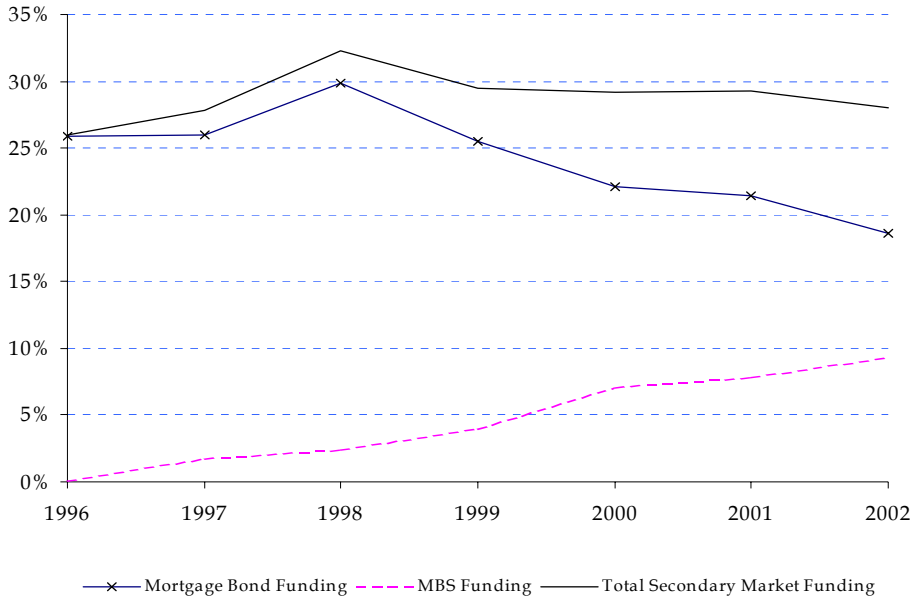


Notes: Austria, Denmark, Luxembourg, Hungary, Latvia and Poland had no MBS market in 2003, whereas the proportion could not be calculated for the Czech Republic.

Source: EMF (2003a, 2004a).

Increasingly, mortgage lenders in the EU15 prefer to raise funds with MBS rather than mortgage bonds. This is shown by the lower two lines in Figure A.5. This development is particularly due to increasing use of MBS in four large markets (Italy, Netherlands, Spain and the United Kingdom).[109] Use of MBS has grown only weakly in Germany, however, which has the EU's largest mortgage bond market.

Figure A.5: Share of new mortgages financed in secondary markets
Total for EU15 countries



Source: EMF (2003a, 2004a).

A1.4.3 Legislation and the growth of secondary markets

We now try to explain the cross-country differences in funding that we observed in the preceding section.

We have seen that the funding mix varies substantially between countries and this is due to several factors. Some of the factors that give rise to these cross-country differences are:

[109] With the exception of the UK, where there is no specific securitisation law, the ability to access secondary funding thanks to recent legal development has in particular been taken advantage of by smaller niche lenders with less ability to raise funds through deposits. Also, recent years of booming mortgage markets has led to a demand for more complicated products, whose inherent risk is better matched through secondary funding.

- Differing relative costs of the available mechanisms for raising funds[110]
- Historical and cultural preferences[111]
- Legal factors

The most important driver, however, seems to be the regulatory environment, especially with respect to secondary funding.

The absence of mortgage bond and MBS markets in some countries, as shown in Figure A.3 and Figure A.4, is explained by the absence of specific national legislation.

In the remainder of this section we first briefly examine covered bond and MBS legislation in more detail before we discuss how this has encouraged the emergence and growth of secondary funding markets. Lastly we look at the last to be implemented, the Basel II Accord and the impact it will have on secondary funding preferences.

Understanding mortgage bond and MBS legislation

Secondary funding is regulated differently by civil and common-law systems. In civil law systems (continental Europe) credit institutions have to be formally authorised to issue securities covered by mortgage loans. This is not the case in common law systems (United Kingdom and Ireland).[112]

The primary objective of mortgage bond regulation is to minimise the risk facing investors in mortgage bonds. Lower risk on the funding side will (other things equal) translate into lower interest rates offered to mortgage borrowers. Mortgage bond legislation aims to reduce the operational risk of issuing institutions and to protect holders of mortgage bonds in the case that the issuing institution goes bankrupt.

Mortgage bond legislation reduces the operational risk of issuers by applying the following three principles:

- Specialist bank principle: Restricts the business operations covered bond issuers can undertake, in order to minimise the risk of insolvency.

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[110] The relative cost of the various ways to raise funds will vary by country with for example the local tax, administration, and bureaucracy- imposed. (CML 2005)

[111] A country where house buyers prefer short-term variable loans, funding with instant access retail deposits is perfectly feasible. By contrast, if borrowers prefer longer-term fixed-rate mortgages, wholesale or secondary funding is more suitable in order to avoid non-matching cash flows. (EMF 2005)

[112] However, the Irish covered bond market developed first after relevant legislation was passed in 2002. Formal legislation, regardless of legal system, is likely to increase investors' confidence and interest in various mortgage securities.

- Balance principle: States that the maturity and interest rate of funding and lending operations must match, thereby minimising interest rate risk.
- Overcollateralisation principle: limits the size of mortgage loans below the collateral value, in order to reduce the impact of occasional default by mortgage borrowers.[113]

Were the issuing institution to become insolvent, several legal provisions would protect bondholders. The most important provisions are the following:

- Bondholders' claims are settled before all other claims in case a borrower defaults on his mortgage.
- Assets are separated in case the issuer becomes insolvent, such that mortgage loans are earmarked to cover the claim of mortgage bondholders only.
- The asset pool is continued after bankruptcy. This means that, in the event of the issuer's bankruptcy, bonds do not become due before all preferential claims are settled.

Most mortgage bond legislation in the EU includes the various elements discussed above as can be seen in Table A.1.4.[114]

MBS legislation stipulates the procedure whereby mortgage loans are securitised. This procedure involves the sale of mortgage loans (transfer) by the originator to a special purpose vehicle (separate legal entity) and the subsequent issuance of MBS by the special purpose vehicle.[115]

In comparison to covered bond legislation, MBS legislation does not carry as stringent requirements on mortgage loan overcollateralisation. Subprime lenders utilise this feature by funding lending to individuals with inadequate capital requirements by securitising mortgage loans. Therefore the inherent risk of MBS is often greater than that of covered bonds.

Legislation and growth of secondary funding

In several countries credit institutions lack the formal authority to issue secondary funding instruments (Table A.1.5). The absence of relevant laws

[113] Virtually all EU countries set strict limits of 60-80% LTV ratios on loans covered by mortgage loans.

[114] The extent to which mortgage bond legislation covers the various legal aspects varies between countries. For example a country with very stringent regulation on mortgage issuers' business operation (Special bank principle) may have little or no preference protection for bond investors. In France and Sweden (prior to 2004) bond issuers could virtually only hold mortgage loans, which makes legislation on mortgage pool separation excessive.

[115] Securitisation on mortgage loans implies that they no longer remain on the originators balance sheet, as opposed to the issuance of covered bonds.

directly explains why mortgage bond and/or MBS markets do not exist in ten countries[116] with civil law systems.[117]

Table A.1.4: Covered bond legislation in selected EU countries

	Specialist Bank Principle	Overcolla-teralisation Principle (LTV %)	Legal priority in case of default	Segregation of assets in case of insolvency	Continuation of asset pools after bankruptcy
Austria	✓	60 [1,3]	✓	✓	✗
Denmark	✓	60/70/80 [2]	✓	✓	✓
Finland	✓	60 [1]	✓	✓	✓
France	✓	60/80/100 [1,2]	✓	✗	✓
Germany	✓	60 [1,3]	✓	✓	✓
Greece	✓	75 [2]	✓ (weak)	✓	✗
Ireland	✓	60/75 [2]	✓	✓	✓
Luxembourg	✓	60 [1]	✓	✓	✓
Portugal	✗	80 [2]	✓	✓	✗
Spain	✓	70/80 [2]	✓	✓	✗
Sweden	✗	60/70/75 [2]	✓	✓	✓
Cyprus	✓			✓	✗
Czech Republic	✗	70 [1]	✓	✓	✓
Hungary	✓	60 [1,3]	✓	✓	✓
Latvia	✓	60/75 [2]	✓	✓	✓
Lithuania	✓	30/40/50/7 [1]	✓	✓	✗
Poland	✓	60[3]	✓	✓	✓
Slovakia	✗	60 [1]	✓	✓	✗

Notes: 1 There is no legal protection of overcollateralisation, but in practice LTV ratio ceilings are imposed. There is no covered bond legislation in Belgium, Estonia, Italy, Netherlands, Slovenia and the UK.
Sources: Deutsch Bank (2003), Verband Deutscher Hypothekenbanken (2004)

[116] Austria, Belgium, Denmark, Estonia, Italy, Luxembourg, Hungary, Latvia, Poland and Slovenia

[117] Equivalently other markets have extensive secondary funding system as a consequence of specific legislation. For example in Denmark, specialised mortgage banks are obliged to fund mortgage lending entirely through the issuance of covered bonds.

However, as column 4 of Table A.1.5 shows, Belgium, Italy, Estonia and Slovenia are currently reviewing draft mortgage bond legislation. [118]

Secondary funding markets have developed in countries with and without regulation specific to mortgage bonds (column 4 of Table A.1.5). Denmark is the country where the greatest share of mortgage loans is financed with mortgage bonds (Figure A.3), due to its legal compulsion that mortgages be funded in this manner. By contrast, mortgage bond legislation has only recently been introduced in Sweden (2004), even though around 50% of mortgage lending has been financed with debt securities for quite some time. Prior to 2004, Swedish mortgage institutions were so tightly regulated that the market has attributed much the same preferential treatment to their corporate bonds as to mortgage bonds.

Current regulatory developments strive to make secondary funding more attractive by reducing the risk of mortgage securities and strengthening investors' preferential rights (column 4 of Table A.1.5). Germany, among other countries, has passed amendments that allow for the use of derivatives in cover pools of mortgage loans. This allows mortgage institutions to hedge interest and exchange rate risks of loans with fixed terms and foreign currency denomination. Other amendments in Germany, Spain and Sweden have further strengthened investors' rights over mortgage assets in case mortgage institutions become insolvent. This is expected to improve credit ratings of mortgage bonds and MBS.

Other legislation such as tax legislation on interest earning debt instruments affects the attractiveness of secondary funding. In Greece for example, the tax associated with capital gains on mortgage bonds has hindered the development of an active market.

A1.4.4 The Basel II Accord

The Basel II accord (Basel 2004) is a revision of the existing Basel I framework (Basel 1988) that strengthened the soundness and stability of the international banking system by increasing capital ratios. The new framework for credit ratio determination is designed to be more sensitive and representative of modern banks' risk management practices. Basel II is supposed to be fully implemented in the EU in 2006.[119]

Basel II consists of three pillars:

- The new standards set out the minimum capital requirements firms will be required to meet for credit, market and operational risk.

[118] The material in this section is mainly taken from EMF (2003b, 2004b) and Lassen (2004).

[119] Much of this section is from the FSA (2005).

Table A.1.5: Overview of mortgage bond and MBS legislation

	Legislation on		
	Mortgage Bonds	**MBS**	**Notes**
Austria	Yes	No	*Pfandbrief*-like law in place.[120]
Belgium	No	Yes	Draft covered bond law is being reviewed 1992: Laws for SPVs created, but MBS market is inactive.
Denmark	Yes	No	All mortgage loans must be bond financed. There is no securitisation legislation. 2003: Amendments led to more cost effective procedures in the bond market. 2004: Tighter security supervision introduced. Proposals for new prospectus, and market abuse directive.
Finland	Yes	Yes	Interest, exchange and cash flow mismatch risk is tightly regulated. Mortgage loan value has to exceed the value of issued bonds.
France	Yes	Yes	Very tight 'special bank' regulation of bond issuers provides among the most protective framework for bondholders in the EU.
Germany	Yes	Yes	2002: Amendment allowed inclusion of derivatives in the cover pool for hedging of interest rate and currency risk. 2004: Improved separation of cover pools under insolvency laws and enhanced protection against risk.
Greece	Yes	Yes	2003: MBS framework introduced. Tax reform has made covered bonds more attractive. Covered Bond market is yet to develop.
Ireland	Yes	Yes	2002: Covered bond legislation passed. 2004: Supplementary mortgage bond regulation passed.
Italy	No	Yes	Only MBS framework in place, but a *Pfandbrief*-like bill is being reviewed.
Luxembourg	Yes	Yes	1997: *Pfandbrief* law established. So far only bonds covered by public debt issued. 2004: Securitisation (MBS) law enacted, offering legal and tax certainty for originator and investor.
Netherlands	Yes	Yes	
Portugal	Yes	Yes	Complexity of implemented legal framework exerts constraints on the covered bond market.
Spain	Yes	Yes	2004: Strengthened protection for investors in covered bonds. Separation of assets post bankruptcy of issuer. Improved rating of covered bonds.
Sweden	Yes	Yes	2004: New legislation introduced directly collateralised bonds. However, prior tight 'special bank' regulation had already made funding with bonds efficient.
UK	No	No	Some argue that covered bond regulation may develop the

[120] The *Pfandbrief* is a Germanic type covered bond product. It carries most of the common characteristics of covered bonds. For example, issuing institutions are required to have restricted activity and risk taking, and the *Pfandbrief* has to be covered by specific assets.

Table A.1.5: Overview of mortgage bond and MBS legislation

	Legislation on		
	Mortgage Bonds	MBS	Notes
			mortgage bond market and lead to lenders offering fixed longer-term mortgages.
Czech Republic	Yes	Yes	1995: Covered bond legislation passed.
Estonia	No	No	Concrete legislation in preparation as of September 2004.
Hungary	Yes	No	1997: The Mortgage Bank and Mortgage Bond Act introduced. Currently only three actors in the market are allowed to issue mortgage bonds.
Latvia	Yes	No	1998: Mortgage bond framework introduced. Currently one institution satisfies the criteria. 2002: Amendments defining bankruptcy procedures, over-collateralisation criteria and use of derivatives in cover pools.
Lithuania	Yes		2003: Covered bond legislation enacted.
Poland	Yes		2002:Amendment in the Mortgage Bond Act triggered the growth of a mortgage bond market. New regulation permits a larger role of financing through bonds and provides greater protection to investors.
Slovakia	Yes		1996: Covered bond legislation enacted.
Slovenia	No	No	Concrete legislation in preparation as of September 2004.

Source: EMF (2003b, 2004b).

- Supervisor bodies must take a view as to whether firms should face higher capital requirements due to risks not taken into account under pillar 1.

Improved market discipline by requiring firms to publish certain details of their risks, capital, and risk management.

The Basel II accord may affect mortgage lenders' funding mix. The amended framework will assign new risk weightings on mortgage lenders' assets and liabilities. The aggregate risk weighted assets in turn determine the capital requirement imposed on a firm. This may reduce or increase the appeal of securitisation versus covered bonds. However, a recent survey by Structured Finance International (SFI) of issuers across Europe seems to suggest that the secondary mortgage market should lose none of its vitality and diversity.[121]

[121] Euromoney Institutional Investor (2004).

A1.5 Product availability

Differences in the range of mortgage products available across EU countries are likely to affect total mortgage borrowing and also patterns in household consumption across countries. While the range of mortgage products available differs substantially across EU countries, differences in availability have declined greatly in recent years.

This section describes the current situation and trends in mortgage product availability across the EU. It focuses on seven aspects of product availability:

- whether mortgages have fixed or variable interest rates,
- the maximum loan size available,
- whether citizens with poor documentation or credit records can borrow funds,
- mortgages that enable borrowers to release equity from their houses,
- options to prepay mortgages,
- other aspects of product availability.

The data used in this section, summarised in Table A.1.7, Table A.1.6 and Table A.1.8, are taken from our survey of national mortgage markets and from secondary sources.[122]

A1.5.1 Interest rate fixation periods

There is no homogenous cross-country definition of fixed and variable-interest mortgage contracts. Most mortgage contracts are reviewable or renegotiable at predefined intervals. On the one side of the spectrum mortgage interest rates are indexed on the three-month Euribor[123], whereas other contracts carry an initial interest rate fixation period of several years.[124] Typically countries classify mortgage contracts as variable or fixed by somewhat arbitrarily choosing a period between adjustments beyond which contracts are considered fixed.

Both contracts with shorter and longer- periods between interest rate adjustments are available in most countries. However, borrowers' preference over the interest adjustment frequency differs considerably across countries.

[122] These sources include ECB (2003), Mercer Oliver Wyman (2003), Merrill Lynch (2003) and RICS (2004).

[123] Euribor is the Interbank Offered Rate within the Eurozone. An indexed mortgage loan tracks the movements of the Euribor inclusive of a mark-up.

[124] In for example Spain and Portugal some contracts track the three-month Euribor. Thus, these contracts adjust on a continuous basis. On the other hand in Germany most mortgage contracts often carry an initial period of interest rate fixation of several years.

Longer periods between interest adjustments are common in countries where specialised mortgage lending has a long tradition, such as Denmark and Germany. This is also the preferred type of contract in Austria, Belgium, France, the Netherlands and Sweden. In Italy, the mix of mortgages with short and long- interest rate fixations differs regionally, with greater intervals between adjustments more common in the south.

In contrast a longstanding preference for short interest fixation periods exists in countries as diverse as Finland, Portugal, Spain and the United Kingdom.

In some countries there is evidence of a trend towards shorter interest fixation periods (Table A.1.6). It has been argued that the shift to an environment of low and stable interest rates, spurred by the introduction of the European single currency, has meant that mortgages with shorter interest fixation periods have become more widespread in recent years.[125]

Table A.1.6: Trends in preferences for interest fixation periods

	Mortgage loans with interest rate fixation periods less than one year (%)	
Country	**1999**	**2003**
Austria	33	24
Denmark	4.2	21.9
Finland	97	97.8
France	-	20
Germany	-	10
Hungary	100	77.7
Ireland	64.4	78.3
Italy	51.7	78.5
Netherlands	1.8	6.5
Portugal[2]	98.6	97.5
Spain[1]	85.1	97.8
Sweden	22.1	31.7
UK	80.5	74.9

Notes: [1] The proportions for Spain refer to 1997 and 2002 respectively. [2] According to the assets held by Caixa Geral de Depositos.

Source: LE Survey (2005).

A1.5.2 Maximum loan size

Restrictions on loan size are among the most important obstacles that impede access to a mortgage for many borrowers. Borrowers with low equity and no access to further securities are disadvantaged by the often conservative

[125] Mercer Oliver Wyman & MITA (2005).

lending criteria of mortgage providers that are sometimes cemented further by legal or regulatory provisions (see section A1.5.7).

Average loan-to-value (LTV) ratios in Europe vary little and are usually in the region of 70-80% (see Table A.1.7). Mechanisms that make it difficult for mortgage LTV ratios to exceed this level are in place in many countries. Specifically, mortgage bond coverage may not be available beyond this threshold (as is the case in Germany, Denmark and Latvia, for example) and many lenders will also require higher borrower equity and additional guarantees.

Significant deviations from the European average of 70-80% LTV occur only in a few countries. Low LTV ratios between 50 and 60 per cent are often seen in Italy and Greece. Commentators have suggested this is because of the greater prevalence of informal lending arrangements (i.e. loans from family members) in those countries, as well as a history of high and volatile interest rates, which will have resulted in a cautious attitude towards weighty financial commitments.

At the other extreme the Netherlands is the only EU country where very high LTV ratios of 100% or more are common. This can be explained by the especially generous tax incentives for mortgage borrowing. Although favourable economic conditions are starting to create demand for higher LTV mortgages in several countries (e.g. Spain, Italy) these remain very rare. The United Kingdom is the only other market where such loans are readily available, which enables lenders to serve a more risky market segment.

Table A.1.7: Availability of mortgage products

	Maximum (average) LTV (%)	Interest only	Equity release
Austria	(70-80)		
Belgium	125 (75)	●	x
Czech Republic	70 (48)		○
Denmark	80 (80)	○	●
Estonia	(80)		
Finland	(60-70)	x	●
France	80	●	○
Germany	60[1] (70)	●	●
Greece	(60)		●
Hungary	70	○	○
Ireland	95 (60-70)	●	○
Italy	80 (50-60)	●	x
Latvia	(75-80)		
Lithuania	(75-95)	○	x
Luxembourg	75		x
Malta	(90)		
Netherlands	125 (80-110)	●	●
Poland	(60-80)		
Portugal	100 (70-80)	●	○
Slovakia	(70-90)	x	x
Slovenia	(60-70)	●	●
Spain	80 (65)	●	○
Sweden	(70-80)	●	●
UK	130 (70-80)	●	●

● = *widely available*
○ = *limited availability*
x = not available
Notes: [1] 60% on loans that are backed by mortgage Pfandbrief. Data were missing in cases where cells are empty.

Sources: LE Survey of Mortgage Associations (2005), ECB (2003), Mercer Oliver Wyman & MITA (2005), RICS (2004 and Merrill Lynch (2003). Data are missing for Cyprus.

A1.5.3 Mortgages for nonconforming borrowers

The non-conforming sector could be an important source for future growth in mortgage lending. The extent of development of this sector is described in Table A.1.8, which shows the access to mortgage loans by six broad categories of non-conforming borrowers: those who are older, have low equity, have

previously been bankrupt, have self-certified income, are credit impaired, or are self-employed.

The development of the market for mortgage loans to nonconforming borrowers differs greatly across EU countries. For this reason, observers have identified this sector as having the most potential for loan growth.[126] As Table A.1.8 shows, the UK is so far unique in providing a comprehensive service for the non-conforming segment. This sector is more restricted in other countries, with lending practices being the most restrictive in the New Member States.

In general, some types of non-conforming borrowers are better served than others. As Table A.1.8 shows, self-employed individuals normally have access to high-street providers without difficulty. In contrast, credit-impaired and previously bankrupt borrowers face difficulties in most markets. The strict lending criteria of French, German and Dutch lenders preclude lending to credit impaired borrowers completely. Previously bankrupt borrowers are currently not served in the Hungarian and Portuguese market. The picture is mixed for borrowers with low equity, older borrowers and those with self-certified income. These groups are adequately served by mortgage markets in Finland, Sweden and the UK, and to varying degrees in other countries.

[126] Mercer Oliver Wyman & MITA (2005)..

Table A.1.8: Product availability for non-conforming borrowers By borrower type

	Aged 50+	Low equity (LTV>90%)	Previously bankrupt	Self-certified income	Credit impaired	Self-employed
Austria	●/○	●/○	○/x	○	○/x	○
Belgium	●	●	○	●	○	○
Czech Rep.	●	●	○	x	○	●
Denmark	●	●	x	●	●	●
Estonia	●	○	○	●	○	●
Finland	●	●	○	●	○	●
France	●	●	○	●	x	●
Germany	●	●	○	○	x	●
Greece	●	○	x	○	x	●
Hungary	○	○	x	●	●	●
Ireland	●	●	○	○	○	●
Italy	●	○	○	○	○	●
Latvia	○	○	○	●	○	●
Lithuania	●	●	○	○	○	●
Luxembourg	○	○	○	●	○	●
Malta	●	●	○	●	○	●
Netherlands	●	●	○	●	○	●
Poland	●	●	●	x	x	○
Portugal	●	●	x	○	○	●
Slovakia	○	●	○	○	x	●
Slovenia	●	○	x	○	○	○
Spain	●	●	○	○	○	●
Sweden	●	●	○	●	○	●
UK	●	●	○	●	●	●

● = good availability
○ = limited availability
x = not available
Source: LE Survey, for NL, PL: Mercer Oliver Wyman & MITA (2005). Data are missing for Cyprus.

A1.5.4 Mortgage equity release

As section 2.1.5 explains, we define mortgage equity release to be the difference between the aggregate flow of new borrowing and the aggregate flow of new housing construction.

Mechanisms for mortgage equity release

Mortgage equity release can occur via several mechanisms, including:

- Last-time sales: the homeowner does not buy a new property after the sale. Sales that occur due to the death of the previous owner are examples of last-time sales.
- Trading down: the owner moves to a cheaper home but reduces his mortgage by less than the price difference between his old and new homes.
- Over-mortgaging: the owner moves to a more expensive property but increases his mortgage by more than the price difference between his old and new homes.
- Remortgaging: a homeowner repays his original mortgage with a new, larger mortgage, takes a further advance on an existing mortgage, or uses a draw-down facility on a flexible mortgage.
- Equity release schemes: a homeowner takes out a mortgage that does not demand regular repayments of principal. This is typically done by older homeowners to finance their retirement, or for tax reasons.

These mechanisms differ both in the amount of mortgage equity they typically release and their frequency of use. Whereas last-time sales and trading down make up the greatest part of MER in terms of volume, remortgaging occurs more frequently than either. Equity release schemes are a relatively recent development, and are expected to gain popularity fast.

The extent of mortgage equity release in the EU

The amount of mortgage equity released differs widely across countries. OECD data on MER as a share of disposable income show that since 1995 mortgage equity release has been significant in the UK, Denmark and the Netherlands, and to a lesser extent in Sweden (Figure A.6). Indeed, in recent years a considerable share of new mortgage lending in the UK has been intended to release housing equity.[127] Mortgage equity withdrawal seems not to have existed in France until recently, and is unusual in Germany.[128]

Factors explaining extent of mortgage equity release

Factors that could explain the disparity of rates of mortgage equity release across countries include the existence of appropriate mortgage products, transaction costs associated with house purchases, and trends in house prices.

Since mortgage equity release often involves the repayment of an existing mortgage, it is discouraged by high penalties for mortgage prepayment. For example, high prepayment penalties appear to restrict the degree of mortgage prepayment and thus of equity release in Germany (Merrill Lynch 2003).

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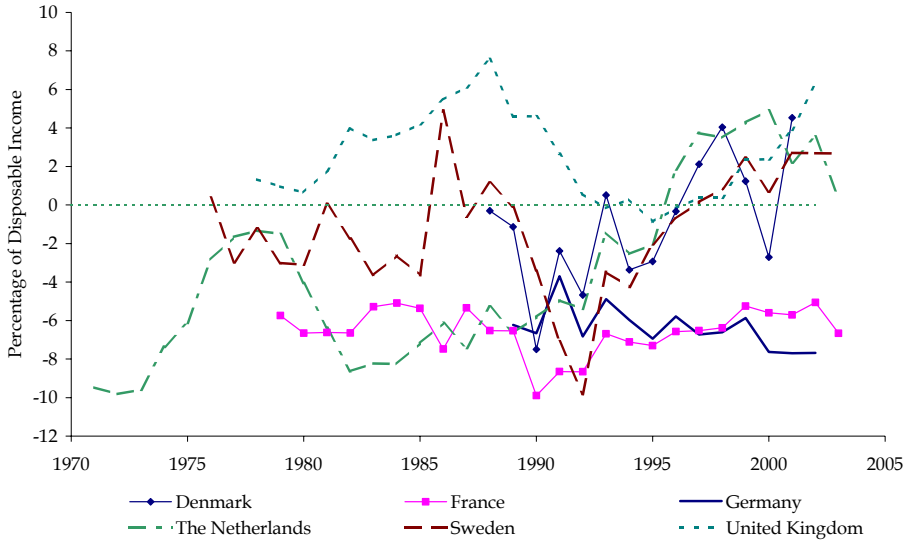
[127] Statistics from the UK Council of Mortgage Lenders show that in 2003 £57 billion pounds worth of housing equity were withdrawn, representing some 20% of gross lending.

[128] Mercer Oliver Wyman (2003).

High transaction costs in house sales are likely to reduce the rate of house sales and thus the opportunities for mortgage equity release. Transaction costs can approach 15-20% of the property's sale price in France and Belgium. As a result, the share of the total housing stock sold annually is often low in those countries (only 2% in France compared to 6% in the UK).

Movements in house prices are also likely to affect homeowners' desire to release housing equity. Where house prices have risen strongly, as in the UK in the 1990s, households are more likely to want to release housing equity. By contrast, the recent flat or declining trend of house prices in Germany may have depressed demand for mortgage equity release schemes.[129]

Figure A.6: Mortgage equity release, selected EU countries



Source: OECD.

A1.5.5 Prepayment of mortgages

The option to repay outstanding mortgage debt before the agreed maturity of the mortgage is a crucial driver of competition in the mortgage market. Prepayment is common but generally restricted in the case of long-term fixed rate mortgages. Lenders use such restrictions to protect themselves against interest rate risk.

There are no outright prohibitions of early repayment and in many countries a right to settle early any outstanding mortgage debt is recognised by law. Some countries (notably Germany) give lenders the right to rule out by

[129] House prices in Germany fell by 3.9% between 1995 and 2003 (Société Générale de France, 2004).

contract any prepayments for a specified period. Usually, however, lenders charge fees in compensation for foregone interest payments.

Prepayment penalties vary from country to country and from one lender to the next. Denmark, Greece, Italy, Luxembourg, the Netherlands, Sweden and the UK do not restrict lenders' rights to levy fees for early repayments, but many other countries do (see Table A.1.9). In addition, industry codes of conduct and other forms of self-regulation may be in place even where direct regulation is absent.

A1.5.6 Other aspects of product availability

Variations on the two basic forms of mortgage contracts (variable and fixed) exist in all European markets. Although some countries place restrictions on certain products (see section A1.6.1), product variety can thus be very great indeed: at the upper end of the scale there are more than 4000 different types of mortgage available in the United Kingdom.[130] Products can also become very complex. They differ in the way in which interest rates are calculated, the frequency of rate adjustments, and their repayment schedules, and can include options like caps on interest rates, and the linking of repayments and stock market performance.

Of all the types of mortgage available in European markets two deserve special mention: The first type, mortgages for investment properties (buy-to-let) have been identified with great growth potential. Buy-to-let mortgages are still generally rare. While some lenders will offer them in most European countries, their use remains very limited. However, they are more widely available in some markets, notably the UK, but also France and Germany.

The second type is the mortgage loan tied to a savings plan. Providers offer contracts that grant housing loans at favourable rates only after prospective borrowers have saved for a certain number of years with the same provider. The system is widespread in Austria and Germany (*Bausparkassen*) and France (*plan d'épargne-logement*), and recently in Eastern Europe, but has been losing market share as declining market interest rates have reduced its attractiveness, which was often due to due to tax incentives in the first place.

A1.5.7 An index of product availability

This section explains the construction of the product availability index introduced in section 4.4 and used in section 8.3 for projecting the effect of easing credit restrictions, following integration, on mortgage debt as a share of GDP.

We constructed country specific indexes of product availability by using the results of our survey of national mortgage markets. This survey asked national mortgage lender associations to categorise the mortgage accessibility

[130] Merrill Lynch (2003).

by borrower type and the availability of certain specialised mortgages. The types of borrowers and products we referred to were:

- Young households (under 30)
- Older households (over 30)
- Low-equity borrowers (LTV> 90%)
- Self certified income borrowers
- Previously bankrupt borrowers
- Credit impaired borrowers
- Self employed borrowers
- Second mortgage
- 'Buy-to-let' mortgages

We asked the respondents to categorise access and availability into 'Readily available', 'Limited availability' or 'No availability'.

We constructed country indexes with an upper limit of 1, which corresponds to the UK. We assigned 10 points to answers reading 'Readily available', 5 points to 'Limited availability' and zero points for 'No availability'. We constructed index scores by summing the points we had assigned to each entry in the reply, and dividing this total by the score given for the UK. This gave us an index that varied between 0.59 (Slovenia) and 1 (UK), as Table 4.2 shows.

A1.6 Regulatory environment

Domestic regulation of mortgage lending may affect the cost of doing business in each country and the amount of mortgage debt outstanding. Thus, domestic regulation may prevent a barrier to the emergence of mortgage markets with similar characteristics in each Member State. Differences in regulatory environments may also present an obstacle to cross-border trade in mortgages because lenders in one country will tend to be unfamiliar with other countries' regulations.

This section describes the regulatory environment of EU mortgage markets along four dimensions:

- The types of mortgage products permitted,
- The tax and subsidy treatment of mortgage loans,
- The extent of lender rights to information and to repossess property, and
- Consumer rights.

We also note the likely effect of the various regulations on mortgage prices and mortgage loans outstanding.

A1.6.1 Characteristics of mortgage products

Four types of mortgage product restrictions are of particular importance: restrictions on loan-to-value ratios, maximum interest rates, variable-rate mortgages, and fees for early prepayment of loans. Table A.1.9 summarises three types of restrictions across the EU.

Some countries limit mortgages' maximum loan-to-value (LTV) ratio. Column 2 of Table A.1.7 summarises these restrictions. Typically, such regulations apply only to the part of the loan that is backed by mortgage bonds (see section A1.5.2). However, a few countries, like Latvia, place universal restrictions on LTV ratios. Usually, the maximum permitted LTV is in the region of 60-80%.

Usury legislation to protect borrowers from exploitation exists in some countries. By limiting maximum interest rates, however, such legislation may also prevent lenders from making loans to high-risk borrowers. Column 2 of Table A.1.9 summarises such usury laws.

Some countries also restrict the discretion of lenders to change interest rates over the life of the contract by requiring compulsory indexation of adjustable rate products. These restrictions are described in column 3 of Table A.1.9.

Borrowers' right to repay a loan before its maturity is universally recognised. Many countries also restrict the extent to which lenders' can recoup eventual losses from early repayment by levying charges. As column 4 of Table A.1.9 shows, these restrictions can take many different forms. Usually, repayment penalties are limited to a level that compensates for any differential between the loan rate and the market interest rate, to some multiple of the interest due on the remaining principal, or to some fixed proportion of the loan. Some countries (notably Germany) allow lenders to exclude the possibility of repayment by contract for some initial period.

Table A.1.9: Restrictions on product characteristics

	Usury legislation	Compulsory indexation of variable-rate loans	Early repayment fees
Austria	Statute[5]		
Belgium	Statute	Yes	Time restriction (3 months interest)
Czech Republic			
Denmark	No	Yes	Yes[12]
Estonia	No		Time restriction (9 months interest)?
Finland	No	No	Interest rate differential
France	Statute[6]		Percentage restriction (3%)/Time restriction (3 months interest)
Germany	Case law[7]		Exclusion period + Interest rate differential[13]
Greece			
Hungary	Case law	No	Yes
Ireland	No		Yes
Italy	Statute[8]	Bond rate; only 1 adjustment per year	Percentage restriction (5%)[14]
Latvia			
Lithuania	No	No	Yes
Netherlands	No		No fee for repayment up to 10%
Poland			
Portugal	Statute[9]	Bond rate	No
Slovakia	No	No	Yes
Slovenia	Statute	Yes	Yes
Spain	Statute[10]	Multiple indices	Percentage restriction (4%)[15]
Sweden	Statute[11]		Must be agreed beforehand
United Kingdom	Case law	No	No

Notes: 1) 100% if unsecured; 2) Limit not statutory; 3) 100% if unsecured; 4) 2001 Amendment to 1998 Law on Mortgage Bonds; 5) Usury Act: interest must not exceed an average rate; 6) France: Article L. 313-3, Code de la Consommation (French Consumer Code): "(a) conventional loan constitutes a usurious loan when it is granted at a rate that exceeds, at the time it is granted, at least one-third of the average effective rate applied during the prior quarter of the year by credit institutions for loans of the same nature with identical risks, as defined by the relevant administrative authority after consulting the National Credit Council."; 7) Art. 138 BGB: Loan contracts can be ruled null and void if they are found to be immoral. A rate of interest of more than double the market rate is seen as indicative. Courts refer to the average interest rate published by the national bank. (2000); 8) Law No. 108/1996: prohibits interest rates that exceed the average market APRC of the previous 3 months by 50%. Usury is subject to penal and civil sanctions; 9) Usury unlawful by civil code: interest rate must not exceed the 'legal rate' by more than 3% or 5%, depending on whether a security exists; 10) Law of 1905: stipulates 'the nullity' of rates 'markedly higher than normal' or disproportionate to the circumstances; 11) § 31, Law on Contracts; 12) 6 months' notice if cash. Bonds must be redeemed at market price; 13) 10 years exclusion permitted; present value of difference between loan rate and current *Pfandbrief* rate; 14) ~5% by industry consensus; 15) 4%.

Sources: ECB, The Urban Institute, Merrill Lynch (2003), Mercer Oliver Wyman (2003 and 2004), OECD (2004), RICS (2004).

Effects of product restrictions

Restrictions on the characteristics of mortgage products are likely to reduce the amount of mortgage debt outstanding. This is because such restrictions prevent lenders from making large or otherwise risky loans that some borrowers would like to contract. Some usury laws, however, may serve the useful function of protecting borrowers against mistreatment by lenders who use high-pressure sales techniques or hide charges in small print.

A1.6.2 Taxation and subsidies

Mortgage borrowing attracts a wide range of subsidies and tax breaks in most EU countries. Since subsidies and tax breaks reduce the cost of borrowing, they are likely to increase mortgage market activity, and thus house prices and housing construction.

Many EU countries offer considerable tax deductions for mortgage interest payments.[131] The extreme case is the Netherlands, which offers tax deductions of up to 100% against marginal tax rates. This helps explain the large amount of mortgage debt outstanding in the Netherlands (see section 4.4).

Direct subsidies are less widespread, and are usually reserved for low-income households.[132] Subsidies are made both towards mortgage interest payments[133] and towards the price of the property.[134]

A1.6.3 Lender rights

All else equal, stronger lender rights will encourage lenders to make mortgage loans. To some extent, however, stronger lender rights to repossess will reduce consumer demand for loans, making the total effect on mortgage market activity ambiguous. In general, however, we expect that an extensive market in mortgage loans can only exist when lender's rights to repossess the housing collateral in the event of default are strong and clearly defined.

We analyse lender rights along six key dimensions:

- the characteristics of credit bureaux,
- the regime for collateral registration,
- the regime for charges against real estate,

[131] For example Belgium, Germany, Ireland, Italy, the Netherlands, Sweden, Portugal and Spain.

[132] A wider range of subsidies exists in France: Besides subsidised loans to low income households there are loans with 0% interest targeted at first-time buyers, as well as special loans for civil servants.

[133] This kind of mortgage is available to low-income households in Italy.

[134] For example the Right-to-Buy scheme in the UK; it allows social housing tenants to buy their home at a subsidised price.

- o the presence of valuation standards,
- o the nature of the repossession process, and
- o the time it takes to repossess property.

Table A.1.10 and the rest of this section discuss these features of lender rights across the EU.

The type of information credit bureaux contain helps lenders to assess borrowers' creditworthiness. As column 2 of Table A.1.10 shows some countries allow only the collection of negative credit information.

Different regimes concerning provision of credit information can represent a barrier to entry, as lenders have to adapt their risk assessment to the condition in the host country. Moreover, some credit bureaux operate on the basis that institutions can have access only to the type of data they themselves provide. Since some countries do not permit lenders to store positive information this places lenders from those countries at a serious disadvantage in countries where positive and negative data are collected. This could be a major impediment to cross-border mortgage lending in Europe.

Centralised registration of collateral tends to reduce lenders' cost of valuing property. About half of the countries in Table A.1.10 have centralised register, as column 3 shows.

Obligations on borrowers to register all charges against real estate in a public register are likely to reduce lenders' risk from defaults. Again, about half of the countries in Table A.1.10 comply with this feature as column 4 shows.

Regulatory valuation standards may increase lenders' costs. If, for example, a lender uses different criteria than those set in the regulations, the valuation process may have to be repeated, for example in the case of a legal dispute. As column 5 of Table A.1.10 shows, valuation standards are regulated in quite a few countries, however, it may also bee the case that some countries have coherent trade standards that are not formally part of regulation.

The strength of lenders' rights to repossess is a function of whether the mortgage deed is executory by nature or must be made enforceable through a judicial decision. Since the judicial system is usually expensive and time-consuming, lender rights are stronger in countries in which the mortgage deed is executory. Column 6 of Table A.1.10 lists the ten countries where the mortgage deed is executory and eight that require a judicial decision.

We also have some data on the time it takes for a lender to accrue the proceeds from the sale of a house that has been authorised for repossession. The length of this process captures the extent to which repossession can be tied up in court and other complex administrative procedures. Among the EU15 this process can take as little as a few months in some countries[135], and up to seven years in Italy.[136]

[135] The usual duration of process from the writ of execution to the distribution of the proceeds of the sale

Table A.1.10: Lender rights

	Credit bureau	Centralised collateral registration	Obligation to register charges against real estate	Regulation of valuation standards	Repossession through a judicial decision
Austria	Private; positive and negative info[2]	Yes	Yes		Yes
Belgium	Public and private; negative info[1, 2]	No	No	No	No
Czech Republic		Yes		No	
Denmark	Private; negative info	No	Yes	Yes[4]	Yes
Estonia		No			
Finland	Private; negative info		Yes	No	Yes
France	Public; negative info	No	No	No	No
Germany	Public and private; positive and negative info[2]	No	Yes	Yes[5]	No
Greece		No	Yes		No
Hungary	Private; negative info	Yes	Yes	No	Yes
Ireland	Private; positive and negative info	Yes	Yes	No	Yes
Italy	Private; positive and negative info[2, 3]	No	Yes	No	No
Latvia		No	No		
Lithuania	Private; positive and negative info	No	No	No	No
Netherlands	Private; positive and negative info[2]	Yes	Yes	Yes	No
Poland		No	Yes[7]	Yes	
Portugal	Public and private; positive and negative info[1, 3]	No	No	Yes	No
Slovakia	Public; positive and negative info	Yes	Yes	Yes	No
Slovenia	No	Yes	Yes	Yes	Yes
Spain	Public and private; positive and negative info[3]	No	No	Yes	No
Sweden	Private; positive and negative info	Yes	No		Yes
UK	Private; positive and negative info[3]	Yes	Yes	Yes[6]	Yes

Notes: Empty cells reflect that data were unavailable. 1) Registration in the public registry is mandatory; 2) bilateral agreements exist between registries in these countries; 3) multinational registries are active in these countries; 4) Mortgage Credit Act; 5) Article 12, Mortgage Bank Act; 6) Regulated by the Royal Institute of Chartered Surveyors, 7) obligation extends to some but not all charges against real estate.

Sources: LE survey, Merrill Lynch (2003), ECRI, EMF, FAO, RICS (2004), and Mercer Oliver Wyman (2003).

takes up to 6 months in Denmark, Greece, the Netherlands, Austria, Finland and Sweden.

[136] EMF (2003d).

A1.6.4 Consumer rights

The effect of stronger consumer rights on mortgage market activity is, in principle, ambiguous. Stronger consumer rights increase borrowers' confidence in mortgages and their demand for loans, but also impose costs on lenders that will tend to increase mortgage prices. Nevertheless, we would expect mortgage market activity to collapse without a minimum level of well-defined consumer rights.

Particular aspects of consumer protection such as consumer contract terms are subject in every Member State to national rules. The EU's Code of Conduct on Home Loans (see footnote 6), remains a voluntary document, and thus its effectiveness depends on lenders' decision of whether to subscribe to it. This Code of Conduct recommends that lenders provide borrowers with a European Standardised Information Sheet or ESIS.

A mystery shopper exercise conducted by the Institute for Financial Services for EC DG Health and Consumer Protection in 2003, showed that the share of cases where ESIS information was given varied between EU15 countries. In fact, in most countries less than 60% of lenders contacted provided the ESIS information. Only in Finland, Ireland, Portugal and the Netherlands did almost all lenders contacted provide the ESIS information.

Many EU countries give borrowers a 'right of reflection' as seen in column 2 of Table A.1.11. In practice it allows borrowers to unilaterally terminate a signed contract within a specified period of time.

Some countries also protect consumers from the risk of default by having in place provisions for avoiding over-indebtedness. This protection is summarised in column 3 of Table A.1.11. The obligation on lenders in Belgium and the Netherlands to consult databases on borrowers' credit situation before granting a loan can be seen as a special case of this kind of protection.

A1.6.5 Summary

While the extent of regulation differs across countries, European mortgage markets are quite heavily regulated. National regulations affect many aspects of mortgage lending, from the retail end to the secondary market, and extend into much wider legal contexts, including property and bond legislation.

Table A.1.11: Consumer rights

	Right of reflection/withdrawal	Provisions for avoiding over-indebtedness
Austria	No[1]	
Belgium	Yes	Yes
Denmark	Offers valid for 6 months	
Finland	Yes	Yes
France	10 days 'cooling-off'; offers valid for 30 days	Yes
Germany	Yes[1]	Yes
Greece	No[1]	
Hungary	No	No
Ireland	Yes[1]	No
Italy	No[1]	No
Lithuania	Yes	Yes
Netherlands	Yes[1]	Yes
Portugal	Offers valid for 5 days	No
Slovakia	Yes	Yes
Slovenia	Yes	No
Spain	Offers valid for 10 days	No
Sweden	No[1]	
UK	No	Yes

Notes: Empty cells imply data were not available. [1]Right of reflection may exist for distance selling contracts.

Sources: Merrill Lynch (2003), Mercer Oliver Wyman (2003), ECRI, ECB, EC (2004a).

Of particular significance are restrictions on the development of new products and on the introduction of products from one national market into another (see section 6).[137] Such restrictions are highly idiosyncratic, and contribute to the differing degrees of completeness of mortgage markets across the EU.

Regulations introduced to protect consumers, holders of mortgage bonds and MBS, or lending institutions themselves may impede integration, as well as the opening of the mortgage market to new classes of consumers.[138]

[137] A striking example is the lack of mutual recognition of core products: for example the German fixed-rate mortgage with an initial prohibition of early repayment is illegal in France, as a result of consumer protection legislation (see the discussion in Section 6).

[138] For example mandatory LTV restrictions: modern risk management strategies have rendered them largely obsolete. A genuine risk-based standard would benefit borrowers as well as lenders.

Mortgage borrowing is subsidised in many countries, either explicitly or implicitly through the tax system. While such subsidies decrease the price of borrowing, their total effect on consumer welfare is uncertain, given that they distort households' consumption choices between housing and other goods.[139]

Finally, the large differences in the support structure for mortgage lending impede the development of an integrated EU mortgage market, to the detriment of both borrowers and lenders. There are differences in the regulation of registration and valuation of collateral, as well as in judicial and extra-judicial mechanisms for dispute resolution and foreclosure.

Taken together, the current European regulatory environment varies greatly across countries. Reform in the areas listed above would help to achieve a higher degree of integration.

[139] It should also be remembered that in some countries borrower subsidisation has a counterpart on the lender side. National regulatory policy in favour of domestic providers is often cited as a major obstacle to integration in the banking sector, and state bailouts for 'national champions' are not unknown.

Annex 2. EU housing markets

Since mortgages are typically instruments for the purchase of houses, the main way we expect mortgage market integration to benefit EU residents is through an increase in the supply of housing. Thus, it is important to relate this projection to the current characteristics of EU housing markets.

This section gives an overview of some key characteristics of EU housing markets. It then considers trends in house prices in the EU and future trends in demographics that may affect the demand for housing.

A2.1 Overview of housing characteristics

Table A.2.12 shows the latest available data, which date from 2001-3, on owner-occupier rates, the number of people per household and the number of rooms per person across the EU. The latter two variables give a sense of the size of national housing stocks.

Among owner-occupation rates (column 2 of Table A.2.12), a clear difference emerges between Mediterranean countries and Eastern Europe relative to the remaining EU Member States. In most of the Southern and Eastern-European countries owner-occupier rates tend to exceed 75%, whereas they are typically between 50-60% in the rest of Europe, and as low as 38% in Sweden.

Three factors that help explain the high rates of owner-occupation in Southern and Eastern-European countries are the history of transition from Communism, rent controls, and family structure.

Some of the New Member States underwent a large change in tenure patterns during the transition from Communism. Under Communism, the national government and local governments owned a majority of the urban housing stock, and rented it out. During the 1990s, most of this stock was sold at a low price to tenants.

In some New Member States and Mediterranean countries rent control has limited private sector construction of rental housing.[140]

Family structure would affect the rate of owner occupation if young people tended to live in the parental home rather than renting accommodation elsewhere. There is anecdotal evidence that family members live together in family owned dwellings for a greater portion of their lives in Southern and Eastern-European countries than in the rest of the EU. Similarly, it appears that elderly relatives are more likely to live with their adult children in these countries than elsewhere. Such practices would be consistent with the observation that the numbers of people per household (shown in column 3 of

[140] Norries and Shiels (2004).

Table A.2.12) is higher in Southern and Eastern-European countries than elsewhere in Europe.

The bigger households in southern Europe tend to have more cramped living conditions, as seen in column 4 of Table A.2.12. Even though we lack comparable data, we expect this to be the case among New Member States as well. The weakness of mortgage markets in these countries could contribute to this smaller supply of housing per person in these countries, though lower per-capita GDP is also likely to play a role in the cross-country differences.

A comparison of the data on rooms per person (column 4 of Table A.2.12) and our mortgage product availability index (Table 4.2) finds some correlation between the two variables. Our index of mortgage product availability was constructed using our own survey of national mortgage markets in 2005. We find that Greece, Italy, Portugal and Spain, that have the least rooms per person on average, all rank relatively low across EU countries in terms of mortgage product availability. Thus, it is plausible that a low availability of mortgage products has contributed to a low rate of housing consumption in these countries.

A2.2 Growth in real house prices

Data on housing prices give some sense of trends in the shortage of housing relative to demand. However, given the range of factors that can affect house prices, it is difficult to infer the adequacy of supply from trends in prices alone.

Available data on house prices permit us to analyse trends over two recent periods: from 1996 and 2003 and from 2003 to 2005.

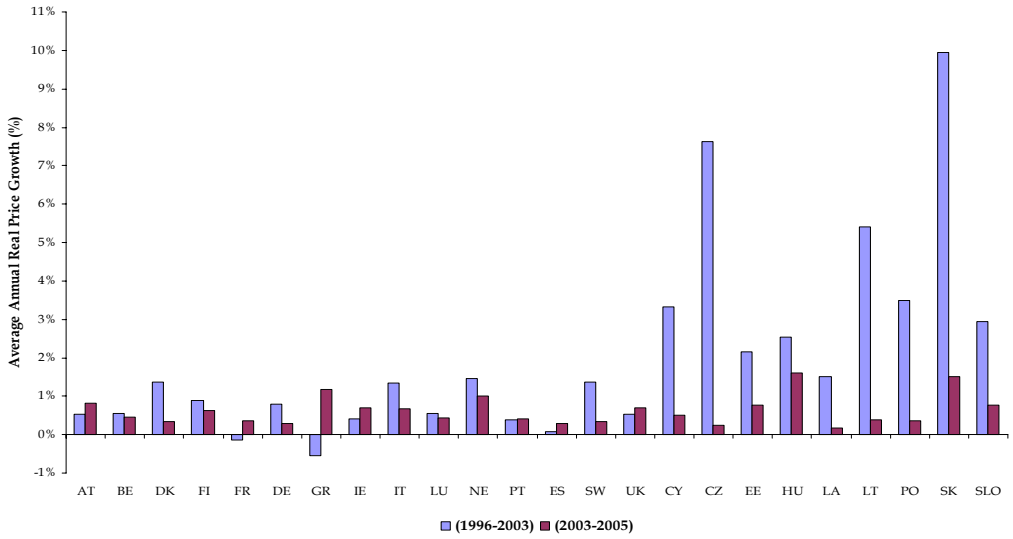
Between 1996 and 2003, real house prices grew strongly in most Member States, and particularly among the New Member States. By contrast, real house prices appear to have decreased slightly in France and Greece. Figure A.7 shows data on recent trends in real house prices across the EU. Apart from France and Greece, the average annual growth rate varied between 0.1% (Spain) and 1.4% (the Netherlands) among the old Member States and between 1.5% (Latvia) and 9.9% (Slovakia) in the New Member States.

Table A.2.12: Housing characteristics in Europe

	Owner-occupier rate (% of total stock)	People per household	Rooms per person, owned housing
Austria	56.9	2.4	2.1
Belgium	68	2.5	2.1
Denmark	50.6	2.2	2.1
Finland	58	2.2	1.8
France	56	2.4	2.1
Germany	43	2.1	2.1
Greece	80.1	2.6	1.4
Ireland	77.4	3	2.2
Italy	80	2.6	1.6
Luxembourg	70	2.5	2.4
Netherlands	54.2	2.3	2.6
Portugal	75.7	2.8	1.6
Spain	81	2.9	1.8
Sweden	38		2.2
United Kingdom	69	2.3	2.4
Cyprus	64.3	3	
Czech Republic	47	2.5	
Estonia	85	2.6	
Hungary	86.9	2.6	
Latvia	60.1	2.8	
Lithuania	87.2	2.9	
Malta	74.1	3	
Poland	55.2	3.1	
Slovakia	75.9	3.1	
Slovenia	82.2	2.6	
Mean EU15	63.9	2.4	2
Mean EU25	67	2.4	

Notes: Rooms per person: owned housing in 2001, People per household: 2003, Owner occupier rate: 2001-2003, mid-90s in some instances. Empty cells imply data were not available.
Sources: Norries and Shiels (2004), Eurostat

Figure A.7: Growth of real house prices 1996-2003 and 2003-2005



Note: Nominal house price indices deflated by consumer price indices

Sources: Eurostat, National Banks, Statistics Bureaux and Bloomberg.

Between 2003 and 2005, all EU countries had positive real house price growth, and the average annual growth rates among New Member States was more similar to the levels among old members (Figure A.7). Thus, between 2003 and 2005 real house price growth slowed in all New Member States relative to the 1996-2003 period. The EU15 countries have seen a mixed picture of price increases speeding up in some countries and slowing down in others.

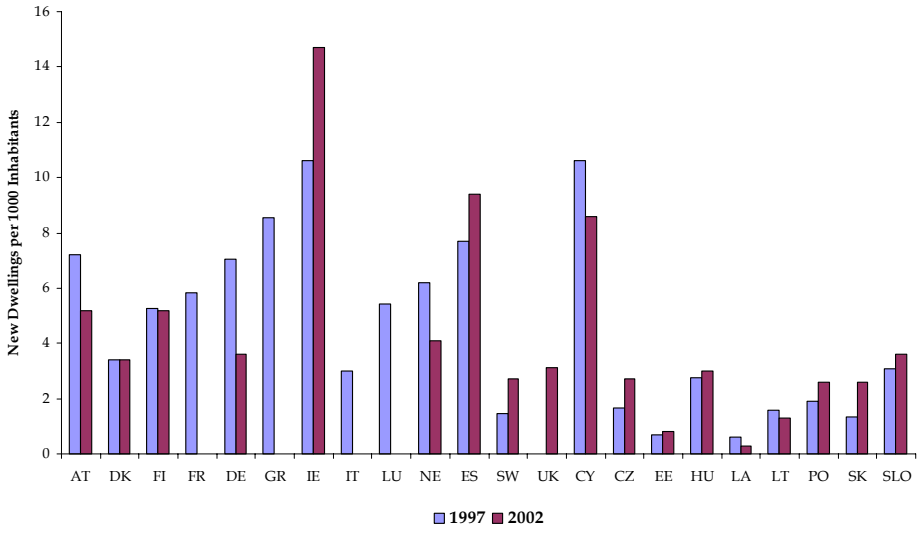
A2.3 Housing construction

A theme of this report is that a strong increase in mortgage debt would induce a strong increase in the supply of housing. Data on past trends in housing suggest large expansions of mortgage debt and expansions in the housing supply are often, though not always, associated with each other.

Data on new dwelling construction per 1000 inhabitants across EU countries in 1997 and 2002 are shown in (Figure A.8). In both these years, new dwelling construction per capita was generally considerably higher among the old Member States. Exceptions were Sweden and the UK, where construction was at similar levels to those observed in the New Member States. Particularly heavy housing construction took place in Spain and Ireland. This is consistent with a linkage from mortgage debt to housing

construction, since growth in mortgage debt has been particularly strong in Spain (see Figure 5.8) and Ireland in recent years. However, the amount of mortgage debt outstanding as a share of GDP has also increased strongly in the Netherlands and Portugal in recent years (see Figure 5.9). In these countries, Figure A.8 suggests increasing mortgage debt has had less effect on housing construction.

Figure A.8: New dwellings per 1000 inhabitants 1997 and 2002



Note: Missing bars indicate data were missing for that year. Where a bar for 2002 is missing it means that we were missing data for this year.
Data were missing for Belgium, Portugal, and Malta for both years
Source: United Nations Economic Commission for Europe, UK Office for National Statistics.

A2.4 Trends in demand for housing and demographics

The European population is declining but the aggregate demand for housing is expected to rise within the foreseeable future.

The EU's population is expected to decrease over the coming decades. Demographic projections show the peak of the population level to occur around 2005, at approximately 452 million, and a subsequent slow decline that will reduce the population of the EU to around 430 million in 2050 in a medium variance scenario. This population decline would tend to decrease demand for housing.

However, a continued decline in the average number of people in each household would tend to increase demand for housing. Projections by UN-

Habitat suggest that Europeans will demand 11.5 million units of new housing during the period 2005-2010, and another 14.5 million units during the remaining years until 2025. These projections are based on an expected trend of decreasing numbers of people per household from an average of 2.75 in 1990 to 2.19 in 2025.[141]

A2.5 Summary

Several points emerge from the preceding discussion of European housing markets. The most important are:

- Higher owner-occupier rates in Eastern Europe seem to be associated with more family members living in a single house owned by some members of that family.
- The consumption of housing per person appears to be lower in the poorer parts of the EU. Plausibly, part of the reason for this is the weaker access to mortgage credit in these countries. Income is likely also to play a role, however.
- House prices have generally increased in recent years throughout the EU, even in real terms.
- Some, though not all countries that have experienced large increases in mortgage debt in recent years have also experienced heavy rates of housing construction.

[141] UN-Habitat (2005).

Annex 3. US mortgage markets: overview and trends

This section summarises the characteristics of US mortgage markets, and describes recent developments in these markets. Our focus is on what the EU can learn from US experience, although we do not assume that the US has an ideal mortgage market. However, US experience suggests that competition in mortgage markets, and their integration both within and across states, can lead to significant reductions in the costs of originating mortgages, and to the development of new mortgage products.

This section is structured as follows:

- Section A3.1 discusses the US primary mortgage market,
- Section A3.2 the secondary mortgage market,
- Section A3.3 describes the products available in US mortgage markets and trends in the types of mortgages sold,
- Section A3.4 describes trends in US mortgage interest rates and fees,
- Section A3.5 discusses the degree to which recent developments in US mortgage markets can be attributed to legislation that encouraged integration, and
- Section A3.6 concludes with some lessons from US experience about the costs and benefits of mortgage market integration in the EU.

A3.1 The primary market

From an EU perspective, two features of US primary markets are particularly interesting.[142] First, US banking markets have recently undergone cross-state integration, with considerable consolidation among financial institutions. Second, the importance of mortgage brokers as a distribution channel is much greater than in the EU. This has helped mortgage lenders expand their geographical reach.

We now describe the trend of cross-state financial market integration and the role legislative changes have played in encouraging integration. We then discuss the role of mortgage brokers in the US.

[142] Apart from commercial banks that typically engage in wider activities, the US primary market is characterised by savings institutions and thrifts, which are lenders that are more specialised in mortgages. There are also a large number of brokers in the US primary market that close as well as service loans on behalf of lenders.

A3.1.1 Banks and thrifts

Regulatory Environment and Financial Market Integration

Historically, state legislation greatly restricted US banks' size. Prior to the 1970s, all US states forbade banks from having branches in more than one state, while some states also forbade banks from having more than one full-service office. In practice, banks exploited legal loopholes to create interstate branch networks to some extent, though the requirements of these loopholes made this costly.[143] In contrast, thrifts operating under a federal charter were generally free to establish branches nationwide.[144]

Changes in the regulations applying to US banks and thrifts have allowed banking markets to integrate considerably over the past 20 years. Restrictions on interstate banking activity were gradually lifted during 1970-1994, and then substantially reduced by the Interstate Banking and Branching Efficiency Act (IBBE) of 1994, also known as the Riegle-Niel Act. This Act established a national framework applying to all banks that defined and allowed interstate banking and branching. Thus, the IBBE encouraged acquisitions and mergers between banks and a growth in branch networks across states.[145]

Trends in Bank Size Since 1994

The growth of US banks and thrifts in terms of their size and geographical spread since the IBBE of 1994 is illustrated in Table A.3.13. It shows that:

- The number of independent banks and savings institutions has declined heavily (rows 1 and 2).
- The number of offices per institution has risen at both banks and savings institutions (rows 3 and 4).
- The number of both banks' and savings institutions' interstate branches has increased dramatically (rows 5 and 6).

[143] For example, a bank holding company could own subsidiary banks in different states and thus attain a geographical spread. However each subsidiary had to be a separate entity with its own capitalisation and governance structure. Moreover the federal authorities forbade consolidation of product lines across states.

[144] Kwan (1998).

[145] Kane (1996).

Table A.3.13: U.S. savings institutions and commercial banks Numbers in independent existence			
	1994	**2004**	**Change 1994-2004, %**
Institutions Savings Institutions	2,146	1,412	-34.2
Commercial Banks	10,429	7,752	-25.7
Offices per Institution Savings Institutions	7	8.9	27.5
Commercial Banks	5.2	8.6	64.3
Interstate Branches Savings Institutions	1,809	2,397	32.5
Commercial Banks	328	19,398	5,814

Sources: Federal Deposit Insurance Corporation, Texas Tech University Finance Department.

A3.1.2 Mortgage brokers

The role and importance of mortgage brokers in the US contrasts with the situation in the EU. Brokers are the single most important distribution channel for mortgage loans in the USA: in 2002, brokers originated 65% of all new home loans. [146] This is not the case in the EU; London Economics' results from surveying national mortgage federations in the EU suggest brokers have minority roles in distribution. European brokers mainly act as providers of information and in general do not have the right to close loan contracts.

Broker networks in the US appear to have played an important role in the integration of markets across states. Brokers provide lenders with a national presence at fairly little cost in terms of either advertising or the maintenance of branch offices.

Activities in the Primary Market

Mortgage brokers underwrite loans (by analysing borrowers) and originate loans to households. Since the mid-1990s, computer software has greatly reduced the cost and time required to underwrite loans. In particular, brokers can underwrite loans to the standards of the secondary market using software purchased from the Government-Sponsored Enterprises (GSEs) Fannie Mae and Freddie Mac. Brokers may also underwrite loans that do not conform to the GSEs' standards to guidelines dictated by other lenders.[147]

Mortgage brokers charge for their services in one of two ways. Up-front mortgage brokers, on the other hand charge borrowers a fixed fee for finding

[146] Wholesale Access (2003).

[147] Collins (2004)

the most suitable loan on the market. In this case the conditions of the mortgage loan, as defined by the wholesale originator is entirely passed through to the borrower.[148] Other brokers charge borrowers a mortgage interest rate in excess of that demanded by lenders, and keep the difference.[149] The practice of charging borrowers an interest rate in excess of that demanded by the lender has been a matter of concern, on the grounds that it might encourage predatory lending practices.[150]

A3.2 The secondary market

The US has a highly developed national secondary market. This is likely to harmonise the cost of funding for lenders across states, and thus the price and range of products on offer. European secondary markets are typically fragmented nationally, which would be analogous to US secondary markets being fragmented on a state basis.

Government-sponsored enterprises (GSEs) have been crucial to the development of a pan-state US secondary market, which is widely thought to have reduced mortgage interest rates.[151] Some economists argue, however, that the regulation of the US secondary market creates an undesirable government subsidy to mortgage lending.[152]

In order to better understand the development of the US national secondary market, we now describe the GSEs and recent trends in their activities.

A3.2.1 Government-Sponsored Enterprises

The main government enterprises (GSEs) are the Federal National Mortgage Association (FNMA or 'Fannie Mae') and the Federal Home Loan Mortgage Corporation (FHLMC or 'Freddie Mac'). These are private firms with publicly traded shares, although their federal charters confer a unique regulatory position. In contrast, the Government National Mortgage Association (GNMA or 'Ginnie Mae') is explicitly backed by the federal

[148] Guttentag (2004).

[149] Calem and Longhofer (1999).

[150] Mortgage brokers are primarily regulated by Federal laws that require truthfulness in lending, disclosure of fees and charges, the use of credit reports, and which prohibit discrimination. State consumer protection laws also regulate brokers, though these laws differ considerably across states (47 states require a license attained through examination, and 12 require a branch office with a full-time manager). To some extent state-specific requirements limit brokers' ability to operate across state lines, though they may also maintain the industry's skills and ethical standards.

[151] Both GSEs and private firms securitise mortgages by purchasing them from primary lenders and selling mortgage-backed securities (MBS) and corporate bonds to private investors. Private entities, however, typically cannot compete on price with the GSEs. Thus, private securitisers concentrate on the minority of loans that do not conform to the GSEs' requirements. (McCarthy and Peach 2002)

[152] For example, see Scott and Frame (2005).

government, and does not hold MBS contracts on its own balance sheet. Instead, Ginnie Mae insures MBS contracts issued by other government agencies against default.

Since Fannie Mae and Freddie Mac are very large actors in the US secondary markets, we now describe these companies' activities in more detail.

Fannie Mae and Freddie Mac hold two types of risk. First, they hold default risk because they guarantee MBS contracts against default. Fannie and Freddie reduce their exposure to default risk by holding many mortgages and by insuring against default. Second, Fannie and Freddie hold prepayment risk, because they hold MBSs in their own portfolios, which they finance by issues of (noncallable) debt. The GSEs use derivatives to reduce their exposure to interest-rate risk. There has been some concern, however, that the size and complexity of the GSEs' derivative portfolios create the risk of damaging losses.

Fannie and Freddie's federal charters confer several competitive advantages[153], but also restrict their activities.[154] Fannie and Freddie enjoy some tax exemptions, a favourable treatment of the securities they issue, and may be lent money by the state. Their business activity is, however, restricted to mortgage financing and there are clear guidelines as to what types of mortgage loans they can fund.

Perhaps the most important feature of Fannie and Freddie's institutional environment is not written in their charters. Private investors appear to perceive that the US government guarantees payment on both organisations' securities. US government spokesmen typically state that the government it is under no obligation to bail out Fannie or Freddie were they to become bankrupt, but do not deny that the government would do so either (Frame and White, 2005). Empirical studies have estimated that the market perception of a government guarantee allows Fannie and Freddie to borrow at an interest rate 30-40 basis points lower than were they independent firms.

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[153] Fannie and Freddie's federal charters confer several competitive advantages. First, both companies are exempt from state and local income taxes. Second, the US Treasury has the authority to loan them funds by purchasing up to $2.24 billion of their bonds. Third, their securities have the legal status of "government securities", making them eligible for use as collateral for public deposits, for purchase by the Federal Reserve, and for unlimited investment by federally insured depository institutions.

[154] First, Fannie and Freddie's activities are restricted to residential mortgage finance. Second, they are restricted to the secondary market, and thus cannot originate mortgages directly. However, despite this restriction, Fannie and Freddie sell their underwriting software systems to mortgage brokers. Several mortgage banks that have similar systems of their own argue that Fannie and Freddie's sale of these software systems are an undesirable intrusion into the primary mortgage market. Third, they may finance mortgages only up to a maximum size, which is linked to house prices. For 2004, the limit for a single-family home was $333,700. Fourth, the mortgages these firms finance must have at least a 20 percent deposit, or else have mortgage insurance. Fifth, these firms are subject to "mission oversight" by the Department for Housing and Urban Development, which sets targets for how much of their business must benefit low and moderate-income families and other special groups.

A3.2.2 Trends in secondary-market activity

The secondary market has grown rapidly since mortgage securitisation began in 1970.[155] For example, in the early 1970s GSEs acquired only 5% of all mortgage originations, but by the late 1990s, the GSEs acquired 40% of new originations, other federal credit agencies such as the Federal Housing Administration (FHA) acquired a further 15%, and private conduits a further 10%.[156] By 2002, 70% of 1-4 family mortgage originations were traded in the secondary market.[157]

A3.3 Product availability

Two important recent trends in product availability in the US have been the growth of the subprime market and of mortgage refinancing that often involves the release of borrowers' housing equity. These are also market segments that are expected to grow considerably across Europe as markets become more integrated and advanced.

A3.3.1 The subprime market

Subprime lending makes up a significant share of the US mortgage market. Since subprime loans bear higher interest rates than conventional loans, they frequently raise concerns over predatory lending practices. A further concern in the US is that borrowers from ethnic minorities typically face the higher, subprime interest rates.[158] Still, in the US overall, a relatively liberal regulatory environment has allowed subprime mortgage lending to develop.[159]

Trends since 1994

Due in part to these legislative changes, subprime lending has grown rapidly in recent years. Between 1994 and 2003, subprime mortgage originations

[155] GNMA issued the mortgage pass-through security in 1970 and FHLMC began issuing mortgage participation certificates backed by conventional mortgage loans in 1971. Mortgage securitisation is a way of overcoming the inherent illiquidity of whole mortgage loans.

[156] Much of the material in this section is taken from McCarthy and Peach (2002).

[157] Federal National Mortgage Association (2004).

[158] Smith (2004).

[159] Three legislative reforms during the 1980s encouraged the growth of subprime lending. First, the elimination of interest rate ceilings permitted interest rates high enough to make lending to riskier borrowers profitable. Second, the 1986 tax reform allowed borrowers to deduct mortgage interest from tax, effectively subsidising subprime borrowing. Since interest on consumer loans is not tax-deductible, the tax reform also created an incentive for borrowers to substitute mortgage debt for other consumer debt. Third, GSEs were allowed to issue securities against subprime debt, which gave lenders an additional incentive to offer such loans (Laderman 2001).

grew at an annual rate of 25% and subprime originations grew from 4.5% to 8.8% of total mortgage originations.[160]

A3.3.2 Refinancing of mortgage loans

Many new mortgage originations in the US are refinanced mortgages. Borrowers may choose to refinance when interest rates fall, to replace their original fixed-rate mortgage with one bearing a lower interest rate. Borrowers may also use refinancing to change the terms of their original loan in other ways. In particular, in recent years many homeowners have taken out new mortgages with an increased loan value to their outstanding principal, thus releasing (turning into cash) equity from their houses.

Trends Since 1990

Since 2000, the volume of mortgage originations has grown much faster than the volume of total mortgage debt outstanding (Figure A.9). This implies that the share of mortgage originations that were refinancings has grown considerably in recent years.[161] The historically low interest rates in the US after September 11 2001 contributed to this surge of refinancings.

The amounts refinanced and cashed-out have grown considerably since 2000, as Figure A.10 shows. [162] Between 2000 and 2003 refinancings as a share of GDP grew from 2.4% to 23%, while the amount cashed-out relative to GDP grew from 0.27% to 1.3%.

A3.4 Mortgage prices

There have been several important recent trends in US mortgage prices:

- The 30-year mortgage rate has fallen in all states (Figure A.11)
- The 30-year mortgage rate has converged across states (Figure A.11)
- The spread between 30-year mortgage rates and the yield on 10-Year Treasury bonds has remained stable (Figure A.12)
- Fees for mortgage origination have fallen heavily in all states, and have become more similar across states (Figure A.13)

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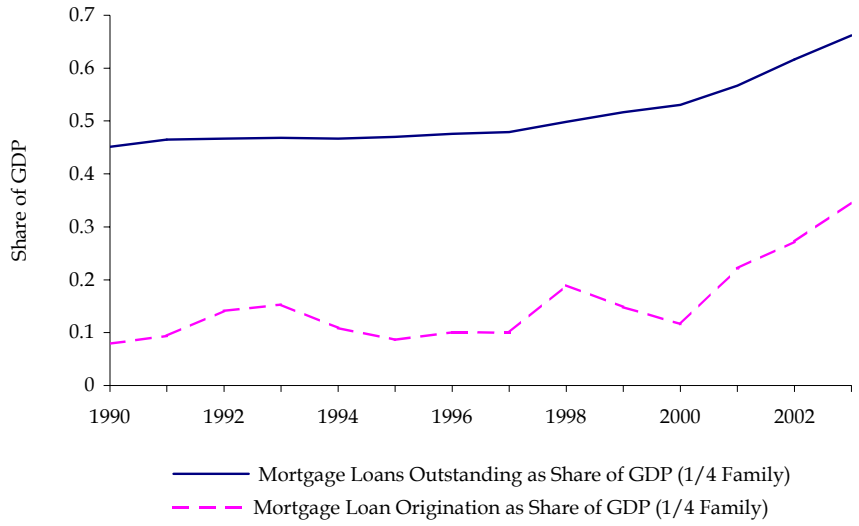
[160] Inside Mortgage Finance (2004).

[161] Between 1990 and 2003, US mortgage originations grew more than 8-fold, from $458 to $3,812 bn, while the amount of outstanding mortgage debt increased by a factor of nearly four, from $2,619 to $7,283 bn.

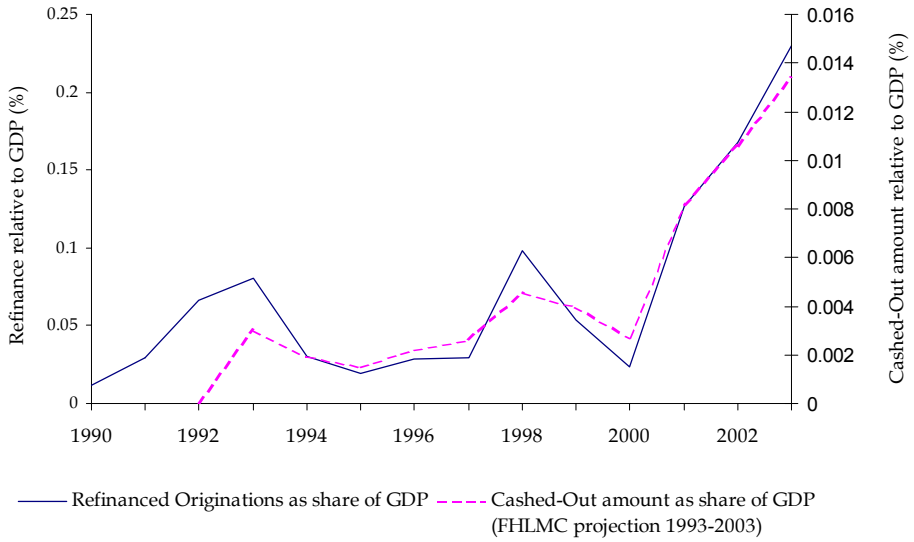
[162] Refinancing in terms of originations grew by a factor of more than 10 between 2000 and 2003, from $234 to $2,532 bn, while the amounts cashed-out increased by a factor greater than 5, from $26 to $147 bn.

Figure A.9: Mortgage debt outstanding and originated, US



Sources: HUD Survey of Mortgage Lending Activity, Mortgage Bankers Association, Federal Housing Finance, and the Bureau of Economic Analysis.

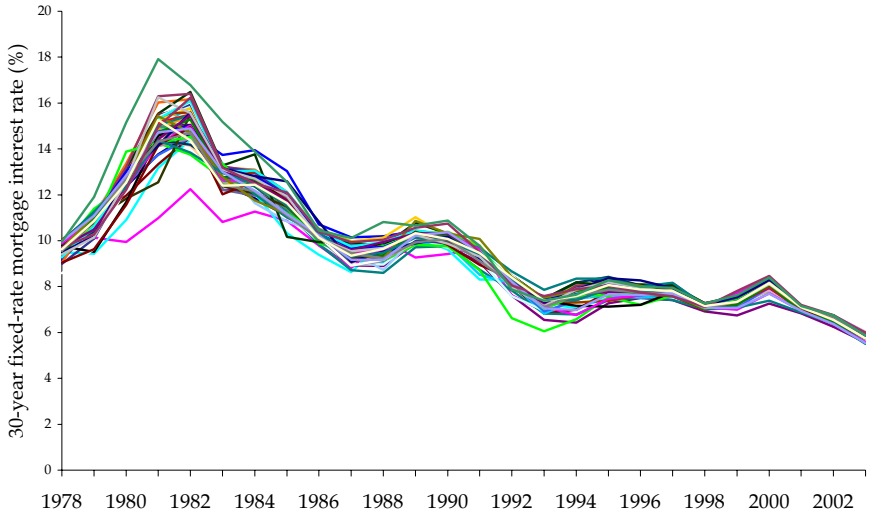
Figure A.10: Mortgage debt refinanced and cashed out, US



Sources: HUD Survey of Mortgage Lending Activity, Mortgage Bankers Association, Federal Housing Finance, the Bureau of Economic Analysis and FHLMC.

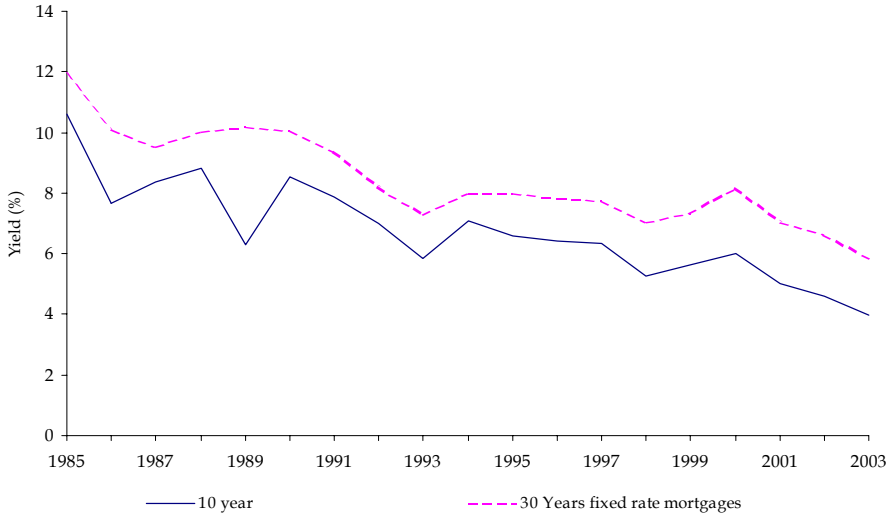
The constancy of the mortgage spread is surprising: one might have expected the development of secondary markets to reduce mortgage spreads. It is possible that an increased propensity for US borrowers to prepay mortgages

Figure A.11: Mortgage interest rates across US states



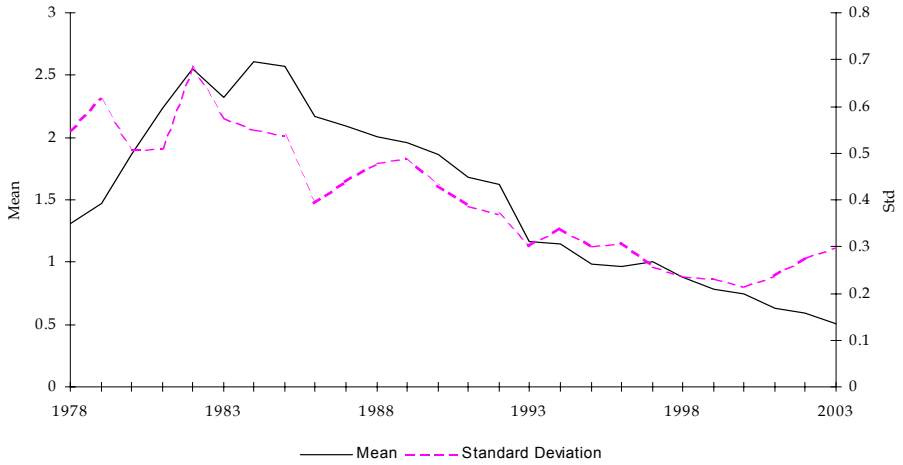
Source: Federal Housing Finance Board.

Figure A.12: Average interest rate on 30-year fixed-rate mortgages vs. yield on 10- year Treasury bond



Sources: Federal Housing Finance Board and Bloomberg Government Bonds Service.

Figure A.13: Mortgage fees as a percentage of loan value
Mean and standard deviation across states



Source: Federal Housing Finance Board

has caused a countervailing increase in mortgage costs that hides an underlying reduction in spreads. However, data on the spread or 'margin' of adjustable-rate mortgages, for which prepayment is less of an issue, also show no downward trend over time (Freddie Mac 2005). Thus, US mortgages have become cheaper mainly through a reduction in origination fees.

A3.5 Factors influencing trends in US mortgage markets

The sections above show that, since the early 1990s, US mortgage interest rates have converged across states, mortgage origination fees have fallen and converged across states, and the amount of mortgage debt outstanding relative to GDP, particularly in subprime loans, has increased. Many factors may have contributed to these trends. It is plausible that a few factors played a key role, however, in particular the deregulation of the banking industry, the growth of the secondary market, and technological advancement in the financial services industry.

Banking Deregulation

Liberalisation of banking laws, which progressed during the 1970s and 1980s and culminated with the IBBE of 1994, permitted wider interstate banking and branching activity and a growth in the average size of banks (Table A.3.13).

Academic literature suggests four channels through which bank expansions and integration of banking markets might improve banks' efficiency: [163,164]

- Economies of marketing, due to spreading the value of a recognised brand over a larger market.
- Managerial efficiency arising from the spread of best practices by lead banks to affiliates and other branches.
- Scale and scope efficiencies arising from network economies, such as linking ATM networks, credit scoring systems and back-office facilities over a larger geographic area.
- Efficiency arising from risk diversification, by allowing banks to attain a better risk-expected return trade-off.

Academic literature also suggests reasons why geographical expansion might reduce banking efficiency.[165] However, given that US banks' geographic expansion coincided with a rapid reduction of mortgage origination fees, the positive effects of banking expansion appear to have dominated.

Growth of the secondary market

Increased securitisation of mortgage loans since the early 1980s would be expected to reduce the interest-rate spread between mortgage loans and Treasury bonds. However, US data show this spread has not in fact narrowed (Figure A.12). One possible explanation is that greater rates of mortgage prepayment have increased the prepayment risk inherent in MBS contracts, offsetting any reduction in the cost of financing mortgage loans.

Technology

Greater use of computer technology to analyse borrowers has plausibly contributed to the reduction of mortgage fees and the convergence of these fees across states. In the early 1990s, evaluation of prospective borrowers typically involved costly labour and time-intensive procedures. Automation has replaced these procedures with model-based risk evaluations that assess borrowers in minutes, and sometimes allow same-day closing on mortgage agreements. In 1996, Freddie Mac estimated that the use of its Loan Processor underwriting software reduced the cost of originating a mortgage by between $300 and $650, and predicted that these savings would grow over time.[166]

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[163] Berger and DeYoung (2003).

[164] Much of the material in this paragraph is taken from Straka (2000).

[165] Burger and DeYoung (2003) argue that expansion may spread poor management practices of the expanding entity, or may lead otherwise competent managers into areas of business and geography where they lack competence. The distance to branches and affiliates from the lead bank may also diminish the control and limit the degree of management practice transfer.

[166] Much of the material in this paragraph is taken from Straka (2000)

The Internet has changed US mortgage markets in two ways. First, it allows borrowers to shop around for loans more easily. Second, where mortgages are originated over the Internet, this cuts lender costs and thus borrower fees. Many US mortgage lenders, and particularly larger lenders, now have websites that allow lenders to apply for a loan, receive loan approval, and lock in an interest rate online. Loan closure typically still requires a face-to-face meeting, however. A private-sector survey found that online mortgage originations made up 16% of all originations in 2002 and 29% in 2003, consistent with other evidence that the share of mortgages originated over the Internet has grown considerably in recent years.[167]

A3.6 Conclusion: lessons for the EU

US experience suggests that there are particular advantages to the geographical expansion of banks, to the existence of a network of mortgage brokers, and to the use of automated processes that can reduce origination fees. It also suggests that the effect of a deeper secondary market on the costs of funding mortgages may be fairly small.

The policy recommendations one would draw from US experience depend on the extent to which EU markets can be expected to integrate without further legislation. Overall, however, US experience suggests that

- Legal or other restrictions to banks' geographical expansions will reduce the efficiency of the mortgage-lending industry.
- Steps to create a single EU mortgage market would increase incentives to develop automated systems to process loan applications, which would reduce origination costs.
- Removing restrictions on maximum mortgage interest rates would allow a subprime mortgage market to develop, thus expanding total mortgage lending.

Lower prepayment fees in the EU might reveal a latent demand for mortgage refinancing. Such refinancings would allow borrowers to reschedule their mortgage payments and to release equity from their houses, both of which would tend to increase their consumption.

[167] Inside Mortgage Finance Publications (2003).

Annex 4. A theoretical model of mortgage markets

Here we give a full explanation of the theoretical model described in section 3.2. This model is based on that of Greenwood and Hercowitz (1991), which is widely cited in academic literature.

Mortgage-market inefficiency

We assume that banks (or firms in general) borrow funds at the market interest rate r but lend them at the rate $r+s_1+s_{s2}$. Thus, s_1 and s_2 create a spread of mortgage interest rates over market interest rates and thereby inefficiency; in an efficient market banks would lend at the interest rate r. We model mortgage inefficiency in this manner because the neoclassical framework assumes there are no credit restrictions.

The two components of the mortgage spread have different origins. s_1 covers banks' costs of business, including the costs of setting up branch networks to raise deposits to finance mortgages. s_2 is a pure mark-up over costs. Thus, s_2 creates profits for banks, which they return to consumers in the form of dividends D on shares in banks that consumers own.[168]

We analyse the effect of reducing each of these spread terms below. As might be expected, pure inefficiency s_1 is more damaging than banks' profit rate s_2, since lenders return profits to consumers.

Firms

In this economy, firms hire capital k and labour l to produce output y, using a technology described by the production function f:

Equation 4 $$y = f(k,l) = k^{\alpha} l^{1-\alpha}, \quad \alpha > 0$$

We assume the labour supply l is constant. This is reasonable in this context because a mortgage reform does not affect wages in the long run. For convenience we normalize the labour supply to 1.

The technology of the economy is described by

Equation 5 $$f(k,l) = c + \dot{k} + \dot{h} + \delta_k k + (\delta_h + b)h$$

This means that firms can use output either to produce c non-housing goods, add $\dot{h}$ to the stock of houses, add $\dot{k}$ to the stock of capital, perform $\delta_k k$ (or $\delta_h h$)

[168] The mortgage spread s_1 is equivalent to a government tax on housing that is used to finance an activity that does not benefit consumers. The mortgage spread s_2 is equivalent to a government tax on houses that is used to pay the transfer D back to consumer.

maintenance on existing capital (or houses), or to undertake activities *bh* necessary to make mortgage loans.

Under this technology, firms can always turn one non-housing good into one unit of either capital or housing. Thus, the prices of houses, capital and non-housing goods are always equal, at one. Firms supply as many houses and non-housing goods as consumers demand at this price.

House prices could change over time if each house required an allocation of land, where land was in scarce supply. Below we consider the effect of including land in the model. The results including land are very similar to those of the current model, however.

Firms finance their investments in capital and housing by issuing financial assets A to consumers. Since firms compete with each other to raise funds, they pay a return on financial assets r equal to the total return on capital. Thus:

Equation 6 $$r = f_k - \delta_k$$

Where f_k is the marginal product of capital (the partial derivative of f with respect to k).

Consumers

Consumers' welfare or utility depends on their consumption of housing and non-housing goods. Each consumer attempts to maximise his welfare or utility over time:

Equation 7 $$\underset{\{c,h\}}{Max} \int_0^\infty u(c,h)e^{-\rho t}.dt, \qquad \rho > 0.$$

Here ρ reflects consumers' impatience, since it implies they value current consumption more than consumption in the future. We make the standard assumption that consumer's welfare or utility function takes the form:

$$u(c,h) = \left(c^\theta h^{1-\theta}\right)^{1-\sigma}, \qquad 0 < \theta, \sigma < 1,$$

where θ measures the consumer's relative taste for housing and non-housing goods.

In this theory, consumers can purchase housing in several ways. They can buy housing using mortgages or with financial assets, rent houses, or build their own houses. Thus, the theory does not predict how much mortgage debt is outstanding.[169] We assume, however, that consumers must buy

[169] See, for example, the discussion in Heathcote and Davis (2003).

houses with interest-only mortgages (LTV ratios of 100%). This implies that the mortgage debt stock m equals the housing stock h. We think of this assumption as reflecting that, while other methods of house purchase are possible, they are costly. Thus, were mortgage markets inefficient, consumers would not switch to other more efficient means of buying housing.

Each consumer faces the following budget constraint:

Equation 8 $$rA + w + D = c + (r + s_1 + s_2 + \delta_h)h + \dot{A}$$

The consumer's income is on the left-hand-side of Equation 8. The consumer owns financial assets A and housing h. He earns interest rA on his financial assets, wage income w, and banking dividends D.

The consumer's expenditure is on the right-hand side of Equation 8. The consumer buys c non-housing goods, and pays mortgage interest at the rate $r+s_1+s_2$. His mortgage interest bill totals $(r+s_1+s_2)h$ since he has a 100% mortgage on his house h. He also spends $\delta_h h$ to maintain his housing. He uses his remaining income to increase his holdings of financial assets by $\dot{A}$.

When consumers' maximise their welfare (Equation 7) subject to their budget constraints (Equation 8), their behaviour obeys certain conditions.[170] First, the growth in their consumption of both goods follows the path:

Equation 9 $$r - \rho = -\left[\frac{u_{cc}\dot{c} + u_{ch}\dot{h}}{u_c}\right]$$

This implies that the growth of consumption of all goods will be faster when the returns to capital are higher. Here u_h and u_c represent consumers' marginal utility from housing and non-housing consumption respectively.[171]

Second, consumers trade off housing and non-housing consumption at any point in time according to the condition:

Equation 10 $$\frac{u_h}{u_c} = r + s_1 + s_2 + \delta_h .$$

Thus, the prices of housing and non-housing goods determine their mix in households' total consumption. The price of non-housing goods is 1, while the price of using a house is its 'user cost' $r + s_1 + s_2 + \delta_h$.

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[170] The optimal paths of housing and consumption can be found using the Euler equation method or the equivalent Hamiltonian method.

[171] u_{cc} is the second derivative of the utility function with respect to consumption, and u_{ch} the derivative of the utility function with respect to both consumption and housing.

Economic equilibrium

We now examine some conditions that must hold when we aggregate the behaviour of all firms and consumers.

First, consumers' demand for housing h and non-housing goods c equal firms' supply of these goods.

Second, consumers' holdings of financial assets equals the total of physical assets in the economy: $A=k+h$. Therefore, while consumers borrow h from banks/firms, they also lend h to banks. Consumers may make these loans though holding bank deposits, mortgage bonds or mortgage-backed securities. Since consumers can also hold claims on business capital, which pay the return r, loans to banks must also pay the return r.

Third, banks must cover their costs of mortgage lending through their mortgage spreads, so $s_1=b$.

Fourth, the total of banks dividend payments to consumers must equal total bank profits on lending: $D=s_2h$.

These conditions for the overall economy allow us to find the evolution of economic variables over time. In the long run, the economy reaches a steady state where the consumption of both housing and non-housing goods stops growing. In this steady state, key variables take the following values:

Equation 11

$$k = \left(\frac{\rho + \delta_k}{\alpha} \right)^{\frac{1}{\alpha - 1}}$$

Thus, neither mortgage spread affects the size of the capital stock k.

Equation 12

$$h = \frac{\alpha^{\frac{\alpha}{1-\alpha}} \left(\rho + \delta_k\right)^{\frac{1}{\alpha-1}} \left(\rho + (1-\alpha)\delta_k\right)(1-\theta)}{s_1 + \delta_h + \theta\left(\rho + s_2\right)}$$

Thus, an increase in either mortgage spread will reduce the housing stock h.

Equation 13

$$c = \left(\frac{\rho + \delta_h + s_1 + s_2}{\rho + \left(\delta_h + s_1\right)\theta^{-1} + s_2} \right) \alpha^{\frac{\alpha}{1-\alpha}} \left(\rho + \delta_k\right)^{\frac{1}{\alpha-1}} \left(\rho + (1-\alpha)\delta_k\right)$$

Thus, a higher mortgage spread s_1 due to pure inefficiency will reduce consumption of non-housing goods. By contrast, a higher mortgage spread s_2 due to banks' profits will increase the consumption of non-housing goods. This is because the spread s_2 does not affect consumers' total consumption, but induces them to substitute away from houses towards other goods.

Interaction of mortgage spreads and tax distortions

As section 3 notes, academic literature argues that current income tax systems in most countries distort consumers' choices, inducing overconsumption of

housing and underconsumption of non-housing goods. However, inefficiency in mortgage markets would introduce a countervailing distortion. To explain this point, note that the optimal housing stock in the long-run steady state h^* is that which would obtain were there no mortgage spreads in Equation 12:

Equation 14
$$h^* = \alpha^{\frac{\alpha}{1-\alpha}} \left(\rho + \delta_k\right)^{\frac{1}{\alpha-1}} \left(\rho + (1-\alpha)\delta_k\right) \left(\frac{1-\theta}{\theta\rho + \delta_h}\right)$$

In the presence of both a mortgage spread s_2 due to banks' mark-ups, and a distortionary tax at rate τ_c on the consumption of non-housing goods only, the actual level of housing consumption h in the long run would differ from h^* as follows:

Equation 15
$$h = \left[\frac{(1+\tau_c)(\theta\rho + \delta_h)}{\theta(\rho + s_2) + \delta_h}\right] h^*.$$

Equation 15 shows that the distortionary tax τ_c and banks' mark-ups s_2 create countervailing distortions on the long-run level of housing consumption. In this context, the effect of increased mortgage-market efficiency (a fall in s_2) on overall consumer welfare is ambiguous, and depends on the relative size of τ_c and s_2. Put another way, it is not clear whether a fall in s_2 would move long-run housing consumption h closer to or further away from optimal housing consumption h^*.

Annex 5. The OEF macroeconomic model

This section provides a detailed description of the long-run structure of the OEF macro-model.

A5.1 Key variables

RSH	key short-term policy interest rate
RRH	real interest rate based on RSH and consumer prices
RLG	benchmark long bond yield (10 year government bonds)
RMORT	Nominal mortgage interest rate
RRMORT	Real mortgage interest rate
RMSPREAD	Mortgage Spread over RSH
C	real private consumption
PEDY	real disposable income
PENW	private financial net wealth (net)
GHW	gross housing wealth
NHW	net housing wealth
CPI	consumer price index
ER	average earnings (nominal)
MORT	level of outstanding mortgage debt
HSTOCK	Actual stock of housing (number of units)
HINV	Investment in private residential dwellings (number of new units)
DEPH	Housing Depreciation Rate
HLDEM	Long-term housing demand (number of units)
PH	Unit price of housing

A5.2 Model structure

Below we set out the long-run model structure. For most of the equations below there is a dynamic version that relates the growth in each variable to its deviation from steady state.

Identities

Mortgage Rate

(1) RMORT = RSH + RMSPREAD

Real Mortgage Rate

(2) RRMORT = RMORT – 100(Ln(PH(-1)/PH(-5)))*

Housing Stock

*(3) HSTOCK = (1 - DEPH)*HSTOCK(-1) + HINV*

Housing Demand

In the long run, housing demand is determined by demographic and other preference factors, including net financial wealth:

(4) HLDEMLR =f (POP, PENW/PC)

or

*(5) Ln(HLDEMR)= Ln(POP) + a_1*Ln(PENW/PC)*

But in the presence of rigidities in mortgage markets and planning constraints, most EU countries will be operating some way below this long run, so that actual housing HLDEM demand may be lower than HLDEMR:

(6) HLDEM = min(HLDEMLR, HDEM)

If the housing market were entirely mortgaged, then there would be a one-for-one link between mortgages and demand:

(7) Ln(HDEM)= Ln(MORT/PH)

As housing markets are not completely constrained by mortgage supply, actual housing demand can be written as a weighted combination of (5) and (7):

(8) Ln(HLDEM)= m(a_2*Ln(POP(-1)/1000) + a_3* Ln(PENW(-1)/PC(-1)*100) - a_4*(RRMORT(-1))) + (1-m)*(Ln(MORT/PH))*

where m= *(MORT/GHW)*

Housing Investment

Housing investment will cover depreciation and will also move to close the gap between housing demand and housing supply:

(9) $HINV = DEPH*HSTOCK(-1)+(hinvadj)*(HLDEM(-1)-HSTOCK(1)) + a_5*D(HLDEM(-1)-HSTOCK(-1))$

where parameter *hinvadj* controls the speed of adjustment to equilibrium.

This equation ensures that in the long run HSTOCK equals HLDEM (when HINV simply reflects depreciation).

House Prices

If the market were entirely mortgaged, then in the long run, the value of the housing stock would equal the stock of mortgages:

(10) $PH*HSTOCK=MORT$

As the housing stock is determined by demand in the long run, then equation (10) determines house prices (in the same way as money supply determines the long run average price level in an economy).

So, $PH=MORT/HSTOCK$

Alternatively with no mortgage market, house prices could be specified as a function of earnings (costs) and the gap between housing demand and housing supply:

(11) $Ln(PH) = Ln(PC) + a_6*Ln(ER/PC) + a_7*Ln(HLDEM/HSTOCK)$

Overall, average house prices are thus a weighted combination of (10) and (11):

(12) $Ln(PH) = 0.5*(Ln(PC) + a_6*Ln(ER/PC) + a_7*Ln(HLDEM/HSTOCK))$
$+ 0.5*(0.25*Ln(MORT/HSTOCK)+0.25*Ln(MORT(-1)/HSTOCK(-1))$
$+ 0.25*Ln(MORT(-2)/HSTOCK(-2))+0.25*Ln(MORT(-3)/HSTOCK(-3)))$

Mortgage Stock

Long-run mortgage payments are a multiple of disposable income (representing the "affordability rule" applied by most lenders):

(13) $MORT*(RMORT/100)=kPEDY!$

However, the multiple k can vary and is likely to depend several factors, such as real interest rates, net financial wealth and net housing wealth. Then (13) becomes:

(14) $Ln(MORT) = Ln(PEDY*PC/100) - Ln((RMORT) – a_8*Ln(1+(RRMORT/100)) + a_9*Ln(PENW(-1)) + a_{10}*Ln(NHW(-1))$

Finally, there may also institutional credit restrictions, CRES, operating in the market:

(15) $Ln(MORT) = Ln(PEDY*PC/100) - Ln((RMORT) – a_8*Ln(1+(RRMORT/100)) + a_9*Ln(PENW(-1)) + a_{10}*Ln(NHW(-1)) - CRES$

Consumption

Private consumption is a function of disposable income, net housing wealth and net financial wealth. We also allow for the possibility that mortgage equity withdrawal will have a specific differential impact on consumption:

(16) $Ln(C) = a_{11}*Ln(PEDY) + a_{12}*Ln(NHW/PC)+ (1-a_{11}-a_{12})*Ln(PENW/PC)$
$+ a_{13}*(RRH)+a_{14}*(D(MEREL)/(PEDY!)$

Example of Coefficients

Table A.5.14 below sets out the values of the coefficients we describe above in the German sector of the OEF long-run model.

Table A.5.14: Example coefficient values for Germany

Coefficient	Value
a_1	0.2
a_2	1.0
a_3	0.2
a_4	-0.005
a_5	0.05
a_6	0.5
a_7	0.5
a_8	0.05
a_9	0.2
a_{10}	0.1
a_{11}	0.78
a_{12}	0.06
a_{13}	-0.003
a_{14}	0.8

Annex 6. Respondents to London Economics' mortgage survey

For this report, London Economics sent questionnaires to mortgage lenders asking about national mortgage market characteristics. We are grateful to the European Mortgage Federation (EMF) and the European Savings Banks Group (ESBG) for providing us with contacts at these lenders and federation. Table A.8.15 summarises the mortgage lender representatives who replied to this survey. We are grateful to all of them for their valuable assistance.

We also consulted many lenders during this report, and are grateful to them for their assistance. Section 4.2 describes lenders' responses to our survey of business models for lending in multiple EU countries. We believe it is appropriate not to disclose the names of these lenders.

Table A.8.15: Respondents to London Economics' mortgage survey

Country	Respondent	Contact source[1]
Austria	Verbandes der österreichischen Landes-Hypothekenbanken	EMF
Belgium	Union Professionnelle du Crédit (U.P.C.)	EMF
Cyprus	Association of Cyprus Commercial Banks	LE
Denmark	Realkreditrådet	EMF
Estonia	Estonian Bank Association	LE
Finland	Housing Fund of Finland	EMF
	Finish Savings Banks Association	ESBG
France	French Savings Banks Association	ESBG
Germany	Verband deutscher Hypothekenbanken	EMF
Greece	Hellenic Bank Association	LE
Hungary	OTP (Országos Takarékpénztár és Kereskedelmi) Bank	ESBG
Ireland	Irish Mortgage Council	EMF
Italy	Associazione Bancaria Italiana	EMF
Latvia	Association of Latvian Commercial Banks	LE
Lithuania	Association of Lithuanian Banks	LE
Luxembourg	Banque et Caisse d'Epargne de l'Etat	ESBG
Malta	Bank of Valleta Group	ESBG
Poland	Mortgage Credit Foundation	EMF
Portugal	Caixa Geral de Depósitos	ESBG
	Santander Totta	LE
Slovakia	Hypocentrum	LE
Slovenia	The Bank Association of Slovenia	LE
Spain	La Caixa	EMF
Sweden	Swedish Bankers' Association	EMF
The Netherlands	The Netherlands Bankers' Association	EMF
United Kingdom	The Council of Mortgage Lenders	EMF

Notes: 1 This column summarises whether contacts to mortgage lender representatives were attained through the European Mortgage Federation (EMF), the European Savings Banks Group (ESBG) or independently of these organisations by London Economics (LE).

Annex 7. Problems in comparing APRCs

Mortgage loans typically carry a headline interest rate and oblige the borrower to pay some additional fees. The Annual Percentage Rate of Charge (APRC) is an equivalent interest rate that includes the effect of all fees. However, comparisons of APRCs will often not be reliable guides to differences in fees.

The Problem

Let a mortgage have principal P, term T months, headline interest rate r, and a fee F payable at the commencement of the loan. Suppose

(A3.1) $$r - \bar{r} = s$$

where s is a constant spread and $\bar{r}$ is a baseline interest rate such as the central bank overnight rate.

Denote the stream of payment the borrower makes at month t as b_t, where t=0 denotes the commencement of the loan.

The Consume Credit Directive defines the APRC as r', in the equation

(A3.2) $$P = \sum_{t=0}^{T} \frac{b_t}{(1+r')^t}$$

The problem here is that, comparing typical mortgage loans in two countries, if the fee F and spread s are the same, a different $\bar{r}$ across countries generally means that

$$r' - \bar{r}$$

differs across countries. Thus, the spread $r' - \bar{r}$ is not a reliable guide to differences in spreads s or fees F across countries with different baseline interest rates, or even to changes in s and F within a country over periods when the baseline interest rate has changed.

An illustration

Continuing the example above, assume that the regular mortgage repayments start at month t=1, are of equal size and repay the last of the principal at month T. In this case, it can be shown that

(A3.3) $$b_t = P\left[1-(1+r)^{-T}\right]^{-1} r \quad \forall t = 1,2,...,T\,.$$

Since the fee F is paid on commencement of the loan, we have b_0=F. Thus, the APRC r′ is implicitly defined from

(A3.4) $$P = F + \sum_{t=1}^{T} \frac{P\left[1+(1+r)^{-T}\right]^{-1} r}{(1+r')^t}$$, *or to rearrange,*

(A3.5) $$r'\left[1-\left(1+r'\right)^{-T}\right]=\left(1-\frac{F}{P}\right)r\left[1-\left(1+r\right)^{-T}\right]$$

From equation (A3.4), we see that the relationship between the APRC r′ and the headline mortgage rate r is complex. In fact, numerical examples using (A3.6) show that $\frac{\partial r'}{\partial r}>1$. Letting the baseline interest rate (e.g. the central bank overnight rate) be $\bar{r}$, we typically have that $\frac{\partial r}{\partial \bar{r}}=1$, so $\frac{\partial r'}{\partial \bar{r}}>1$.

Therefore, if we have APRCs for two countries with different baseline rates $\bar{r}$, the spreads $r'-\bar{r}$ could differ, even though there is no difference between the fees F or the headline spreads $r'-r=s$ across the two countries.

Annex 8. Tests for convergence in EU mortgage variables

This section provides details of several tests referred to in section 8. These are

- The test for convergence in mortgage spreads
- The test for convergence in mortgage debt levels, and
- The model of the effect of increased product availability on mortgage debt outstanding.

A8.1 Test for convergence in mortgage spreads

To test formally for convergence in the MFI interest-rate series, we adapt a standard model used to test the convergence of per capita GDP across countries.[172] In a general form this model is

Equation 16: $$Z_{i,t} - Z^* = \left(Z_{i,0} - Z^*\right)e^{-\beta t}$$

where $Z_{i,0}$ is the value of a variable at time *0*, $Z_{i,t}$ its value *t* periods later, and Z^* is its assumed long-run equilibrium value. The form of Equation 16 implies we test for convergence towards the specific long run Z^*, rather than convergence in general. Convergence towards the specified long run exists if $\beta>0$. Since we estimate Equation 16 by linear regression, $\beta>0$ would imply that the linear coefficient on $Z_{i,0}$, which corresponds to $exp(-\beta t)$, is less than 1.

We estimate Equation 16 in MFI interest rate data for 13 EU15 countries, taking time 0 to be March 2003 and time *t* to be December 2004. We assume that the long-run equilibrium interest rate is the lowest existing in the EU in December 2004, which is 110 basis points, in the Netherlands. Our results are

Equation 17 $$\left(r-\bar{r}\right)_{i,t} - \left(r-\bar{r}\right)_{NE,2003} = \underset{(0.08)}{0.88}\left[\left(r-\bar{r}\right)_{i,0} - \left(r-\bar{r}\right)_{NE,2003}\right],$$

where $\left(r-\bar{r}\right)$ represents a mortgage spread, 0.88 is the convergence coefficient and 0.08 its standard error. That the convergence coefficient is below 1 suggests that mortgage spreads are converging over time. While this coefficient does not differ from 1 at conventional levels of statistical significance, it is unrealistic that we would obtain these significance levels in a sample of only 13. Thus, we proceed with this coefficient value as a measure of baseline convergence trends.

[172] For example by Barro and Sala-I-Martin (1992).

A8.2 Test for convergence in mortgage debt

As section 8 explains, we test for convergence in mortgage debt levels as a means of assessing whether mortgage product availability has converged across EU countries. We use this proxy approach since time series data on mortgage product availability are not available.

Mortgage debt as a share of GDP varies substantially across countries, as section 5.3 described. Plausibly, some of these differences reflect the restrictions on mortgage loan-to-value ratios and on subprime lending that exist in many countries (see Annex A1.5). However, some of these differences are likely to reflect other factors, such as tax law, home-ownership traditions and family patterns (Table A.2.12). Thus, while mortgage market integration would plausibly increase the amount of mortgage debt in many EU countries, some differences in the share of mortgage debt to GDP would likely remain.

Theory

Our version of the standard economic model of economic growth (see Annex 4) implies a particular relationship between mortgage debt, interest rates, GDP and the tax system. To this theory, we add our product availability index X, ranging from zero (no product availability) to 1 (product availability of the country with the most developed market). Since our theoretical model is clearest in log terms, we add the log of our product availability index (x) to the model. Thus, our model becomes:

Equation 18 $$m - y_D + \ln(r) = k + \beta x - \ln(1 - \tau)$$

where m and y_D are respectively the (log of) outstanding mortgage debt and private disposable income, k reflects preferences for housing and for paying for housing through mortgage interest, x measures the ease of access to mortgage credit (the absence of credit restrictions), and τ is the average rate of income tax.

Since mortgage integration would not affect income tax systems, Equation 18 implies some cross-country differences in the ratio of mortgage debt to GDP would remain even were product availability to equalise across countries.

Empirical analysis

To assess whether mortgage debt levels (and thus, by proxy, ranges of mortgage product availability) have been converging across countries, we estimate a convergence model based on the theory expressed in Equation 18. We relate debt service to GDP rather than disposable income, however, since GDP data are available for more countries. While the series are somewhat volatile, no overall convergent trend is apparent.

Our convergence model is again that in Equation 16, but takes account of the theoretical prediction that, all else equal, one would expect a stable relationship between mortgage debt service and GDP. Thus, our model is:

Equation 19 $$\left(\frac{rM}{Y}\right)_{i,t} - \left(\frac{rM}{Y}\right)^{*} = \left[\left(\frac{rM}{Y}\right)_{i,0} - \left(\frac{rM}{Y}\right)^{*}\right] e^{-\beta t},$$

where we set *(rM/Y)** to the value for the UK in 2003. Thus, we test whether the debt service ratio is converging towards that of the UK. As before, convergence towards this target exists if $\beta>0$, or in a linear estimation of Equation 19, if the coefficient $\delta=\exp(-\beta t)<1$. We estimate Equation 19 using data from 10 EU countries, setting time t=2003 and time 0= 1996. We find that

Equation 20 $$\left(\frac{rM}{Y}\right)_{i,t} - \left(\frac{rM}{Y}\right)_{UK,2003} = \underset{(0.14)}{1.03}\left[\left(\frac{rM}{Y}\right)_{i,0} - \left(\frac{rM}{Y}\right)_{UK,2003}\right]$$

Since our estimate of the convergence coefficient δ exceeds 1, the debt service ratio would appear to be diverging from the level of the UK in 2003. However, our estimate of δ is very close to one. We conclude that past trends show no convergence or divergence of debt service ratios from the UK level in these 10 countries.

A8.3 Effect of integration on mortgage debt outstanding

To assess the effect of greater product availability under mortgage market integration, we estimate the relationship between current product availability and the share of mortgage debt service in GDP suggested by Equation 18. We estimate this effect in a panel of data for 11 EU countries from 1992 to 2003. We adapt Equation 18 in the following manner:

- We relate mortgage debt to GDP rather than disposable income, since GDP data are available for more countries.
- While theory restricts the effect of the mortgage interest rate on mortgage debt, we allow the data to determine this relationship.
- We include an indicator variable for a country being a new EU Member State.

Due to lack of data, we do not include a variable for the tax treatment of mortgage interest in national tax systems.

Our results are as follows (*t*-statistics for each coefficient are given in brackets):

Equation 21

$$\ln\left(m_{i,t}/y_{i,t}\right) = \underset{(22.2)}{5.47} - \underset{(6.5)}{0.8}\ln\left(r_{i,t}\right) + \underset{(6.9)}{2.89}\ln\left(comp \quad index_i\right) - \underset{(6.2)}{1.22}\,D_{NMS}$$

All the coefficients are highly significant statistically, and have the expected signs. The explanatory variables together explain 58.9% of the variation across countries and time of the shares of mortgage debt in GDP (the R^2 for this regression is 0.59). The coefficients from this regression are shifters for the relationship between mortgage debt and the mortgage interest rate. Thus, although we do not forecast the share of mortgage debt in GDP, we can express our forecasts for credit restrictions in terms of their implications for mortgage debt, assuming other variables such as mortgage interest rates are held equal. We do so in Table 8.1.