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Rachele Anna Ambrosio
Paolo Coccorese

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Dipartimento di Scienze Economiche e Statistiche
Università Degli Studi di Salerno
Via Giovanni Paolo II, 132 – 84084; Fisciano (SA) – Italy

Tel +39-089-96.21.55
Fax +39-089-96.20.49
E-mail dises@unisa.it
Web www.dises.unisa.it

Bad loans and *de novo* banks: evidence from Italy

Rachele Anna Ambrosio* Paolo Coccorese†

Abstract. The existing empirical evidence suggests that there is a "winner's curse" for banks entering new markets. Actually, it has been assessed that *de novo* banks generally experience higher bad loans rates than mature banks for about ten years. We investigate whether this persistence has characterized the Italian banking industry in the period 1995-2010, and find that theory predictions are confirmed by empirical results. This evidence is robust to different model specifications. We also show that cooperative credit banks (CCBs) perform better than the others banks, due to their focus on local markets.

Keywords: Banking; Competition; Market structure; Conduct.

JEL CLASSIFICATION: G21, L10, L13

1. Introduction

Although over the years the various banking industries have undergone a gradual liberalization, eliminating many of the regulatory limits that prevented the entry of new intermediaries in credit markets, this has not always implied more favorable competitive conditions for incoming banks. The economic literature has either regarded this problem as connected to a lower informative power of *de novo* banks (i.e. the latest entrants) compared to mature credit institutions (Wilson, 1967, 1977), or ascribed it to the presence of adverse selection between the new banks and firms aiming at being funded (Broeker, 1990; Riordan 1993).

Whatever the answer is, the worse performance of *de novo* banks is attributable to both exogenous factors, like their ability to deal with the market, and endogenous problems, such as the capacity to be more profitable and/or to attain lower costs. Under this respect, both the loan loss rate of new banks and its persistence over the years represent important aspects to be analyzed. Some studies find that in the U.S. *de novo* banks are more likely to accept risky loans than mature banks for at least five years since their entrance in the industry (e.g., DeYoung and Hasan, 1998). Other investigations for the same country, however, lead to more pessimistic conclusions, showing a persistence of

* DISES, Via Ponte Don Melillo, 84084, Fisciano (SA), Italy, rambrosio@unisa.it
† DISES, Via Ponte Don Melillo, 84084, Fisciano (SA), Italy, coccorese@unisa.it

higher shares of uncovered loans for *de novo* banks, still compared to long-established banks, for a period of time of at least ten years (Shaffer, 1998).

This paper aims to provide some empirical evidence on this important topic for the Italian banking industry in the period 1995-2010. Particularly, by means of a panel estimation, it attempts to assess whether in the Italian local credit markets *de novo* banks have suffered significantly higher bad loan rates compared to mature banks, and possibly the time length of this persistence. Our main evidence is that in Italy new banks' bad loan rates are higher than those of mature banks for quite a long time, up to ten years, thus making evident the presence of a substantial disadvantage for credit institutions that seek to enter local markets compared to existing banks.

In what follows, Section 2 reviews the relevant literature dealing with *de novo* banks, Section 3 discusses our empirical approach and illustrates the dataset, and Section 4 presents the empirical findings. Section 5 concludes.

2. The literature about *de novo* banks

The problems facing new banks in credit markets have always been a major issue in the analysis of the banking industry performance, under both the theoretical and the empirical point of view. Actually, *de novo* banks may face challenges either before entering a credit market (Berger et al., 2004) and once entered (DeYoung and Hasan, 1998). Given our purposes, in this review we focus only on the literature dealing with the post-entry stage, with particular reference to the ability of new banks to manage – and possibly prevent –non-performing loans (Bofondi and Gobbi, 2006; Shaffer, 1998).

A common approach regarding new entrants in the banking industry is to relate banks' success in entering a market to the characteristics of the market itself. For example, it has been noted that new banks are more likely to survive in markets with greater chance of growth and higher profits (Dunham and Constance, 1989; Moore and Skelton, 1998). Hunter and Srinivasan (1990) examine a biannual time series of ROA for *de novo* banks chartered in 1980. Compared to established banks' profitability, on average *de novo* banks improved their performance from the third to the fifth year, and again from the fifth to the seventh year. However, DeYoung and Nolle (1996) note that a bank's size can limit production methods, risk strategies, distribution channels and managerial talents that the credit institution has at its disposal, also finding that estimates of profit efficiency can be very sensitive to bank size.

While studying the effects of mergers and acquisitions, it has emerged that, when banking sectors undergo notable restructuring phases, *de novo* banks specialize in the supply of credit to small and medium enterprises (DeYoung et al., 1999), because they replace 'restructured' banks in providing those services that the latter are no longer able to deliver (Peek and Rosengren, 1998; Strahan and Weston, 1998).

Berger et al. (1998) measure the external effect of merger and acquisitions on loans of other banks in local markets, and find that *de novo* banks improve the supply of credit to small business. In addition, Berger et al. (1999) find that new banks mostly survive in local markets that have experienced mergers or acquisitions during the previous three years, particularly involving large banking institutions.

By means of a theoretical analysis, Dell'Ariccia et al. (1999) demonstrate that a higher level of non-performing loans may be ascribed to externality problems deriving from the interaction between *de novo* banks and long-established banks, especially when new banks locate in credit markets that are already saturated and where their turn-over is low.

DeYoung and Hasan (1998) maintain that the success and survival of a bank in a market is mainly due to internal factors, rather than to external aspects. Accordingly, a strand of literature has focused on the relationship between the performance of entrant banks and their competitive skills, such as the ability to make higher efficiency profits (DeYoung and Hasan, 1998) or their production capacity (Isik, 2007).

Along this line, after constructing a performance index of profitability, Arshadi and Lawrence (1987) conclude that banks' performance is most directly connected with factors within the control of managers, while Hunter and Srinivasan (1990) prove that financial success is associated with effective credit policies, good expense controls, and high capitalization, but not with market structure or economic conditions.

Under this perspective, an aspect that deserves particular attention is the ability of new banks to efficiently deal with non-performing loans, compared to mature banks.

In order to explain possible higher bad loan rates for the new banks, some studies have conjectured that, in a signaling perspective, the entry of a new bank is itself a signal that attracts new customers into the credit market, but, since the former is not able to discriminate between creditworthy and uncreditworthy lenders – unlike mature banks – because of poor information on market participants (Wilson, 1967, 1977), it ends up offering loans to a higher share of risky individuals, thus probably raising its bad loan rate.

Actually, using different methodologies, Broeker (1990) and Riordan (1993) find higher rates of non-performing loans in markets characterized by a greater number of new banks.

The role of imperfect information is also emphasized by DeYoung and Hasan (1997, 1998), who test the probability of the *de novo* banks of incurring in bad loans as a function of their age, thus adding time as a further factor explaining the persistence of higher bad loan rates compared to mature banks. Particularly, they show that for commercial banks the levels of profitability are inversely related to their age, so older banks perform better than the newly chartered ones, and that this difference in performance disappear once banks become more than four years old.

The latter conclusion has been challenged by Shaffer (1998), who agrees with the hypothesis of a relationship between bank age and bad loan rates but, drawing on a wide dataset regarding all U.S. commercial banks between 1986 and 1995, finds that *de novo* banks' chargeoff ratio (i.e. the share of loans that have been charged off because of the little chance to have them repaid) approaches that of more mature banks only after ten years from their birth, which means that transitional effects of bank entry persist nearly twice as long as regulators and academic researchers believed.

Regarding Italy, Bofondi and Gobbi (2006) analyze the impact of asymmetric information between incumbents and entrants banks (due to the superior information of the first group about customers and the overall economic conditions of the local credit market) on barriers to entry into credit markets. Their empirical evidence, based on a logit regression for the years 1986-1996, is that for the Italian provinces informational asymmetries do play a significant role in explaining entrants' loan default rates.

Maggiolini and Mistrulli (2005) focus on Italian Cooperative Credit Banks (CCBs) in the 1990s, and – by means of a survival analysis – again find that in the start-up period *de novo* CCBs experience a higher default risk than long-run incumbent CCBs. They also show that duration is positively related to the market share of large banks and is higher when there are no incumbent CCBs in the same market.

Another important strand of analysis that developed in Italy in the late 1990s concerns the impact that the deregulation in the opening of new branches may have had on the level of local market competition. Calcagnini et al. (2002) maintain that this phenomenon, by making local markets more competitive, has exposed new banks to a greater risk of obtaining lower profits. In line with this result, Guiso et al. (2007) work on Italian data at the provincial level and prove that, together with a fall in the interest rate spreads and an increase in the access to credit, liberalization has boosted bad loans.

3. The econometric model and the data

Our main objective is to check whether the bad loans of new banks are significantly higher than those of mature banks and, in case this happens, how long this difference persists. Therefore, we estimate the following equation:

$$BLR_{it} = \alpha_0 + \sum_{k=0}^{n} \alpha_k D\_YEAR\_k_{it} + \beta \ln LOANS_{it} + \delta BKV_{it} + \gamma MKV_{it} + \varepsilon_{it} \quad (1)$$

where $i = 1,...,N$ and $t = 1,...,T$ index banks and years, respectively.

The dependent variable, *BLR*, is the bad loans ratio, and measures the share of non-performing loans over total loans granted to customers. In line with Shaffer (1998), we introduce 16 yearly dummies (*D_YEAR_k*, with *k* ranging from 0 to 15) indicating the age of each bank over time, as well as the natural logarithm of total customer loans (*lnLOANS*) in order to control for banks' size.

If the annual dummy variables were significant, this would mean that bank age is a relevant factor influencing bad loans. Particularly, positive and significant coefficients for a period of not less than five years would be consistent with DeYoung and Hasan (1998) and Shaffer (1998).

Other control variables are also added to the equation to be estimated, which can be divided in bank variables (*BKV*) and market variables (*MKV*). Among the bank variables we include:

- the average lending rate (*LOANRATE*), calculated as the ratio between interest income and loans;
- the degree of financial dependence (*DEPENDENCE*), given by the ratio between loans and total assets, which proxies for capital adequacy;
- three dummies that record possible change in the size and characteristics of credit institutions, which in turn can imply a sudden increase or decrease of size, and therefore of non-performing loans: *MERGER* assumes a value of one if bank *i* results from a merger of two or more banks, *INCORPORATION* equals to one in case bank *i* has incorporated two or more other banks, and *ACQUISITION* takes

the value of one if bank *i* purchased certain assets and liabilities from another bank.

Market variables are the following:

- the natural logarithm of the Herfindahl-Hirschman index (*lnHHI*), as a measure of concentration of the local markets where banks operate;
- the natural logarithm of the real per capita GDP (*lnPERCAPGDP*), which accounts for the level of local income and hence of economic vitality;
- six macro-regional dummies that denote the geographical areas of the country where banks mainly operate: North-West (*NW*), North-East (*NE*), Center (*CEN*), South (*SOU*), Islands (*ISL*), and nationwide (*NAT*).

For banks operating in more than one of the Italian regions, the values of *lnHHI* and *lnPERCAPGDP* have been weighted according to the geographical distribution of their branches (Maudos, 1998; Coccorese and Pellecchia, 2009).

Estimations have been performed by using fixed effects, in line with the results of the Hausman test (also reported). Balance sheet data on individual banks have been drawn from the database managed by ABI (Italian Banks' Association), while information about banks' age and type, as well as those pertaining the regional distribution of branches, have been gathered from the supervision archive of the Bank of Italy. Finally, the source of GDP and population data is ISTAT (Italian Statistical Institute).

Our (unbalanced) panel covers a span of sixteen years (from 1995 to 2010) and, after dropping outliers (first and last percentiles), it contains 8788 observations regarding 846 banks. Only commercial, savings and cooperative banks have been included in the dataset. Financial data have been deflated according to the national GDP deflator using year 2000 as the base year.

Descriptive statistics of the sample are reported in Table 1.

INSERT TABLE 1 ABOUT HERE

4. Results and discussion

Tables 2 to 4 show the regression results for the various specification of Equation (1).

In Table 2, the first specification makes reference to the baseline regression without any control variable (except *lnLOANS*). The evidence is that in the Italian banking

industry new banks experience a bad loans ratio that is persistently higher than that of long-established banks from the fourth to the ninth year since their birth.

INSERT TABLE 2 ABOUT HERE

This confirms Shaffer (1998)'s results. More particularly, we find that in the first three years from their establishment the bad loans rate of *de novo* banks is not significantly different from that of older banks, and that the difference between the two ratios reaches its maximum between the sixth and seventh year of new banks' life. Figure 1 shows the estimated gap of the bad loans rate between *de novo* banks and mature banks as a function of new banks' age (here, in line with our evidence, we consider as "mature" a bank that is ten-year old or more).

INSERT FIGURE 1 ABOUT HERE

Looking for an explanation of this outcome, Goldberg and White (1998) maintain that in the very first years *de novo* banks tend to make loans primarily to small businesses, which by their nature turns out to be more exposed to the default risk. Moreover, as Wilson (1967) notes, new-established banks suffer from problems of asymmetric information: unlike mature banks, they do not know borrowers and market characteristics, so they are not able to make an accurate selection of lenders. Focusing on Texas, Clair (1992) finds evidence that loan growth – caused by the entry of new banks in the credit market – first improves loan quality, but later increases charge-off rates for a long time period, as bad borrowers adopt moral hazard strategies by asking loans mainly to new banks.

The coefficient of *lnLOANS* is negative and highly significant, suggesting that more little banks have generally a higher fraction of bad loans, whereas an increase in loan size corresponds to an increase in bank size and therefore is able to guarantee more market power and less risk towards customers. This evidence agrees with the findings by Nakamura (1994) and Keeton (1995), who maintain that small banks lend more to small firms, which are characterized by higher risks, while Diamond (1991) shows that large banks, thanks to scale economies and smaller information asymmetries, are able to make better lending decisions.

The above results are generally confirmed by the other specifications of Equation (1) (see Table 1). The bank-level variables, *LOANRATE* and *DEPENDENCE*, are both significant and negative: hence, increasing loan interest rate is an effective device for reducing banks' risky loans (Lombardo, 2006), while a higher share of loans in total assets

decreases non-performing loans. As regards the first evidence, we are in line with the results of Jappelli and Pagano (1999), who, by means of a theoretical model of adverse selection, show that the loan rate is a proxy measure of credit quality by which banks identify good borrowers, including those willing to pay more just to get a loan, as higher interest rates discourage bad borrowers thus reducing the market rate of non-performing loans. The negative sing of the *DEPENDENCE* variable confirms that, by increasing the number of loans, banks are able to better diversify their portfolio and reduce the overall risk (Keeton and Morris, 1987).

Turning to the market-level variables, *lnHHI* exhibits a significant and positive coefficient, thus indicating that the share of non-performing loans is bigger when market concentration is high. This is in line with the hypothesis that more concentrated banking markets increase the likelihood of incurring in bad customers, as the probability to discriminate between good and bad lenders is lower (Wilson, 1967). The coefficient of per capita GDP (*lnPERCAPGDP*) is significant and negative, thereby showing that in richer areas the probability of incurring in non-performing loans is lower, essentially because regions with higher per capita GDP typically have a stronger entrepreneurial structure, which reduces the likelihood of having loans unpaid.

The introduction of the macro-regional dummies helps to make clear that in Italy banks operating largely in the South and the Islands have higher bad loans. This phenomenon has been already observed in previous studies. For example, Zazzaro (2006) argues that a flattening of the credit market tends to penalize especially Southern regions and those with weaker entrepreneurial structure. Also, Presbitero and Zazzaro (2011) show that most of the bank mergers and acquisitions have caused a reduction in the number of decision nodes in the Centre and South of Italy (moving them toward the Northern regions), with the consequence that in these areas the links between banks and customers – and hence the role of credit in helping local economic growth – may become weaker.

In order to carry out a more detailed analysis, we have also estimated Equation (1) on subsets of our data. Particularly, we have first grouped Italian banks into three categories (Beretta and Del Prete, 2007): popular banks, cooperative credit banks (CCBs), commercial banks. Table 3 reports the estimation results.

INSERT TABLE 3 ABOUT HERE

As it is evident, for popular and commercial banks the results we got for the entire sample are generally confirmed, even if new commercial banks show persistent gaps in

the bad loans ratio, compared with the older ones, from sixth to twelfth year, i.e. a bit later (and longer) than popular banks as well as the whole sample. Quite to contrary, CCBs (which represent the largest group, amounting to about three quarter observations) even exhibit a better bad loans ratio than the mature ones since their settlement and for the first five years of their life. Our evidence is only partially consistent with Maggiolini and Mistrulli (2005): their econometric analysis show that, during the start-up period, new CCBs have less trouble moving into markets where competition is less fierce in their typical market niche, and also where there are no other CCBs, but nonetheless *de novo* CCBs are endowed with a higher default risk than long-run incumbent CCBs.

One explanation for this striking difference could be in the different time span: actually, they focus on the period 1990-2000, i.e. a period of great transformation in the structure of the Italian banking industry, while our analysis extends from 1995 to 2010, thus including ten years of relatively less turmoil in terms of market changes. Another viable motivation is that the operating performance of incumbent CCBs could have been impaired by bad loans more than the other types of banks (Destefanis, 1996). Also, the location rules of Italian CCBs may have made the incumbent CCBs very heavily dependent on (possibly negative) local shocks, while new CCBs could have had an advantage in this respect, being able to choose their place of activity also according to an assessment of the current economic situation in a given area (Barra et al., 2011).

Table 4 reports the results of two additional estimations. The first specification replicates the analysis of the first column of Table 2, but with the inclusion of the dummies marking banks coming out from to mergers or that incorporated or acquired other credit institutions. In this case, our baseline results are again confirmed. In addition, there is evidence that those new banks that incorporated other banks suffer from more non-performing loans compared to the control group. This is a somewhat expected result, given that in the Italian credit sector the purchase of assets and liabilities has generally regarded banks in difficulty.

INSERT TABLE 4 ABOUT HERE

The last two groups of results show the econometric evidence deriving from our baseline model when banks are classified according to whether their total assets is below ("small banks") or above ("big banks") the median value. It is straightforward to note that, in terms of bad loans, new small banks perform better than older ones for many years (up to eight) since their birth, while new big banks are in trouble after three years and up to the twelfth year with respect to those mature. It should be noted that these results resemble

what we found in the second and third column of Table 3, respectively, probably because more little banks in Italy are generally CCBs while larger banks mainly belong to the group of commercial banks. Nonetheless, this evidence is important because it confirms that small banks have a better knowledge of the area where they operate (as a consequence of their local roots) and can therefore make a better screening of its customers, while the larger ones can rely on scale economies but focus on lending to medium and large firms and consequently have less information on local credit markets (Coccorese, 2009, p. 1201).

5. Conclusions

This paper has attempted to provide an analysis of the Italian credit market focusing on the performance of *de novo* banks, and particularly on the persistence of a higher share of non-performing loans in the early stages of their life. By means of panel methodologies and using a sample of banks for the years 1995 to 2010, we have found that for new banks high bad loans rates persist for a long period of time, up to ten years since their creation. We have also discovered that this holds particularly for popular and commercial banks, as well as large banks, while CCBs and small banks exhibit a more virtuous conduct compared to the mature ones. We ascribe this evidence to the fact that CCBs and little banks have deep local roots, are more specialized and have a better knowledge of local customers, thus avoiding excessive risk since their birth.

Therefore, despite advances in technology and communications that tend to reduce the distance information between operators, it emerges that the model of local bank still remains one of the most effective in guaranteeing a safe approach to new markets.

Table 1 – Descriptive statistics

Variable	*Mean*	*Median*	*Std. Dev.*	*Min*	*Max*
BLR	0.0429	0.0238	0.0534	0	0.3521
D_YEAR_0°	0.0003	0	0.0185	0	1
D_YEAR_1°	0.0016	0	0.0399	0	1
D_YEAR_2°	0.0040	0	0.0630	0	1
D_YEAR_3°	0.0099	0	0.0990	0	1
D_YEAR_4°	0.0140	0	0.1175	0	1
D_YEAR_5°	0.0138	0	0.1165	0	1
D_YEAR_6°	0.0154	0	0.1230	0	1
D_YEAR_7°	0.0155	0	0.1234	0	1
D_YEAR_8°	0.0150	0	0.1216	0	1
D_YEAR_9°	0.0137	0	0.1161	0	1
D_YEAR_10°	0.0143	0	0.1189	0	1
D_YEAR_11°	0.0148	0	0.1207	0	1
D_YEAR_12°	0.0149	0	0.1212	0	1
D_YEAR_13°	0.0155	0	0.1234	0	1
D_YEAR_14°	0.0156	0	0.1239	0	1
D_YEAR_15°	0.0142	0	0.1184	0	1
lnLOANS	11.7936	11.5487	1.8071	7.2699	19.1271
lnHHI	6.3814	6.4060	0.4330	5.6667	8.2157
lnPERCAPGDP	9.9787	10.0796	0.2639	9.3405	10.2773
LOANRATE	0.1229	0.0942	0.0754	0.0353	0.4583
DEPENDENCE	0.5565	0.5541	0.1570	0.1105	0.8729
NW°	0.1459	0	0.3530	0	1
NE°	0.3665	0	0.4819	0	1
CEN°	0.1771	0	0.3817	0	1
SOU°	0.1615	0	0.3680	0	1
ISL°	0.0605	0	0.2385	0	1
NAT°	0.0885	0	0.2841	0	1
MERGER°	0.0031	0	0.0553	0	1
INCORPORATION°	0.0232	0	0.1506	0	1
ACQUISITION°	0.0008	0	0.0282	0	1

For variable definitions, see Section 3.
° = dummy variables

Table 2 – Estimation results (whole sample)

	(1)			(2)			(3)			(4)		
Variable	***Coef.***	***t***		***Coef.***	***t***		***Coef.***	***t***		***Coef.***	***t***	
D_YEAR_0	-0.0435	-1.95	*	-0.0427	-1.93	*	-0.0475	-2.17	**	-0.0459	-2.10	**
D_YEAR_1	-0.0145	-1.32		-0.0136	-1.25		-0.0136	-1.27		-0.0123	-1.15	
D_YEAR_2	-0.0118	-1.65	*	-0.0109	-1.53		-0.0085	-1.20		-0.0075	-1.05	
D_YEAR_3	0.0046	1.00		0.0051	1.11		0.0009	0.20		0.0019	0.42	
D_YEAR_4	0.0096	2.41	**	0.0101	2.57	**	0.0058	1.47		0.0067	1.69	*
D_YEAR_5	0.0089	2.25	**	0.0095	2.41	**	0.0046	1.18		0.0054	1.39	
D_YEAR_6	0.0182	4.86	***	0.0186	5.00	***	0.0137	3.71	***	0.0144	3.91	***
D_YEAR_7	0.0188	5.01	***	0.0191	5.14	***	0.0145	3.92	***	0.0150	4.07	***
D_YEAR_8	0.0121	3.24	***	0.0124	3.35	***	0.0109	2.96	***	0.0109	2.97	***
D_YEAR_9	0.0128	3.37	***	0.013	3.42	***	0.0135	3.61	***	0.0131	3.49	***
D_YEAR_10	0.0063	1.68	*	0.0063	1.71	*	0.0072	1.96	*	0.0067	1.83	*
D_YEAR_11	0.0057	1.57		0.0056	1.56		0.0064	1.80	*	0.0061	1.73	*
D_YEAR_12	0.0036	1.01		0.0035	1.00		0.0051	1.46		0.0048	1.39	
D_YEAR_13	0.0028	0.8		0.0026	0.76		0.0047	1.37		0.0044	1.28	
D_YEAR_14	-0.0023	-0.69		-0.0025	-0.75		0.0008	0.25		0.0004	0.11	
D_YEAR_15	-0.0028	-0.81		-0.0029	-0.84		0.0007	0.20		0.0003	0.09	
lnLOANS	-0.0192	-23.00	***	- 0.0185	-22.20	***	- 0.0130	-8.22	***	-0.0125	-7.85	***
lnHHI							0.0224	6.38	***	0.0244	6.92	***
lnPERCAPGDP							-0.1138	-8.97	***	-0.0844	-6.44	***
LOANRATE							-0.1212	-10.70	***	-0.1089	-9.54	***
DEPENDENCE							-0.0736	-10.20	***	-0.0735	-10.20	***
NW				-0.0077	-1.58					-0.0013	-0.27	
NE				-0.0099	-1.75					-0.0054	-0.97	
CEN				0.0012	0.15					-0.0016	-0.22	
SOU				0.0328	5.53	***				0.0305	5.17	***
ISL				0.1308	9.19	***				0.1028	7.13	***
Constant	0.2675	26.88	***	0.2513	23.48	***	1.2432	9.10	***	0.9207	6.53	***
R^2 within	0.0876			0.1017			0.1196			0.1281		
F-test	44.77***			40.74***			51.23***			44.72***		
Fixed vs random effects	FE			FE			FE			FE		
Hausman test	121.43***			310.69***			65.10***			206.05***		
Obs.	8788			8788			8788			8788		

*** = significant at the 1% level – ** = significant at the 5% level – * = significant at the 10% level.
The dependent variable is BLR (bad loans rate). The Hausman test assesses the appropriateness of the random-effects model against the fixed-effects specification.

Table 3 – Estimation results for different types of banks

	Popular banks			***Cooperative banks***			***Commercial banks***		
Variable	***Coef.***	***t***		***Coef.***	***t***		***Coef.***	***t***	
D_YEAR_0	-0.0217	-0.63		-0.0822	-2.91	***	-		
D_YEAR_1	0.0042	0.25		-0.0527	-3.49	***	0.0295	0.78	
D_YEAR_2	0.0111	0.78		-0.0382	-4.09	***	0.0208	1.03	
D_YEAR_3	0.0177	2.92	***	-0.0286	-3.34	***	0.0244	1.47	
D_YEAR_4	0.0217	4.05	***	-0.0227	-3.11	***	0.0281	1.85	*
D_YEAR_5	0.0182	3.43	***	-0.0154	-2.18	**	0.0269	1.74	*
D_YEAR_6	0.0319	6.16	***	-0.0119	-1.94	*	0.0424	3.02	***
D_YEAR_7	0.0283	5.49	***	-0.0075	-1.24		0.0605	4.31	***
D_YEAR_8	0.0196	3.89	***	-0.0091	-1.46		0.0491	3.75	***
D_YEAR_9	0.0138	2.67	***	0.0038	0.62		0.0488	3.83	***
D_YEAR_10	0.0056	1.09		0.0016	0.28		0.0349	2.65	***
D_YEAR_11	0.0068	1.36		-0.0001	-0.02		0.0358	2.68	***
D_YEAR_12	0.0062	1.21		-0.0025	-0.49		0.0300	2.25	**
D_YEAR_13	0.0040	0.78		-0.0013	-0.27		0.0226	1.81	*
D_YEAR_14	-0.0043	-0.85		0.0011	0.23		-0.0047	-0.38	
D_YEAR_15	-0.0070	-1.34		0.0031	0.63		-0.0030	-0.22	
lnLOANS	-0.0182	-6.97	***	-0.0199	-21.48	***	-0.0114	-3.46	***
NW	-0.0019	-0.25		-0.0102	-1.02		-0.0110	-1.32	
NE	-0.0139	-1.88	*	-0.0090	-1.07		-0.0039	-0.09	
CEN	-0.0258	-1.87	*	0.0077	0.75		0.0166	0.91	
SOU	0.0336	3.94	**	0.0386	4.03	***	0.0197	1.28	
ISL	0.1094	6.46	***	-			0.1717	6.75	***
Constant	0.2891	7.64	***	0.2594	22.34	***	0.1838	3.86	***
R^2 within	0.2044			0.0826			0.2035		
F-test	18.01***			25.08***			5.95***		
Obs.	1731			6468			588		

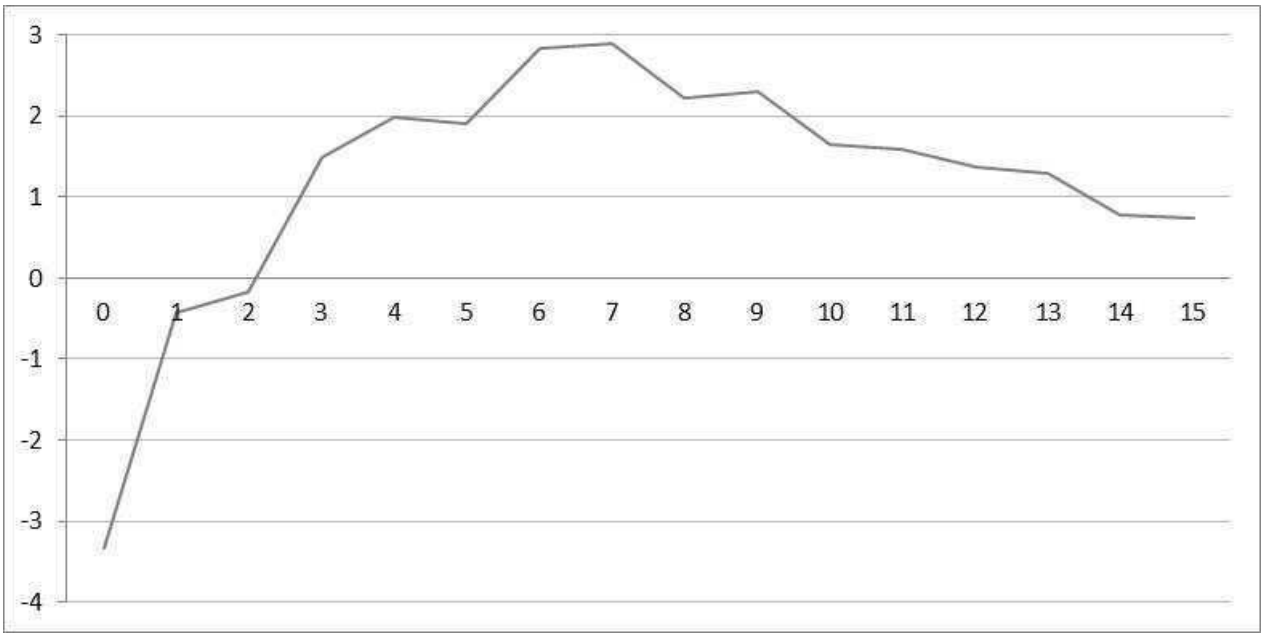
*** = significant at the 1% level – ** = significant at the 5% level – * = significant at the 10% level. The dependent variable is BLR (bad loans rate).

Table 4 – Estimation results for organizational changes and size groups

	With organizational effects			***Small banks***			***Big banks***		
Variable	***Coef.***	***t***		***Coef.***	***t***		***Coef.***	***t***	
D_YEAR_0	-0.0436	-1.96	*	-0.1061	-3.39	***	-0.0199	-0.65	
D_YEAR_1	-0.0145	-1.33		-0.0757	-4.42	***	0.0069	0.51	
D_YEAR_2	-0.0124	-1.72	*	-0.0638	-5.32	***	0.0044	0.47	
D_YEAR_3	0.0046	0.99		-0.0513	-4.79	***	0.0174	3.75	***
D_YEAR_4	0.0097	2.44	**	-0.0434	-4.66	***	0.0215	5.44	***
D_YEAR_5	0.0090	2.29	**	-0.0340	-3.97	***	0.0196	4.90	***
D_YEAR_6	0.0181	4.85	***	-0.0248	-3.18	***	0.0311	8.11	***
D_YEAR_7	0.0186	4.97	***	-0.0204	-2.68	***	0.0314	8.10	***
D_YEAR_8	0.0120	3.21	***	-0.0164	-2.14	**	0.0205	5.36	***
D_YEAR_9	0.0125	3.28	***	-0.0030	-0.39		0.0186	4.73	***
D_YEAR_10	0.0063	1.69	*	-0.0057	-0.80		0.0099	2.53	***
D_YEAR_11	0.0057	1.56		-0.0065	-0.99		0.0111	2.85	***
D_YEAR_12	0.0037	1.03		-0.0098	-1.58		0.0105	2.70	***
D_YEAR_13	0.0028	0.82		-0.0031	-0.52		0.0056	1.45	
D_YEAR_14	-0.0026	-0.78		-0.0007	-0.12		-0.0038	-1.00	
D_YEAR_15	-0.0028	-0.81		0.0011	0.19		-0.0056	-1.40	
lnLOANS	-0.0192	-23.09	***	-0.0259	-16.98	***	-0.0164	-13.96	***
MERGER	-0.0117	-1.68	*						
ACQUISITION	-0.0057	-0.41							
INCORPORATION	0.0098	3.72	***						
Constant	0.2677	26.91	***	0.3238	20.05	***	0.2463	15.75	***
R^2 within	0.0896			0.0770			0.2035		
F-test	38.97***			18.77***			31.83***		
Obs.	8788			4394			4394		

*** = significant at the 1% level – ** = significant at the 5% level – * = significant at the 10% level. The dependent variable is BLR (bad loans rate).

Figure 1 – Estimated bad loans rate differentials between *de novo* banks and mature banks



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