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Variable Mortgage Rate Pricing in Ireland

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Abstract

This Letter examines movements in the interest rates charged on variable rate mortgages. The results indicate that variable rates for all lenders closely followed changes in the ECB's policy rate, short-term wholesale rates and tracker rate mortgages until the end of 2008. Thereafter, the relationship breaks down, in part due to banks' increased market funding costs. It appears that some lenders with higher mortgage arrears rates and a greater proportion of tracker rate loans on their books exhibit higher variable rates. After controlling for these additional factors, most of the divergence between banks variable rates is explained, but there are some exceptions. There is also some evidence of asymmetric adjustment in rate setting behaviour: that is, rates tend to adjust slowly when they are above the long-run predicted level but more quickly when they are below this level. This asymmetric adjustment behaviour appears to increase in the post-2008 period.

1 Introduction

Irish mortgages can be on a fixed or variable rate, with the vast majority (85 per cent) on the latter. There are two types of variable rate loans: those that track the ECB base rate at an agreed margin, typically called 'trackers', and those that do not. In the latter case, the lender offers no specific link to an underlying market or wholesale rate and can choose to increase or decrease the rate at its discretion. In this paper when we refer to variable rate mortgages, we exclude trackers. The most common variable rate product is the Standard Variable Rate or 'SVR'. For most of the last decade, lenders' SVRs closely followed their tracker rates, with an average difference between the two of 0.20 percentage points from 2003 to 2008. However, since the end of 2008, the two interest rates have diverged with the average difference reaching 2 percentage points by November 2011 (see Figure 1).

The increase in variable rates since mid-2009 varies across institutions. Understanding why this is happening and how banks set variable rates is important, not least in the context of current concerns about affordability and borrower distress. This Letter aims to answer two questions:

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- What explains the changes in variable rates over time, and in particular what explains divergence from tracker rates in recent years?
- Why have some lenders increased variable rates more than others?

Our approach draws on both the monetary policy (Rousseas, 1985) and the industrial organisation literature (Klemperer, 1987 and Cecchin, 2011) on interest rate pass-through by looking at banks' pricing of loans and deposits from a cost of funds perspective.

2 Variable rates and the Irish mortgage market in context

Variable rate mortgages account for one third of balances and one-half of loans in each of the owner-occupier and buy-to-let segments. In the owner-occupier segment, the average balance on a variable rate mortgage as at end 2010 was €90,000, equal to approximately half the average balance of a tracker mortgage. Variable rate mortgages tend to be older vintage loans: 70 per cent of mortgages originating prior to 2001 are variable rate loans. From early-2009 onwards lenders stopped offering Tracker mortgages when the underlying margin risk was starkly exposed by the financial crisis (i.e. margins were too low and inflexible given the new market funding environment). In the last two years, the majority of new mortgages have been on a variable rates.

There are considerable differences between lenders in the share of balances accounted for by variable rate loans, ranging from 19 to 56 per cent. Lenders with a lower share of variable rate loans tend to have a higher share of tracker mortgages, as fixed rate mortgages account for less than 20 per cent of balances across most banks. When one part of a lender's book is unprofitable, banks may increase rates on other loans to compensate. We test this hypothesis in the econometric modelling below.

The difference between variable and tracker rates rose from close to zero at the end of 2008, to over 2 percentage points by November 2011. The bottom panel in Table 1 shows the average interest rate by rate type and market segment (owner occupier versus buy-to-let) on existing loans in November 2011. The range between variable and tracker rates varies between 1.4 to 2.8 per cent, indicating that some lenders have increased variable rates more than others.

3 Bank funding costs and interest margins

Lenders' funding costs and net interest margins have undergone significant change in recent years. These changes may feed into higher variable rates as lenders seek to re-build net interest margins and cover higher costs arising from increased borrower credit risk and changes to regulatory capital requirements (see, for example, the higher ratios required under Basel III).

Irish banks' net interest margins have declined over the last two decades, averaging 1.6 per cent in the 2005 to 2008 period (Figure 3). The pressure on net interest margins is likely to remain intense given the high level of provisions required to cover distressed loans, limited new lending and, in some cases, large unprofitable tracker loan books.

Prior to the onset of the banking crisis, Irish banks accessed short term wholesale funding at rates close to euro area benchmarks. An ECB survey confirmed that variable rate pricing was largely based off the ECB main refinancing rate or 3-month Euro Interbank Offered Rate (Euribor) for Irish lenders in 2007 (ECB Occasional Paper, 2009). This explains why variable rates followed tracker rates so closely up to the end of 2008.

In the last three years Irish banks have experienced significant funding outflows, in particular for corporate deposits and wholesale debt securities (Figure 4). In November 2011 Central Bank funding constituted around 21 per cent of funding for the domestic market credit institutions.[2]

Banks also pay a fee to the government for the Eligible Liabilities Guarantee (ELG[3]) which covers deposits, certificates of deposit, commercial paper,

[2]This figure and the series shown in Figure 4 are based on statistical balance sheet data, which provide details of the liabilities of within-the-state offices or brances of credit institutions. The data are unconsolidated, however, for the purpose of this analysis they have been adjusted to exclude deposits from resident and foreign affiliated MFIs.

[3]The ELG, introduced in December 2009, provides a Government Guarantee on certain liabilities of a number of credit institutions in Ireland and is one of a range of measures designed to stabilise confidence in the domestic banking system. Further details on the ELG are available from the Department of Finance: http://www.finance.gov.ie/viewdoc.asp?DocID=7071.

senior unsecured bonds and notes and other senior debt. The covered banks have paid fees to date of €1.8 billion for the scheme. The quantity of assets guaranteed by the state has fallen from a peak of €375 billion in Q3 2008 (under the previous broader scope scheme) to €100 billion in Q3 2011, reflecting the funding outflows and shortened maturity profile experienced by the covered institutions. Nonetheless, given the increasing fee structure imposed by the European Commission over time to incentivise exit, the Department of Finance estimate that the average effective ELG cost has doubled since introduction from 50bps to 100bps in Q3 of 2011.

Table 2 shows an estimate of the price and quantity components of funding costs, as at December 2011 for the FMP institutions. The calculation uses group level volume data on funds outstanding by instrument, and makes a number of simplifying assumptions as to the interest rates for each funding component. On the basis of these figures, we estimate average funding costs for these institutions of around 2.6 per cent. This compares with an average standard variable mortgage rate of 3.9 per cent in December 2011. The estimates in Table 2 should be treated as a *guideline* since it is subject to a number of assumptions (see table notes) and also excludes costs relating to credit risk, operating costs, the costs of holding capital and liquidity costs.

Nonetheless, the estimate does inform our understanding in a number of ways. First, it suggests that banks cost of funds are significantly higher than the ECB base rate (1.00 per cent) or 3-month Euribor (1.36 per cent) alone would suggest. Intuitively, therefore, one might expect variable rates to be higher than tracker rates, which incorporate a typical margin of 1 to 1.3 per cent. Second, the range of cost estimates (0.65 per cent between lowest and highest) is narrower than the range of variable mortgage rates set by these institutions (1.95 per cent between lowest and highest). Hence there may be merit in checking whether other factors, in addition to funding costs, help explain the divergence across institutions. In the modelling section below we incorporate what panel data there is on funding costs (Euribor, 'Eonia' (the Effective Overnight Interest Rate on unsecured lending in the interbank market) and ELG fees) to test this relationship more formally.

We can also use the funding cost estimates to get a sense of how overall costs might respond to a hypothetical change in a particular element of funding. For example, suppose we reduce the cost of central bank funding by 0.25 per cent, while holding all other funding costs constant, the weighted average cost of banks funding falls by 0.06 per cent. In practice, the impact might vary depending on the rates banks offer on other elements of funding such as retail and corporate deposits. In other words, whether they also cut deposit rates in response to an ECB rate cut. The quantities of funding from each source are also likely to evolve over time. In particular, reliance on central bank funding is not a sustainable strategy for the future even if it is cheaper at present. Furthermore, the domestic banks are obliged to reduce their loan to deposit (LDR) ratios to 122.5 per cent by end 2013 as part of the Financial Measures Programme to help create a clean, appropriately-sized banking system and make market funding more attainable.

4 Modelling the determinants of variable mortgage rates

In this section we test the hypothesis that up to the end of 2008 Irish lenders used the ECB base rate or 3-month Euribor as the primary benchmark for adjusting the pricing of variable rate mortgages. After 2008, however, three major changes occured which affected the lenders' pricing of variable rate mortgages. The first of these is the increase in funding costs arising from the banking crisis. The second is the increased pressure on margins arising from greater credit risk and ongoing losses on lenders' tracker loan books. The third change is the decline in the number of active lenders in the market from twelve to five in recent years and the resulting change in competition.

Our econometric model extends the basic pass-through model in the literature to include bank specific and market features.

4.1 Structural break tests

We first test for a break in the relationship between the variable rate and Euribor in or around the end of 2008.

There is no particular reason to expect a one-to-one pass through from the Euribor rate to variable interest rates, as a variety of factors such as operating costs, credit risk, menu costs and other

longer-term funding costs not directly captured in a univariate setting could also determine rates (see, for example, Klemperer, 1987).

Figure 5 summarises the results from a recursive analysis of the pass-through rate for nine lenders. Up to the end of 2008 the pass through rate was between 0.50 and 0.70 across all banks, after which point it fell to around 0.30. Based on this result, the remainder of the analysis in this section estimates separate models for the periods pre- and post- the end of 2008.

4.2 Analysis of variable rates for five lenders

We analyse the rate-setting behaviour of five lenders between 2003 and 2011: Allied Irish Banks, Bank of Ireland, Educational Building Society, Permanent tsb and ICS Building Society. We use an approach called panel data analysis to analyse the key drivers of changes in variable rates both over time and across lenders. Further information on model choice, variables used (and not used) and the full range of econometric techniques employed is provided in the accompanying Technical Paper to this Letter (Goggin *et al.* 2012).

For the period up to the end of 2008, the results of our analysis can be summarised as follows:

- The two funding cost measures that best explain variable rates are bank deposit rates and Euribor, both of which are strong predictors of changes in interest rates up to the end of 2008.
- We find that when competitive pressures (as measured by a market concentration index based on shares) are higher, variable interest rates tend to be lower, all other factors held constant.
- The mark-up of variable rates over funding costs was 1.4 percentage points during this period, and was the same across all lenders.
- When variable rates are *below* the level implied by lenders' funding costs the *upward* adjustment is quicker than when rates are *above* this level - in other words lenders appear to behave asymmetrically when adjusting rates to the long-run level.

For the period from 2009 onwards, the key results are as follows:

- The breakdown in the pass-through rate from Euribor is partly explained by increases in crisis-related measures of banks' funding costs such as ELG fees (which we estimate account for around a sixth of funding costs) and Euribor-Eonia spreads.
- Changes in the rate of mortgage arrears also drive changes in variable rates, controlling for funding costs.
- It appears that some lenders are charging higher variables rates to compensate for the losses they are making on their tracker loans.
- The asymmetric adjustment behaviour is accentuated in the later period, perhaps indicative of lenders' increasing pricing power in this period.
- One bank's (A) variable rates are significantly lower and another bank's (F) variable rates are significantly higher than its peers, controlling for funding costs, arrears rates and other factors.

The inclusion of the arrears rate in the second period is so as to capture the pressure on net interest margins from increased credit risk. Figure 7 shows some cross plots of the variable rate-arrears relationship.

The direction of causality from arrears to interest rates (or vice-versa) is important. The accompanying technical paper presents a range of evidence on the nature and direction of the relationship. The results from a set of causality tests provide strong evidence that higher arrears do cause higher interest rates. We also find some evidence of reverse causality, i.e. that higher interest rates can increase arrears, although this result differs across banks. Lydon and McCarthy (2011) use micro data to analyse the determinants of loan arrears and find that payment to income ratios, which indirectly include interest rates, are a strong predictor of arrears. Our results justify the inclusion of arrears as an explanatory variable for interest rates, while not excluding the possibility that causality is bilateral.

5 Conclusion

This note sets out to study trends in variable mortgage rates in recent years. We find that before the end of 2008 variable rates are explained by three factors: funding costs, competitive pressures and a mark-up over funding costs. The two measures of funding costs that best account for movements in variable rates in this period are deposit rates and the Euribor rate, with a pass-through rate for the latter of approximately 0.6. The mark-up over funding costs is not significantly different among banks during this period.

The main reason variable rates diverge from tracker rates after 2008 is that banks' funding costs and related pressure on variable rates are no longer captured by Euribor, whereas tracker rates continue to follow policy rates and the Euribor rate. For example, we find that crisis-related measures of funding costs, such as the ELG fee and Eonia spreads, are positively correlated with variable rates and, in the case of the ELG fee, can account for approximately a sixth of funding costs.

The analysis suggests costs relating to increased credit risk may be becoming an increasingly important factor in setting variable rates. Banks with higher arrears rates exhibit higher variable mortgage rates. The second result from our analysis is that it appears that some lenders are charging higher variables rates to compensate for the losses they are making on their tracker loans, controlling for our estimates of funding costs. A risk with such a strategy is that it may be counterproductive and continue to exert upward pressure on arrears. We find that after controlling for these additional factors, most of the divergence between banks SVRs is explained.

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Table 1: Interest Rates: Summary Statistics

Share of mortgage interest rate type (% balance)

	Owner-Occupier			Buy-to-Let		
	Mean	Min	Max	Mean	Min	Max
Variable	33	19	56	30	13	45
Tracker	51	22	62	62	49	85
Fixed	16	10	22	8	2	18

Range of interest rates (per cent) November 2011

	Owner-Occupier			Buy-to-Let		
	Mean	Min	Max	Mean	Min	Max
Variable	4.5	3.5	5.4	4.7	3.5	6.4
Tracker	2.3	2.1	2.6	2.3	2.2	2.3
Fixed	4.3	3.8	5.3	4.7	4.2	5.2

Source: Central Bank of Ireland, loan level data

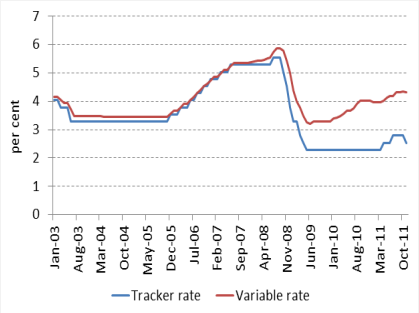
Table 2: High Level estimate of bank funding costs

	€Billion	Average IR (per cent)
Total Retail Deposits	123.2	1.86
Total Corporate & NBFI Deposits	22.2	1.63
Certificates of Deposit	0.3	3.55
Total Long Term Debt Capital Markets		
Secured Borrowings	18.3	3.93
Unsecured Unguaranteed Borrowings	8.6	4.55
Unsecured Guaranteed Borrowings	17.0	4.18
Subordinated Debt	3.8	10.63
Repos and Other Secured Funding	14.9	3.54
Interbank	4.3	3.56
Central Bank	70.0	1.06
TOTAL FUNDING	282.5	
TOTAL COST OF FUNDING EX-ELG (€b)	6.3	
TOTAL COST OF FUNDING EX-ELG (per cent)	2.2%	
Cost of ELG (per cent)	0.4%	
TOTAL COST OF FUNDING Incl. ELG, (per cent)	2.6%	

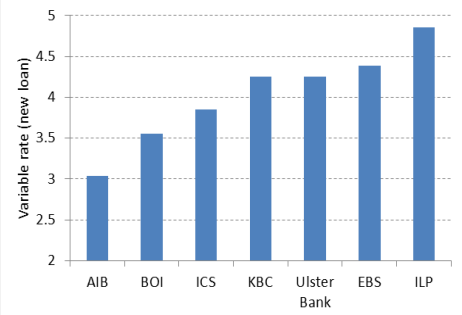
Source: Central Bank of Ireland, Bloomberg

Notes: FMP institutions only; average rates are simplified estimates across banks;
NBFI: Non-bank financial institution; ELG: Eligible liabilities Guarantee;
Debt capital market rates based on a sample of at issue yields from Bloomberg

Figure 1: Trends in variable mortgage interest rates

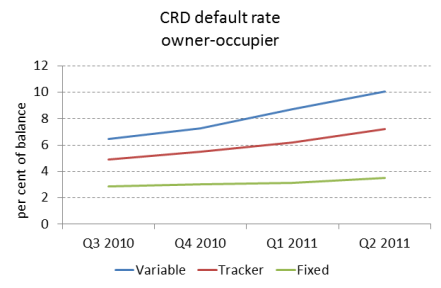


Source: Central Bank of Ireland
Notes: Rates are simple averages across institutions

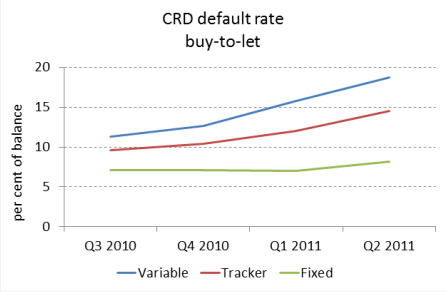


Source: www.nca.ie, www.permanenttsb.ie December 2011
Note: Variable rate for new loan of €150,000, LTV 75%, 25 years. Variable rates for existing loans may be different, see for example http://www.askaboutmoney.com/showthread.php?t=159108)

Figure 2: Mortgage distress and interest rate type

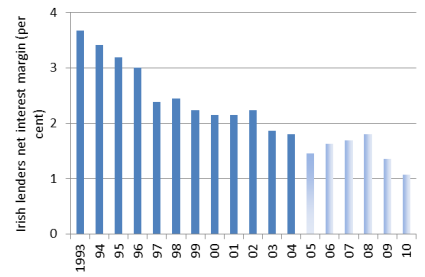


Source: Central Bank of Ireland
Notes: CRD default rate includes impaired and 90-plus days in arrears loans.

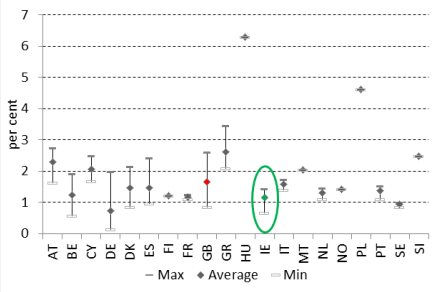


Source: Central Bank of Ireland
Notes: CRD default rate includes impaired and 90-plus days in arrears loans.

Figure 3: Irish lenders' net interest margin

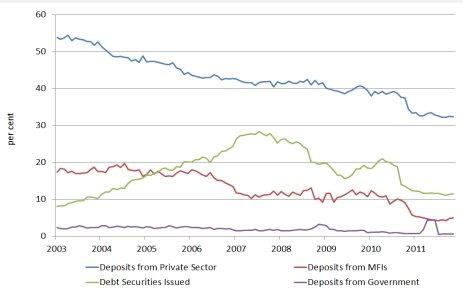


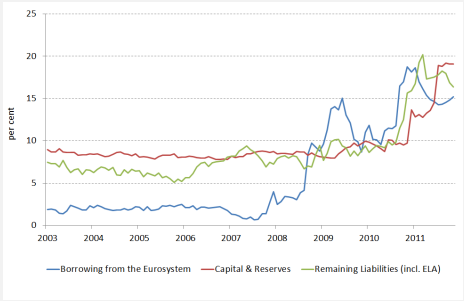
Source: Central Bank of Ireland
Note: Break in the series from 2005 onwards



Source: EBA stress tests, December 2010

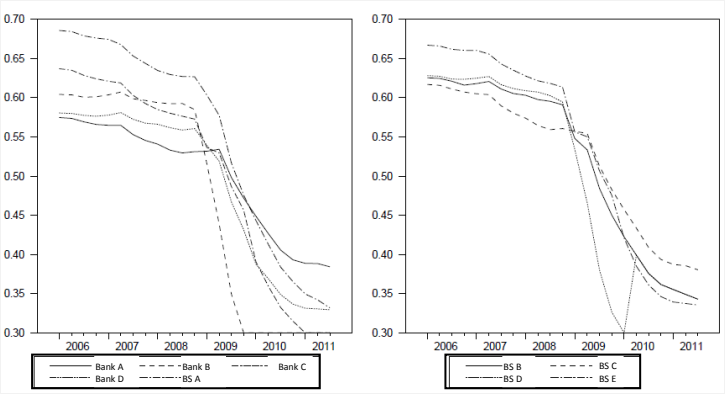
Figure 4: Share of Liability Categories in Total Liabilities, Domestic Market Credit Institutions Aggregate Balance Sheet*





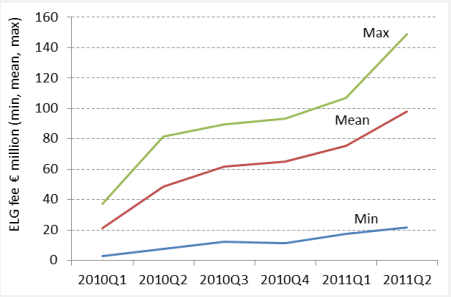
Source: Central Bank of Ireland
*Domestic market credit institutions are Irish and foreign owned institutions with a significant level of retail business with Irish households and NFCs. This group excludes the more internationally focused banks in the IFSC.

Figure 5: Recursive estimates of the elasticity of variable rates to Euribor

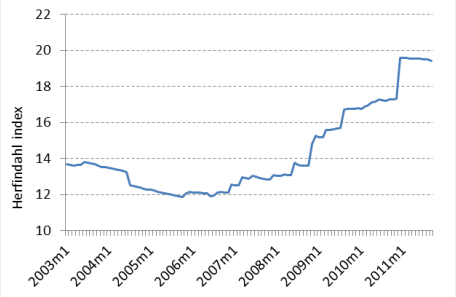


Source: Central Bank of Ireland, BS: Building Society

Figure 6: ELG Fee and Herfindahl Index

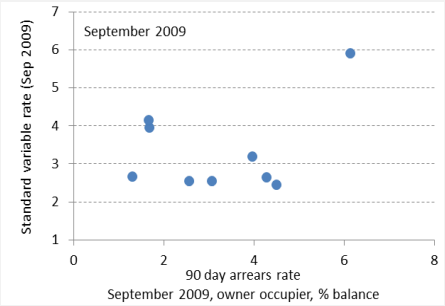


Source: Central Bank of Ireland

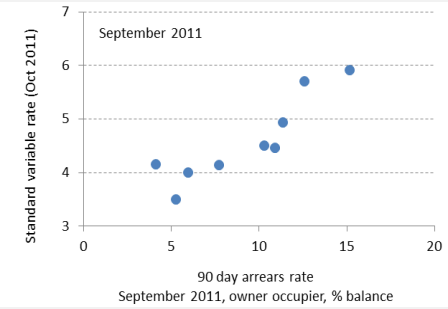


Source: Central Bank of Ireland

Figure 7: Cross-plot of variable rates and mortgage arrears rates



Source: Central Bank of Ireland



Source: Central Bank of Ireland