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Study on Interest Rate Variability in Europe

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The Federation is a trade body representing the interests of mortgage lenders from all over Europe.
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ABBREVIATIONS

Countries:

BE Belgium

DK Denmark

DE Germany

GR Greece

ES Spain

FR France

IE Ireland

IT Italy

LU Luxembourg

HU Hungary

NL Netherlands

PT Portugal

SE Sweden

UK United Kingdom

Content

EXECUTIVE SUMMARY

- Residential mortgage loans typically fall into two groups, fixed interest rates countries and variable rates countries. The first group includes: Belgium, Denmark, Germany, France, Hungary, the Netherlands, and Sweden. The second group includes: Greece, Spain, Ireland, Italy, Luxembourg, Portugal and the UK.
- In many EU countries the split between fixed or variable rates on new business can change very rapidly. The changes are typically due to changes in the relative cost of short term rates versus long term rates, as well as the introduction of new products onto the market.
- Based on EMF calculations for those countries included in the study, mortgages with an initial fixed period are the dominant type of loan in the EU in terms of both new business and balances outstanding, with a share of approximately 53% and 60% respectively.
- The reasons for the differing interest rate variability mechanisms across EU Member States depend on a variety of factors such as cultural habits, differences in yield curves, the type of mortgage funding method, early repayment regulations, and interest rate caps/floors.
- The same factors contribute to the different degrees of product completeness of EU mortgage markets. This has been well documented in studies by Mercer Oliver Wyman, London Economics and also the Miles Review (for the UK).

1. INTRODUCTION

1.1 AIM AND RATIONALE OF THE STUDY

The study aims to compare the different interest rate variability mechanisms that exist in EU Member States using the latest data for gross residential mortgage lending and where available, outstanding residential mortgage loans.

There is a broad spectrum of mortgage products and interest rate types offered in the different countries that participated in the study. Some markets are dominated by fixed rate products whereas others are more biased towards variable rate products. There is also a vast range of products, which fall somewhere between long term fixed and variable rate mortgages. Such information is of particular importance with regard to two main policy issues:

> The transmission mechanism for monetary policy - the impact of a rise in interest rates will vary from one EU Member State to another, and will notably depend on the country specific mortgage features, which govern how sensitive the mortgage stock is to adjustments in interest rates by the Central Bank.

> Mortgage market integration - there is evidence of gaps in the product range in several EU mortgage markets. It is thought that further integration could be a means of filling some of these gaps.[1]

1 See London Economics, August 2005, The Costs and Benefits of Integration of EU Mortgage Markets and Mercer Oliver Wyman (2003), Study on the Financial Integration of European Mortgage Markets

2. TYPES OF MORTGAGE INTEREST RATES IN EUROPE

2.1 TYPES OF INTEREST RATES

Mortgage interest rate variability falls into three broad categories. At one extreme is the «fixed rate» where the interest rate remains unchanged throughout the entire duration of the loan. At the other extreme is the «variable rate» where the interest rate variability can, in some cases be unlimited both in terms of frequency and the size of the change. Between the two extremes is the initial fixed period rate where rates are fixed for an initial period after which they can become variable or can be fixed for another period.

Below is a list of the most common ways interest rates vary in Europe. Additionally, certain product features can limit the variability through the use of caps and floors or by restricting the frequency of variations through having features such as an annual reset.

Fixed rate: The interest rate paid remains unchanged throughout the entire duration of the loan. The length of the loan differs from country to country, as does the ability to repay early. The prevalence of long term fixed rates depends on a whole range of factors including early repayment rules as well as the ability of lenders to find suitable long term fixed rate funding.

Variable rate: The interest rate can vary during the entire duration of the loan. It can vary on an ad-hoc basis as determined by the lender or it can be altered at set points during the contract such as an annual review product. The two main variability mechanisms available in Europe are:

> Referenced rate: This kind of mortgage has an interest rate which follows an external index. This external index can be an index such as the Euribor or the Central Bank base rate. The interest rate can follow the index on a monthly basis, but also on a longer term basis e.g. one year. In the UK, the interest rate which follows the central bank base rate is called the tracker rate. In Greece, ECB base rate loans are very common, as they are more stable than those linked to the Euribor.

> Reviewable rate: The interest rate can be reviewed by the lender at discretionary intervals throughout the duration of the loan. This type of rate is common in Sweden and the UK. In Sweden the lender could potentially reset the interest rate every day, although this is clearly not the case. This product is called "real variable interest rate". Under the Swedish system, the lender operates within certain limits for the setting of interest rates governed by the consumer protection legislation. Moreover, legislation allows the borrower to switch lenders after a 3 month period and at any time with a variable interest rate contract.

Initial fixed rate: Initial fixed periods range from between 1 to 20 years. The most common initial fixed rate periods are 1, 2, 3, 5 and 10 years. After the initial fixed period, the interest rate can be fixed for another period or revert to a variable rate. Within Initial fixed rate products the following types can be found:

> Renegotiable rate: The interest rate can be renegotiated after an initial fixed period. The customer is able to choose whether, after the initial fixed period, he/she wants to enter into another fixed period or switch to a variable rate. This is for instance the case in Greece and Sweden.

In the Netherlands, at the end of the initial period, the bank makes a new offer. With no reaction from the client, the loan is continued for another similar period. The customer can also request a different fixed period.

In Germany, after the initial fixed period, the mortgage interest rate is usually fixed for another period. The rate is renegotiated at regular intervals agreed in advance.

Capped rate: The interest rate paid by the borrower cannot rise above the agreed capped rate. If the reference interest rate falls below the capped rate, repayments will also decrease. Sometimes these capped interest rates also have a 'floor' (which is also called a 'collar'). This means the lender sets a minimum level below which the rate will not fall.

This type of contract limits the variability of the interest rate and exists in several EU countries, such as Belgium, Denmark, Germany, France, Ireland, Italy, Portugal, Sweden and the UK. In Belgium rates cannot vary more than once a year, and consumer protection legislation requires that variable interest rates do not increase by more than 1% during the 2nd year and by more than 2% during the 3rd year of the contract.

Guaranteed interest rate: This type of mortgage allows the interest rate on a future mortgage to be fixed up to one year before it is used. In this way the borrower is secured against interest rate increases. However, the borrower may not take advantage of falling interest rates. The cost of the interest rate guarantee is added to the interest rate. This product exists in Sweden. In Germany, during the last three years of the term of the fixed period rate, the borrower can guarantee his/her future interest rate in advance by fixing the rate for the next period. This type of mortgage is called a forward loan.

Exchangeable interest rate: At a given maturity the borrower can swap the variable rate with a fixed rate or vice versa. This type of interest rate exists in France and Italy.

Mixed interest rate: Part of the mortgage is at fixed rate and part of the mortgage is at variable rate. The borrower is free to decide which share of the mortgage should be at fixed rate and which share at variable rate. For example the borrower can decide to take 70% of the mortgage loan at a fixed rate and 30% of the mortgage loan at variable rate.

2.2 MORTGAGE PRODUCT FEATURES

The interest rate paid on mortgages can also vary in more complex ways based on certain product features. Noteworthy examples include Dual index mortgages (DIMs) or more recent products offered by banks due to increasing competition, such as discounted rate mortgages, mortgages with variable maturities, interest only mortgages or mortgages with flexible instalments.

Dual Index Mortgage : It is a mortgage product that depends on two indices (wage and interest rate) to determine the loan balance and payment amounts. The interest rates and monthly payments vary from month to month in accordance with the two indices. For a dual index mortgage, the interest rate is adjustable and can periodically rise or fall depending on the market rate. This means that the amount of interest earned by the lender is determined by the interest rate index. The amount a borrower has to pay monthly is calculated by the wage and salary index.

DIMs were launched in Mexico during the 80s because of the extremely high inflation during that period and were the most popular type of mortgage in Mexico between 1985 and 1995. DIMs are not common in Europe at present, however in the past they were available in France and currently exist in Poland. DIMs existed in France, not as inflation proof affordable instruments (as inflation has been relatively stable in France), but rather they were offered to investors in order to match their repayments and their rental income, using a rent index for the instalments. In Poland, they are still used for the loans to the housing associations.

Mortgage products as "discount rate mortgages", "variable maturity products", "interest only" mortgages and "mortgages with flexible instalments" are increasingly offered by banks. The competitive environment in many markets means that discounted products are offered at a loss in many cases for the initial life of the product.

2 See Chiquier L., Housing Finance International Quarterly Review, February 1998, Dual Index Mortgages (DIMs) Conditions of Sustainable Development in Poland

The lender looks to recuperate the 'customer acquisition' costs by cross-selling other products or through a rise in the interest after the initial discount period is over.

A discount rate mortgage guarantees that the borrower will pay a set amount below a lender's standard variable rate for a specified period of time. Whilst the standard variable rate goes up and down, the discount will remain fixed. Discount mortgages range in duration from as little as six months to approximately five years. In general, the shorter the period of the discount, the higher the discounted rate will be. The discount can apply to either fixed or variable rate products and is common in Ireland and the UK[3].

Variable maturity mortgages ensure that the monthly instalments remain the same, even if interest rate levels change. The adjustment is made by modifying the duration of the loan. Moreover, mortgage products increasingly offer a wide range of flexible repayment options, such as deferred starts or payment holidays.

Interest rate only mortgages allow the deferral of the payment of the principal for a given period or even until the end of the loan. Thus, during the interest only period the payment consists of only interest rates. Therefore the loan balance remains unchanged[4].

In the US, interest rate only mortgages form a large share of the gross lending. During the first half of 2005, this product amounted to 23% of the market. Moreover, the share of interest rate only mortgages increased from 17% in the second half of 2004 (3rd and 4th quarter)[5].

Mortgages with flexible instalments allow the borrower to adjust periodically the instalments, within given boundaries, according to his financial capacities. These types of mortgages are increasingly provided in France. However, they also exist in other EU countries. In the UK for example, borrowers are allowed to adjust their instalments to their needs: they can overpay, take payment holidays or even draw down cash when they need it.

3 In the UK there are also discounted tracker mortgages. A tracker mortgage is a mortgage which follows the Bank of England's base rate. Thus, the discount is applied to the Bank of England's base rate.

4 However, interest only mortgages are not new on the market. Originally they were designed for wealthier households who tended to use them as a cash management tool, investing the cash freed up during that period at a higher return- and were then able to sell, if necessary financial assets to pay off the loan amount. These types of loans were boosted by tax deductibility of mortgage interest rates.

5 American Mortgage Bankers Association, Mortgage Originations Survey, Midyear 2005

2.3 METHODOLOGY: DEFINITION OF INTEREST RATES

This study distinguishes between four main interest rate categories: Variable, initial fixed period rates, fixed rates and "other". The variable rate refers to an interest rate that remains unchanged for up to one 1 year (including 1 year). The initial fixed period rate refers to rates which are fixed for an initial period. There are three main periods: 1≤5, 5≤10, >10. Fixed interest rates are interest rates which remain unchanged throughout the entire duration of the loan. They are not available for all countries, since often they are included in the interest rate category 5≤10 or >10 years. The last category is "other" which includes hybrids and new products which do not fit into the three previous categories.

Type of interest rate	Description	Length of initial period of fixation	Further distinction
Fixed interest rate	It remains unchanged throughout the entire duration of the loan		
Initial fixed-period rate	An initial fixed-period rate contract will start with a period during which the interest rate does not change. After this initial fixed period, the interest rate can either be fixed for another period or vary. Changes in the mortgage interest rate can either follow homogeneous rules or not. Fixed rate mortgages are included in the initial fixed period statistics.	The initial fixed rate period is smaller than loan maturity and the initial fixed period is broken down into three maturity categories: 1 ≤ 5 years 5 ≤ 10 years >10 years	> Reviewable > Referenced > Renegotiable > Other
Variable rate	In a variable rate contract the interest rate could vary every day or up to a period of 1 year.	≤ 1 year	> Reviewable > Referenced > Other
Other rate	Accommodates hybrid products and new developments that do not fit into the other three categories.		

3. OVERVIEW OF INTEREST RATE TYPES

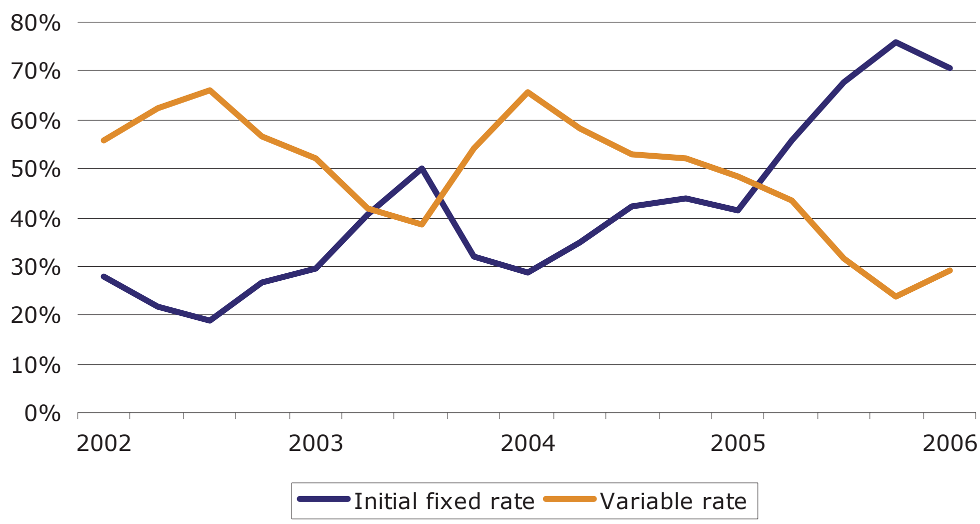
3.1 INTEREST RATE TYPES AS A PROPORTION OF GROSS MORTGAGE LENDING

Mortgage markets are very dynamic and in many EU countries the split between fixed and variable interest rates on new business can change very rapidly. The changes are typically due to changes in relative costs of short term rates versus long term rates, as well as the introduction of new products onto the market. For example, in 2005 in the UK, traditionally regarded as a variable rate country, the proportion of initial fixed rate mortgages exceeded variable rate mortgages (see chart 1). The UK position changed as a result of shifts in the yield curve, which made initial fixed rate products more attractive relative to variable rate products. The development of swap rates in recent years has helped lenders manage the interest rate risk arising from longer term fixed rate products. Data from the CML and Bank of England show that from August 2004 to March 2006 two year fixed rates on 95% LTV mortgage were persistently below base rate tracker loans[6]. Moreover, between May and September 2005 longer term swap rates (at maturities of 2, 3 and 5) fell below variable rates. The chart below reflects clearly the dynamism of the UK mortgage market which provides an indication of how fast the composition of gross lending can change.

Belgium is also a good example reflecting the rapidly changing demand for types of mortgage products. Until 1999 the share of variable interest rate mortgages was very small and fixed interest rate mortgages represented the dominant type of mortgage contract (7 out of 10 loans were at fixed rates).

6 Source: Council of Mortgage Lenders and table G1.3 of the Bank's of England monthly Monetary and Financial Statistics available at http://www.bankofengland.co.uk/statistics/ms/current/index.htm

> CHART 1
PERCENTAGE OF FIXED AND VARIABLE RATE MORTGAGES IN THE UK



Source:Council of Mortgage Lenders-Bank of England

However, due to the evolution of the yield curve and the introduction of the "Accordion option", which caps the monthly instalment by varying the maturity of the loan, variable interest rate mortgages increased significantly to a share of over 60% at the expense of fixed interest rate mortgages. The distribution of loan types then started changing again in early 2005, with strong growth in 10+ year fixed rate mortgage[7]. The main reasons are 1) the decreasing gap between variable and interest rates fixed for 20 years (which is less than 1%) and 2) expectations of rising interest rates. According to chart 2 in April 2006, mortgages with interest rates fixed for one year represent less than 20% of lending, while mortgages with interest rate fixed over 10 years form the largest share of mortgages provided.

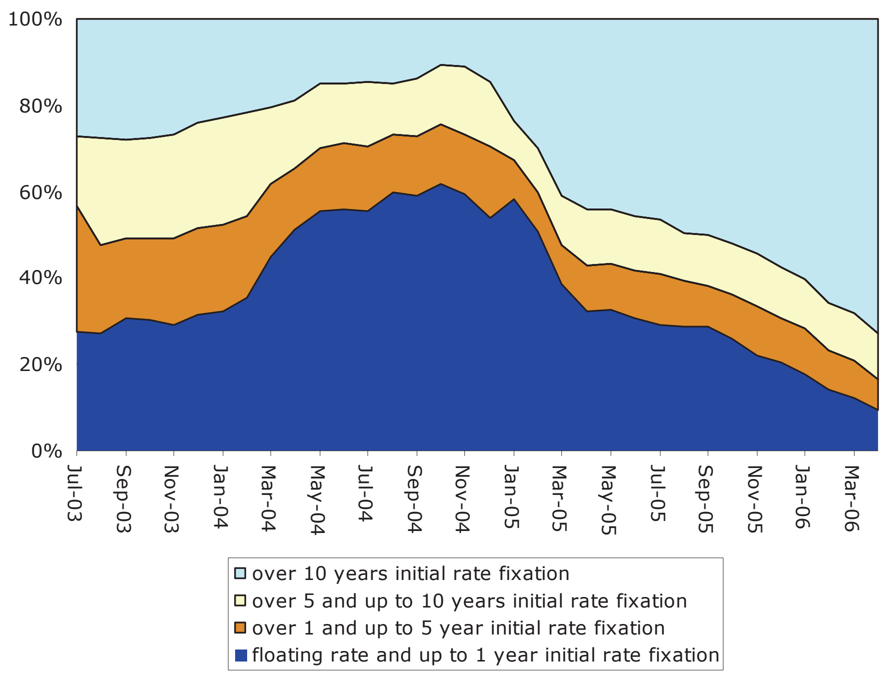
Looking at the position for Europe as a whole[8], the most widely used types of interest rates are fixed rates for an initial period which all together account for 49% of gross lending. If fixed interest rates and "others" are also included the share amounts to 53% (see chart 3).

The most common types of initial fixed period rates are short to medium term rates (1-5 years). Rates fixed for a period between 1 and 5 years account for 31.1% of the market. These are followed by interest rates fixed for a period between 5 and 10 years (10%) and then rates fixed for a period over 10 years (8.4%). Despite initial fixed period rates forming the largest share of the market, variable rates make up 46% of gross lending in Europe which remains significant.

At individual country level, the situation varies considerably. There are some countries where variable rates are dominant and others where initial fixed period rates are most common. Based on the latest data (2004 and 2005) the first group includes (see chart 4): Greece, Spain, Ireland, Italy, Luxembourg, Hungary, Portugal, and Sweden[9].

7 In the 10+ mortgages, fixed rate mortgages are included. This new terminology exists only since 2003. It does not distinguish between initial fixed period rate and pure fixed rate mortgages.
8 Calculations are based on a weighted average using gross lending. This gives greater importance to booming markets such as Spain and UK.
9 There is no data for Poland, but according to the Polish Mortgage Credit Foundation variable rate mortgages prevail in the Polish market.

> Chart 2
Percentage of fixed and variable rate mortgages in Belgium, July 2003- April 2006



Source:Banque Nationale de Belgique, Union Professionnelle du Crédit (Febelfin)

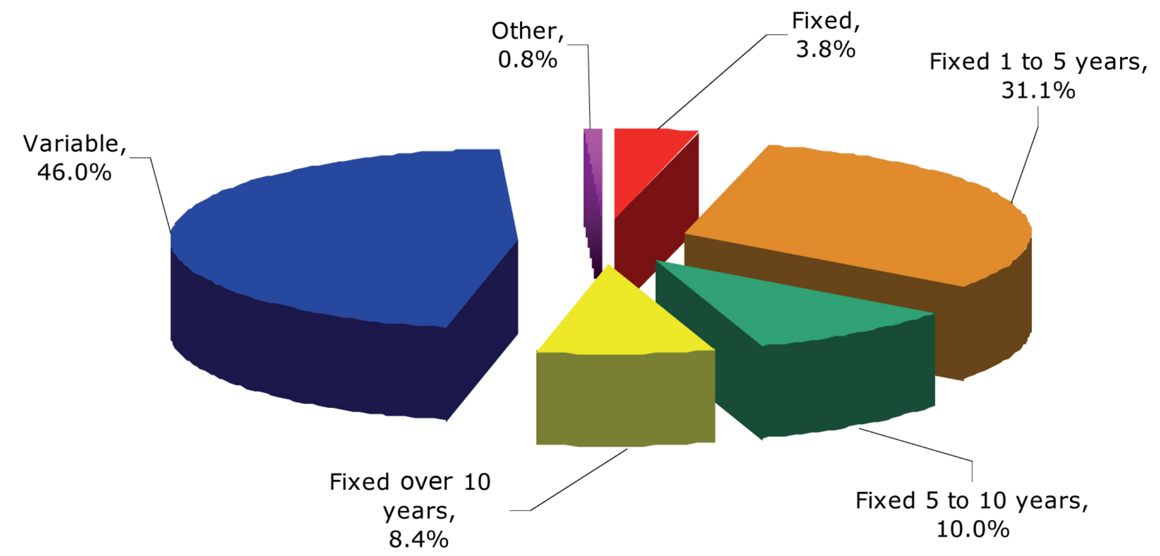
The second group includes: Belgium, Denmark, Germany, France, the Netherlands and the UK. It is worth reiterating that this can change very rapidly as the yield curve shape changes and makes long term fixed rates more or less attractive relative to shorter term rates.

Variable rate mortgage loans are particularly important in Greece (90%) Spain (93.2%), Italy (86.9%), Luxembourg (87%) and Portugal (95.4%). In Ireland which is well known for its variable rate mortgage market, the share of variable mortgages is only 64.4%. As mentioned before, the split between variable and fixed interest rates changes quickly and the popularity of initial fixed term mortgages in terms of new lending can be related to the interest rate cycle and the expectations relating thereto.

Hungary is generally a fixed rate country. However, in 2005 the share of variable rate mortgages was very high and accounted for 73.6% of gross lending. Variable rate mortgages in Hungary are only foreign currency mortgages which are mainly in Swiss Francs and became popular only after the cut in the subsidy system in 2003. Before the cut, Forint mortgages which are at fixed rates, formed the largest share of gross lending. The share of loans at variable rate as a percentage of gross lending in Hungary for 2004 and 2005 rose from 61.7% to 73.6%.

With regard to the EU Member States where initial fixed period loans prevail, Germany has the largest share of this type of loan (83.7%). The majority of mortgages have initial fixed period rates between 5 and 10 years (38.6%). It is common in Germany to fix the interest rate for another period at the end of the initial fixed period and to renegotiate the rate at regular intervals agreed in advance.

> CHART 3
TYPE OF RATE AS A PROPORTION OF GROSS MORTGAGE LENDING IN EUROPE



Source: European Mortgage Federation National Experts, National Central Banks
Notes:
Countries included: Belgium (2005), Denmark (2005), Germany(2005), Greece(2005), France (2004), Spain(2005), Hungary (2005), Ireland (2004), Italy (2004), the Netherlands (2004), Portugal (2004), Sweden (2005), United Kingdom (2005).
The category "length unknown" (see table 1 in the back) for the UK is included in the category "Fixed, 1 to 5 years".
The EU average is an average weighted with gross lending in 2004 or 2005.

The reason for the large share of rates fixed for a long initial period is in part due to the funding method and possibly also cultural preferences. In fact, Germany is the country with the largest covered bond market in Europe. Germany is followed by Denmark. In Denmark fixed rate loans (50%) and loans with an initial fixed period (20%) are very common and together amount to 70% of gross lending. Fixed rate products include 30 year loans but also 20 year products and to an even smaller extent 10 year rates.

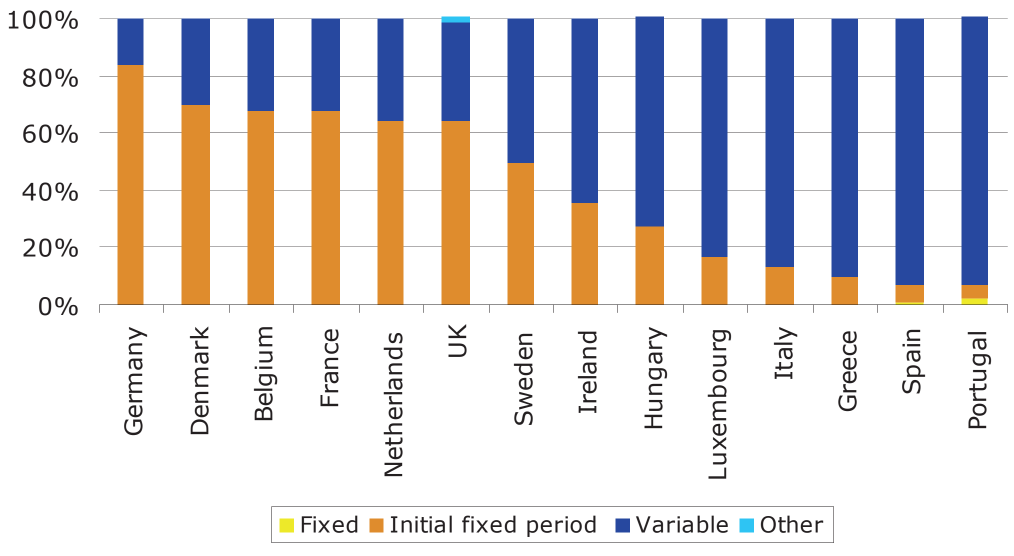
In Belgium and France initial fixed period rates prevail. In both countries, the share is similar at around 68% and mortgages with rates fixed for a period above 10 years prevail.

In fact, despite falling interest rates in recent years, in Europe more than 46% of gross lending remains in this category.

In the Netherlands 64.4% of gross lending is made up of initial fixed period interest rates and the majority of mortgages have fixed rate terms of 5 or 10 years. The Dutch housing market is clearly influenced by the fiscal regime, which has induced both lenders and borrowers to maximise mortgage interest deductibility and has stimulated mortgage equity withdrawal[10]. Interest rates expenses are fully deductible at the marginal tax rate[11]. Thus, although fixed rates are more costly than variable rates, Dutch mortgage borrowers benefit in terms of less taxes.

10 Mortgage equity withdrawal is very common in the Netherlands due to the mortgage interest deductibility scheme.
11 There have been revisions of the mortgage interest deductibility scheme in the past years. Tax deductibility has been limited to interest payments on mortgage loans that are used for the improvement of the house and mortgages for second homes have been excluded. Moreover, interest deductibility have been limited to a period of 30 years.

> CHART 4
TYPES OF INTEREST RATES AS A PERCENTAGE OF GROSS LENDING



Source: European Mortgage Federation National Experts, National Central Banks
Notes: Latest data is: Belgium (2005), Denmark (2005), Germany(2005), Greece(2005), France (2004), Spain(2005), Hungary (2005), Ireland (2005), Italy (2004), Netherlands (2004), Portugal (2004), Sweden (2005), United Kingdom (2005).

3.2 INTEREST RATE TYPES AS A PROPORTION OF OUTSTANDING MORTGAGE DEBT

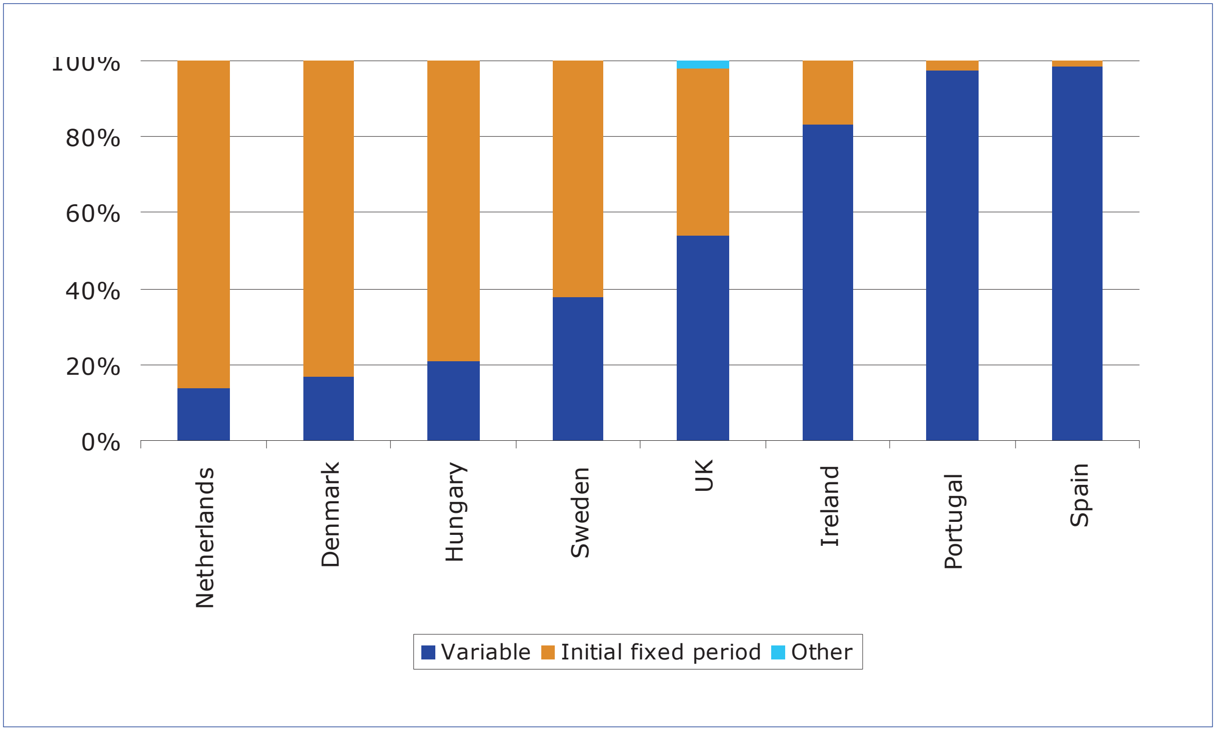
Type of interest rates as a percentage of balances outstanding is probably a better indicator than gross lending as by its very nature it is not so volatile and it therefore represents a crucial element for the interest sensitivity assessment. In fact, the sensitivity assessment of households to a change in interest rates depends upon the share of outstanding debt (gross lending provides data only for the amount of debt during the current year). However data for this indicator are limited and it is more complex to shed light on the current situation from an EU perspective.

By making use of recent ECB estimates[12] it is possible to estimate the share of variable mortgage debt as a proportion of EU balances outstanding. The share of outstanding mortgage debt in the Eurozone exposed to short run changes in interest rates is estimated at around 1/3 of total outstanding. Looking at the figure for the EU as a whole, the UK variable mortgage debt can be added on. This represents around 17% of the EU mortgage market which means that the overall share of variable mortgage debt outstanding amounts to around 40% of total mortgage debt[13]. The calculations show that mortgages with fixed period rates still constitute the largest share of mortgage loans outstanding in the EU.

According to data available, at individual country level, Spain, Ireland, Portugal and the UK have the largest share of variable rate loans (see chart 5). In all four countries the share of variable rates in terms of outstanding mortgage loans is higher than in terms of gross lending. As mentioned before, this is mainly due to the rapid change in new business from one year to the next.

12 ECB, December 2004, Financial Stability Review, page 57.
13 Own calculations on the basis of Hypostat 2004. The data for UK variable mortgage debt is from CACI. Variable mortgage debt in the UK is approximately 69%.

> CHART 5
TYPES OF INTEREST RATES AS A PERCENTAGE OF MORTGAGE LENDING OUTSTANDING



Source: European Mortgage Federation National Experts, CACI Mortgage database for the UK, National Central Banks.
Latest data is: Denmark (2005), Spain (2005), Hungary (2005), Ireland (2005), Netherlands (2004), Portugal (2004), Sweden (2005), UK (2005).

Chart 5 shows that Denmark[14], Hungary, and the Netherlands have the largest share of initial fixed period rate mortgages.

In Denmark fixed rate mortgages and initial fixed rate mortgages together amount to 80% of outstanding mortgage loans and 70% of gross lending. The reason for the difference is the fall in interest rates during 2004 and 2005, as well the introduction of variable rate loans with interest rate cap. The cap limits interest rates increases, thus it increased the popularity of variable interest rate loans in Denmark.

In Sweden variable interest rates are a recent phenomenon. Initial fixed period rate mortgages account to 62.2% of outstanding mortgage loans while they account for 50.1% of gross lending. The switch to variable rates is due, as in Denmark, to strongly declining interest rates during the past years. However, interest rates are expected to rise in the near future, and consequently initial fixed period rates are expected to once again become more common.

In Hungary[15], despite variable rates representing the largest share of gross lending for 2005, 79.3% of outstanding mortgage lending is still at initial fixed period rates (initial fixed period rate mortgages are in national currency). The largest share of mortgage debt is still in national currency as the subsidy system was cut only 2 years ago. Moreover, the increase in foreign exchange mortgages is not expected to be as strong as during the last two years. The decrease in interest rates in residential housing has been significant and they are currently only a little more expensive than foreign currency loans.

The Dutch mortgage market is dominated by fixed rate borrowing at initial fixed period rates. The latter amounts to 86%, while variable rate borrowing is just 14%. The share of variable rate mortgages did not increase over the last decade (the shares are the same as in 1990). However, 5- year fixed term mortgages have taken over the lead from 10-year fixed terms[16].

14 In Denmark fixed rate contracts form a large share 50%.

15 Data on types of interest rate shares is not available for many of the new Member States. The only new Member State included in this study is Hungary. It is worth noticing, that based on anecdotal evidence in Poland variable interest rates are dominant and the share of initial fixed period rates is very low. However, initial fixed period rates are getting more popular. The initial fixed period usually amounts to one year. Moreover, loans with an initial fixed period of two years are increasing.

16 Van Dijkhuizen A. (2004), Dutch housing finance market, The Netherlandsche Bank

4. FACTORS AFFECTING INTEREST RATE VARIABILITY

The reasons for different interest rate types across EU Member States depend on a variety of factors such as cultural differences, different yield curve shapes, early repayment regulations, the type of mortgage funding, interest rates caps/floors, and the introduction of the Euro.

4.1 CULTURAL DIFFERENCES

Cultural differences play an important role in the context of interest rate variability. They are linked to factors such as housing system including real estate law, borrowers' risk appetite, funding system or frequency of house moves.

In Germany and Denmark the funding system is a major reason for the prevalence of fixed rate products and its introduction can be traced back to more than 200 years ago. The first covered bond legislation was enacted in 1769 in Germany, while in Denmark the first covered bond issuer was established in 1797 and the first legislation enacted in 1850.

In the UK borrowers seem to prefer variable interest rates. The Miles[17] Report indicated that UK borrowers were attracted to variable rates as they tend to focus on the initial monthly repayment (which is typically lower for variable rate products) rather than on the long term affordability when choosing their mortgage conditions. Moreover, in the UK the concept of the "property ladder" seems to have a greater hold than in other European countries. People buy their first house at the bottom of the ladder and then use the capital gains to "move up the ladder"[18]. Thus, it is common to move house several times during one's lifetime. The flexibility of variable interest rates in this respect makes them popular as they enable borrowers to switch easily to another mortgage without incurring early repayment charges. Conversely, in countries such as Belgium or Germany, when people buy a property they tend to stay there for a much longer period, or in fact not move on at all. Empirical evidence shows that in the UK the average annual turnover in housing stock is 5.7%. In Belgium and Germany it is respectively 2.4% and 1.4%[19].

4.2 YIELD CURVE

One of the key determinants of the level of interest rates for different maturity periods is the shape of the yield curve. Typically a yield curve is constructed by taking the returns on government bonds of differing maturities. A timeline can then be built which shows yield levels over time. Historically a normal yield curve (as depicted in chart 6 below) shows gently rising rates of interest or yields. This reflects the fact that the further forward you go in time the greater the uncertainty about where interest rates will be, therefore investors want higher levels of 'compensation' for tying up their money for a longer period.

Cases can arise when long term interest rates fall below short term rates which results in a so called 'inverted' yield curve. Yield curves with a negative slope can arise for a variety of reasons, but typically there will be an expectation that interest rates are going to decrease at some future point. The rate decrease is factored in to the pricing of bonds by investors which mean they expect a lower return on long dated assets than on short term dated assets.

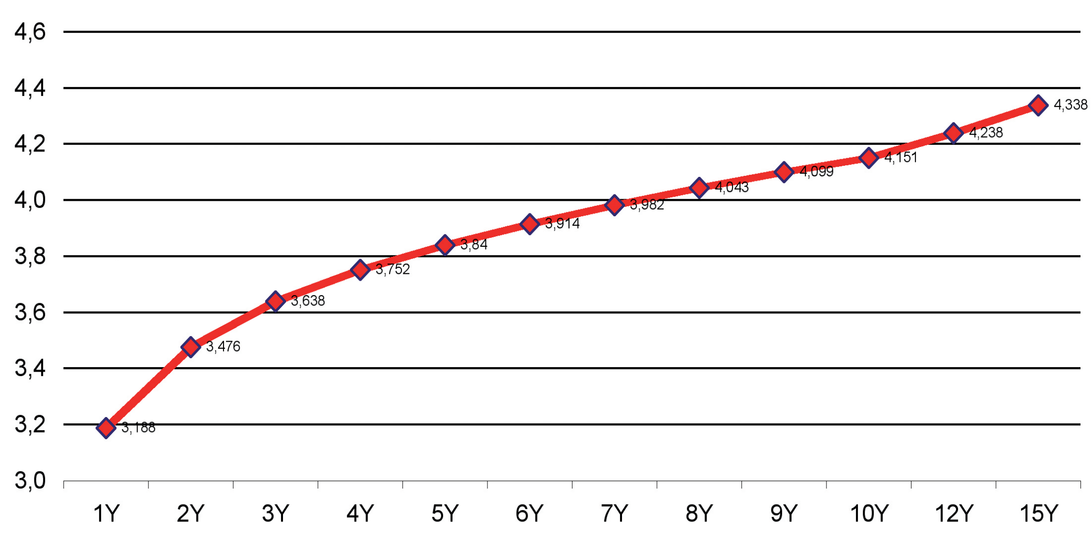
Mortgage markets are intrinsically linked to the yield curve via the capital markets which provide banks with part of their funding. Over recent years there has been a gradual decrease in interest rates, particularly in the Eurozone. Importantly over this period there was also an expectation of further decreases which meant that forward or long term interest rates were very competitive relative to short term rates. This naturally translated into the pricing of mortgage products which in recent years means that long term fixed rates have been attractive to mortgage borrowers.

17 Miles Review, Final Report (2004)
18 Earley F., "What explains the differences in moving home in Europe?", September 2004
19 The average annual turnover of housing stock has been calculated by dividing the simple average of the number of transactions during the last 10 years (1995-2004) by the simple average of the total dwelling stock during the last 10 years (1995-2004). See the Study on Cost of Housing 2004 for more details.

As mentioned before, this happened also in the UK, where long term fixed rates have become more attractive.

More recently however, as interest rates have bottomed out, short term interest rates are more competitive than long term interest rates, since an upward trend in interest rates is expected for the future.

> Chart 6
Pfandbrief Yield Curve on 13 April 2006



Source: Verband Deutscher Pfandbriefbanken,**www.pfanbrief.de**

4.3 EARLY REPAYMENT

When interest rates are falling or expected to do so, the option of early repayment can lead to the refinancing of a loan at a more favourable rate. In cases where the lender has fixed rate funding in place, refinancing by the borrower can result in considerable costs for the lender, as they adjust their funding to eliminate interest rate risk from their balance sheet. The level of early repayments and the rules governing the ability of borrowers to repay loans early therefore has a direct impact on the provision of products with long term fixed interest rates.

In Denmark early repayment is possible at any time. The borrower has the right to repay early for mortgages funded by either, callable and non callable bonds. The borrower can buy back the bonds funding the mortgage directly on the capital market at the market price and deliver the bonds to the mortgage bank. However, in the case of a mortgage funded by callable bonds the borrower can also call back the loan at any time at a given price (most commonly at par). This call option is reflected in the market price of callable bonds. When call options are exercised the bond holder will incur a loss equivalent to the market price of the bond minus par. The risk of incurring such a loss is reflected in the pricing of callable bonds. Thus, in Denmark the system of early repayment allows for large variability of interest rates.

In other European countries (e.g. Belgium, Spain and France) interest rate variability can be affected by strong national consumer protection laws allowing borrowers to repay at a low cost any type of mortgage loan (whether fixed or variable rate). This situation is particularly pronounced in Spain, where borrowers can exercise early repayment at any time. The borrower can therefore transfer the loan to another lender with better conditions, or re-negotiate better conditions with the same lender (when interest rates fall). This is however not possible for the lender when interest rates rise[20]. This situation therefore creates enormous difficulties for mortgage lenders in Spain and effectively means that mortgage lending in Spain is done almost exclusively at variable rates.

Conversely, there are countries, where early repayment is costly or early repayment is possible only under certain conditions. In Italy the sum of the costs associated with early repayment, such as the early repayment fee, notary fees (e.g. fees for the cancellation of the mortgage from the mortgage register) and other administrative costs deter customers from prepaying. In Germany early repayment is always possible after the initial fixed rate period[21] but prepayment during this fixed period is also possible but only under specific conditions which include: 1) house sale or 2) if the borrower wants to increase his loan, but this is refused by the existing lender for one reason or other, the borrower has the option to repay early and take out a loan with another lender. Thus, in Germany early repayment regulations reduce some of the risks associated with long term fixed rates for lenders and therefore enable lenders to offer a greater range of long term fixed rate products.

With regard to the UK, the Miles Review[22] underlines that the prevalence of variable rate mortgages is also due to the prepayment charges for fixed rate mortgages which are mainly in the form of pre-determined charge, typically three months worth of interest payments. The lender is therefore only partially protected from pre-payment risk and therefore constrains its ability to supply fixed rate products[23].

20 The lender gains only if interest rates increase. The right of early repayment is unilateral.
21 Or after 10 years if the initial fixed rate period is 15 years
22 Miles Review, Final Report (2004)
23 However, this study shows (see page 5) that in 2005 initial fixed period tracker rates have been more popular than variable rates.

4.4 TYPE OF FUNDING

The way in which lenders fund their mortgage loans can also affect the variability of the mortgage rates. Capital markets can be a source of long-term financing for mortgage lending by complementing retail deposits and helping to reduce the maturity mismatch from short-term liabilities (deposits) and long-term assets (housing loans).

In markets where alternative funding sources such as covered bonds are widespread, long term fixed rate mortgages tend to be much more common. The best examples are Denmark and Germany which have the largest mortgage bond markets in Europe. Elsewhere countries such as Greece, Ireland, Italy and the UK, where retail deposits are the dominant funding source, variable rates prevail. The absence of covered bonds can not be considered as the only reason determining the supply of fixed rate mortgages. In Spain the covered bonds and mortgage backed securities markets are very well developed, but initial fixed period rate mortgages are not widespread. This is in part due to regulation, but also due to the fact, that mortgage providers in Spain are universal banks which gives them the ability to spread the interest rate risk over a wider portfolio than just their mortgage loans.

4.5 CAPS AND FLOORS

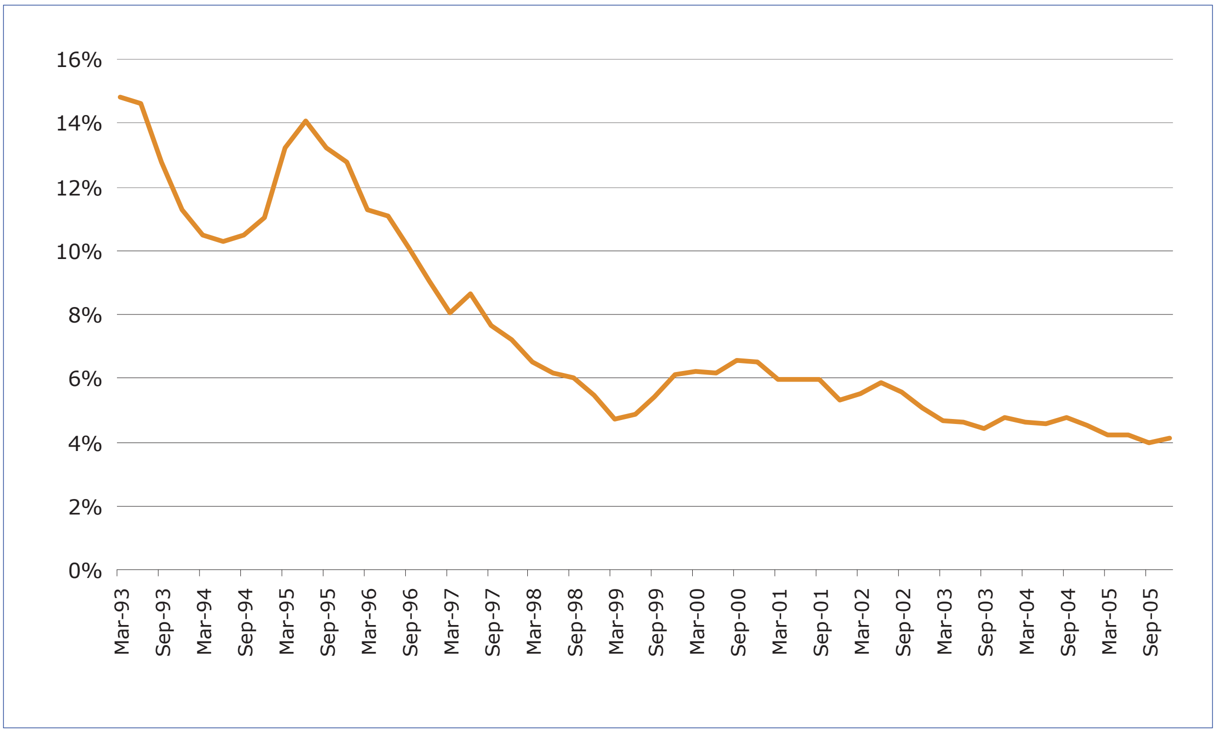
Mortgage products can include mechanisms whereby a variable interest rate must remain within a specific upper limit (cap) and lower limit (floor). These caps and floors limit the extent to which mortgage interest rates can vary.

They appear to be very common in Belgium and France. Legislation in Belgium states that the cap can increase by a maximum of 1% (compared to the initial rate) during the 2nd year and by a maximum of 2% during the 3rd year. Borrowers are therefore protected from large shifts in interest rates and this combined with the decrease in interest rates, explains why Belgian borrowers have shifted to one year initial fixed period rates between 2002 and 2004. It appears that in countries where fixed rate lending is the norm for mortgages, interest rate protection is very high. For example, in Germany and Denmark variable interest rate mortgages with caps have been introduced recently. In Denmark the latter have been a success due to the declining interest rates. In Germany the impact has still to be seen. It is not excluded that German borrowers could in part switch to variable interest mortgages with a cap. On the other hand, capped loans are also available in the UK, where they account only for 0.6% of the new mortgage loans in 2005.

4.6 THE EURO

The introduction of the Euro, together with an ECB set Eurozone interest rate had a large impact on the level of mortgage rates in Europe. Interest rates have declined significantly in recent years. The interest rate evolution over the last few years has without doubt stimulated the sales of variable rate loans in several EU countries. However, in Italy the decline in interest rates is expected to increase the share of initial fixed period mortgages in the future. In fact, in Italy the lack of initial fixed period rate mortgages was due to the extremely high interest rates and the high inflation lasting from the early 1970s to the early 1990s. Interest rates for initial fixed period mortgages were at two digit levels (see chart 7). In the second half of the 90s interest rates started to fall, due to the lower inflation rate and the increased stability of the market due to Italy's participation in the Euro. Initial fixed rate mortgages then became available, but still represent a small share of the market (>5 years is about 20% of gross mortgage lending outstanding in 2004). Moreover, it is expected that with the introduction of the legislation on covered bonds (the first mortgage bonds are foreseen to be issued by the end of 2006) the share of initial fixed period rate mortgages will increase.

> CHART 7
MEDIUM TO LONG TERM MORTGAGE INTEREST RATES FOR SUBSIDISED MORTGAGES IN ITALY-MARCH 1993- SEPTEMBER2005



Source: Associazione Bancaria Italiana

5. POLICY ISSUES

5.1 MONETARY POLICY TRANSMISSION CHANNELS

The housing market and the way it is financed has important repercussions for the economy and the link between the two operates mainly through demand for housing which is evidenced through new construction levels or through changes in house prices. There are several channels through which house price fluctuations impact on economic activity[24]. The most relevant in the context of this paper, is the channel relating to disposable income: a change in the monetary policy stance will affect disposable income as mortgage payments take up more or less of an individual's income.

The type of mortgage contract (variable or fixed) and the size of the mortgage debt outstanding are central factors. The household sectors' sensitivity to interest rate changes depends on whether households' have mainly fixed or variable mortgage rates, as well as the extent of indebtedness. Those countries with a greater preponderance of variable rate products will naturally be more sensitive to changes in interest rates. Moreover, the vulnerability of the household sector to potential interest rate shocks increases with higher indebtedness. Mortgage debt to GDP ratio is relatively low in the EU (49%) in comparison to the US (64%) but there has been a remarkable increase in recent years. Moreover, at individual country level, mortgage debt/GDP ratios vary widely, from above 111% in the Netherlands to mortgage debt/GDP ratios under 10% in many of the new Member States[25]

According to the data collected the impact of short-term interest changes is likely to be stronger in Greece, Spain, Ireland, Italy, Luxembourg, Portugal, and the UK (where variable rates have typically been predominant) whereas in Belgium, Denmark, Germany, France, Hungary, the Netherlands and Sweden, movements of policy interest rates over the business cycle will have a more limited impact.

However, the strength and the speed of the monetary transmission mechanism does not depend only on the type of mortgage contract in terms of fixed or variable interest rates, but on a series of other factors, such as LTV ratios, the duration of the mortgage contract, transaction costs, housing tenure patterns etc. In the UK where in addition to variable interest rates, LTV ratios are high, owner-occupation is high and housing transaction costs are very low the effect of a change in monetary policy could be stronger. On the other hand, in Italy, where owner-occupation is high but LTV ratios are lower and transaction costs are high the effect of a change in interest rates would be less strong than in the UK.

5.2 MARKET COMPLETENESS AND EUROPEAN MORTGAGE MARKET INTEGRATION

There are different degrees of product completeness of EU mortgage markets. In some countries there is a lack of variable rate products and in others a lack of fixed rate products. This has been well documented in studies by Mercer Oliver Wyman (2003), London Economics (2005) and also the Miles Review (2004) for the UK. The Mercer Oliver Wyman study defines completeness as the access of more risky borrowers to mortgage markets (e.g. sub prime lending), as well in terms of product range availability (see table 1 below).

There is no single reason for the lack of completeness, but factors such as early repayment regulations, the type of funding methods and caps/floors will all play a role.

In the UK the major reasons for a lack of long term fixed rate products are the funding method and the calculation of the prepayment fee for fixed rate mortgages. There is no secondary market for covered bonds and prepayment fees are predetermined and do not completely protect the lender from prepayment risk.

24 The ECB indicates four main channels: new construction, wealth, credit and disposable income
ECB (2003), Structural factors in the EU housing markets

25 Data is from Hypostat 2004. Based on EMF estimates, in the EU, mortgage lending outstanding as a percentage of GDP amounts to 49% in 2005.

In addition to this, consumers are not familiar with long term fixed rate products and consequently there is also a low level of demand for these products. On the other hand in Italy, high interest rates until mid 90s rendered fixed rate mortgages unattractive. Of particular noteworthiness is the case of Spain where legislation introduced a cap of 1% on the prepayment fee of variable and initial fixed period rate mortgages (independently from length of initial fixed period). In case of remortgaging with another credit institution the cap is 0.5%[26]. For this reason, and as a protection against interest rate risks, credit institutions reduced their contractual revision terms of the loans, which nowadays are mainly 6 or 12 months. Thus, longer initial fixed rate period mortgages and fixed rate mortgages have seen a large decrease in supply.

26 This legislation was introduced in 1994. At the end of the 80s caps on prepayment fees could be charged maximum to 1.5% for variable rate loans and maximum to 5% for fixed rate loans.

> Table 1:
PRODUCT VARIATION BY COUNTRY

	Rate Structure				Range of Fixed Terms (Years)			
Market	Variable	Variable (Referenced)	Discounted	Capped	2-5	5-10	10-20	20+
Denmark	●	●	○	●	●	●	●	●
France	●	●	◐	●	●	●	●	◐
Germany	●	○	○	●	●	●	●	◐
Italy	●	●	◐	●	●	●	◐	◐
Netherlands	●	●	○	●	●	●	●	◐
Portugal	●	●	○	○	◐	◐	○	○
Spain	●	●	●	◐	◐	◐	◐	◐
UK	●	●	●	●	●	◐	◐	○

Readily available	●	Limited availability	◐	No availability	○

Source: Mercer Oliver Wyman (2003), Study on the Financial Integration of European Mortgage Markets

6. CONCLUSIONS

Residential mortgage loans typically fall into two groups, fixed rate countries and variable rate countries. The first group includes: Belgium, Denmark, Germany, France, Hungary, the Netherlands, and Sweden. The second group includes: Greece, Spain, Ireland, Italy, Luxembourg, Portugal and the UK.

In many EU countries the split between fixed or variable rates on new business can change very rapidly. The changes are typically due to changes in the relative cost of short term rates versus long term rates, as well as the introduction of new products onto the market. Based on EMF calculations for those countries included in the study, mortgages for an initial fixed period are the dominant type of loan in the EU, in terms of both new business and balances outstanding, with a share of approximately 53% and 60% respectively.

The distinction between variable and fixed interest rate countries is relevant from a monetary policy perspective: a change in interest rates will depend on country specific mortgage features, as well the interest rate variability regime of outstanding mortgages. Thus, the impact of a rise/cut in interest rates is likely to be stronger in the second group than in the first group of countries.

The variability of interest rates differs considerably between EU countries, due to a variety of factors, such as inflation history, cultural differences, differences in yield curves, type of funding, early repayment regulations, the introduction of the Euro and caps/floors. In every country the combination and the impact of these factors is different, reflecting the national diversity of EU mortgage markets. For example, with regard to mortgage funding, in countries where mortgage funding takes place through covered bonds, fixed interest rates prevail. On the other hand in countries where retail deposits are the main funding source variable interest rate products prevail.

The same reasons contribute to the different degrees of completeness of EU mortgage markets. For instance, full/partial recovery of early repayment losses is a relevant factor with regard to lenders' product supply. If lenders' early repayment losses can not be fully recovered lenders can limit the supply of fixed rate products. Improving product completeness and the range of people who have access to housing finance in Europe is one of the key benefits which is expected to arise from greater integration. Having access to products with different maturities and interest rate variability mechanisms enables consumers to better match their risk preferences to their financial planning requirements.

ANNEX I

> Summary table: Interest rate type and regulations

Country	Major share interest rate (gross lending)	Major share interest rate	Restrictions on early repayment fees	Prevalent funding method	Legal caps and floors on interest rate variability
Belgium	Initial fixed	Initial fixed	Yes: Maximum 3 months interest on the remaining amount	Retail deposits	Yes: According to Belgian legislation interest rates can increase by max. 1% during the 2nd year and by max. 2% after the 3rd year (compared to the initial interest rate).
Denmark	Initial fixed and fixed	Initial fixed and fixed	None	Covered bonds	None
Germany	Initial fixed	Initial fixed	Yes: Lender can ask for compensation of funding losses during the first ten years of contract, but not after.	Covered bonds	None
Greece	Variable rate	Variable rate	None	Retail deposits	None
Spain	Variable rate	Variable rate	Yes: maximum 1% on variable and initial fixed period rate loans.	Retail deposits	None
France	Initial fixed	Initial fixed	Yes: The Scrivener law limits fees to 3 months interest at the average loan rate and of 3% of capital still to be repaid.	Retail deposits	None
Ireland	Variable rate	Variable rate	None	Retail deposits	None
Italy	Variable rate	Variable rate	None	Retail deposits	The usury law makes the provision of sub-prime lending more difficult.
Hungary	Variable rates	Initial fixed	None	Covered bonds	None. Credit institutions may decide freely on cap and floors to apply.
Netherlands	Initial fixed	Initial fixed	None	Retail deposits	None
Portugal	Variable rate	Variable rate	Yes: Cannot exceed 1% of the outstanding amount to be amortised in the subsidised regimes. (The subsidised regime however, ended in September 2002)	Retail deposits	None
Sweden	Initial fixed	Initial fixed	None	Retail deposits	None
United Kingdom	Initial fixed	Variable rates	None	Retail deposits	None

ANNEX II

>TABLE 1
INTEREST RATE TYPE AS A PROPORTION OF GROSS LENDING

	BE	DK	DE	GR	ES	FR	LU	HU	IE	IT	NL	PT	SE	UK	EU average
≤1	32.4%	30.0%	16.3%	90.0%	93.2%	32.0%	87.0%	73.6%	64.4%	86.9%	36.0%	95.4%	49.9%	34.9%	46.0%
1≤5	10.3%	n.a.	17.0%	3.9%	5.7%	12.0%	n.a.	22.6%	35.6%	4.3%	20.8%	3.0%	36.9%	24.7%	18.4%
5≤10	11.8%	n.a.	38.6%	1.2%	0.5%	10.0%	n.a.	3.0%	0.0%	1.8%	37.9%	1.0%	13.2%	3.8%	10.0%
>10	45.5%	n.a.	28.1%	5.0%	n.a.	46.0%	n.a.	0.8%	0.0%	7.0%	5.3%	0.5%	n.a.	n.a	8.4%
∑ IFP*	67.8%	20.0%	83.7%	10.0%	6.2%	68.0%	13.0%	26.4%	35.6%	13.1%	64.4%	4.5%	50.1%	65.6%	49.5%
Fixed	n.a.	50.0%	n.a.	n.a	0.6%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a	3.8%
Length unknown	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	34.5%	12.7%
Other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.1%	n.a.	2.1%	0.8%

Notes:
Not for all countries data is for 2005. 2004 data is for France, Ireland, Italy, the Netherlands and Portugal.
IFP*: Initial Fixed Period Rates
Belgium: Interest rates can not vary more than once a year. Interest rates changes follow an interest rate index published by the Commission Bancaire, Financière et des Assurances (CBFA). Moreover, in Belgium variable interest rates are defined as interest rates which remain fixed for a period between 1 and 3 years, 3 and 5 years and over 10 years. However, for the purpose of the study interest rate types will be defined as in other countries.
Denmark:
Fixed rate: Fixed rate (annuity) loans are based on long term interest rates dominated by 30 year rates (loans) but also by 20 year rates and to an even smaller extent by 10 year rates. The bonds behind the loans are callable annuity bonds.
Initial fixed period rate: These loans are based on interest rates fixed from 1-11 years with the vast majority in the 1-3 year segment. The bonds behind the loans are non-callable bullet bonds. The loans are again dominated by 30 year loans and after the initial fixed period rate the new interest rates on the loan are set by selling new bullet bonds (on auctions) getting a new fixed period rate based on the price of the bonds.
Variable rate: Adjustable rate loans are based on interest rates up to 1 year – more specifically 6 months CIBOR. The bonds behind the loans are variable rate annuity bonds with maturities typically 30 year but also 20, 10 years and 5 years. The bonds can be both callable and non callable depending on the variation of the loan type.
Interest only loans: For all the above loan types it is possible to get an interest only loan which means that the borrower can have a period of up to 10 years with interest only payments.
France: Fixed period rates are included in the category >10.
Ireland: Data refers only to the first 3 quarters of 2005. The breakdown for interest rate type in gross lending statistics refers to simply "fixed" and "variable". However, the vast majority of initial fixed rates are for a period between 1-3 years. Fixed rates as defined by the EMF are virtually non-existent in the Irish market. Therefore, this figure approximates to the total for "initial fixed period rates" as defined by the EMF.
Sweden: The Swedish statistics on initial fixed period rates does not include the category >10. The last category considered by Swedish statistics is ≥5. However, initial fixed period rates over 10 years are uncommon in Sweden.
UK: The figures relate to the April-December period. The data source does not provide a detailed breakdown of the ">5" category, so this has been reported in the 5≤10 category. The data in the category "length unknown" is part of the initial fixed rate interest rates category.
EU average: Weighted average with gross lending. The EU average does not include Luxembourg, as more detailed data for the calculation is not available.

ANNEX II

>Table 2

Interest rate type as a proportion of mortgage debt outstanding

	DK	ES	IE	HU	PT	SE	NL	UK
≤1	17.0%	98.25%	83.2%	20.7%	97.6%	37.9%	14.0%	54.0%
1≤5	n.a.	n.a.	14.2%	n.a.	2.0%	42.1%	n.a.	n.a.
5≤10	n.a.	n.a.	2.6%	n.a.	0.3%	20.1%	n.a.	n.a.
>10	n.a.	n.a.	n.a.	n.a.	0.1%	n.a.	n.a.	n.a.
Σ IFP*	34.0%	1.10%	16.8%	79.3%	2.4%	62.2%	86.0%	44.0%
Fixed	49.0%	0.65%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Others	n.a.	n.a	n.a.	n.a.	n.a.	n.a.	n.a.	2.0%

Notes:
IFP*: Initial Fixed Period Rates
Not for all countries data is for 2005. 2004 data is for Ireland, the Netherlands Portugal and Sweden.
For Denmark, Hungary, the Netherlands and the UK more detailed data is not available.
Denmark: see note for gross lending
Spain: Data refers to remaining maturities. Thus, initial fixed period rate mortgages may have become variable.
Ireland: Fixed rates are included in the >5 figure, but in practice they are 0%. The breakdown of initial fixed period rates of the Central Bank and Financial Service Authority of Ireland is 1-3, 3-5, and 5+.
Data refers to remaining maturities. Thus, initial fixed period rate mortgages may have become variable.
Hungary: IFP rates is also including 1 year fixed rates.
Sweden: The Swedish statistics on initial fixed period rates does not include the category >10. The last category considered by Swedish statistics is ≥5. However, initial fixed period rates over 10 years are uncommon in Sweden.
UK: Data is for 2005 from CACI Mortgage Database. Data ≤1 year for the UK includes these types of interest rates: variable, capped, premium, discounted and tracker interest rate.
Data refers to remaining maturities. Thus, initial fixed period rate mortgages may have become variable.

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