A DISAGGREGATED ANALYSIS OF THE DETERMINANTS OF THE INCREASE IN LENDING RATE SPREADS IN SPAIN DURING THE CRISIS

Introduction

With the onset of the crisis, spreads between the lending rates charged to households and firms in Spain and interbank market rates, which basically reflect official interest rate expectations, tended to widen. As a result, the cost of borrowing for households and non-financial corporations has been too high for the expansionary stance of monetary policy. In theory, interest rates on new loans are determined on the basis of the marginal cost of the liabilities that finance the loans plus a risk premium reflecting the probability of default by the borrower. In addition, they may reflect other specific costs of banks, such as those arising from the need to set aside provisions for their existing loan portfolio and to increase their capital. Thus, lending rates may rise relative to interbank rates for one or more of the following reasons: a rise in bank funding costs (relative to interbank market rates), a rise in risk premiums and the pass-through of other specific costs.

The aim of this article is to provide evidence on the possible role played by the abovementioned factors in the increase in lending rate spreads recorded in Spain. Individual level information is analysed for a wide sample of banks and the main types of loan are studied separately. The data are based on the information on interest rates on new lending that deposit-taking institutions send to the Banco de España on a monthly basis. Specifically, a sample with a six-month frequency has been selected, with the data of individual institutions that account, at all times, for 95% of lending to the resident private sector.¹ The choice of loan categories considered is determined by the breakdowns available in this information source and includes the following: loans to households for house purchase, consumer credit and other lending to households, loans to firms of up to €1 million and loans to firms of more than €1 million. The period analysed runs from end-2004 to June 2014.

This article has four sections in addition to this introduction. The first section, using aggregate data, reviews the evolution of lending rates for the different loan categories considered, relative to interbank market rates and various measures that approximate bank funding costs. The second section examines how the dispersion of rates by banks has varied over the period analysed. The third section analyses to what extent there exists a relationship between the cost of lending and certain individual characteristics of institutions. The main conclusions are summarised in the fourth section.

Overall developments in lending rate spreads As seen in Chart 1, the spreads over one-year EURIBOR of interest rates on new lending to customers, which had remained relatively stable between 2004 and 2007, tended to rise from the start of the crisis in 2008. The increase was seen in all lending segments, but it was most intense in those with a higher risk for lenders, such as consumer credit² (which is generally unsecured) and loans to companies of less than €1 million (which includes loans to SMEs, a type of firm whose financial position is usually more sensitive to changes in the business cycle, so that the non-performing loan ratios tend to be higher during recessions).

¹ When the business of an institution included in the sample was highly specialised or its data showed anomalies in rates or amounts, then it was replaced by one or more other institutions, as necessary to ensure that 95% of the market is covered.

² This series is affected by a statistical change in June 2010, whereby credit card transactions, which usually have a higher interest rate than other types of lending, ceased to be included in this category. The result was a fall of more than two percentage points (pp) in the average level of interest rates in this category. When this effect is adjusted for, the increase in the spread over one-year EURIBOR obtained is substantially larger than the one actually observed.

INTEREST RATE SPREADS ON NEW LENDING

CHART 1

AVERAGE VALUE OF THE CATEGORY LESS THE VALUE OF THE REFERENCE VARIABLE



SOURCES: Banco de España and Eurosystem.

- a The series is affected by a statistical change from June 2010, which caused a break in the series by excluding certain high-interest-rate loans from this category.
- b Calculated, for each quarter, as the ratio between the total cost of liabilities and the average amount of the balance sheet.

When lending rates are compared with the rates paid on bank deposits and the average cost of borrowed funds for banks (which includes both time and sight deposits, as well as other sources of external financing such as the issuance of fixed-income securities) spreads are seen to display a more stable trajectory. Specifically, in the segments with the lowest risk for lenders, such as loans for house purchase and loans to companies of more than €1 million, the current level of spreads is not very different to that which existed, on average, in the pre-crisis period. The spreads on the other two types of loan analysed have displayed an upward path during the crisis, albeit a more moderate one than when the spreads are calculated with respect to one-year EURIBOR.

The most recent trend in lending rate spreads relative to interbank rates provides evidence of stabilisation (and even reversal in the case of the segments with the highest rates) of the upward path seen since the start of the crisis, against a background of a reduction in the degree of financial fragmentation in the euro area and of improvement in the macroeconomic outlook for Spain. That said, the current levels are still higher than those recorded before the crisis.

This descriptive evidence would seem to indicate that the first two factors mentioned in the introduction (a rise in bank funding costs and an increase in risk premiums) have contributed to the widening of lending rate spreads, vis-à-vis interbank rates, that has been seen in Spain since the start of the crisis. The funding costs of domestic institutions have stopped moving in line with the interbank market. This partly reflects financial fragmentation in the euro area, which despite having moderated persists and makes such costs dependent on where banks happen to be resident. At the same time, the fact that the widening has been greatest in the highest risk segments suggests that institutions have been applying larger risk premiums, against a background of rising non-performing loan ratios associated with macroeconomic deterioration.

It is more difficult, however, on the basis of this aggregate evidence, to assess to what extent other elements may have also put pressure on loan rates, such as higher capital requirements (which, although they have a positive effect on the resilience of intermediaries to adverse shocks, also tend to raise the costs incurred by institutions when granting loans) and the increase in margins to rebuild balance sheets after the effects of the crisis. A more disaggregated analysis of the data may cast somewhat more light on the relative importance of these factors.

The dispersion of lending and deposit rates across institutions Chart 2 shows the evolution of certain percentiles of the distribution of lending and deposit rate spreads over one-year EURIBOR for those institutions included in the study. These percentiles have tended to display a similar trajectory over the period analysed, suggesting that general factors affecting all institutions similarly have played a more important role in their evolution than special ones relating to the particular situation of each.

However, it can also be seen that, since the start of the crisis, the dispersion of lending rates (as approximated by the interdecile range) in all the loan categories considered has tended to increase,³ the increase being greatest in those that include the riskiest loans for lenders (loans to households for purposes other than house purchase and consumption and loans to non-financial corporations of less than €1 million). In the most recent period a certain reversal of this tendency is seen, although in almost all cases the current degree of dispersion remains higher than before the crisis.

The existence of differences between institutions with regard to the interest rates applied to the same category of loans may be a result of differences in their specialisation. For example, institutions that concentrate on higher risk lending will tend to apply higher interest rates to compensate for the higher risks assumed. It may also be the result of the application of different price setting policies. On the basis of the information used in this article it is not possible to distinguish precisely how much of the differences in interest rates between institutions is due to each of these two elements, since the risk profile of their lending is not known. In consequence, the results of the analysis of the increase in the dispersion that follow should be interpreted with caution.

The increase in the dispersion of lending rates following the start of the crisis must reflect, at least in part, the increase in credit risk entailed by the crisis itself. This would have led to a rise in the average rates applied by those institutions most specialised in higher risk lending relative to those charged by more conservative intermediaries.

Less clear is the effect that the crisis may have had on the dispersion of institutions' price setting policies. To analyse this aspect, the next section examines to what extent there is a relationship between the interest rates applied by institutions and their basic characteristics.

³ The decline observed in the dispersion of consumer credit rates from 2010 is associated with the statistical change that took place (see footnote 2).

STATISTICAL DISTRIBUTION OF THE INTEREST RATES ON NEW LOANS AND DEPOSITS

SPREAD OVER ONE-YEAR EURIBOR



CREDIT. HOUSEHOLDS, CONSUMPTION (a)



CREDIT. HOUSEHOLDS, OTHER PURPOSES



CREDIT. NON-FINANCIAL CORPORATIONS, UP TO €1 MILLION



CREDIT. NON-FINANCIAL CORPORATIONS, OVER €1 MILLION



DEPOSITS. HOUSEHOLDS, UP TO ONE YEAR



SOURCES: Banco de España and Eurosystem.

a The series is affected by a statistical change from June 2010, which caused a break in the series by excluding certain high-interest-rate loans from this category.

In the case of deposits, a rise in the dispersion of the interest rates paid is also detected after the start of the crisis, although it is much more moderate than the one observed for lending rates. Following the reversal of this path in the most recent period, the current level of dispersion is similar to that existing before the crisis. Unlike in the case of loans, factors

relating to customer risk do not have any role to play in this case because the relevant risk is that of the institution and the existence of the Deposit Guarantee Fund helps to limit it. This, along with action taken to reduce the risk that excessive deposit remuneration might have an adverse effect on the situation of institutions (June 2011-August 2012 and, subsequently, since December 2012),⁴ has helped to moderate the increase in the dispersion of the interest rates applied to these instruments.

Relationship between lending rates and bank characteristics In order to analyse the extent to which the increase in lending rates is related in some way to banks' economic and financial situation, partial correlations have been calculated for various periods before and after the start of the crisis (December 2004, 2006, 2009, 2012, 2013 and June 2014) between certain variables that measure some of the main characteristics of banks and the interest rates of the different loan categories, including an aggregate one obtained from a weighted average of the interest rates of all the loan types.⁵ The variables considered are a number of indicators relating to the profitability and credit quality of intermediaries' portfolios, such as the different profit items of the income statement, the non-performing loan ratio, the average cost of external funding⁶ and the customer deposit interest rate.

The results of this exercise are set out in Table 1. Specifically, the sign of the correlation coefficient and the value of the R2 statistic, which provides a measure of degree of significance, are given. When the coefficient is statistically significant at the 95% confidence level it is shown in bold. As can be seen, no significant relationship is detected between lending rates and the variables that approximate the profitability and quality of intermediaries' portfolios, either before or after the start of the crisis. By contrast, evidence is found of a significant positive relationship, both in the case of the synthetic aggregate and in that of some loan categories, with the indicators that measure the cost of funding, especially in the period after the start of the crisis. By loan type, this relationship is clearest in the case of loans to companies of less than $\in 1$ million (which include loans to SMEs) and, moreover, it seems to have strengthened in the most recent period.

These results seem to indicate that the factors relating to the profitability and quality of the portfolio as a whole of each institution do not appear to have a direct influence on the levels of the interest rates they charge on loans to their customers. By contrast, there is some evidence that, in certain segments, institutions pass through changes in their funding costs to their customers more readily. In particular, in those segments, such as the financing of SMEs, in which it is a priori more difficult for the borrower to find an alternative bank to replace the one lending it funds and where there is no alternative channel of financing available apart from banks.⁷ Alternatively, these results may also reflect the fact that institutions that tend to specialise in more profitable and risky lending have higher funding costs. However, it is not obvious why this factor should have increased in importance in the recent period and why its effects are observed more clearly in the SME segment, but not, for example, in consumer credit.

⁴ As seen in Chart 2, there was a reduction in both the rate spread and the dispersion during both these periods, especially in the latter one.

⁵ The weights are based on the average balance over the period for the whole sample, so that the percentages applied are the same in each period and for each institution. This avoids any possible influence of changes in business structure across institutions or over the period.

⁶ This variable is obtained by dividing the financial costs recorded in the income statement for the quarter considered by the average quarterly amount in the balance sheet of the liabilities that generate them.

⁷ These greater difficulties derive from the fact that in this type of loan the existence of a relationship with the bank plays a relatively important role in the decision to lend, owing to the comparative lack of public information available on the borrower's creditworthiness.

CORRELATIONS BETWEEN LENDING RATES AND INSTITUTIONS' PROFITABILITY, SOLVENCY AND FUNDING COST VARIABLES

Sign of the correlation coefficient and R2 values (a)

	Net interest income		Gross income		Net operating income		Doubtful assets ratio		Average funding cost (b)		Average deposit rate		
	Sign	R2	Sign	R2	Sign	R2	Sign	R2	Sign	R2	Sign	R2	
	Synthetic lending rate (c)												
2004 Q4	+	0.02	+	0.00	+	0.00	+	0.04	+	0.22	+	0.11	
2006 Q4	+	0.05	+	0.06	+	0.06	+	0.01	+	0.07	-	0.01	
2009 Q4	+	0.03	+	0.02	+	0.01	+	0.02	+	0.11	+	0.17	
2012 Q4	+	0.07	+	0.01	+	0.01	+	0.01	+	0.13	+	0.28	
2013 Q4	-	0.05	-	0.08	-	0.05	-	0.05	+	0.59	+	0.16	
2014 Q2	+	0.01	+	0.08	+	0.02	+	0.02	+	0.43	+	0.06	
				Interes	st rate on lo	ans to hou	iseholds for	house pu	rchase				
2004 Q4	+	0.00	+	0.00	+	0.00	+	0.04	-	0.00	+	0.05	
2006 Q4	+	0.02	+	0.02	+	0.03	-	0.02	-	0.00	-	0.02	
2009 Q4	+	0.01	+	0.01	+	0.01	+	0.19	+	0.21	+	0.24	
2012 Q4	-	0.00	+	0.00	+	0.03	-	0.00	-	0.02	+	0.00	
2013 Q4	-	0.01	-	0.01	-	0.00	-	0.01	+	0.03	+	0.07	
2014 Q2	-	0.01	+	0.13	+	0.16	+	0.05	+	0.15	+	0.02	
	Interest rate on loans to households for consumption												
2004 Q4	+	0.09	+	0.09	+	0.10	-	0.00	+	0.01	+	0.00	
2006 Q4	+	0.02	+	0.01	+	0.05	+	0.00	+	0.02	-	0.01	
2009 Q4	+	0.03	+	0.01	+	0.02	+	0.00	+	0.01	+	0.02	
2012 Q4	+	0.09	+	0.04	+	0.08	-	0.04	-	0.06	-	0.01	
2013 Q4	-	0.00	-	0.01	+	0.01	-	0.02	+	0.01	-	0.01	
2014 Q2	-	0.05	+	0.02	+	0.08	-	0.00	+	0.11	-	0.06	
				Interes	st rate on le	cans to ho	useholds fo	r other pur	poses				
2004 Q4	+	0.00	-	0.00	-	0.00	+	0.05	+	0.12	+	0.04	
2006 Q4	+	0.00	+	0.06	+	0.06	+	0.00	+	0.06	-	0.00	
2009 Q4	+	0.04	+	0.06	+	0.13	+	0.04	+	0.05	+	0.05	
2012 Q4	-	0.01	-	0.01	-	0.00	+	0.01	+	0.02	+	0.09	
2013 Q4	_	0.04	_	0.01	_	0.00	+	0.00	+	0.36	_	0.06	
2014 Q2	-	0.00	+	0.01	+	0.03	+	0.05	+	0.44	_	0.06	
			Int	terest rate	on loans to	non-finan	cial corpora	tions of up	to €1 millic	n			
2004 Q4	+	0.10	+	0.01	+	0.03	+	0.02	+	0.12	+	0.15	
2006 Q4	+	0.15	+	0.11	+	0.13	+	0.02	+	0.01	_	0.02	
2009 Q4	+	0.05	+	0.01	+	0.00	-	0.00	+	0.18	+	0.09	
2012 Q4	-	0.04	-	0.03	-	0.05	+	0.18	+	0.17	+	0.17	
2013 Q4	-	0.03	-	0.01	-	0.01	-	0.03	+	0.66	+	0.18	
2014 Q2	+	0.00	+	0.02	+	0.00	+	0.12	+	0.27	+	0.00	
			Inter	est rate on	loans to no	on-financia	l corporatio	ns of more	e than €1 m	illion			
2004 Q4	+	0.00	+	0.00	+	0.00	+	0.05	+	0.07	+	0.05	
2006 Q4	+	0.00	+	0.01	+	0.00	-	0.00	+	0.05	+	0.00	
2009 Q4	+	0.00	+	0.00	+	0.00	+	0.04	+	0.03	+	0.10	
2012 Q4	+	0.07	+	0.02	+	0.03	-	0.02	+	0.05	+	0.21	
2013 Q4	-	0.05	-	0.15	-	0.11	-	0.01	+	0.05	+	0.06	
2014 Q2	+	0.03	-	0.02	-	0.01	+	0.00	+	0.02	+	0.26	

SOURCE: Banco de España.

a Statistically significant values at the 95% confidence level are in bold.
b Calculated, for each quarter, as the ratio between the total cost of liabilities and the average amount of the balance sheet.
c The average of the rates of all the categories considered, weighted by the average amount of each category over the period.

Chart 3 shows the evolution of spreads over one-year EURIBOR of average lending rates for various loan categories, distinguishing between three groups of intermediaries: two consisting of domestic institutions, separating those that have had to implement restructuring plans (those in so-called "groups 1 and 2")⁸ from the rest, and a third one which comprises foreign institutions, both branches and subsidiaries. The evolution of the spread over one-year EURIBOR of the interest rates on time deposits and the average cost of the liabilities for each of the three groups are also shown, with the aim of checking the extent to which differences in lending rates are related to those in funding costs.

As seen in Chart 3, the spreads over one-year EURIBOR of the interest rates on the different instruments have followed a similar path in the three groups considered. This would seem to confirm that general factors affecting all institutions equally have predominated in the evolution of such spreads, rather than special factors linked to the different situation of each. However, the discrepancies in interest rate levels across the three groups, which before the start of the crisis were generally very small have clearly increased somewhat since then. Specifically, the interest rates charged by foreign banks on loans have tended to be lower than those charged by domestic banks for almost all loan types, while the funding costs of such institutions have risen (with respect to interbank rates) to a lesser extent than have those of Spanish banks. The lower pressure on funding costs would therefore seem to be a possible explanation of the lower lending rates charged by foreign intermediaries.⁹ In any event, in the most recent period, the differences in the price of credit across these two groups have tended to narrow in most segments and in some cases have even disappeared.

Chart 3 also shows that, since the start of the crisis, lending rates charged by institutions that have been subject to restructuring processes have tended to exceed those of other domestic institutions (and those of foreign banks), while their average funding costs have also been higher. Again, although it is possible that part of these discrepancies may reflect the effects of differences in the risk profile of their lending, it appears that the higher price of the credit granted by institutions subject to restructuring processes may be related to their higher funding costs. Also, this result is consistent with the evidence available on credit volumes, which indicates that this type of institution has reduced its offering of funds since the start of the crisis more sharply than other intermediaries.¹⁰

Finally, the comparison between the simple mean, the median and the mean weighted by volume of the interest rates on loans also provides interesting information on the distribution of this variable across institutions. In particular, it reveals the extent to which the distribution is symmetric around the median and whether the most active institutions in each segment charge higher or lower rates than the rest. The result of this exercise can be seen in Chart 4. First, the median and simple mean are generally at very similar levels in all the types of loan considered. This indicates that these distributions are quite symmetric. The comparison

⁸ According to the categories established within the framework of the process of restructuring and recapitalisation of the Spanish financial system. Specifically, these two groups are made up of institutions that according to the results of the stress test published in September 2012 had a capital shortfall which it was considered could not be covered using their own resources. Thus, they are institutions with a weaker financial and balance sheet position. Previously, if an institution included in these groups was the product of the merger of various institutions the data of all the merged institutions were aggregated. Subsequently, only the data corresponding to those that have not disappeared as a result of the restructuring process have been included.

⁹ It is also possible that part of these differences stem from the fact that foreign banks specialise more in less risky lending, although, as mentioned above, it is not possible to confirm, on the basis of the information available, the extent to which differences in interest rates reflect differences in the risk profile of lending.

¹⁰ For evidence on this point, see Fuentes (2013), C. Martínez, A. Menéndez and M. Mulino (2014) and J. Martínez (2014).

SPREADS OVER ONE-YEAR EURIBOR OF INTEREST RATES ON NEW LOANS AND DEPOSITS AND THE AVERAGE COST OF LIABILITIES: BY GROUPS OF INSTITUTIONS (a)



CREDIT. NON-FINANCIAL CORPORATIONS, UP TO €1 MILLION



CREDIT. HOUSEHOLDS, CONSUMPTION (b)



CREDIT. NON-FINANCIAL CORPORATIONS, MORE THAN €1 MILLION





SOURCES: Banco de España and Eurosystem.

- a Simple mean of the values of the institutions of the group.
- b The series is affected by a statistical change from June 2010, which caused a break in the series by excluding certain high-interest-rate loans from this category.
- c This group includes those institutions classified in groups 1 and 2 in the context of the plan for recapitalisation and restructuring of the banking sector. For prior periods, in cases in which the institution arose from the merger of several institutions, the data of all the merged institutions have been aggregated. In subsequent periods, only the data of those institutions that have not yet disappeared have been included.

d Calculated, for each quarter, as the ratio between the total cost of liabilities and the average amount of the balance sheet.

between the simple mean (and the median) and the mean weighted by volume provides evidence of greater differences, especially since the start of the crisis. Thus, in the case of loans to households for house purchase and, especially, in that of loans to companies of more than €1 million, the volume-weighted mean has tended, since the start of the crisis, to stand below the simple mean and the median, while in the pre-crisis period there was hardly any difference between them. This indicates that, since the start of the crisis, the

INTEREST RATES ON NEW LENDING: SIMPLE MEAN, WEIGHTED MEAN AND MEDIAN SPREADS OVER ONE-YEAR EURIBOR

SPREADS OVER ONE-YEAR EURIBOR



SOURCES: Banco de España and Eurosystem.

a The series is affected by a statistical change from June 2010, which caused a break in the series by excluding certain high-interest-rate loans from this category.

most active institutions in the market have, on average, charged lower interest rates than other intermediaries. This could be a consequence of a shift in demand towards institutions offering lower rates and/or of the fact that the intermediaries that pursue a more expansionary policy in terms of volumes are also the ones that offer the most attractive rates.

By contrast, in the segment of loans to companies of less than €1 million, the divergence between the simple and the weighted mean began later (from 2012) and has been opposite in sign to that seen in the two segments referred to above, insofar as the weighted mean is higher than the simple mean. This indicates that the most active institutions in this segment charge, on average, higher interest rates than other intermediaries. This may reflect either the fact that borrowers have greater difficulty switching to institutions with more attractive prices than in the case of loans for house purchase or of loans to large firms, or that the most active institutions pursue policies that are less restrictive of volumes, albeit at the expense of bearing higher costs, given the higher risk they assume relative to their competitors. Again, it is not possible to confirm on the basis of the information available which of these two hypotheses is correct.

Finally, in the consumer credit segment, the gap between the simple and weighted mean has been narrowing since June 2010, which presumably reflects the impact of the statistical change mentioned in footnote 2 above.

Conclusions

The evidence presented in this article shows that the spreads of the interest rates on new lending in Spain over interbank rates, which basically reflect the expectations of monetary policy, tended to increase after the start of the crisis. Although this trend has been reversed somewhat recently in some segments, the cost of bank finance for firms and households remains high considering the expansionary stance of the Eurosystem's monetary policy.

With the necessary caveats, owing to the limitations of the information available, the results of this article suggest that an important factor in explaining why lending rates in Spain are relatively high is the fragmentation of European financial markets which, despite the improvement of recent quarters, persists. This means that the expansionary stance of the Eurosystem's monetary policy is not fully passed through to the funding costs of Spanish banks.

The high lending rates in Spain also seem to reflect the fact that banks charge higher risk premiums than they did before the crisis. This is a consequence of the increase in the perceived riskiness of their borrowers, which is related to developments in the business cycle and uncertainty.

The factors relating to the specific situation of each institution appear, by contrast, to have had a comparatively minor influence, mainly affecting segments in which, owing to their characteristics, borrowers have greater difficulty finding an alternative to their usual lender, such as lending to SMEs,

The results of this article therefore suggest that the return of lending rates to levels closer to those that would correspond to monetary policy expectations, as reflected by interbank rates, is basically conditional upon continued progress in reintegrating European financial markets and the sustaining of the improvement in Spain's macroeconomic prospects. The former would help to reduce banks' funding costs and the latter the risk premiums they charge.

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REFERENCES

FUENTES, I. (2013). "Un análisis de las diferencias entre entidades de crédito en la evolución del crédito al sector privado durante la crisis", *Boletín Económico*, March 2013, Banco de España.

MARTINEZ, C., A. MENENDEZ and. MULINO (2014). "A disaggregated analysis of recent developments in lending to corporations", *Economic Bulletin*, June 2014, Banco de España.

MARTINEZ, J (2014). "Impact of restructuring plans on lending to non-financial corporations", *Economic Bulletin*, July 2014, Banco de España.