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Impact of bank competition on the interest rate pass-through in the euro area

Michiel van Leuvensteijn, Christoffer Kok Sørensen, Jacob A. Bikker & Adrian A.R.J.M. van Rixtel

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Abstract

This article analyses the impact of loan market competition on the interest rates applied by euro area banks to loans during the period 1994–2004, using a novel measure of competition called the Boone indicator. We find evidence that stronger competition implies significantly lower spreads between bank and market interest rates for most loan market products, in line with expectations. This result implies that stronger competition causes both lower bank interest rates and a stronger pass-through of market rate changes into bank rates. Evidence of the latter is also presented by our Error Correction Model (ECM) for bank rates. Further, banks compensate income losses from increased loan market competition by offering lower deposit rates. Our findings with respect to the loan market rates have important monetary policy implications, as they suggest that measures to promote competition in the European banking sector are likely to render the monetary policy transmission mechanism more effective.

Keywords:

monetary transmission | competition | bank lending and funding | interest rate spreads | error-correction model

JEL Classification::

C23 | D4 | E50 | G21 | L10

Notes

[1] Except Kok Sørensen and Werner (2006), who used a nearly identical data set. This is the first time the data set has been published in a journal article.

[2] For other euro area countries we have insufficient data to estimate the Boone indicator.

[3] Enterprises comprise the entire population of nonfinancial corporations.

[4] Of course, competition is not the only factor determining the level of bank interest rates. Factors such as credit and interest rate risk, banks' degree of risk aversion, operating costs and efficiency are also likely to impact on bank margins. See, for example, Maudos and Fernández de Guevara (2004).

[5] See, for example, Neuwark and Sharpe (1992) and Mester and Saunders (1995) for empirical evidence of asymmetric interest rate pass-through effects among US banks.

[6] In addition to bank competition, switching costs and other interest rate adjustment costs, bank rate rigidity may also be due to credit risk factors. For example, in a situation of credit rationing, banks may decide to leave lending rates unchanged and to limit the supply of loans instead; see, for example, Winker (1999). Banks may also choose to provide their borrowers with 'implicit interest rate insurance' by smoothing bank loan rates over the cycle; see Berger and Udell (1992). Finally, sometimes banks give customers an interest rate option for a given period. These banks have to recoup the costs of their options which may reduce the speed of the interest rate pass through for outstanding borrowers.

[7] Sander and Kleimeier (2002, 2004) differ from other studies in that they also model the severity of the interest rate shock (rather than merely its direction). This approach aims to take into account menu cost arguments implying that banks tend to pass on changes in market rates of a minimum size only.

[8] The few existing empirical studies based on the Boone indicator have all used a log-linear relationship. See, for example, Bikker and van Leuvensteijn (2008).

[9] For other arguments against the HHI, see Section I.

[10] See also van Leuvensteijn et al. (2011) who use a similar approach.

[11] GMM is used to correct for endogeneity between market shares and marginal costs using different moment conditions.

[12] Most likely, the favourable result for Germany hinges in part on the special structure of its banking system, being built on three pillars, i.e. commercial banks, publicly-owned savings banks and cooperative banks (see Hackethal, 2004).

[13] In order to avoid spurious results, see Granger and Newbold (1974).

[14] An ECM is a dynamical system in which the deviation of the current state from its long-run relationship will be fed into its short-run dynamics. This provides a coherent framework for the analysis of interest rate dynamics.

[15] See, for example, Mojon (2001), De Bondt (2002, 2005), Sander and Kleimeier (2004), and Kok Sørensen and Werner (2006).

[16] Viz., four types of loan products (mortgage loans, consumer loans and short and long-term loans to enterprises) and two types of deposits (time deposits and current-account deposits).

[17] As the model of interest rates is based on monthly data, while we have annual estimates of the Boone indicator, we construct monthly competition estimates $-BI_{i,t}$ as follows. We place the annual Boone indicator estimate in June of the respective year and then interpolating on a monthly basis between these values using 12-month moving averages.

[18] Note that competition causes a downward shift in the level of bank interest rates (that is, $\zeta < 0$) as well as a change in the relationship between market rates and bank

rates (expressed by $\theta\, MR_{i,t}$).

[19] Unit root tests analyse whether a time series variable is nonstationary over time. For a survey of panel unit root tests, see Banerjee (1999). For a more detailed description and application to a similar set of data, see also Kok Sørensen and Werner (2006).

[20] In the panel versions of the tests the alternative hypothesis assumes a root which is less than one, but is identical across the countries. Hence, the group mean versions allow for stronger heterogeneity. As a result, we focus on the test's group mean version.

[21] For some bank products in some countries, it is not possible (due to insufficient data availability) to extend interest rates series all the way back to 1994. Therefore, unbalanced samples were used for some bank products.

[22] The two series have been linked in January 2003 with a parallel level shift of the series prior to this date. The level shift was based on the average monthly difference between the NRIR and MIR series for the period from January 2003 to September 2003 for which observations for both definitions were available. In contrast to Kok Sørensen and Werner (2006), we use new business weights (applying monthly averages observed in the January 2003–June 2004 period to smoothen out undue volatility) to aggregate the MIR categories to the NRIR. We believe this captures the differences across countries more precisely in terms of initial rate-fixation periods and also corresponds better to the new business rate nature of the NRIR statistics.

[23] The market rates have been chosen to best match bank interest rates on the basis of information from the Methodological Notes for the NRIR statistics and from the volume weights of the MIR statistics.

[24] Spreads are based on bank rates and market rates of equivalent maturities and are sometimes negative due to a mismatch between the maturity of the loans and the corresponding market rate.

[25] p-values of the various test statistics were derived using the standard normal distribution, which is a valid assumption for cointegration tests; see Pedroni (1999).

[26] For example, US (indirectly): Berger and Hannan (1991), Mester and Saunders (1995); euro studies: Sander and Kleimeier (2004), DeBondt (2005); UK: Heffernan (1997), Hofmann and Mizen (2004); Belgium: De Graeve et al. (2007); Ireland: Bredin et al. (2001).

[27] Estimations in first differences of bank consumer loan rates reveal that competition does not have a significant effect on changes in the lending rates, in line with the results of Table 12.

[28] A re-estimation of Equation 6 with the distance to default for, respectively, mortgage, consumer loans and loans to firms using ECB data suggests no substantial change in the parameter of the Boone indicator. This lack of change appears for each of the four types of loans. Unfortunately, the level of default tends to decrease the lending rates instead of increasing it (as one would expect). Apparently, this indicates an underpricing of default risk in the period 1999–2002, see for instance Pavlov and Wachter (2006). Inclusion of Gross Domestic Product (GDP) to capture the business cycle did not change this result. Hence, inclusion of risk does not improve (nor significantly changes) our relationship between competition and the interest rate pass through.

[29] We use Newey–West's kernel-based HAC variance estimations to correct for heteroscedasticity and autocorrelation, with the bandwidth set on two periods.

[30] See also Mojon (2001), De Bondt (2005) and Kok Sørensen and Werner (2006).

[31] Re-estimation with a risk measure, did not affect the estimation results of the ECM, see also footnote 28.

[32] As mentioned in Section V, the estimated long-run relationship between, on the one hand, interest rates on consumer loans and current account deposits and, on the other hand, their corresponding market rates may be spurious owing to lack of a statistically significant cointegration relationship.

[33] The null hypotheses of single EU-wide parameters for market interest rates and residuals in the short-run ECM model were rejected for most loan categories in favour of separate country-specific parameters.

[34] The restrictions are imposed on Equation A1, so that the equation is reformulated in terms of a lower number of parameters.

[35] See also the Section ‘The ECM’ in van Leuvensteijn et al. (2010).