

# Banking competition in the euro area

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**Empirical evidence from the euro area indicates that retail interest rates tend to adjust slowly and incompletely to changes in market interest rates. Responses also seem to be asymmetric: deposit rates display rigidity when market rates rise, but flexibility when they fall. In addition, the available evidence for the euro area banking sector suggests there are significant differences across countries in the way banks adjust their interest rates in response to changes in corresponding market rates. The sensitivity of deposit interest rates with respect to changes in market rates can be used as an indicator for the level of competition in banking.**

A competitive banking sector is a highly important element of the financial system in general, and especially in the euro area, where the financial structure is to a large extent bank-centred. A more competitive banking sector is expected to foster financial services efficiency, product quality and innovation. It should thus drive down bank loan rates and offer fair compensation to depositors, thereby adding to the welfare of households and businesses.

Monetary policy transmission, too, depends crucially on the intensity of competition in the banking sector. Less competition might indicate sluggish and rigid transmission of policy rate changes to retail interest rates, thereby potentially lowering the effectiveness of monetary policy. The

recent financial crisis has highlighted the need to analyse competition in banking. The trade-off between competition and financial stability is one particularly relevant issue currently under discussion.

## Traditional measures of banking competition

Measuring banking competition has, however, turned out to be a complex task. In the last two decades, the banking industry has changed profoundly. Forces such as globalization, technological change, deregulation and European integration have fundamentally altered the market structure and substance of the European banking industry. It is, therefore, not surprising that the evidence on the level of and trends in competition in the European banking sector is rather mixed. The difficulties are especially evident if the focus is on the development in competition over time or the differences in competition between countries. For example, some studies find that competition in banking has tightened since the beginning of monetary union<sup>1</sup>, while some show no significant changes and some actually indicate an easing of competition<sup>2</sup>.

Banking competition has been modelled in a number of ways.<sup>3</sup> A common indicator for the level of

<sup>1</sup> Van Leuvensteijn et al. (2008).

<sup>2</sup> Sander and Kleimeier (2004).

<sup>3</sup> For a recent survey of banking competition, see eg Carbo et al. (2009).

competition in the banking sector is the degree of concentration in the markets in which banks operate, and the common argument is that more concentrated markets are less competitive.<sup>4</sup> From a theoretical point of view, the relationship between competition and concentration is, however, ambiguous. While the intensity of competition should generally increase with the suppliers in a market, concentrated markets may well behave like competitive markets if the market participants face the permanent threat of new competitors, domestic or foreign, entering the market, ie if they operate in a contestable market. Higher concentration in the banking sector may also result from more-efficient banks growing faster than, or taking over, less-efficient banks. Thus, more-concentrated markets could potentially be characterized by higher efficiency and higher competition as well. Furthermore, the presence of a large number of small, locally active financial institutions in a market may not indicate stronger competition, but rather the existence of relationship banking. This would imply a low willingness or low ability of customers to switch to other banks, and thus a low elasticity of loan demand/deposit supply.

<sup>4</sup> Concentration is usually measured with concentration ratios such as the market share of the 5 largest credit institutions or with the Herfindal index, which is computed from the sum of the squares of the market shares of all banks. The ECB report on EU banking structures, for example, monitors these indicators.

Measurement of banking competition can also be approached by emphasizing the analysis of the competitive conduct of banks. Models measuring competition involve the estimation of behavioural equations that specify how banks set their prices and quantities. A behavioural relationship such as ‘marginal revenue equals marginal cost’ cannot be estimated directly, because data on marginal revenue and marginal cost are unobservable. However, such a relationship can be estimated indirectly. The Lerner index is a typical measure based on a competitive conduct model. It shows the extent to which a monopolist’s market power allows it to fix a price above marginal cost, expressed as proportional to the price. The indicator is assigned the value zero if there is perfect competition. The higher the value of the indicator, the less competition there is. Another commonly used measure is the Panzar-Rosse H-statistic, defined as the sum of elasticities of revenues with respect to input prices. If a market is perfectly competitive, the sum of elasticities is 1. If the value of H-statistics is less than 1, this implies imperfect competition.

### Measuring competition using banks’ deposit pricing

Another method to approach the measurement of banking competition is to test how much market power banks have in setting their deposit

rates.<sup>5</sup> The pricing of retail deposits, one of the core businesses of banking, has a direct effect on profitability. Compared with pricing loans, the competitive effect should be more pronounced for deposits, as they are less affected by risk factors and other informational imperfections such as moral hazard and adverse selection problems.

The spread between the retail deposit rate and the market interest rate is the opportunity cost of deposits to depositors and the profitability of deposits to the bank. Banks' retail rates should thus be tied to the market rate that most appropriately reflects their maturity-matching opportunity costs for accepting a deposit. If a bank's retail deposit market were perfectly competitive, the retail rate would equal the competitive rate (market rate + adjustment costs). A less than perfectly elastic demand for deposits implies a deposit rate that is below the competitive rate. If banks exercise some market power, eg monopolistic competition, and if there are costs associated with adjusting retail rates, the decision of a bank to adjust its deposit rate in response to a change in the corresponding market rate depends positively on the interest elasticity of the deposit supply curve faced by the individual bank. This elasticity is, in turn, a positive function of the degree of competition in the deposit market.

<sup>5</sup> This approach has been advocated by eg Hutchison and Pennachi (1996).

This sensitivity of deposit rates to changes in market rates can be used as an indicator for the level of competition. The less flexible the deposit rates, the more market power banks exercise, and the indicator is assigned a low value. If the market were perfectly competitive, adjustment should be complete and the value of the indicator would narrow to 1. This type of indicator allows us to compare the competitive situation both across euro area countries and through time.

### **Constructing an indicator measuring competition using demand deposit interest rates**

To be able to construct the above-mentioned indicator and perform comparisons across countries there are some necessary assumptions the underlying circumstances must fulfil. Firstly, market rates should represent the cost of banks' refinancing, and, in competitive markets, changes in these costs should be reflected in banks' deposit pricing. Within the euro area, the common currency and single monetary policy guarantee that banks face a common wholesale interest rate, which can be assumed to represent the opportunity cost of refinancing. Secondly, to facilitate comparisons there must be a sufficiently similar regulatory and operational framework for banking. In Europe, there have been noteworthy differences in the regulatory framework regarding banking deposits, eg taxation practices, but the significance of these

regulatory measures has been declining over time. During the last ten years, banks have already been facing a fairly harmonised supervisory and regulatory environment regarding the supply of financial services.

Constructing the indicator, we have to assume the deposit interest rates stand for sufficiently harmonised banking products (eg accounts) in order for them to be comparable across countries. The content of these accounts should be assumed to include the same kinds of services across all the countries. In the euro area, the most homogeneous deposit product seems to be household demand deposit accounts.<sup>6</sup> These generally include the possibility to use a payment card, electronic access to the account and the opportunity to pay bills from the account. Thus, even if banks offer highly differentiated products to their customers, the terms and services of demand deposit accounts seem to be highly homogeneous across the euro area. The most relevant feature – to withdraw deposits without any termination clause – is, by definition, a common feature for the demand deposits category. Theoretically, concentrating

<sup>6</sup> In the harmonised ESCB interest-rate data collection for monetary and financial institutions, demand deposits are classified as overnight deposits. Overnight deposits include all transaction account deposits, overnight debt instruments and overnight money market deposits without any agreed fixed terms to maturity. Overnight deposits cover around one third of household deposits. The other main categories are deposits redeemable at notice and deposits with an agreed fixed term to maturity. Harmonised interest-rate data collection began in the euro area in January 2003.

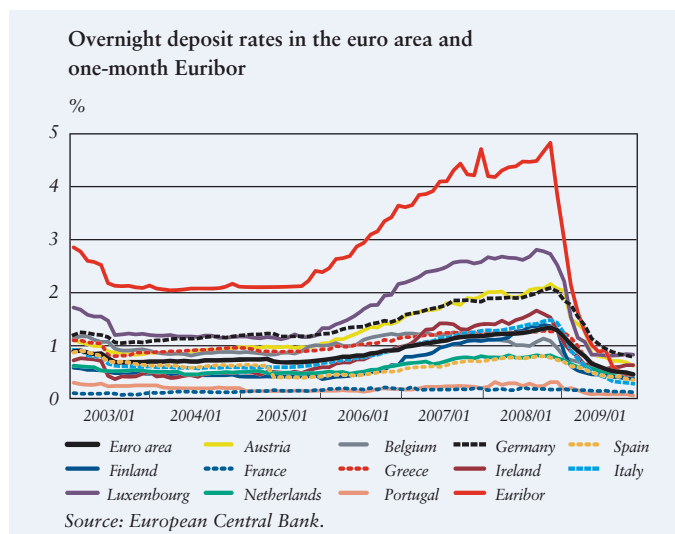
only on demand deposit pricing confines the bank's optimization problem, which varies depending on the maturity of its liabilities.

Differences in interest rate levels on demand deposits across euro countries (Chart 1) are still likely to reflect some product heterogeneity and differences in market practices and fiscal frameworks. This remains the case, even if it seems to be a common practice all over the euro area that banks remunerate demand deposits at low interest rates and in return charge low fees for transaction services.<sup>7,8</sup> However, as long as the relative differences between deposit

<sup>7</sup> Sometimes these average spreads are used as a measure for competition, but for the reasons mentioned they may be misleading. A more detailed analysis of differences in MFI interest rates across euro area countries can be found in the ECB report published in 2006.

<sup>8</sup> France and Portugal have different pricing principles for overnight interest rates than other euro countries.

Chart 1.



rate levels have remained fairly stable over the years, it should be possible to compare deposit rate changes with respect to market changes across countries. This also holds true for the problematic issue of cross-substitution between different bank products – a typical feature in banking. If the bounding terms remain rather constant, they only affect the level, not the changes in interest rates and do not hamper comparisons across countries.

In the recent empirical study covering years 2003–2009, developments in overnight interest rates were linked to the one-month Euribor, which was used as a competitive market rate.<sup>9</sup> This market rate was chosen because it correlates closely with overnight deposit rates, indicating the role of the corresponding competitive market rate. Overnight deposit rates were well below market rates until 2009. Spreads began to fall following the steep decline in Euribor rates from the beginning of 2009. On average, the spread between the one-month Euribor and overnight deposit rates in the euro area was slightly less than 190 bps during the period 2003–09. Also, the sluggishness of deposit rates is clearly observable. The standard deviation of overnight deposit rates is only one fifth of the standard deviation in the one-month Euribor. Deposit rate adjustments also

tend to be asymmetric,<sup>10</sup> being sluggish when market rates are rising and spreads are wide and more flexible when market rates are falling and spreads are narrow.

### Degree of competition within the euro area

The highest response in overnight deposit rates to changes in the market rate was found in Luxembourg, followed by Ireland, which is well in line with the common opinion that the banking markets in these countries are highly competitive. In these two countries, the overnight deposit rate response to a 100 basis points change in the market rate was around 20–25 basis points. The most rigid deposit rates were found in Spain and the Netherlands, where the responses were only around 5 bps (Chart 2).

Assuming only a symmetric response might, however, be misleading, as the response could be simply due to banks' response to declining market rates. A large elasticity for the market rate would not in that case indicate a competitive banking market, but less competition and more market power.

The asymmetric behaviour of deposit interest rates can be taken into account by analysing the different responses of deposit rates to upwards and downwards changes in market

<sup>9</sup> The results presented here are based on research published in the Bank of Finland Research Discussion Papers series (Vajanne, 2009).

<sup>10</sup> Asymmetric price transmission is also found to be common in the pricing of agricultural products and gasoline products. For a comprehensive survey, see von Cramon-Taubadel and Meyer (2004).

rates. Taking this possibility for asymmetric responses into account, most competitive banking in the overnight household deposit markets still seems to be in Luxembourg and Ireland (Chart 3). In addition, deposit rates in Italy seem to respond significantly to increasing interest rates. The most sluggish reactions appear to be in Austria, Germany, Spain and Finland, where deposit interest rates were very sluggish in responding to rising market rates.

Having such an asymmetry in deposit pricing raises an interesting question about the market power banks have when setting their deposit interest rates. Overnight interest rates followed the rise in market rates only slightly or not at all, but declining market rates were undoubtedly followed. Banks' behaviour seems to be surprisingly systematic in all the countries covered.

### Market power remains a concern in modern banking

The empirical results indicate that, in line with the theoretical literature, banks use their pricing power in the markets for short-term deposits. Banks' deposit rates respond on average sluggishly to changes in market rates, and this behavioural trend is reinforced when asymmetric pricing is taken into account. Overnight deposit rates seem to be much more flexible when monetary policy is eased or kept stable compared with a situation of rising policy rates. Banks pass only a limited

proportion of interest rate rises on into overnight deposit rates. Even if the banks' behaviour was observed to have systematically similar features in all the countries covered, there are nevertheless noteworthy differences across euro area member countries.

Chart 2.

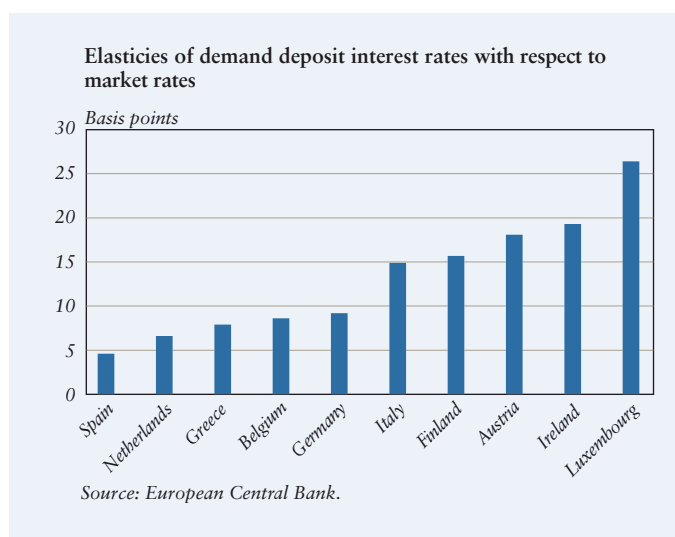
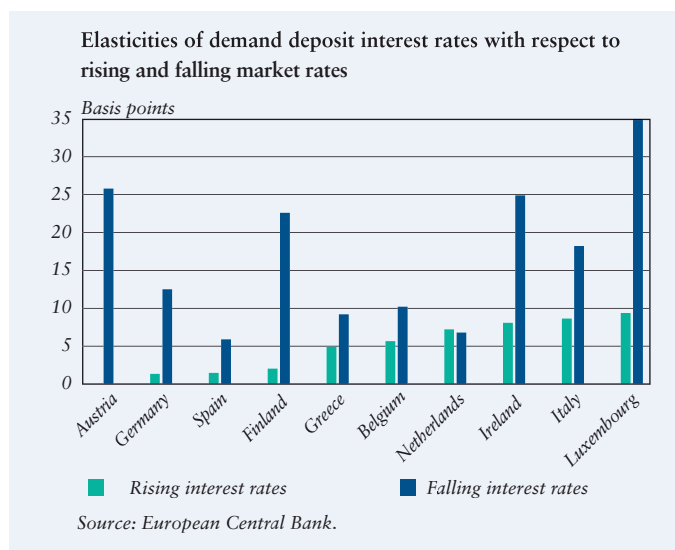


Chart 3.



There are, however, many interesting questions not addressed in the results presented here. In addition to competitive market rates, banks' deposit pricing also depends on the costs involved in switching banking accounts, on the terms of bundling of banking services and on the competitive nature of the banking markets. Controlling for the impacts of these factors could improve the results. An analysis of the pricing of other deposit accounts would, of course, yield important additional information from the competition standpoint. It is, therefore, not possible to draw more general conclusions about the degree of competition in national banking markets based on the present findings.

In terms of policy implications, the relationship between banking competition and financial stability is highly relevant. At the retail level, despite modern banking practices, market power remains a concern. Price rigidities are clearly observable in deposit markets, and competition policy has an active role to play. An interesting test of flexibility in deposit interest rates lies ahead, when the recovery from the current crisis begins and market rates rise towards a more normal level.

*Keywords: banking competition in the euro area, deposit interest rates, market rates*

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