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How depositors discipline banks

The case of Russia

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This paper investigates whether market discipline exists in the Russian personal deposit market, *i.e.* whether depositors react to changes in fundamentals, characterizing banks' additional risk-taking by requiring higher interest rates, withdrawing their deposits or switching from long-term to short-term or on-call deposits. Another aim is to test whether depositor discipline differs for different groups of banks (state, private, foreign) and whether it disappears with banks' admission to deposit insurance system. I use panel bank-specific data over the period April 2004 – July 2006. The analysis reveals that the depositors of foreign banks exert virtually no discipline either by quantity of by price. The depositors of state banks use quantity-based discipline mechanism, but the only significant characteristic is bank's size. The maturity shifts exist for time deposits but the deposit insurance system introduction reduced them significantly. The depositors of private domestic banks discipline their banks by quantity (choosing larger bank in terms of assets), by price and by switching from on-call to long-term deposits. Admittance to the deposit insurance system introduction did not remove this discipline moreover disciplining became even more explicit.

Keywords. Russia, banking, market discipline, depositors, deposit insurance.

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NON-TECHNICAL SUMMARY

Like any other financial service market, the market for bank deposits is exposed to information asymmetry problems: all deposits are characterized by some probability that the bank will not be able to repay due to default, but the depositors' ability to change characteristics of the deposit supply in a response to excessive risk-taking is rather questionable. However The New Basel Capital Accord (Basel II), appeared in 2004, places particular emphasis on intrinsic regulatory mechanisms, generated by the market itself. The third Pillar of Basel II (along with capital adequacy and prudential supervision) relies on market discipline, stating that introduction of the requirements to disclose the information related to basic bank risks publicly solves the moral hazard problem by eliminating (at least to the certain degree) of its origin — information asymmetry. Indeed no depositors would bring their money to the bank of questionable liquidity and solvency they are not sure about (unless it offers high interest rate).

Most of the papers that study market discipline mechanisms, can be divided into three groups according to the definition given to the market discipline and to the nature of mechanisms examined. The authors of the first set of studies (*e.g.* Hannan, Hanweck, 1988; Ellis, Flannery, 1992) have chosen the price-based approach. The results of these studies support the hypothesis that uninsured depositors charge higher interest rates to riskier banks because these interest rates contain risk premia.

In a second set of studies (*e.g.* Jordan, 2000; Goldberg, Hudgins, 1996) the quantity-based approach is used. If bank fundamentals demonstrate greater risks, depositors tend to withdraw their fund from this bank, so it becomes more difficult for the bank to raise additional deposits. This approach is based on the assumption that in the market characterized by imperfect information the price may fail to reflect the degree of riskiness. In some papers (*e.g.* Stiglitz, Weiss, 1981; Park, Peristiani, 1998) the authors show that under asymmetric information the debtor is disciplined by quantity rather then by price.

The third set of studies (*e.g.* Park, 1995; Park, Peristiani, 1998) combines both approaches. The authors demonstrate that riskier banks offer higher deposit interest rates but they are able to accumulate smaller amount of uninsured deposits.

One more possible way to discipline the banks may be called maturity shifts: depositors may switch from riskier long-term deposits to less risky short-term or even on-call ones if they face additional risk-taking by bank. However this approach is not widespread: only Murata and Hori (2006) emphasize in their paper that if the depositors' discipline exists, the changes in deposit maturity structure depend on the bank fundamentals.

The issue of the particular research interest is whether these disciplinary mechanisms really work on the market for personal deposits — the market, characterized by the highest degree of information asymmetry, as the depositors seem to be unsophisticated. Considering Russia the share of personal

deposits in banks' liabilities may amount up to 40%, but these bank clients may be particularly exposed to a bank panic, which is able to plunge the banking system into the crisis.

Hosono, Iwaki, Tsuru (2004) found no market discipline either by quantity or by price in Russian market for bank deposits (they used 1995–2002 data and did not distinguish between personal and corporate deposits). Karas, Pyle, Schoors (2005, 2006), on the contrary, demonstrated the existence of strong market discipline by quantity and weaker one by price (they used 1999–2002 data) even for personal deposits. Peresetsky, Karminsky, Golovan (2007), using 2002–2004 data, found explicit price-based discipline used by retail depositors.

The main purposes of this study are the following:

- To investigate whether any mechanism of market discipline exists in the Russian market for personal deposits, and if it does, which type of the mechanisms is the most articulated one (whether depositors punish banks for increased risks by withdrawing their deposits, requiring higher interest rates or by switching from long-term to short-term deposits).
- To check up if there were any changes in depositors' sensitivity to bank fundamentals' deterioration (or improvement) after the introduction of deposit insurance system with obligatory participation and state guarantee for the amount up to 400,000 RUB (even those depositors who have the ability — funds, time and expertise — to discipline their banks may not do so anymore, having the explicit guaranties of repayment).
- To test if any characteristics of market discipline in personal deposit market depend on the fact that the majority of the bank's ownership is:
  - owned by the state;
  - under control of foreign financial institution.

To test all the above-mentioned hypotheses we use the reduced-form equations (one for each disciplinary mechanism):

$$IR_{i,t} = \alpha_{I,i} + \mu_I' BF_{i,t-1} + \gamma_I' Macro_t + \theta_I' Dummy\_DIS * BF_{i,t-1} + \vartheta_I' Dummy\_DIS * Macro_t + \varepsilon_{I,i,t},$$
$$\Delta Dep_{i,t} = \alpha_{D,i} + \mu_D' BF_{i,t-1} + \gamma_D' Macro_t + \theta_D' Dummy\_DIS * BF_{i,t-1} + \vartheta_D' Dummy\_DIS * Macro_t + \varepsilon_{D,i,t},$$

such that $i = 1, \ldots, N$; N — the number of banks in the sample; $t = 1, \ldots, T$; T — the number of observations.

$$\Delta \frac{Dep^M{}_{i,t}}{Dep_{i,t}} = \alpha_{Dm,i} + \mu_{Dm}' BF_{i,t-1} + \gamma_{Dm}' Macro_t + \theta_{Dm}' Dummy\_DIS * BF_{i,t-1} + \\ + \vartheta_{Dm}' Dummy\_DIS * Macro_t + \varepsilon_{Dm,i,t}.$$

$\Delta Dep_{i,t}$ stands for personal deposits' growth in the bank i at time t. $IR_{i,t}$ represents the interest rate, estimated by the total interest payments to individuals to the amount of individual deposits ratio. $BF_{i,t-1}$ stands for a vector of lagged bank fundamentals of the bank i, which characterize its risks. $Macro_{i,t}$ stands for a vector of macroeconomic factors, which do not depend on banks

and bank fundamentals, but influence the depositors' decisions. *M* marks the maturity group of the deposits.

To test the hypotheses connected with the ownership structure as a determinant for market discipline we construct and estimate separate regressions for state banks, foreign banks and all the rest banks, which we call private domestic ones.

To estimate the econometric models we use unbalanced panel bank-specific data over the period April 2004 – July 2006.The analysis reveals that the depositors of foreign banks exert virtually no discipline either by quantity of by price. The depositors of state banks use quantity-based discipline mechanism, but the only significant characteristic is bank's size. The maturity shifts exist for time deposits but the deposit insurance system introduction reduced them significantly. The depositors of private domestic banks discipline their banks by quantity (choosing larger bank in terms of assets), by price and by switching from on-call to long-term deposits. Admittance to the deposit insurance system introduction did not remove this discipline moreover disciplining became even more explicit.

1. INTRODUCTION

The markets of financial services are exposed to the problems caused by information asymmetry, and the degree of this exposure greatly exceeds that of any other market. The market for bank deposits is no exception: all deposits are characterized by some — higher or lower — probability of default (*i.e.* the probability that the bank will not be able to repay deposits due to default) but the depositors' ability to identify this probability is rather questionable. The need for an active regulatory and supervisory authorities' intervention — the use of external regulatory mechanisms — seems to be evident. However The New Basel Capital Accord (Basel II), appeared in 2004, places particular emphasis on intrinsic regulatory mechanisms, generated by the market itself. Actually on the one hand there is a certain number of standards and obligatory requirements, which are aimed to control the riskiness of the bank operations and to ensure bank's asset liquidity and deposits repayment. On the other hand no depositors would bring their money to the bank of questionable liquidity and solvency they are not sure about. This observation describes the mechanism of market discipline — the mechanism the third Pillar of Basel II (along with capital adequacy and prudential supervision) relies on. The core of market discipline mentioned in Basel II is the fact that introduction of the requirements of public information disclosure, related to basic bank risks, solves the moral hazard problem by eliminating (at least to the certain degree) of its origin — information asymmetry.

Can regulatory and supervision authorities fully rely on market discipline, given the new Basel principles are still not introduced (Russia is no exception)? Is it reasonable enough to give up using at least some of standards and requirements and stop developing and introducing new ones in hope that the market will resolve the problem itself? Do market mechanisms really work on the market for personal deposits — the market, characterized by the highest degree of information asymmetry? How did the deposit insurance system introduction influence the efficiency of these mechanisms if there are any at work? The aim of this paper is to shed light upon at least some of these questions.

Thus as applied to banking industry, in particular to bank deposits, market discipline is a mechanism through which private sector agents (namely depositors) implicitly control their banks, changing characteristics of the supply of time deposits in a response to increased risks undertaken by banks. After the period of banking crises in 1980s–1990s many economists raised a question of this mechanism's actual presence and its functioning in the deposit markets. The introduction of Basel II principles gives start to additional reflection on this topic so the number of studies in this field rose dramatically. Regarding to personal deposits, owned not by firms, but by individuals, this is the question of particular interest for many Russian banks. The share of such deposits in banks' liabilities may amount to 40%, but these bank clients may be particularly exposed to a bank panic, which is able to plunge the banking system into the crisis. Concerning recent introduction of the deposit insurance system and the question of its efficiency and coverage adequacy (the share of insured deposits accounted for 36% before the first increase of "the ceiling" and is expected to rise up to 44%

after it[1]) the question of market discipline is important for regulation and supervision authorities. However the majority of theoretical and empirical papers on the topic usually do not pay enough attention to such crucial moments as peculiarities of market discipline in the market for personal time deposits or maturity structure shifts as a disciplinary mechanism.

The main purposes of this study are the following:

- To investigate whether any mechanism of market discipline exists in the Russian market for personal deposits, and if it does, which type of the mechanisms is the most articulated one (whether depositors punish banks for increased risks by withdrawing their deposits, requiring higher interest rates or by switching from long-term to short-term or even to on-call deposits).
- To check up if there were any changes in depositors' sensitivity to bank fundamentals' deterioration (or improvement) after the introduction of deposit insurance system with obligatory participation and state guarantee for the amount up to 400,000 RUB.
- To test if any characteristics of market discipline in personal deposit market depend on:
    - the fact that the bank is a state one;
    - the fact that the majority of the bank's ownership is in the hands of foreign financial institution.

The results of the study are likely to reveal, to what degree it is reasonable to rely on market discipline by individual depositors (the deposit insurance system introduction points out that market mechanisms do not work sufficiently well). The latter problem is one of current importance: the process of bank selection for the state deposit insurance system came to the end, and the steps in direction of further "ceiling" increasing are already undertaken.

2. DEPOSIT INSURANCE SYSTEM IN RUSSIA

It seems to be useful to describe the principles the deposit insurance system is based on. In the very end of 2003 the owners of personal deposits in Russian banks obtained the state guaranty that in case of their bank's bankruptcy they have an opportunity to get the repayment of their funds (but not more than 100,000 rubles). Thus Russia joined the countries, which introduced this or that type of deposit insurance system — the number of these countries is now more than 90. According to the lawmakers' idea not earlier than in two weeks after the banks license is cancelled the depositor applying for the reimbursement should send a request to the Deposit Insurance Agency. The amount of his or her deposit (taking "the ceiling" into account) must be repaid in three days. In the same time the Agency takes the depositors place in the line of banks creditors. Both on-call and time personal deposits are insured, but there is no insurance for firm deposits or bank deposits.

[1] Turbanov (2006).

The participation in the system is obligatory for all banks, which have a license for retail deposits acceptance. Banks are admitted on the base of the financial stability coefficients brought in line with the requirements. Per se the set of coefficients is standard: for capital adequacy, assets quality, management quality, earnings and liquidity, but the requirements are stricter, than those for ordinal check-ups.

The financial base for the system is the fund of obligatory deposit insurance. The fund has the following sources of money: initial payment from the state, regular[2] and penalty fees paid by member banks, investment income.[3]

August 2006 witnessed the raise of maximum amount of compensation up to 190,000 rubles (with a 90% coverage for amounts more than 100,000 rubles), the next step was the raise of "the ceiling" up to 400,000 rubles and it is expected that the coverage will continue to rise. What changes did happen with the market of personal deposits with the deposit insurance system introduction? Should we expect this measure to make the depositors even less sensitive to banks' risk-taking? Or this step is an essential one, because the market initially was not able to deal with the moral hazard problem itself? Can this measure aggravate the moral hazard problem because with the state guaranties the depositor may become oriented on the higher interest rate only and this will stimulate banks to invest in riskier assets to attract additional clientele by more attractive interest payments? Thus it seems to be quite important to find out whether the deposit insurance system is some sort of deus ex machina, a guaranty of banking system stability and a provider of additional inflows if retail depositors' funds due to increased degree of trust, or the design chosen for deposit insurance does not respond to the necessities of the Russian market for personal deposits and is a source of threats rather than benefits. Thus it is quite evident that this study seems to be appropriate and relevant in the light of some current reforms in Russian banking system.

3. LITERATURE

Most of the early papers that study market discipline mechanisms, concentrate on the experience of the US commercial banks and S&Ls (saving and loans associations[4]) in 1980s–1990s. These studies can be divided into three groups according to the definition given to the market discipline and to the nature of mechanisms examined. The authors of the first set of studies (*e.g.* Hannan, Hanweck, 1988; Ellis, Flannery, 1992) have chosen the price-based approach. In particular, they examine how yields on deposits respond to changes in risks undertaken by banks. The results of these studies

[2] The rate is equal for all banks. It is set by the Agency and cannot exceed 0.15% of the average quarter amount of deposits.

[3] The funds may be invested into government securities, deposits and securities of the Central bank, bonds and shares of Russian corporations, Russian mortgage securities, shares of index unit investment trusts, investing into foreign government securities, bonds and shares of foreign corporations, other securities of developed countries.

[4] For simplicity hereinafter they are called "banks", but legally they are not.

support the hypothesis that uninsured depositors charge higher interest rates to riskier banks because these interest rates contain risk premia.

In a second set of studies (*e.g.* Jordan, 2000; Goldberg, Hudgins, 1996) the quantity-based approach is used. If bank fundamentals demonstrate greater risks, depositors tend to withdraw their fund from this bank, so it becomes more difficult for the bank to raise additional deposits. This approach is based on the assumption that in the market characterized by imperfect information the price may fail to reflect the degree of riskiness. In some papers (*e.g.* Stiglitz, Weiss, 1981; Park, Peristiani, 1998) the authors show that under asymmetric information the debtor is disciplined by quantity rather then by price.

The third set of studies (*e.g.* Park, 1995; Park, Peristiani, 1998) combines both approaches. The authors demonstrate that riskier banks offer higher deposit interest rates but they are able to accumulate smaller amount of uninsured deposits.

The case studies dedicated to the presence of market discipline in other countries become more and more numerous now. The existence of market discipline was proved for developed countries (*e.g.* for Switzerland Birchler, Maechler, 2001; or Japan Murata, Hori, 2006), as well as for some developing countries: Argentine, Chile, Mexico (Martinez Peria, Schmuckler, 1999, 2001), Bolivia (Ioannidou, de Dreu, 2006), Colombia (Barajas, Steiner, 2000), India (Ghosh, Abhiman), Turkey (Ungan, Caner), Uruguay (Goday, Gruss, 2005). Notably they show that market discipline exists even in the market for small insured deposits. "All-around-the-globe" studies (Demirgüc-Kunt, Huizinga, 1999; Hosono, Iwaki, Tsuru, 2004) allow making some cross-country comparison. They prove that quantity-based approach is more appropriate for developing economies, where due to asymmetry of information and lack of transparency of financial markets the interest rates are unlikely to reflect all the information about bank risks, and for developed countries a mix approaches should be used. It is worth noting that these conclusions should be taken into account those planning a new research work in this field. So lack of market discipline (for example found in New Zealand Wilson, Rose, Pinfold, 2004) may be explained by the fact that some possible mechanisms were not tested for presence (Wilson, Rose and Pinfold limited their analysis to the price-based mechanism), not by absence of incentives and opportunities for depositor discipline.

Hosono, Iwaki, Tsuru (2004) found no market discipline either by quantity or by price in Russian market for bank deposits (they used 1995–2002 data). Karas, Pyle, Schoors (2005, 2006), on the contrary, demonstrated the existence of strong market discipline by quantity and weaker one by price (they used 1999–2002 data). The discipline was likely to become more intense after the financial collapse of 1998 and to be more pronounced for corporate depositors. Although our study is based on another data set and uses other model specifications placing particular emphasis on the influence of institutional factors change (*e.g.* deposit insurance system introduction), there still is the case study it is possible to compare the results with. Finally Peresetsky, Karminsky, Golovan (2007), using 2002–2004 data, found explicit price-based discipline used by retail depositors

In addition to already mentioned criterion it's worth distinguishing all the papers according to econometric models estimated. This division is important because it helps to understand why the

model presented by this paper was chosen. Before the papers by Martinez Peria, Schmuckler (1999, 2001) were published the authors estimated dependent variables in two steps. The fist one is the determination of the probability of bank failure. The second one is constructing the estimate of dependent variables according to this probability and some factors, which are not related to the bank fundamentals. Martinez Peria and Schmuckler reasonably noted that this approach fails to demonstrate explicitly, whether the changes of dependent variables were caused mostly by some particular bank fundamental, so they offered to use a one step model. This approach is used by most of their followers that is why our study contains econometric model, which explicitly demonstrates the relationship between dependent variable and the bank fundamentals as well as macroeconomic characteristics.

It's worth reminding that the study is dedicated to personal deposits, so we use them as a dependent variable in measuring the quantity-based mechanism. These deposits are not emphasized in earlier papers, but taking into account that recently introduced deposit insurance system covers only personal deposits, this causes the particular interest for the research work.

The authors usually consider the quantity-based mechanism as the changes in the total amount of deposits, however the absence of market discipline for total amount may be explained by shifts in their maturity structure. This modification of the mechanism suggests that the depositors shift their preferences in favor of short-term deposits or even on-call deposits in response to higher bank risks. As Murata and Hori (2006) emphasize in their paper, if the depositors' discipline exists, the changes in deposit maturity structure depend on the bank fundamentals, which characterize the risk associated with a bank. However Murata, Hori (2006) is the only paper to check this hypothesis. In this paper the difference in quantity-based mechanisms for different type of deposits are estimated as well as the functioning of maturity shifts mechanism, using the idea and some instruments offered in Murata, Hori (2006).

The final remark is that the majority of empirical literature on market discipline does not divide all banks into several groups on the criterion of the ownership structure or on any other basis. Only in Birchler, Maechler (2001), the authors compare the characteristics of market discipline for cantonal and regional Swiss banks. But this subdivision is explained by differences in deposit insurance schemes used by banks from different groups (cantonal banks enjoy the advantage of special state guaranty). However the ownership structure itself could be the signal of riskiness or reliability of the bank. That may cause for example the absence of market discipline for the clients of state banks. In the same time there appears the possibility to compare foreign and state banks in this respect. For example in India there is weak market discipline for foreign banks, not for the state ones, and in New Zealand, where market discipline was not found, the banks mostly are not domestic, too.

There are some papers examining the role of deposit insurance system and its influence on the bank deposit market. The authors use to emphasize two general purposes of this system introduction. An ex-post purpose is to create a tool, which would help to repay the deposits (fully or at least partly) in case of bank bankruptcy. An ex-ante purpose is to provide banking system stability, namely — to prevent the so-called bank runs, performed by depositors. In Diamond, Dybvig (1983) the authors

show that from a depositor's point of view the strategy to run a bank — *i.e.* to come and withdraw deposit before it matures — is a preferable one. If a depositor expects other depositors to withdraw their funds earlier he or she will prefer to act in the same way. Thus the clients who arrived first face no losses, but those who are a bit late get nothing because the bank is defaulted.

It is not surprising therefore that the banks have incentives to invest into liquid assets — that results in drop of bank activities' profitability and lack of industrial sector financing — and, in the same time, to control the information available to depositors (in order not to give them the signal to begin a bank run).

As the route of such financial crises development is like a spiral and the mechanism is self-sustainable, the regulatory authorities may prevent them at a very early stage and on individual bank level (using prudential supervision techniques), and even those measures may be insufficient because the gossips on bank insolvency may arise without any control and are enough to stimulate a bank run. Deposit insurance systems seem to be a more efficient tool in bank runs prevention, as they reduce the incentives to withdraw the deposits.

As the author of Thompson (2001) highlights there are several groups of agents who definitely benefit from deposit insurance system introduction. First of all these are small depositors as regulators and/or insurance fund managers are able to perform the monitoring of banks more effectively than they do, as they have much more expertise. Secondly small banks are those who benefit, too. Deposit insurance introduction make them more competitive as implicit guaranties provided by state or foreign support as well as "too-big-to fail" hypothesis is not a competitive advantage any more. However the degree of this rise of competitiveness depends upon the share of the deposits in bank resources. At last the taxpayers are those who may gain benefits, too. As the deposit insurance system introduction reduces the probability of a bank run the probability that the state will have to spend the budget funds including collected taxes to liquidate the consequences of financial crisis decreases as well.

The main problem created by deposit insurance is the problem of moral hazard. Even those depositors who have the ability — funds, time and expertise — to monitor banks effectively will not do so anymore: why to spend the resources if even in case of bank bankruptcy the insurance fund will be the source of deposit repayment anyway. So the financial results of banking activities, as well as the corresponding level of risks, are not interesting for them now. Consequently the only factor that influences the choice of a bank to invest money is the offered interest rates. In the same time the banks enjoying the absence of market discipline prefer to invest the accumulated funds into riskier projects. This allows to yield more (at a price of higher risks), on the one hand, and to offer higher interest rates providing a competitive advantage to a bank in such a situation on the other hand. Therefore the tool aimed to provide banking system stability may have an opposite effect if the deposit insurance system introduction reduces the incentives to exert market discipline to zero.

However the reduction of market discipline by deposit insurance system introduction is what numerous case studies demonstrate. For example in Ioannidou, de Dreu (2006) the authors show that deposit insurance introduction in Bolivia seriously undermined market discipline, especially when

the coverage was raised higher than 60%. In Hoggarth, Jackson, Nier and in Hosono (2004) a handful of papers proving this idea are mentioned. However Hosono (2004), examining the case of Japan, in particular, the period of banking crisis, comes to the conclusion that the depositors respond to the banking risks even under explicit guaranties. In Davenport, McDill (2005), the authors analyze the market discipline on micro-level (examining only one bank's data) and find out that insured retail depositors discipline the bank even more intensive than uninsured ones. The paper contains the review of studies with the same conclusions. So in generic case the definition of market discipline as a reaction of *uninsured* depositors to excessive bank risk-taking, although rarely used (*e.g.* in Nier, Bauman, 2003), may be quite questionable.

4. METHODOLOGY

4.1. The Data

The majority of the data that is used in the study is the data reported by the Central bank of Russian Federation. The website www.cbr.ru contains Russian banks financial statement data sets (balance sheets and profit and loss accounts[5]). The information of the balance sheets is reported on a monthly basis, the data of the profit and loss account — on a quarterly basis. The currently available data covers the period from 1st of April 2004, to 1st of July 2006. The majority of financial statements contain all the information necessary to model variables calculation (the variables will be described later).

Table 1 contains the information about the number of banks, for which the financial statements are available (the number of banks is different for each quarter). The absence of information for a number of banks may be caused by different factors. First of all, although reporting the information of the financial statements (and lots of other reports and — as it is called in Russian —"forms") to the Central bank is obligatory, public reporting on the site is voluntary, though recommended by the Central bank (that is why the number of banks gradually increase). Secondly, some of the banks publish only the balance sheets (nearly 6.3% of banks) and some of them publish only profit and loss accounts (less than 1%), so we have no access to the full data, necessary for variable construction. Unbalanced bank-specific panel data is used in the analysis in order to cover as many banks as possible including those, which were operating for some time, but not during the whole two years taken into account (they are mainly new banks).

Although the financial statements are published by the Central bank, of course, one might reasonably doubt whether the information is a trustworthy. The case is that the quality of data is a matter of the accountant and his or her incentives and abilities for window-dressing as well. But the data cannot be checked by any additional means, because more precise information is available only for the bank managers, not for outside users and sometimes not even for the Central bank. So it is assumed

[5] The so-called form 101 and form 102.

that the data is reliable. Moreover this is what the depositor may obtain, and it is one more important reason to admit this data. Most of the ratings and rankings published by mass media or rating agencies are based on this particular data. So a depositor makes the decision taking this information — not the internal one — into account.

Table 1. Number of banks

	All banks	State banks	Foreign banks	Private domestic banks
3q. 2004	417	8	8	401
4q. 2004	414	8	8	398
1q. 2005	435	10	10	415
2q. 2005	467	10	8	449
3q. 2005	468	9	9	450
4q. 2005	465	8	10	447
1q. 2006	467	7	11	449
2q. 2006	506	11	17	478

The research work is also based on some macroeconomic characteristics. These are the factors, which are not bank fundamentals, but they describe the economical situation in whole and therefore influence the depositor decision-making process. They include the changes in disposable income and in consumer price index, EUR/RUB and USD/RUB exchange rates. Some information is reported by the Central bank as well, the data on the rest of characteristics is available in the Federal Service of Statistics (Федеральная служба государственной статистики) paper "Short-run Economic Indices for the Russian Federation" (available data covers the period from 1999 to July 2006).

4.2. Econometric model

As a general form of econometric model the following reduced-form equations are used in the study (we mark this model as Specification 1):

$$IR_{i,t} = \alpha_{I,i} + \mu_I' BF_{i,t-1} + \gamma_I' Macro_t + \varepsilon_{I,i,t}, \quad (1)$$

$$\Delta Dep_{i,t} = \alpha_{D,i} + \mu_D' BF_{i,t-1} + \gamma_D' Macro_t + \varepsilon_{D,i,t}, \quad (2)$$

such that $i = 1, \ldots, N$; N — the number of banks in the sample; $t = 1, \ldots, T$; T — the number of observations.

$\Delta Dep_{i,t}$ stands for personal deposits' growth[6] in the bank i at time t. $IR_{i,t}$ represents the interest rate, estimated by the total interest payments to individuals to the amount of individual deposits ratio.

[6] As Ioannidou, de Dreu (2006) suggests the levels depend more on bank characteristics, than on supply and demand equality conditions, moreover, the levels may be biased to balance equality of assets and liabilities. That is why the growth is used.

We have no opportunity to obtain the rates offered by the banks[7], so this ratio seems to be an appropriate estimation. The authors, who used the same ratio, have called it "the implicit interest rate" (*e.g.* Ungan, Caner). $BF_{i,t-1}$ stands for a vector of bank fundamentals of the bank *i*, which characterize its risks. The information reaches the depositors later than the reporting date, so this vector is included into regression with a lag (this lag is approximately two months that is why regressing on the previous period variables seems to be quite reasonable). $Macro_{i,t}$ stands for a vector of macroeconomic factors, which do not depend on banks and bank fundamentals, but influence the depositors' decisions. These variables are included without any lag because the depositors tend to take into account the current economic situation, not the previous period one.

The following section will examine the nature and the methods of calculation for every variable included into the vectors of explanatory variables. Also some hypotheses, which are tested in the study, will be formulated.

The level of bank risk is characterized by the variables chosen using the principles of CAMEL rating system, which includes Capital adequacy, Asset quality, Management, Earnings and Liquidity. It is also necessary to include the measure for bank size into regression (an appropriate estimation is bank assets).

All bank fundamentals and expected influence on dependent variables[8] are represented in Table 2:

Table 2. Bank fundamentals

Variable		Expected influence on change in deposits*	Interpretation
ddep	Change in personal deposits (total)	–	
ir	Interest rate (Total interest payments to individuals/Total personal deposits)	–	
Capital adequacy			
ca	Capital to total assets ratio	– (+)	The higher the ratio the more reliable the bank is considered to be
Asset quality			
bln	Loans written off as bad ones to total assets ratio	– (+)	The higher the ratio the riskier bank's operations are considered to be
cln	Consumer loans to total assets ratio	– or + (+ or –)	On the one hand, consumer credits are relatively small and easy to recall, on the other hand the methods used to reveal the borrower's creditworthiness are not perfect at all, and sometimes these loans use no collateral, so the influence may be either positive or negative
nibc	Interbank loans (granted minus obtained) to total assets ratio	– (+)	In the case of financial crisis the market for interbank loans usually collapses first

[7] The banks are too numerous and each of them may offer different types of deposit "products" characterizing by different interest rates even for deposits of the same maturity.

[8] It is worth noting that the expected influence of the majority of variables may be explained not only by banking theory, but by simple market discipline models (*e.g.* Hosono, Iwaki, Tsuru, 2004).

Variable		Expected influence on change in deposits*	Interpretation
Management quality			
niexp	Net non-interest expenses (minus net non-interest expenses related to operations with securities and foreign currency)** to total assets ratio	– or + (+ or –)	On the one hand, the rise of the ratio may be caused by a decline in efficiency of management (in this case the relationship will be negative), on the other hand, the expenses may increase because of new service development, existing service quality improvement or advertisement campaign (if so, the relationship is likely to be positive)
Earnings and profitability			
roa	Return on assets ratio (the net gain to total assets ratio)	+ (–)	The higher the ratio the more efficient the bank is considered to be
Liquidity			
la	Most liquid assets (cash and current accounts (sometimes called correspondent accounts)) to total assets	+ (–)	The higher this ratio, the smaller the probability, that the bank will face some liquidity problems
Bank size			
lna	Natural logarithm of bank's assets	+ (–)	The bigger the bank, the higher the reliability it is associated with is (this corresponds to the "too big to fail hypothesis")

* — For interest rate the expected influence is reported in brackets.

** — Thus the variable covers the expenses that characterize bank efficiency: wages and salaries, overheads, maintenance expenses, other expenses related to daily routine.

It is important to keep in mind that balance sheets contain the data of stock type (*i.e.* given on a particular date) and the information in profit and loss accounts is of flow type (given for a period of time). To construct the ratios using both types of characteristics is not correct thus in Table 2 assets, capital, written-off debts, consumer and interbank loans, liquid assets, foreign funds — the characteristics taken from balance sheets — are related to their average meaning in a particular quarter.

Macroeconomic variables — different characteristics, which are external for banks — are essential for the research work: being control variables they help to determine in what degree changes in deposits are dependent on bank fundamentals, not on other factors, produced by the economy as a whole. In this study several factors are included into the model, Table 3 contains the information about them.

The general model is used to answer some particular questions therefore it is needed to emphasize the specifications that are used in this study.

To test for market discipline existence before and after introduction of the deposit insurance system it is needed to differentiate between these two periods. However considering these periods to be the same for all banks and estimating separate regressions for both periods does not seem to be an appropriate way. The case is that the process of banks admittance to the system de jure began in the very beginning of 2004 but de facto lasted until the end of 2005. Thus in any period with the excep-

tion of the first and two last quarters there were the banks, which were already in the list if Deposit Insurance Agency and which were not (see Fig. 1).

Table 3. Macroeconomic variables

Variable		Expected influence on change in deposits	Interpretation
income	Disposable income of the individuals per capita	+	The richer an individual the more funds he/she is ready to deposit
infl	Change of consumer price index	– or +	According to the intertemporal theory of consumption (I. Fisher) an increase in prices results into the growth of savings (price increase explains an increase in nominal interest rate), but a further price growth leads to reduction of deposits' attractiveness (the consumption in current period of time becomes more attractive — or, better to say, simply needs more funds)
ee	EUR/RUB exchange rate	– or +	This variable characterizes the alternative ways to invest savings. On the other hand, the deposits include deposits in foreign currency as well. According to the accounting standards they are converted into rubles to be reflected in balance sheets. So the influence of exchange rates is also expressed in changes in their value in rubles (the interest payment include those paid for deposits in foreign currency as well)
de	USD/RUB exchange rate	– or +	

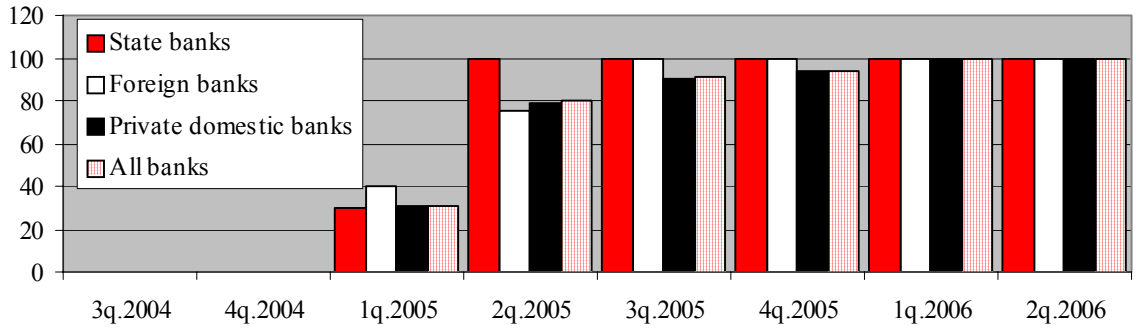

Fig. 1. Share of banks in DIS (%)

The information from this list related to the dates of admittance allows us to construct a Dummy-variable, which equals to 1 for the quarters the bank operating under a mark "The deposits are insured" and is equal to 0 for all the rest quarters. Thus we obtain two separate sets of observations: with Dummy = 0 and with Dummy = 1. To examine the effect of deposit insurance system introduction the following modification of the initial model is estimated (we mark it as Specification 2):

$$IR_{i,t} = \alpha_{I,i} + \mu_I' BF_{i,t-1} + \gamma_I' Macro_t + \theta_I' Dummy\_DIS * BF_{i,t-1} + \vartheta_I' Dummy\_DIS * Macro_t + \varepsilon_{I,i,t}, \quad (3)$$

$$\Delta Dep_{i,t} = \alpha_{D,i} + \mu_D' BF_{i,t-1} + \gamma_D' Macro_t + \theta_D' Dummy\_DIS * BF_{i,t-1} + \\ + \vartheta_D' Dummy\_DIS * Macro_t + \varepsilon_{D,i,t}. \quad (4)$$

To test the hypotheses connected with the ownership structure as an explanatory variable for deposit changes and as a determinant for market discipline it is needed to construct and estimate separate regressions for state banks (to obtain the effect of state property), for foreign banks (to obtain the effect of foreign property) and for all the rest banks, which we call private domestic ones.

The group of state banks includes the banks with the share of state ownership[9] exceeding 50%. After the exclusion of state banks from the sample, market discipline mechanisms are expected to become more articulated, at least before deposit insurance system introduction. State banks were considered to be the most reliable ones without any explicit guaranties; they are likely to continue exploiting such an image after admittance to the system.

Using the notion "foreign bank" we consider the banks with more than 50% of foreign ownership.[10] Foreign banks proved to be reliable after the crisis of 1998. Although foreign banks are permitted to operate in Russia only by establishing subsidiaries — and de jure the parent bank is not responsible for the subsidiary's obligations in case of default — there may exist some mechanisms of implicit insurance: the depositors seem to believe that a parent bank will not let the subsidiary to sink (this may be explained by the fact that they may be not aware of the absence of this responsibility). So the expected market discipline and its changes over time are less explicit for this group of banks.

Excluding them from the sample allows concentrating on the most interesting group of banks — private domestic banks. Before their admittance to the system there was neither explicit guaranty of deposit repayment, nor state or foreign support in banking activities. Hence after the admittance depositors' sensitivity to bank risks — if any existed — is likely to decrease due to appearance of the guaranty of the certain amount repayment. Separate regressions will allow testing all above-mentioned hypotheses and bring to light the deposits dependence on the bank's ownership structure.

In order to control the degree of competition among banks the market share might be included into the model as additional bank fundamental. But there is virtually no global competition in the market due to Sberbank dominance (regional banks are likely to compete with its branches, not with each other). There may be some on the regional level, but the information of branches' financial statements is restricted (being available only to the Central bank).

In order to examine the mechanism of maturity shifts two types of models are estimated in this paper. In attempt to reveal quantitative maturity shifts we estimate the system of regressions (we mark them as Specification 3):

$$\Delta Dep^{M}_{i,t} = \alpha_{D,i} + \mu'_D BF_{i,t-1} + \gamma'_D Macro_t + \varepsilon_{D,i,t}, \quad (5)$$

M — maturity of deposits.

[9] The ownership of local authorities is also considered to be the "state" one.

[10] Most of them are subsidiaries of foreign financial institution or banks bought by foreign financial institution, so the foreign ownership accounts for 100%.

The system with Dummy-variable for deposit insurance introduction is estimated separately as well (Specification 3a):

$$\Delta Dep^{M}{}_{i,t} = \alpha_{D,i} + \mu'_D BF_{i,t-1} + \gamma'_D Macro_t + \theta'_D Dummy\_DIS * BF_{i,t-1} + \vartheta'_D Dummy\_DIS * Macro_t + \varepsilon_{D,i,t}, \quad (6)$$

M — maturity of deposits.

These regressions may help to find out whether excessive risk-taking results into shifts of the bank's clients' investments to short-term or on-call deposits. If the depositors of riskier banks prefer to change the maturity of their deposits to shorter one and those of less risky ones do not behave this way the disciplinary mechanism of maturity shifts should be considered as a functioning one.[11]

To test these hypotheses but in terms of the shares of different deposit categories the systems of following equations are used (we mark them as Specification 4 and 4a respectively):

$$\Delta \frac{Dep^{M}{}_{i,t}}{Dep_{i,t}} = \alpha_{D,i} + \mu'_D BF_{i,t-1} + \gamma'_D Macro_t + \varepsilon_{D,i,t}, \quad (7)$$

$$\Delta \frac{Dep^{M}{}_{i,t}}{Dep_{i,t}} = \alpha_{D,i} + \mu'_D BF_{i,t-1} + \gamma'_D Macro_t + \theta'_D Dummy\_DIS * BF_{i,t-1} + \vartheta'_D Dummy\_DIS * Macro_t + \varepsilon_{D,i,t}, \quad (8)$$

M — maturity of deposits.

If the depositor discipline does not exist the coefficients of bank fundamentals will be found insignificant. If the mechanism is at work riskier banks will witness an increase in shares of on-call and short-term deposits and a decrease of shares of long-term deposits.

According to accounting principles, there are seven categories of deposits: on-call and time deposits (up to 30 days, from 31 to 90 days, from 91 to 180 days, from 181 days to 1 year (365 days), from 1 year (366 days) to 3 years and more than 3 years). Each bank does not necessarily have all these categories of deposits. Fig. 2 demonstrates the percentage of banks, which have in their balance sheets this or that deposit category. In order to make the empirical analysis close to theoretical hypotheses, as well as to preserve an appropriate number of observations, seven categories are grouped into three broader ones: on-call deposits, short-term deposits (up to 180 days), and long-term deposits (181 days and more). Specifications 3 and 4 are estimated for each of these deposit categories.

5. MODEL ESTIMATION AND INTERPRETATION

5.1. All deposits

Descriptive statistics

Fig. 3 demonstrates how the market shares of different groups of banks were changing during the period of time we are interested in: from the third quarter of 2004 to the second quarter of 2006.

[11] *E.g.* Murata, Horo (2006).

Table 21 in Appendix A1 contains the summary statistics for all variables, which allows gaining some insight into the data related to all the bank groups. Some observations were excluded due to significant mistakes in reported data.[12]

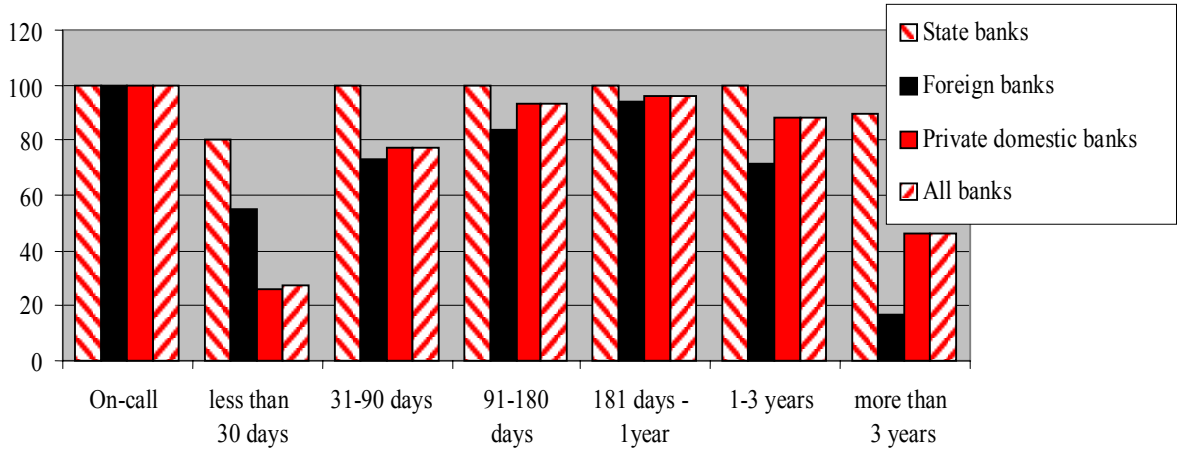

Fig. 2. Percentage of banks for each deposit category

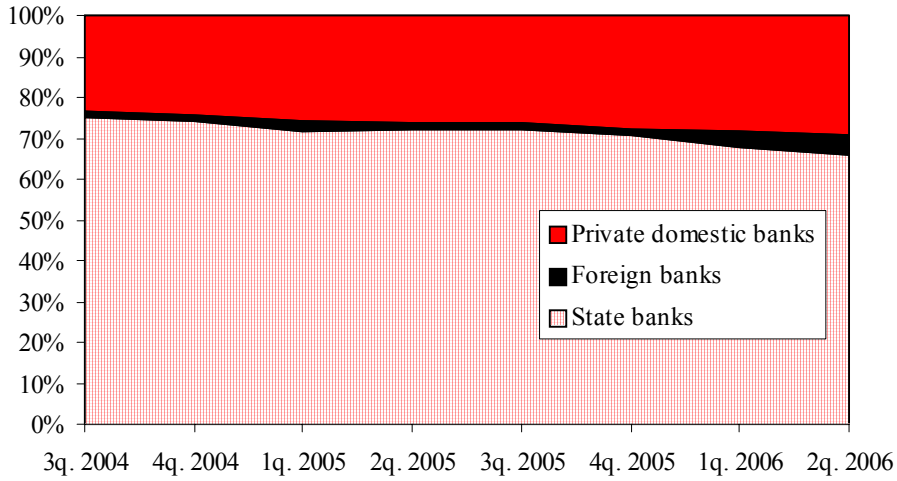

Fig. 3. State, foreign and private domestic banks: market share over time

Majority of the personal deposits are the deposits in the state banks. However during the period of active admittance of banks to the deposit insurance system, as well as during the first two quarters of 2006 the market share of state banks is gradually decreasing: in the third quarter of 2004 this share accounts for 75.3% of the total personal deposits and in the second quarter of 2006 the share is 65.6%, being reduced by 9.7 percentage points. The foreign banks' market share rose from 1.2% to 5.2%, and the market share of private domestic banks increased by 6.8 percentage points — from 23.5% to 29.1%. This observation signals the fact that the deposit insurance system introduction

[12] The observation is considered to contain a serious mistake if at least one of the following is true: $ir>1$, $ca<0$, $ca>1$, $nibc<-1$, $nibc>1$, $ffn>1$.

improved the competitiveness of non-state banks, extending the state guaranties to all banks operating on the market of private bank deposits.

Looking at Table 21 in Appendix A1 we may emphasize some important facts, although the standard deviation is high and difference between minimum and maximum meanings is even higher. As it may be expected compared with all other groups of banks the average total assets are higher for state ones. But it is worth noting that among foreign banks (*e.g.* Moscow International bank, Raiffeisenbank Austria) as well as among private domestic banks (*e.g.* Alpha-bank, Uralsib) there are banks, which have the total assets that are comparable with those of Sberbank. Nevertheless the total deposits of these large private banks are still much lower than those in state banks, the same is true for the average growth of total deposits over time.

The highest average interest rate is offered by private domestic banks, although the average deposit growth for them is lower than that for other groups. In the same time the minimum average interest rate is offered by foreign banks, the rate is surprisingly lower than that of state banks. The rate of state banks is usually close to that of private domestic banks or lower. This state of affairs, as well as that related to deposit and deposit growth, does not change much over time.

At this stage it is also possible to make a draft estimation of the level of risks associated with the banks of this or that group. Private domestic banks are characterized by higher proportion of written-off debts in total assets and this state of affairs lead us to reasonable suspicion that private domestic banks do not do their best to screen the potential borrowers and to choose the best ones, or they have to deal with less reliable borrowers as all the rest are attracted by state and foreign banks. The suspicion becomes more serious given the fact that the share of consumer loans is lower as this proportion in foreign banks' assets. The situation improves, however: considering the very last quarter — the second quarter of 2006 — the average share of written-off loans is virtually the same for state, foreign and private domestic banks: 0.6%, 0.5% and 0.8% respectively. Descriptive statistics for all other bank fundamentals however do not allow making some conclusion on overall riskiness of this or that group of banks, but we may consider the share of bad loans to be a "dirty" measure of the risk and conclude on this stage that we have obtained as an implicit signal of the fact that the depositors are attracted by reliability of a bank, and less reliable banks have to offer higher interest rates.

Thus what we can observe is the inflow of individual deposits to foreign banks and comparatively risky private domestic banks, and state banks — the most reliable ones even in times of implicit guaranties — loosing their positions on the market.

Market discipline by individual depositors

Table 22 in Appendix A1 demonstrate the results of market discipline analysis considering the whole period of time we are interested in, *i.e.* Specification 1 estimation results. Table 4 contains the results of quantity-based and price-based disciplinary mechanism estimations for all banks (the influence of significant variables are reported[13]).

[13] This influence is obtained by running a regression with the regressors that proved to be significant in the initial regression estimation.

Table 4. Disciplining by quantity and by price: all banks

	Additional deposit growth, thousand rubles*
Asset growth by 1%	2973.023534
	Change in interest rate, p.p.
Growth of the liquid assets to total assets ratio by 1 p.p.	0.0279565
Income growth by 1 ruble	0.00218
Inflation growth by 1 percentage point	–0.66763
USD/RUB exchange rate growth by 1 ruble	3.58834
EUR/RUB exchange rate growth by 1 ruble	1.91707

* — *income* is excluded (F-test (coef. for all variables equal to zero, excluding *lna*): p-value = 0.5993).

During the whole studied period of time quantity-based discipline mechanism is expressed only in choosing larger (in terms of assets) bank: a 1% increase of total assets results in additional average inflow of nearly 3 mln. rubles of individual depositors' money. Disciplining by price seems to be absent.

Considering price-based mechanism the same is true for state banks (see Table 5). The quantity-base mechanism of market discipline proves to be at work at least to some degree. The depositors prefer larger banks and the corresponding effect is much higher than the average one: a 1% increase of total assets provides nearly 42 mln. rubles of additional deposit growth. Another bank fundamental significant in quantitative disciplining of state banks is the share of consumer loans in total assets: the corresponding effect is 391 mln. rubles — the amount exceeds the additional inflow generated by an increase of assets significantly. This fact is likely to demonstrate that banks, which actively work on the whole retail market, do attract more individual depositors although higher proportion of consumer loans may signal about additional risk-taking[14] (as mentioned in variable description). It is worth noting that the disposable income is not a significant factor in depositors' decision-making process. The existence of implicit state guaranties before deposit insurance system introduction, and of explicit guaranties after it, is likely to provide the incentive to prefer bank deposits as a way to keep savings. Put in other words, given the choice between having savings in form of cash at home and investing them into bank deposits the individuals choose the latter variant, thus some "mattress money" is transformed into bank deposits.

For foreign banks the quantity-based mechanism is absent (the corresponding regression is not significant, see Table 22 in Appendix A1). The disciplining by price is however is more explicit. Table 6 demonstrates, that the banks with higher total assets and capital adequacy ratio offer lower interest rates — the disciplining is exercised in an expected way. The size of the corresponding effects are however low enough.

[14] More and more experts make us sure that the next banking crisis in Russia will be related to excessive risks in consumer loans granting.

Table 5. Disciplining by quantity and by price: state banks

	Additional deposit growth, thousand rubles*
Asset growth by 1 p.p.	42921.18
Growth of the consumer loans to total assets ratio by 1 p.p.	391000
	Change in interest rate, p.p.*
Inflation growth by 1 p.p.	–0.38716
Income growth by 1 ruble	0.00214
USD/RUB exchange rate growth by 1 ruble	3.31051
EUR/RUB exchange rate growth by 1 ruble	1.41602

* — *bln* is excluded (F-test (coef. for all variables equal to zero, excluding *lna* and *cln*): p-value = 0.5659).

Table 6. Disciplining by price: foreign banks

	Change in interest rate, p.p.
Capital adequacy ratio growth by 1 p.p.	–0.0984458
Asset growth by 1%	–0.008599275
Inflation growth by 1 p.p.	–0.0022046
Income growth by 1 ruble	0.0000118
USD/RUB exchange rate growth by 1 ruble	0.0162334
EUR/RUB exchange rate growth by 1 ruble	0.00762

Considering quantity-based mechanism, in decision-making related to additional investment into deposits of private domestic banks, individuals take the same bank fundamentals into account: the share of consumer loans in total assets and the size of a bank. An increase of share of consumer loans by 1 percentage point results in additional inflow of 1.77 mln. rubles of personal deposits. Additional 1 percent of total assets provides an increase of personal deposit growth by 0.85 mln. ruble. Personal disposable income becomes significant too: each additional ruble of depositors' private disposable income results in an increase of deposit growth by 39 thousand rubles .

Applied to private domestic banks the price-based mechanism seems to be at work as well. This is expressed in the significance of capital adequacy ratio: more reliable banks with higher capital to total assets ratio offer lower interest rates. The corresponding effect of 1 p.p. increase of the ratio is 0.02 p.p. In general riskier private domestic banks do offer higher interest rates to attract individual depositors, as it was suggested by price-based market discipline paradigm. Table 7 summarizes the effects provided by changes in bank fundamentals and macrofactors.

Table 7. Disciplining by quantity and by price: private national banks

	Additional deposit growth, thousand rubles*
Asset growth by 1%	854.3452579
Growth of the consumer loans to total assets ratio by 1 p.p.	1768.573
Income growth by 1 ruble	39.06071
EUR/RUB exchange rate growth by 1 ruble	43522.31
	Change in interest rate, p.p.
Capital adequacy ratio growth by 1 p.p.	–0.0203618
Growth of the liquid assets to total assets ratio by 1 p.p.	0.0286326
Inflation growth by 1 p.p.	–0.6892
Income growth by 1 ruble	0.00219
USD/RUB exchange rate growth by 1 ruble	3.66925
EUR/RUB exchange rate growth by 1 ruble	1.97472

* — *roa* is excluded (F-test (coef. for all variables equal to zero, excluding *lna*, *cln*, *income*, *ee*): p-value = 0.2570).

Depositor discipline and deposit insurance

At this stage we need to find out how the mechanisms of market discipline were influenced by admittance of banks from different groups into the deposit insurance system. The results of Specification 2 estimation are represented in Tables 23–24 in Appendix A1.

Considering all groups of banks quantity-based disciplinary mechanism, which is represented by depositors' sensibility to the bank's size, does not disappear with the deposit insurance system introduction (see Table 8). Moreover the corresponding effect is increased from 2.4 mln. rubles of additional deposit growth to 3.4 mln. ruble. Interestingly to note, the fact itself that the bank entered the system significantly reduces the deposit growth. We can observe additional outflow of 1363 mln. rubles of individuals' funds solely due to the fact that the bank began to use the mark "All deposits are insured".

Estimating Specification 2 regression for all banks allows us to reveal the signs of disciplining by price, which seems to be blurred after Specification 1 regression estimation. After the deposit insurance system introduction the depositors require higher interest rates if they own the deposits in banks with lower capital adequacy ratio (additional 0.023 p.p. for each 1 p.p. reduction of the ratio).

For the state banks disciplining by quantity is represented by the choice of larger bank in term of assets, as it was demonstrated on the previous stage. Moreover the effect of 1% increase of total assets is close to that obtained earlier (nearly 39 mln. rubles of additional deposit growth), and does not change as the banks entered the deposit insurance system (see Table 9).

Price-based mechanism of market discipline is still absent: deposit interest rates demonstrate no sensitivity to bank fundamentals related to risk-taking. The deposit insurance system introduction did not improve the state of affairs, although changed the sensitivity to macroeconomic factors.

Table 8. Disciplining by quantity and by price: all banks

	Additional deposit growth, before DIS	Additional deposit growth, after DIS
Asset growth by 1%	2436.96538	3397.042157
Admittance to DIS	–	–1363816
	Change in interest rate, before DIS, p.p.	Change in interest rate, after DIS, p.p.
Asset growth by 1%	–	0.002714251
Capital adequacy growth by 1 p.p.	–	–0.0230752
Growth of the bad loans to total assets ratio by 1 p.p.	–0.0658961	–0.0658961
Growth of the consumer loans to total assets ratio by 1 p.p.	–0.0337825	0.0006423
Growth of the net interbank loans to total assets ratio by 1 p.p.	–0.0205127	–0.000113
Growth of the liquid assets to total assets ratio by 1 p.p.	–	0.0255915
Income growth by 1 ruble	0.0023	0.00422
Inflation growth by 1 p.p.	–	–0.8549
USD/RUB exchange rate growth by 1 ruble	4.44846	5.59273
EUR/RUB exchange rate growth by 1 ruble	1.25345	5.15975

Table 9. Disciplining by quantity and by price: state banks

	Additional deposit growth, before DIS	Additional deposit growth, after DIS
Asset growth by 1%	38900.93787	38900.93787
	Change in interest rate, before DIS, p.p.	Change in interest rate, after DIS, p.p.
Inflation growth by 1 p.p.	–3.98628	–0.58963
Income growth by 1 ruble	–0.0047	0.00455
EUR/RUB exchange rate growth by 1 ruble	11.04285	4.95447
USD/RUB exchange rate growth by 1 ruble	–	5.40825

The depositors of foreign banks surprisingly exercise disciplining by quantity: we saw no discipline on the previous stage. Before the deposit insurance system introduction the deposit growth is extremely sensitive to net non-interest expenses, but after it the effect of 1 p.p. increase in the corresponding ratio, was reduced nearly fourfold (see Table 10).

Table 10. Disciplining by quantity: foreign banks

	Additional deposit growth, before DIS	Additional deposit growth, after DIS
Growth of the net non-interest expenses to total assets ratio by 1 p.p.	25404.41	6485.46

At last proper attention should by paid to private domestic banks (see Table 11). Before their admittance to the deposit insurance system there are no signs of the quantity-based disciplinary mechanism. But the sensitivity to the bank size — which we obtained on the previous stage — proved to be significant after the deposit insurance system introduction. Although the corresponding effect if much lower: only 0.44mln.rubles of additional deposit growth is provided by 1% increase of total assets.[15]

Table 11. Disciplining by quantity and by price: private national banks

	Additional deposit growth, before DIS	Additional deposit growth, after DIS
Growth of return on assets ratio by 1 p.p.	–	–11323.71
Asset growth by 1%	–	440.1703979
	Change in interest rate, before DIS, p.p.	Change in interest rate, after DIS, p.p.
Asset growth by 1%	–	0.003219529
Capital adequacy growth by 1 p.p.	–	–0.021635
Growth of the bad loans to total assets ratio by 1 p.p.	–0.0695161	–0.0695161
Growth of the consumer loans to total assets ratio by 1 p.p.	–0.0378562	0.0040367
Growth of the net interbank loans to total assets ratio by 1 p.p.	–0.02208	0.0009721
Growth of the liquid assets to total assets ratio by 1 p.p.	–	0.0280036
Inflation growth by 1 percentage point	–	–0.87307
Income growth by 1 ruble	0.00233	0.00428
USD/RUB exchange rate growth by 1 ruble	4.51528	5.68414
EUR/RUB exchange rate growth by 1 ruble	1.27966	5.26481
Admittance to DIS	–	–190.2756

As for private domestic banks price-based mechanism seems to work in the direction "opposite" to that we expected it to work in: higher interest rates are offered by the banks characterized by higher proportions of consumer loans and net interbank loans in total assets as well as by lower share of written-off loans in total assets. The first observation may be interpreted as a sign of an actively exploited retail strategy, namely consumer loan direction development (and to grant more loans some additional funs may be required), but to find an interpretation of the second and the third ones is a tricky task, if we consider only supply-side point of view.[16]

[15] One may try to explain the negative effect of ROA increase from "higher return — higher risk" point of view. However as we do not separate ROA on interest and non-interest part, our primary hypothesis is that higher ROA is associated with higher efficiency of the bank, not with higher risk-taking.

[16] We do not try to explain this or that effect by viewing the situation as a bank does, *i.e.* do not mix the supply side (the depositors) and the demand side (the banks).

After the deposit insurance system introduction, higher interest rates are offered by banks, characterized by higher proportions of consumer and net interbank loans in total assets, so the effects changed to the opposite, more correspondent to market discipline paradigm (but are very low, less than 0.01 p.p.). One more significant bank fundamental capital to total assets ratio: an increase of this ratio by 1 p.p. results into a reduction of average interest rate by 0.02 p.p. percentage points. That's worth noting that on the previous stage we obtained the same effect of capital to total assets ratio 1 p.p. increase.

5.2. Maturity shifts

Descriptive statistics

The market shares of this or that group of banks are not the same on the market for different deposit categories. The market for on-call deposits (see Fig. 4a) witnesses two virtually equal groups of players: state banks and private domestic banks. The first one was gradually loosing the positions from the second half of 2005, the second one was gaining market share until 2006, but was stopped by actively expanding foreign banks.

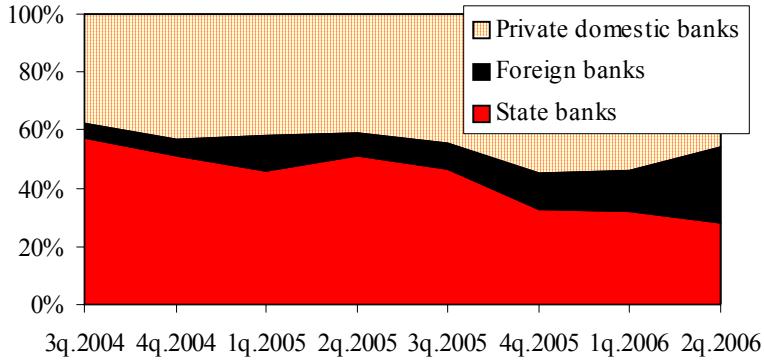

Fig. 4a. Market shares: on-call deposits

From the end of 2005 foreign banks increase significantly their presence on both markets of time deposits (see Figs 4b, 4c). But if on the market for short-time deposits they reduce the shares of both state and private domestic banks, the market for long-term deposits witnesses the strengthening positions of the latter: a piece of a pie lost by state banks is shared by other two groups of players.

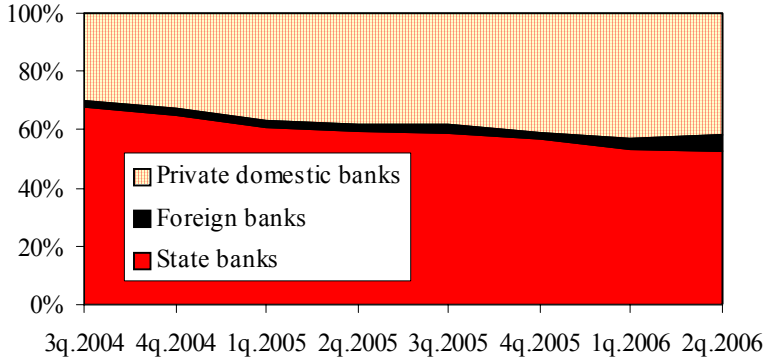

Fig. 4b. Market shares: short-term deposits

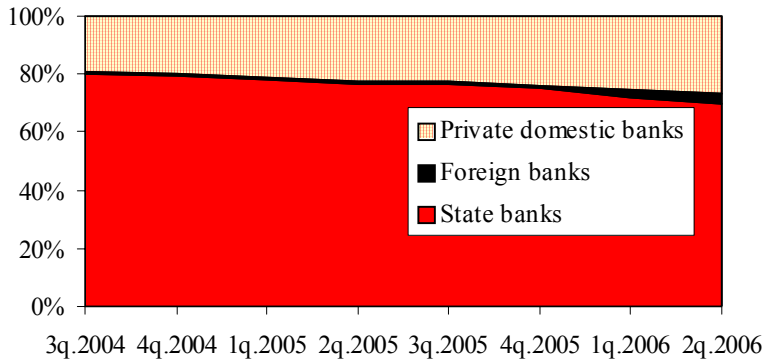

Fig. 4c. Market shares: long-term deposits

Fig. 5 demonstrates how the share of this or that category of deposits was changing during the whole studied period of time.

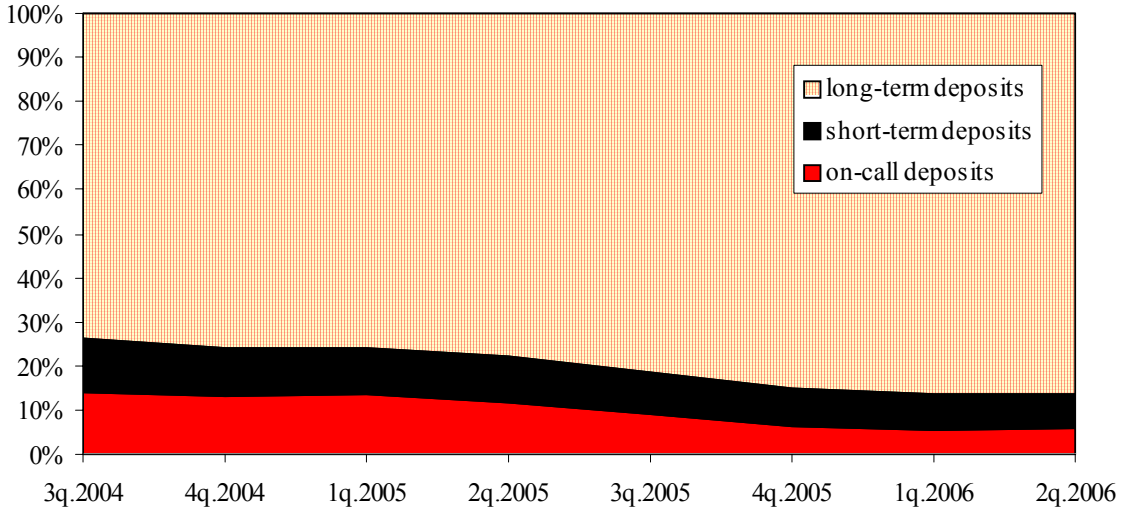

Fig. 5. Deposit maturity structure over time

It is easy to note that the majority of personal deposits are the time deposit with maturity exceeding half a year: by the second quarter of 2006 the share increased to 86.5% (from 73.5% in the beginning of the period). In the same time the share of time deposits with maturity less than half a year fell from 12.5% in the beginning to 7.7% in the end of the period, and the share of on-call deposits decreased even more dramatically — from 14% to 5.8%. Thus it may be stated that the period of banks' admittance to the deposit insurance system, as well as two quarters after the mass admittance was ended, witnessed a shift in depositors' "preferences" in favor of more long-term deposits.

Table 25 in Appendix A1 contains the summary statistics, which may serve as an additional proof of this statement: all the deposits with the maturity longer than half a year are in average characterized by deposit growth and the state of affairs does not change over time. In the same time we can observe the outflow of funds from short-term and — for majority of quarters — on-call deposits, but the outflow is much less intense (in average the change in long-term deposits is 9–10 times the change in deposits of other categories).

The most important question at this stage is how this shift corresponds with market discipline. Is the depositors' choice a result of intertemporal preferences of liquidity (and, consequently, by differences of interest rates) or the depositors distinguish between risky and reliable banks exploiting the maturity shifts mechanism?[17] All these questions should be answered and the influence of deposit insurance system introduction on these answers is to be examined as well.

Market discipline and maturity shifts

Tables 26 and 28 in Appendix A1 contain the results of model estimation according to Specifications 3 and 3a respectively. Regressions for Specification 4 model proved to be insignificant either with or without taking the deposit insurance system into consideration (see Tables 27 and 29 in Appendix A1). So we focus on examining the quantitative maturity shifts and start from the general analysis of this mechanism. Table 12 contains the effects, which prove that there are clear signs of maturity shifts at work for all banks. First of all additional long-term deposit growth generated by an increase of total assets seem to be some degree[18] provided by the corresponding reduction of on-call and short-term deposit growth. The shifts are even more pronounced if we consider only time deposits: higher share of consumer loans as well as higher capital adequacy ratio results into negative additional grow of short-term deposits and positive one of long-term deposits.

Although when we turn to groups of banks it becomes clear that the results obtained for all banks, seem to be true only for the group of state banks. The depositors of these banks discipline them by switching from short-term to long-term deposits if the bank is characterized by higher capital adequacy ratio, total assets and the consumer loans to total assets ratio.

Table 13 demonstrates the influence of deposit insurance system introduction on the maturity shift effects. Definitely there is no influence taking all the banks together. Before and after banks' admittance to the system the results are the same as obtained on the previous stage: an increase in assets provides additional long-term deposit growth and reduces the growth of on-call and short-term deposits. The same is true for an increase of consumer loans to total assets ratio with the only difference that on-call deposits are not involved.

What the deposit insurance changed is the maturity shift effects for state banks, in particular — for short-term deposits. The effect of 1% increase of total assets before the system introduction is virtually 4.5 times the same effect after it (the reductions of deposit growth are 15.3 mln. rubles and 3.45 mln. rubles respectively). A 1 p.p. growth of the share of consumer loans in total assets has much less pronounced influence after the deposit insurance system introduction as well (48.3 mln. rubles and 27.3 mln. ruble).

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[17] One may argue that average interest rate is a function of deposit maturity distribution and thus it is quite incorrect to analyze price-based market discipline and maturity shifts as separate mechanisms. Table 33 in Appendix III demonstrates that this hypothesis is not proved on this particular data set.

[18] The maximum degree is 10.5%, if we suppose that all the ex-short-term deposits are converted into long-term deposits.

Table 12. Maturity shifts

Group of banks	Category of deposits		Additional deposit growth, thousand rubles*
All banks	On-call deposits	Asset growth by 1%	–709.5348094
	Short-term deposits	Capital adequacy ratio growth by 1 p.p.	–1104.246
		Growth of the consumer loans to total assets ratio by 1 p.p.	–1361.61
		Growth of the net interbank loans to total assets ratio by 1 p.p.	–1147.258
		Asset growth by 1%	–389.2851024
	Long-term deposits*	Capital adequacy ratio growth by 1 p.p.	16675.4
		Growth of the consumer loans to total assets ratio by 1 p.p.	21742.07
		Growth of the net interbank loans to total assets ratio by 1 p.p.	10434.61
		Asset growth by 1%	6319.956622
State banks	Short-term deposits	Growth of the bad loans to total assets ratio by 1 p.p.	–992000
		Growth of the consumer loans to total assets ratio by 1 p.p.	–44484
		Asset growth by 1%	–5304.957202
	Long-term deposits	Growth of the bad loans to total assets ratio by 1 p.p.	11500000
		Growth of the net interbank loans to total assets ratio by 1 p.p.	567000
		Growth of the consumer loans to total assets ratio by 1 p.p.	641000
		Asset growth by 1%	67216.25607

* — *la* and *niexp* are excluded (F-test (coef. for all variables equal to zero, excluding *ca*, *nibc*, *lna* and *cln*): p-value = 0.3433)

The last but still very important moment to note here is the mechanism of maturity shifts functioning for private domestic banks, namely for on-call and long-term deposits.[19] Before the deposit insurance system introduction a 1% increase of total deposits resulted into 0.07 mln. rubles reduction of on-call deposit growth and 0.76 mln. rubles of additional long-term deposit growth. After the deposit insurance system introduction the mechanism did not disappear, moreover it works even more intensively: the effects are now 0.09 mln. rubles and 1.3 mln. rubles respectively.

The depositors of foreign banks did not use the mechanism of maturity shifts to discipline them before the deposit insurance appeared, so it is not surprising they did not start to do so when it was introduced.

[19] The absence of disciplining using short-term deposits may be explained by two-sided deposit flow: from on-call to short-term deposits and from short-term to long-term ones, so one should not state that this category does not "take part" in maturity shifts.

Table 13. Maturity shifts, the influence of DIS

Group of banks	Category of deposits		Additional deposit growth, thousand rubles	
			Before DIS	After DIS
All banks	On-call deposits	Asset growth by 1%	–709.535	–709.535
	Short-term deposits	Growth of the consumer loans to total assets ratio by 1 p.p.	–1043.23	–1043.23
		Asset growth by 1%	–347.714	–347.714
	Long-term deposits	Growth of the consumer loans to total assets ratio by 1 p.p.	17562.92	17562.92
		Asset growth by 1%	5752.543	5752.543
State banks	Short-term deposits	Growth of the bad loans to total assets ratio by 1 p.p.	–5670000	–50000
		Growth of the consumer loans to total assets ratio by 1 p.p.	–48341.8	–27346.5
		Growth of the net interbank loans to total assets ratio by 1 p.p.	–92988.5	–1447.54
		Growth of the net non-interest expenses to total assets ratio by 1%	477000	11000
		Asset growth by 1%	–15298.7	–3450.42
	Long-term deposits*	Growth of the consumer loans to total assets ratio by 1 p.p.	560000	560000
		Asset growth by 1%	60469.84	60469.84
Private domestic banks	On-call deposits	Asset growth by 1%	–71.6196	–93.4748
	Long-term deposits	Growth of return on assets ratio by 1 p.p.	–	–10554.5
		Asset growth by 1%	758.8083	1276.786
		EUR/RUB exchange rate growth by 1 ruble	–	–663786.9

* — *nibc* and *niexp* are excluded (F-test coef. for all variables equal to zero, excluding *lna* and *cln*: p-value = 0.1010).

5.3. Is market discipline the same for all private domestic banks?

In our analysis we treated private domestic banks as a sole group, but there may be significant differences within this group. The most natural subdivision that may be taken into account is small and big banks in terms of assets. The important question that arises here is whether the influence of deposit insurance system introduction on market discipline is different for these subgroups of private domestic banks.

There are numerous ways to break all private domestic banks into big and small ones. Here we use two possible approaches. The idea of the first one is to locate separately the smallest — even tiny — banks. A good criterion is the level of 5 mln. euro for bank capital. From the beginning of 2007 there is a special treatment for these banks in Russia: they are not allowed to reduce the capital. The second approach lies in the idea that 20% of the private domestic banks hold more than 80% of total assets of this group of banks, so the next division principle is to locate separately 80% of the smallest private domestic banks.

Market discipline: 5 mln. euro as a benchmark

Table 14 demonstrates how the group is divided into "big" and "small" banks according to these to the first approach:

Table 14. Number of "big" and "small" private domestic banks

Period	Capital over 5 mln. euro	Capital less than 5 mln. euro
3q. 2004	206	195
4q. 2004	206	192
1q. 2005	214	201
2q. 2005	232	217
3q. 2005	239	211
4q. 2005	242	205
1q. 2006	246	203
2q. 2006	267	211

First of all the depositors of the smallest banks — with the capital under 5mln.euro — discipline their banks by quantity choosing larger bank in terms of assets (see Table 15).[20] The scope of bank's operations on the consumer loan market is also taken into account. Both bank fundamentals were significant before the deposit insurance system introduction and do not loose their influence after it.

Disciplining by price appears after the banks' admittance to the deposit insurance system and is expressed in requiring additional 0.044 p.p. of interest rate for each 1 p.p. reduction of capital adequacy ratio.

Table 15. Disciplining by quantity and by price: "small" banks (1st approach)

	Additional deposit growth, before DIS*	Additional deposit growth, after DIS*
Asset growth by 1%	103.2654291	103.2654291
Growth of the consumer loans to total assets ratio by 1 p.p.	67689.57	67689.57
Growth of the liquid assets to total assets ratio by 1 p.p.	–	–18707.74
Inflation growth by 1 p.p.	3125.947	3125.947
Income growth by 1 ruble	5.074177	5.074177
	Change in interest rate, before DIS, p.p.	Change in interest rate, after DIS, p.p.
Capital adequacy growth by 1 p.p.	–	–0.044246
Growth of the liquid assets to total assets ratio by 1 p.p.	0.0712148	0.0712148
Growth of the consumer loans to total assets ratio by 1 p.p.	0.0284015	0.0284015
Asset growth by 1%	0.000185589	0.000185589
Inflation growth by 1 p.p.	0	–0.0109826
Income growth by 1 ruble	0.0000251	0.0000461
USD/RUB exchange rate growth by 1 ruble	0.0518991	0.0666026
EUR/RUB exchange rate growth by 1 ruble	0.0131708	0.064613
Admittance to DIS	–	–2.34673

* — *niexp* is excluded (F-test coef. for all variables equal to zero, excluding lna, *la*, *infl*, *income* and *cln*: p-value = 0.0651).

[20] The corresponding full regression estimation results are presented in Table 32 in Appendix A1.

The state of affairs is slightly different for "big" banks (see Table 16). First of all the depositors discipline them by quantity choosing a bank with higher total assets. The deposit insurance system introduction added power to this mechanism: the additional deposit growth provided by 1% increase of total assets rose from 1.4 mln. rubles to 2 mln. ruble. It is worth noting that the system itself reduced the deposit growth by 3596 mln. ruble. The disciplining by price as for "small" banks appears after the deposit insurance system introduction. The depositors require additional 0.02 p.p. of deposit interest rate — less, than those of "small banks" — for each 1 p.p. reduction of capital adequacy ratio. The sensitivity to asset growth is also observed but is close to zero.

Table 16. Disciplining by quantity and by price: "big" banks (1st approach)

	Additional deposit growth, before DIS	Additional deposit growth, after DIS
Asset growth by 1%	1378.182515	2070.391012
Growth of return on assets ratio by 1 p.p.	–	–2548753
USD/RUB exchange rate growth by 1 ruble	–	93863.88
Admittance to DIS	–	–3596654
	Change in interest rate, before DIS, p.p.*	Change in interest rate, after DIS, p.p.*
Capital adequacy growth by 1 p.p.	–	–0.0234828
Growth of the liquid assets to total assets ratio by 1 p.p.	–	0.0423653
Asset growth by 1%	–0.0000848	–0.0000848
Inflation growth by 1 p.p.	–	–0.0067874
Income growth by 1 ruble	–	0.000012
EUR/RUB exchange rate growth by 1 ruble	0.043284	0.043284
USD/RUB exchange rate growth by 1 ruble	0.0122792	0.0340967
Admittance to DIS	–	–0.8381432

* — *niexp*, *bln* and *roa* are excluded (F-test (*dis*niexp* = *dis*bln* = *roa* = *las* = 0): p-value = 0.5894).

Considering maturity shifts we found no evidence the depositors switch from on-call and short-term deposits to long-term deposits (see Table 33 in Appendix A1).

Market discipline: 20% *of banks* — 85% *of assets*

Table 17 demonstrates how the group is divided into "big" and "small" banks according to these to the second approach.

The possibility to use the label "All deposits are insured" increased the deposit growth by 28.2 mln. rubles for the group of "small" private domestic banks determined according to the 2nd approach (see Table 18).[21] In the same time the sensitivity of the depositors to the share of consumer loans in

[21] The corresponding full regression estimation results are presented in Table 34 in Appendix A1.

total assets fell from 1.3 mln. rubles to 0.451 mln. rubles of additional deposit growth provided by 1 p.p. increase of the ratio. Price-based mechanism is also changed by deposit insurance. Before the system introduction higher interest rates were offered by banks with lower capital adequacy ratios. As it was introduced the sensitivity to this ratio increased nearly twofold and a number of other bank fundamentals became significant, namely the shares of bad and net interbank loans.

Table 17. Number of "big" and "small" private domestic banks (share of assets in total assets of private domestic banks)

Period	First 20% of banks	The rest 80% of banks
3q. 2004	81 (85.40%)	320 (14.6%)
4q. 2004	82 (85.14%)	316 (14.86%)
1q. 2005	83 (85.13%)	332 (14.87%)
2q. 2005	90 (84.96%)	359 (15.04%)
3q. 2005	91 (84.07%)	359 (15.93%)
4q. 2005	89 (84.35%)	358 (15.65%)
1q. 2006	89 (84.23%)	360 (15.77%)
2q. 2006	96 (84.48%)	382 (15.52%)

Table 18. Disciplining by quantity and by price: "small" banks (2nd approach)

	Additional deposit growth, before DIS	Additional deposit growth, after DIS
Growth of the consumer loans to total assets ratio by 1 p.p.	1311.043	450.8785
Growth of the liquid assets to total assets ratio by 1 p.p.	–	–591.9175
Admittance to DIS	–	28156
	Change in interest rate, before DIS, p.p.	Change in interest rate, after DIS, p.p.
Capital adequacy growth by 1 p.p.	–0.0296906	–0.0515611
Growth of the bad loans to total assets ratio by 1 p.p.	–	0.0638627
Growth of the consumer loans to total assets ratio by 1 p.p.	0.0474941	0.072568
Growth of the net interbank loans to total assets ratio by 1 p.p.	–0.0207635	0.0060631
Growth of the liquid assets to total assets ratio by 1 p.p.	0.0187299	0.0387639
Asset growth by 1%	0.00017057	0.000206141
Inflation growth by 1 p.p.	–	–0.0107341
Income growth by 1 ruble	0.000023	0.0000482
USD/RUB exchange rate growth by 1 ruble	0.0503495	0.0677307
EUR/RUB exchange rate growth by 1 ruble	0.0145567	0.0668359
Admittance to DIS	–	–2.539064

The mechanism of maturity shift is used after "small" banks' admittance to the deposit insurance system, although not very actively (see Table 19).[22] A 1% increase of total assets results into 0.17 mln. rubles of additional long-term deposit growth reducing that of on-call deposits by 0.04 mln. ruble. In the same way an increase of the share of liquid assets in total assets leads to a reduction of on-call deposit growth by 0.16 mln. rubles accompanied by the corresponding 0.46 mln. rubles of additional long-term deposit growth. Interestingly, the deposit insurance itself cut significantly the growth of short-term deposits (by 89.8 mln. ruble) providing additional on-call (by 49.5 mln. ruble) and long-term (by 17.9 mln. ruble) deposit growth.

Table 19. Disciplining by maturity shifts: "small" banks (2nd approach)

		Additional deposit growth, before DIS	Additional deposit growth, after DIS
On-call deposits	Growth of the liquid assets to total assets ratio by 1 p.p.	–	–164.473
	Asset growth by 1%	–	–37.4444
	Admittance to DIS	–	49484.24
Short-term deposits	USD/RUB exchange rate growth by 1 ruble	–	3199.091
	Admittance to DIS	–	–89786.68
Long-term deposits	Growth of the consumer loans to total assets ratio by 1 p.p.	587.2709	587.2709
	Growth of the liquid assets to total assets ratio by 1 p.p.	–	–456.731
	Asset growth by 1%	–	166.2135
	Admittance to DIS	–	17917.49

Considering "big" banks disciplining by quantity was not affected by deposit insurance system introduction: the depositors still choose larger banks (see Table 20). Price-based mechanism, previously expressed only in sensibility to the share of liquid assets, ROA and bank size, is virtually unchanged too with the only exception: the net non-interest expenses to total assets ratio was added into the list of significant variables. At last the mechanism of maturity shifts is not used by the depositors of these banks.

6. CONCLUSIONS

Now it seems to be important to accumulate all the results obtained at the previous stages and make some general conclusion on all three mechanisms of market discipline — quantity-based, price-based and maturity shifts — functioning on the market for personal deposits and the effect of deposit insurance system introduction.

[22] The corresponding full regression estimation results are presented in Table 35 in Appendix A1.

Table 20. Disciplining by quantity and by price: "big" banks (2nd approach)

	Additional deposit growth, before DIS	Additional deposit growth, after DIS
Asset growth by 1%	3511.890667	3511.890667
	Change in interest rate, before DIS, p.p.	Change in interest rate, after DIS, p.p.
Capital adequacy growth by 1 p.p.	–	0.0398466
Growth of the bad loans to total assets ratio by 1 p.p.	–0.0346526	–0.0346526
Growth of the liquid assets to total assets ratio by 1 p.p.	–0.0375423	–0.0375423
Growth of return on assets ratio by 1 p.p.	–	–0.0245774
Growth of the net non-interest expenses to total assets ratio by 1%	–	–0.0245774
Asset growth by 1%	–0.0000872	–0.0000872
Inflation growth by 1 p.p.	–	–0.00527
Income growth by 1 ruble	0.0000199	0.0000315
EUR/RUB exchange rate growth by 1 ruble	0.0110273	0.0311577
USD/RUB exchange rate growth by 1 ruble	0.0386997	0.0386997
Admittance to DIS	–	–0.7886616

The period of time from the third quarter of 2004 to the second quarter of 2006 witnessed two important tendencies in individual depositor investing behavior. First of all since deposit insurance system was introduced foreign and private domestic banks are gaining additional market share and state banks' share — even Sberbank's one — is gradually decreasing. Moreover, foreign banks prove to become active players on the markets of deposits of all maturities, while private domestic banks are gaining market share mostly on the long-term deposit market. There is a widespread opinion — and our data analysis provide some evidence on it — that state banks are more reliable (and not only due to implicit state guaranties but thanks to bank fundamentals demonstrating lower degree of risk-taking) at least compared to the private domestic banks, but private domestic bank offer higher interest rates than both state and domestic ones. So the suspicion immediately arises: providing explicit guaranties, the deposit insurance system introduction stimulated individual depositors to choose of riskier banks. However the opportunities of moral hazard in this or that group of banks may be reduced, if market discipline is strong.

What we find is the fact that market discipline — as it was expected — is different for different groups of banks. The absence of both price-based and quantity based mechanisms was proved for foreign banks. The depositors did not use them either before or after deposit insurance system introduction.

For state banks the quantity-based mechanism proved to function at least in terms of bank size. The depositors are sensitive to bank total assets and this sensitivity was not removed by the deposit in-

surance system introduction, that is in fact a change from implicit to explicit state guaranties. The size of the bank is however the only bank fundamental, which the state bank depositors seem to be interested in.

The quantity-based mechanism seems to be used in the same way by depositors of private domestic banks: their choice is determined by bank's size and no other bank fundamentals. The deposit insurance system introduction however kept this mechanism in power. The price-based mechanism is more explicit especially after deposit insurance system introduction: higher interest rates were offered by banks characterized by lower capital adequacy ratio — the only ratio all the banks are obliged to publish — and higher net interbank loans to total assets ratio. Although both effects are not very large (a drop in capital adequacy ratio by 1 percentage point makes a bank to increase average interest rate by only 0.02 percentage points), they are significant and that is important. Testing the hypotheses for different groups of private domestic banks does not change these conclusions much: small as well as big banks are disciplined by quantity (even more intensively after the deposit insurance system introduction — for those banks with the capital exceeding 5 mln. euro) and by price (more intensively after the deposit insurance system introduction —for small banks).

So what we obtain finally is the intensive growth of total market share of the banks, which are not disciplined by individual depositors at all (foreign banks), but there are some good news — another group of banks actively gaining the share of the market — private domestic banks — is at least to some degree disciplined by depositors using quantity— and price-based mechanisms.

The second important tendency in individual depositor behavior is related to gradual growth of the share of long-term time deposits in the structure of total deposits. The proportion of the deposits with maturity longer than half a year is rising, the share of on-call deposits has already became less than twice as low as two years ago, the share of short-term deposits is less vulnerable but is gradually decreasing too. The possible explanation is the following: as the depositors received explicit state guaranties they decided to invest for a longer period of time to yield more. This tendency — although beneficial for the banks — is of course related to additional risk-taking by depositors (the interest payments that will be lost are higher for long-term deposits). The probability of bearing losses is reduced, however, if the depositors refuse investing into long-term deposits in riskier banks preferring more reliable ones for long-term investment, or put in other words exert some sort of market discipline we call maturity shifts.

Again the intensity of market discipline use is different for different groups of banks. Considering foreign banks there are no signs of maturity shifts mechanism used by depositors before as well as after deposit insurance system introduction.

For state banks maturity shifts are at work for time deposits: depositors switch from long-term deposits to short-term ones if a bank is smaller (in terms of assets) and is characterized by lower proportion of consumer loans. The deposit insurance system introduction however reduced the intensity of maturity shifts significantly.

The private domestic banks witness maturity shifts mechanism functioning for on-call and long-term deposits (it may be blurred for short-term deposits due to two-way flows, as it was noted ear-

lier). The depositors prefer to switch to long-term deposits if they are their bank is characterized by higher total assets and — for 80% of smallest banks — higher share of liquid assets. The deposit insurance system introduction did not remove this type of market discipline, moreover it increased the corresponding effects of bank fundamentals' changes.

Figs 6a–6c, demonstrating the changes in structure of deposits in different groups of banks over the whole studied period help to make final conclusions.

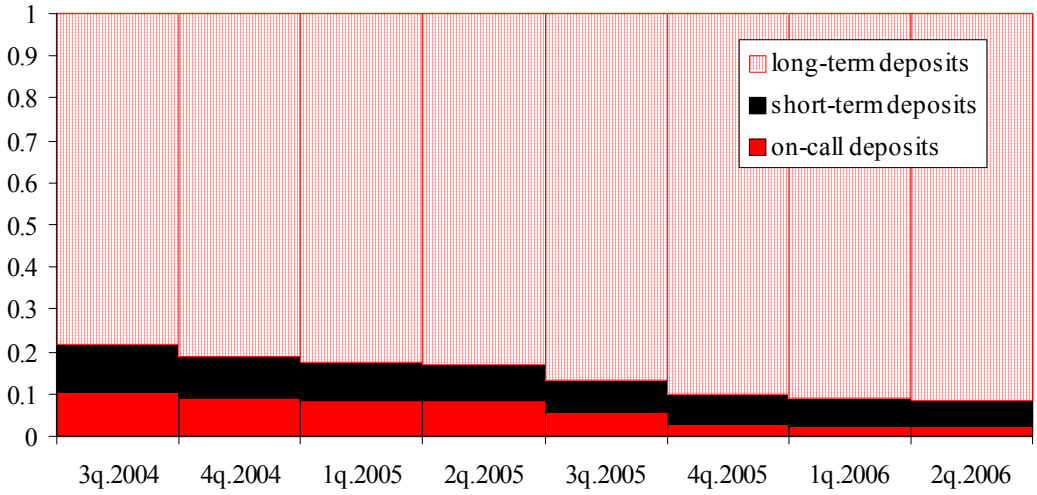

Fig. 6a. Maturity structure change over time, state banks

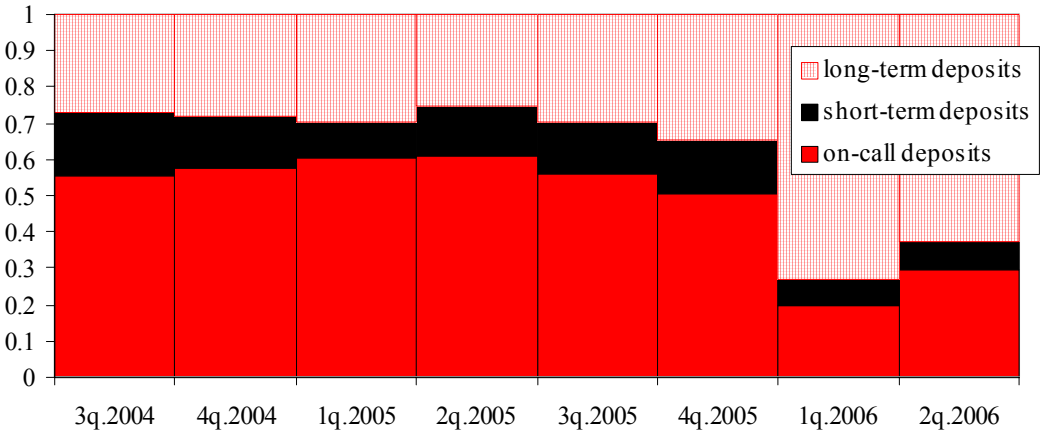

Fig. 6b. Maturity structure change over time, foreign banks

So the absence of effective price-based, quantity-based or maturity shifts mechanisms either initially absent or removed by the deposit insurance system introduction should not be very disappointing for those who think about the perspectives of the personal deposit market. The foreign banks, which are not discipline by their depositors, accumulated mostly on-call and short-term deposits. Thus the absence of market discipline by price and by quantity may be explained by the fact that depositors have no need to monitor the banks where they do not have long-term investments. The significant changes that took place in 2006 may raise some worries, as the perspectives for moral hazard problem are not corrected by market discipline existence, but the total share of foreign banks on the long-term deposit market does not exceed 4%.

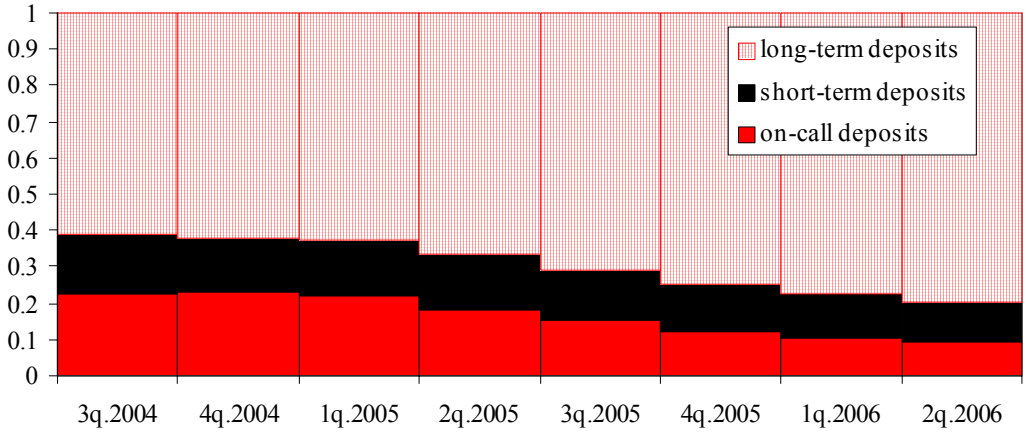

Fig. 6c. Maturity structure change over time, private domestic banks

Most of the long-term deposits are accumulated in state banks characterized by effective quantity-based discipline mechanism and implicit state guaranties for the total amount of deposit. And at last the deposit insurance introduction did not stop the use of quantity-based discipline mechanism applied to private domestic banks, in the same time the depositors began to use price-based mechanism even more intensively (although one may say — not sufficiently effective however as the effects of bank fundamentals' changes are still rather slow), for all the deposits as well as the mechanism of maturity shifts: distribute additional deposits according to level of bank risk by choosing more reliable banks for long-term deposits and more risky banks for on-call ones. So the deposit insurance system did not remove the mechanisms, which may prevent — at least to some degree — the moral hazard usually associated with deposit insurance, and in the same time provided some sort of competitive advantage to the group of banks that had enjoyed no implicit guaranties earlier.

The last observation that is important to stress is the following: in general the individual depositors demonstrate sensitivity to the information available for them without any particular search of financial statements: bank size, capital adequacy ratio, activity on the consumer loan market. The introduction of public reporting of information about bank's risks — the measure offered by Basel II — may be an appropriate way to increase the effectiveness of market discipline by individual depositors.

APPENDICES

A1. Tables

Table 21. Descriptive statistics: all deposits

	Variable	Panel A. All banks				
		Obs	Mean.	Std. Dev.	Min	Max
3q. 2004	*dep*	417	3777754	5.40e+07	88	1.10e+09
	ddep	417	79367.99	1871181	–5828437	3.64e+07
	ir	417	.0644629	.0457733	.0001019	.6747258
	ca	417	.2638748	.1462779	.0521134	.8917158
	bln	417	.0126617	.0419882	0	.5521721
	cln	417	.0907409	.1167518	.000108	.6893716
	nibc	417	–.0184558	.1000011	–.620933	.4716712
	niexp	417	.03961	.2307843	–.2040651	4.457994
	roa	417	.0157415	.0155122	–.0178486	.160392
	la	417	.2150645	.1436044	.0164097	.9984988
	lna	417	13.72976	1.847726	8.155649	21.06518
4q. 2004	*dep*	414	4051673	5.66e+07	592	1.15e+09
	ddep	414	325571.4	3047896	–1092509	6.09e+07
	ir	414	.0796071	.0396034	.0001034	.6220725
	ca	414	.2357941	.1353014	.0076326	.8490604
	bln	414	.0126775	.0442089	0	.5107955
	cln	414	.0987934	.1252185	.0001002	.7134277
	nibc	414	–.0125603	.0958117	–.6705407	.6167986
	niexp	414	.0514202	.3295347	–.2708086	6.413497
	roa	414	.0242725	.0217247	–.1549579	.1694834
	la	414	.2134085	.1492907	.0048782	1.006089
	lna	414	13.87524	1.812784	8.03301	21.13237
1q. 2005	*dep*	435	4225220	5.82e+07	120	1.21e+09
	ddep	435	291434.7	2656107	–1232967	5.36e+07
	ir	435	.0201094	.0090273	0	.093687
	ca	435	.2368326	.1443167	.0131826	.9416423
	bln	435	.0118308	.0385854	0	.4131097
	cln	435	.1015383	.130124	0	.7088966
	nibc	435	–.0141594	.1098172	–.7286949	.4462167
	niexp	435	.0660316	.3004864	–.3599024	5.541764
	roa	435	.0289547	.0232727	–.1125933	.1699864
	la	435	.2334724	.1547853	.0029436	1.30724
	lna	435	13.92858	1.835873	8.109826	21.22197

	Variable	Panel A. All banks				
		Obs	Mean.	Std. Dev.	Min	Max
2q. 2005	*dep*	467	4144968	5.94e+07	138	1.28e+09
	ddep	467	257309.8	3626051	–8010211	7.64e+07
	ir	467	.0403098	.0168471	0	.1519327
	ca	467	.221473	.1374687	.0144276	.9052234
	bln	467	.0112416	.0351973	0	.4020711
	cln	467	.1048936	.1287577	.0000491	.7727023
	nibc	467	–.0115853	.1104373	–.6381338	.7323637
	niexp	467	.0171381	.0519443	–.0334381	.7376384
	roa	467	.0073696	.0094086	–.0189565	.1256776
	la	467	.2308618	.1445309	.0219529	1.233397
	lna	467	13.89192	1.822509	8.304248	21.27992
3q. 2005	*dep*	468	4230099	6.03e+07	15	1.30e+09
	ddep	468	105681.2	1433188	–1.90e+07	2.19e+07
	ir	468	.0615533	.0398458	0	.5258216
	ca	468	.2211224	.1357156	.0352837	.8923106
	bln	468	.0114981	.0360128	0	.3792491
	cln	468	.1074106	.1262224	.0000843	.7319489
	nibc	468	–.0138076	.1255817	–.7263687	.8229215
	niexp	468	.0295298	.0939277	–.0871598	1.303705
	roa	468	.0142644	.0150067	–.0478444	.141252
	la	468	.214558	.1481127	.0110567	.9498737
	lna	468	13.9118	1.775756	8.369621	21.35457
4q. 2005	*dep*	465	4519426	6.28e+07	8	1.35e+09
	ddep	465	377995.8	4958812	–1575550	1.06e+08
	ir	465	.0802231	.0524477	0	.6369784
	ca	465	.2178391	.1429794	.0019714	.9895038
	bln	465	.0114072	.0362646	0	.4026283
	cln	465	.1126508	.1277689	.0000533	.7334004
	nibc	465	–.0165489	.1294795	–.883733	.8910223
	niexp	465	.046784	.1486861	–.1194271	2.058431
	roa	465	.0219853	.025029	–.1767864	.2614457
	la	465	.2082864	.1583682	.0129681	1.448546
	lna	465	13.99278	1.792776	8.337349	21.44289

	Variable	Panel A. All banks				
		Obs	Mean.	Std. Dev.	Min	Max
1q. 2006	*dep*	467	4795239	6.69e+07	1	1.44e+09
	ddep	467	217157.2	3582116	–6474526	7.65e+07
	ir	467	.0215667	.0087876	0	.0862796
	ca	467	.207616	.1320551	.0373898	.8672795
	bln	467	.0110945	.0371869	0	.3966099
	cln	467	.1185657	.1307378	.0000243	.7782077
	nibc	467	–.0120584	.1223758	–.886369	.8126496
	niexp	467	.0684302	.235865	–.3309897	3.613013
	roa	467	.0283225	.039241	–.2175769	.5166391
	la	467	.2175329	.1519405	.0173475	.9700304
	lna	467	14.08171	1.776756	9.537303	21.50941
2q. 2006	*dep*	506	4842893	6.82e+07	1	1.53e+09
	ddep	506	284043.4	4468793	–4399652	9.97e+07
	ir	506	.043016	.0199505	0	.3001061
	ca	506	.2019839	.137991	.0355217	.8123338
	bln	506	.0086196	.0263714	0	.3323056
	cln	506	.1185098	.129792	1.45e–06	.8651733
	nibc	506	–.0060108	.117808	–.6876813	.8239527
	niexp	506	.0172542	.0843608	–.0542265	1.528013
	roa	506	.0081225	.0221008	–.0179305	.346819
	la	506	.2028444	.1440184	.0193348	.8492058
	lna	506	14.20688	1.804011	8.381145	21.5909

	Variable	Panel B. State banks				
		Obs	Mean	Std. Dev.	Min	Max
3q. 2004	*dep*	8	1.48e+08	3.85e+08	24600.5	1.10e+09
	ddep	8	5290409	1.30e+07	–2596891	3.64e+07
	ir	8	.0572048	.0145533	.031866	.0748359
	ca	8	.2003384	.0859893	.1287302	.3929095
	bln	8	.0036672	.0035778	.0002339	.0084883
	cln	8	.1274314	.1585239	.0041302	.405106
	nibc	8	–.0366633	.0604207	–.1523036	.0462523
	niexp	8	.0392288	.0762088	–.0357812	.1489018
	roa	8	.0102619	.0073829	.000999	.0197605
	la	8	.1660373	.0953999	.0411092	.2863754
	lna	8	15.66306	3.444788	12.18303	21.06518

	Variable	Panel B. State banks				
		Obs	Mean	Std. Dev.	Min	Max
4q. 2004	*dep*	8	1.56e+08	4.02e+08	24231	1.15e+09
	ddep	8	8769843	2.12e+07	820	6.09e+07
	ir	8	.0672988	.0250148	.0323308	.1045355
	ca	8	.165148	.0307499	.1222565	.2199193
	bln	8	.0044419	.0045787	.0002622	.0124663
	cln	8	.1313104	.1684779	.0057253	.4400013
	nibc	8	–.0158096	.0529389	–.0900234	.0540834
	niexp	8	.0694772	.0978517	–.0404317	.1825062
	roa	8	.0226825	.012382	.0018898	.0382592
	la	8	.2081414	.1893569	.0348924	.6051708
	lna	8	15.88515	3.362485	12.38936	21.13237
1q. 2005	*dep*	10	1.32e+08	3.79e+08	28345.5	1.21e+09
	ddep	10	6494464	1.67e+07	–442	5.36e+07
	ir	10	.0183152	.0053605	.0076288	.0252995
	ca	10	.200279	.0920812	.1151707	.4146276
	bln	10	.0032836	.0040303	.0001002	.0115289
	cln	10	.1181782	.1529742	.0009935	.449085
	nibc	10	–.0285141	.08518	–.1810552	.1284797
	niexp	10	.0721558	.1228295	–.0463178	.2588068
	roa	10	.0242263	.0140688	.0027997	.0444913
	la	10	.2007902	.1970916	.0394673	.6859389
	lna	10	15.87711	3.050615	12.56285	21.22197
2q. 2005	*dep*	10	1.40e+08	4.01e+08	32727	1.28e+09
	ddep	10	9075974	2.41e+07	–8216	7.64e+07
	ir	10	.0339359	.0086352	.0226689	.0447504
	ca	10	.1768602	.0861639	.104174	.3743946
	bln	10	.0036247	.0038591	0	.0111322
	cln	10	.1175576	.1579329	.0088568	.4402867
	nibc	10	–.0261636	.0785108	–.1715361	.066239
	niexp	10	.0245762	.0409962	–.0178793	.0845863
	roa	10	.0063294	.0056309	.00076	.0201833
	la	10	.2143558	.1819535	.0453288	.6864802
	lna	10	15.46879	3.245644	12.53401	21.27992

	Variable	Panel B. State banks				
		Obs	Mean	Std. Dev.	Min	Max
3q. 2005	*dep*	9	1.59e+08	4.29e+08	35243	1.30e+09
	ddep	9	–1006551	7090623	–1.90e+07	5794539
	ir	9	.0484998	.0126443	.0330208	.0668563
	ca	9	.1647131	.0749304	.1026682	.3426879
	bln	9	.0039341	.0037823	.0001525	.0109874
	cln	9	.1353914	.1714088	.0087509	.4404947
	nibc	9	.0106573	.0925501	–.0945274	.1940619
	niexp	9	.0511155	.0819535	–.033095	.1743923
	roa	9	.0130415	.0061128	.0017214	.0203553
	la	9	.2021612	.1947554	.031911	.7016398
	lna	9	15.76084	3.392977	12.54669	21.35457
4q. 2005	*dep*	8	1.86e+08	4.71e+08	39509.5	1.35e+09
	ddep	8	1.42e+07	3.71e+07	–556419	1.06e+08
	ir	8	.0789519	.0427555	.0452193	.178142
	ca	8	.1604949	.066749	.1001934	.2890164
	bln	8	.0050197	.0037091	.0001359	.0110774
	cln	8	.0924096	.1474295	.0045116	.4256213
	nibc	8	–.0088268	.0640378	–.1147449	.079805
	niexp	8	.1039156	.1319985	–.0453286	.3129621
	roa	8	.0185222	.0078366	.0083908	.0308033
	la	8	.1351413	.0687679	.0262535	.2508857
	lna	8	16.18028	3.44679	12.66201	21.44289
1q. 2006	*dep*	7	2.17e+08	5.40e+08	55215.5	1.44e+09
	ddep	7	1.00e+07	2.94e+07	–6474526	7.65e+07
	ir	7	.0204444	.0068524	.0139082	.0318821
	ca	7	.1786112	.0752002	.1093463	.2893791
	bln	7	.005853	.0043315	.0008484	.0127977
	cln	7	.1062384	.169051	.0106336	.4558713
	nibc	7	–.0424484	.0708907	–.1548004	.0753842
	niexp	7	.1479549	.1975119	–.0607154	.4572408
	roa	7	.0230745	.0098196	.0111597	.0370265
	la	7	.1575931	.0961864	.0335019	.2775708
	lna	7	15.76152	3.546695	12.81492	21.50941

	Variable	Panel B. State banks				
		Obs	Mean	Std. Dev.	Min	Max
2q. 2006	*dep*	11	1.46e+08	4.59e+08	70947	1.53e+09
	ddep	11	8731377	3.02e+07	–4399652	9.97e+07
	ir	11	.042305	.014039	.0273373	.0674806
	ca	11	.1943246	.1303677	.0961301	.5521387
	bln	11	.0060743	.00909	.0000919	.0318789
	cln	11	.085501	.1311262	1.45e–06	.4355234
	nibc	11	–.0309319	.0902825	–.1801588	.1726157
	niexp	11	.0230805	.044989	–.0167074	.1226952
	roa	11	.0086642	.0051686	.0009839	.0177921
	la	11	.196234	.1688561	.0304854	.632138
	lna	11	15.42209	3.144625	12.74912	21.5909

	Variable	Panel C. Foreign banks				
		Obs	Mean	Std. Dev.	Min	Max
3q. 2004	*dep*	8	2418252	3673080	12288	1.04e+07
	ddep	8	195025	450573.1	–170527	1245648
	ir	8	.0301247	.0329938	.0001594	.0888183
	ca	8	.1565061	.076607	.0713676	.310246
	bln	8	.0043738	.0076796	0	.0191417
	cln	8	.1989012	.2875341	.0009183	.6879799
	nibc	8	–.1196064	.1579195	–.4195487	.0667637
	niexp	8	.1548605	.2360346	–.0041992	.6984208
	roa	8	.0255775	.0451105	–.0001396	.1363852
	la	8	.2451017	.1868818	.0670725	.6475466
	lna	8	16.05992	1.610565	13.25151	18.08964
4q. 2004	*dep*	8	2724122	3781140	12704	1.05e+07
	ddep	8	428944.3	486923	–11597	1246374
	ir	8	.0380647	.0407483	.0001825	.10414
	ca	8	.1567323	.048073	.0947164	.2543328
	bln	8	.0048528	.0078035	.0000231	.017723
	cln	8	.2138673	.308608	.0008149	.7134277
	nibc	8	–.1263278	.1576566	–.3638399	.0531961
	niexp	8	.1926953	.2948364	–.0108625	.8444132
	roa	8	.0409087	.048126	.0089707	.1550318
	la	8	.2167302	.1811031	.0971802	.6457756
	lna	8	16.10321	1.706364	13.04762	18.20834

	Variable	Panel C. Foreign banks				
		Obs	Mean	Std. Dev.	Min	Max
1q. 2005	*dep*	10	4854462	7175515	13765	2.19e+07
	ddep	10	767139.2	1581470	–25706	5025713
	ir	10	.0131119	.0144625	9.64e–06	.0339621
	ca	10	.160517	.0928081	.0922422	.4037887
	bln	10	.0112434	.0214693	.0000272	.0688783
	cln	10	.1899678	.2839575	.000782	.7088966
	nibc	10	–.0971568	.1370063	–.2618234	.1382132
	niexp	10	.2511149	.3710783	–.0371281	1.149249
	roa	10	.0407721	.0242018	.014459	.0989229
	la	10	.2050548	.1655457	.075705	.6541675
	lna	10	15.99052	2.109095	12.182	18.20237
2q. 2005	*dep*	8	3546091	5039904	18959	1.22e+07
	ddep	8	99367.75	157895.5	984	471598
	ir	8	.018128	.0191682	.0001088	.0473593
	ca	8	.1490217	.0912222	.050484	.3576738
	bln	8	.0126457	.0203226	.0000299	.0596582
	cln	8	.1434485	.2592131	.0008139	.7490926
	nibc	8	–.0525028	.1748794	–.3651203	.1367979
	niexp	8	.0804566	.1141434	–.009844	.347115
	roa	8	.0033164	.0061369	–.0081361	.0120931
	la	8	.2040039	.1480458	.0758748	.4789947
	lna	8	15.96748	2.181503	12.32571	18.2485
3q. 2005	*dep*	9	3232268	4939101	21700	1.27e+07
	ddep	9	31861.78	359379.1	–627248	799319
	ir	9	.0272608	.0276553	.0001194	.075161
	ca	9	.1725412	.1121424	.0467286	.3824185
	bln	9	.010783	.0155671	.000027	.048785
	cln	9	.1279531	.2317186	.0008641	.7066196
	nibc	9	–.0502263	.1757494	–.3385018	.242434
	niexp	9	.1501738	.2166202	–.0161611	.7002013
	roa	9	.0104664	.014857	–.0205789	.032377
	la	9	.1948223	.1404509	.0537129	.4244076
	lna	9	15.89962	2.069687	12.46918	18.38674

	Variable	Panel C. Foreign banks				
		Obs	Mean	Std. Dev.	Min	Max
4q. 2005	*dep*	10	3186210	4714894	25016	1.31e+07
	ddep	10	98173.7	160025	–20970	485802
	ir	10	.0454712	.0426213	.0001459	.1153423
	ca	10	.15727	.1040945	.0019714	.3394728
	bln	10	.0083119	.0115061	.0000247	.0368131
	cln	10	.1803467	.2661327	.0006418	.7334004
	nibc	10	.0039483	.151035	–.2179545	.2675566
	niexp	10	.212697	.3471387	–.0205738	1.159217
	roa	10	.0198262	.0150377	.0040879	.055686
	la	10	.1743406	.133811	.053385	.5185404
	lna	10	15.96539	1.971119	12.65013	18.52411
1q. 2006	*dep*	11	7566706	1.43e+07	30134.5	4.86e+07
	ddep	11	300920.7	772765.7	–464196	2263098
	ir	11	.0139698	.0121116	.0000143	.0311143
	ca	11	.1512755	.0973835	.0483787	.3334769
	bln	11	.0050933	.0050772	.0000266	.0141789
	cln	11	.1989533	.2578019	.000676	.7782077
	nibc	11	–.0010799	.126562	–.2259798	.1721745
	niexp	11	.2918341	.4316285	.0025303	1.538723
	roa	11	.0177888	.0065548	.0088084	.0323878
	la	11	.1754326	.1451123	.0539849	.5837538
	lna	11	16.55343	1.744673	13.25364	18.93802
2q. 2006	*dep*	17	7579705	1.39e+07	34.5	4.91e+07
	ddep	17	122109.4	1037097	–1377754	3840035
	ir	17	.0256048	.0203758	0	.0660007
	ca	17	.1635013	.1056676	.0609689	.4274382
	bln	17	.0053271	.0065215	.0000103	.0242513
	cln	17	.1497671	.2341116	.0002814	.8651733
	nibc	17	–.0682751	.2323945	–.5886752	.3992877
	niexp	17	.052758	.0767198	–.0055345	.3264501
	roa	17	.0071402	.0044871	–.0000427	.0150565
	la	17	.1556705	.1058199	.0514363	.4877339
	lna	17	16.36745	1.888879	13.02657	19.07928

	Variable	Panel D. Private domestic banks				
		Obs	Mean	Std. Dev.	Min	Max
3q. 2004	*dep*	401	920298.9	2825899	88	2.97e+07
	ddep	401	–26900.3	353380	–5828437	2071264
	ir	401	.0652927	.0461619	.0001019	.6747258
	ca	401	.2672844	.1473026	.0521134	.8917158
	bln	401	.0130065	.0427687	0	.5521721
	cln	401	.0878511	.1096374	.000108	.6893716
	nibc	401	–.0160746	.0984021	–.620933	.4716712
	niexp	401	.0373183	.2324743	–.2040651	4.457994
	roa	401	.0156546	.0145309	–.0178486	.160392
	la	401	.2154434	.1435632	.0164097	.9984988
	lna	401	13.6447	1.762669	8.155649	19.26075
4q. 2004	*dep*	398	1034118	2998798	592	2.90e+07
	ddep	398	153759.4	526339.6	–1092509	6959058
	ir	398	.0806896	.0393996	.0001034	.6220725
	ca	398	.2388034	.1369352	.0076326	.8490604
	bln	398	.0130003	.0450449	0	.5107955
	cln	398	.0958268	.1176217	.0001002	.6906264
	nibc	398	–.0102082	.0937849	–.6705407	.6167986
	niexp	398	.0482176	.3329401	–.2708086	6.413497
	roa	398	.0239701	.0210172	–.1549579	.1694834
	la	398	.2134476	.1482384	.0048782	1.006089
	lna	398	13.79006	1.726043	8.03301	19.28673
1q. 2005	*dep*	415	1138846	3382670	120	3.25e+07
	ddep	415	130501.4	577082.2	–1232967	8305866
	ir	415	.0203212	.0088855	0	.093687
	ca	415	.2395523	.1458819	.0131826	.9416423
	bln	415	.0120509	.0393518	0	.4131097
	cln	415	.0990065	.1236393	0	.6990811
	nibc	415	–.0118135	.1090859	–.7286949	.4462167
	niexp	415	.0614242	.3008039	–.3599024	5.541764
	roa	415	.0287839	.0233839	–.1125933	.1699864
	la	415	.2349447	.1537146	.0029436	1.30724
	lna	415	13.83195	1.740826	8.109826	19.45872

	Variable	Panel D. Private domestic banks				
		Obs	Mean	Std. Dev.	Min	Max
2q. 2005	*dep*	449	1138021	3496042	138	3.64e+07
	ddep	449	63717.17	509049	–8010211	3993267
	ir	449	.040847	.0166735	0	.1519327
	ca	449	.2237575	.138688	.0144276	.9052234
	bln	449	.0113862	.0357844	0	.4020711
	cln	449	.1039246	.1251504	.0000491	.7727023
	nibc	449	–.0105316	.1097679	–.6381338	.7323637
	niexp	449	.0158443	.0499477	–.0334381	.7376384
	roa	449	.007465	.0095146	–.0189565	.1256776
	la	449	.2317079	.1438793	.0219529	1.233397
	lna	449	13.81982	1.741083	8.304248	19.67288
3q. 2005	*dep*	450	1160076	3743587	15	4.05e+07
	ddep	450	129402.3	1101271	–1838927	2.19e+07
	ir	450	.0625002	.0400871	0	.5258216
	ca	450	.2232222	.1368119	.0352837	.8923106
	bln	450	.0116637	.0366491	0	.3792491
	cln	450	.1064402	.1227418	.0000843	.7319489
	nibc	450	–.0135685	.1251455	–.7263687	.8229215
	niexp	450	.0266852	.0889447	–.0871598	1.303705
	roa	450	.0143648	.0151427	–.0478444	.141252
	la	450	.2152007	.1475746	.0110567	.9498737
	lna	450	13.83507	1.686608	8.369621	19.7186
4q. 2005	*dep*	447	1302877	4272029	8	4.51e+07
	ddep	447	136718.5	724691.9	–1575550	1.04e+07
	ir	447	.0810233	.0526183	0	.6369784
	ca	447	.2202204	.1443352	.0133793	.9895038
	bln	447	.0115908	.0369368	0	.4026283
	cln	447	.1114986	.12289	.0000533	.7329784
	nibc	447	–.0171456	.1300232	–.883733	.8910223
	niexp	447	.0420498	.1399872	–.1194271	2.058431
	roa	447	.0220956	.025414	–.1767864	.2614457
	la	447	.2103548	.1597844	.0129681	1.448546
	lna	447	13.9095	1.702605	8.337349	19.77829

	Variable	Panel D. Private domestic banks				
		Obs	Mean	Std. Dev.	Min	Max
1q. 2006	*dep*	449	1420017	4759890	1	5.94e+07
	ddep	449	62502.5	484806.8	–6287358	5218399
	ir	449	.0217703	.008657	0	.0862796
	ca	449	.2094484	.1332567	.0373898	.8672795
	bln	449	.0113232	.0378977	0	.3966099
	cln	449	.1167885	.1254936	.0000243	.7368334
	nibc	449	–.0118535	.1230255	–.886369	.8126496
	niexp	449	.0617173	.2276337	–.3309897	3.613013
	roa	449	.0286624	.0399525	–.2175769	.5166391
	la	449	.2194988	.1526958	.0173475	.9700304
	lna	449	13.99496	1.686905	9.537303	19.81
2q. 2006	*dep*	478	1489278	4757863	1	6.06e+07
	ddep	478	95407.83	559374	–3272471	1.03e+07
	ir	478	.0436516	.0198017	0	.3001061
	ca	478	.2035288	.1391829	.0355217	.8123338
	bln	478	.0087953	.0270656	0	.3323056
	cln	478	.1181578	.1248033	.0000112	.6989276
	nibc	478	–.0032229	.1120299	–.6876813	.8239527
	niexp	478	.0158575	.0851292	–.0542265	1.528013
	roa	478	.008145	.0227121	–.0179305	.346819
	la	478	.2046742	.1445745	.0193348	.8492058
	lna	478	14.10207	1.705015	8.381145	19.92319

Table 22. All deposits, market discipline

Panel A. Deposit growth								
Variable	All banks		State banks		Foreign banks		Private domestic banks	
	Model							
	Random effects		Random effects		Fixed effects		Random effects	
	coefficient	z	coefficient	z			coefficient	z
ca	820896.9	1.49	–4.50e+07	–1.19			67240.25	0.72
bln	1247782	0.58	1.31e+09	2.07**			315607.2	0.99
cln	1062234	1.62	4.92e+07	3.04*			217781.4	2.17**
nibc	–66592.62	–0.14	4.55e+07	1.49			–147017.6	–1.49
niexp	–63471.72	–0.22	–4.84e+07	–1.29			–46781.8	–0.83
roa	–720737.8	–0.38	8.07e+07	0.26			–870201.4	–1.84***

Panel A. Deposit growth								
Variable	All banks		State banks		Foreign banks		Private domestic banks	
	Model							
	Random effects		Random effects		Fixed effects		Random effects	
	coefficient	z	coefficient	z			coefficient	z
la	342711.4	0.72	1.94e+07	1.02			117050.6	1.40
lna	363498.2	5.78*	5434256	4.96*			94545.61	11.09*
infl	26366.8	0.92	2944514	1.37			5813.661	0.68
income	107.271	1.84***	2133.535	0.54			53.83653	3.02*
de	70388.96	0.92	858057.2	0.17			31346.68	1.36
ee	87275.44	1.34	–2566047	–0.58			51319.06	2.62*
_cons	–1.11e+07	–2.71*	–3.84e+07	–0.15			–4375269	–3.68*
A	42.02*		52.75*		0.2173		179.46	
B	0.0000*		0.0000*		0.3063		0.0000*	
C	0.0000*		0.0012*		0.0651***		0.0000*	
D	0.0000*		0.0000*		0.4902		0.0000*	
E	0.5728		–		–		0.2310	
Number of observations	3639		71		81		3487	

Panel B. Interest rate								
Variable	All banks		State banks		Foreign banks		Private domestic banks	
	Model							
	Fixed effects		Fixed effects		Random effects		Fixed effects	
	coefficient	t-statistics	coefficient	t-statistics	coefficient	z	coefficient	t-statistics
ca	–.0177162	–1.73	–.1631586	–2.15**	–.0988635	–2.58*	–.0180082	–1.71***
bln	–.0603618	–1.55	1.178173	1.15	–.0939338	–0.33	–.0633541	–1.60
cln	–.008864	–0.67	–.1177634	–0.89	.004143	0.21	–.0081702	–0.60
nibc	–.0046133	–0.64	–.0205793	–0.49	.005193	0.39	–.004745	–0.63
niexp	.0014871	0.33	–.0110126	–0.26	.0080969	0.81	.0005603	0.12
roa	.013304	0.49	.2548603	0.65	–.0317791	–0.41	.0149183	0.53
la	.027397	3.33*	–.0599143	–0.89	–.0297193	–1.17	.0292471	3.46*
lna	.0002817	0.10	–.0235532	–1.12	–.0094893	–3.55*	.0006779	0.23
infl	–.0068139	–16.78*	–.00431	–1.95***	–.0027361	–2.19**	–.0069624	–16.55*
income	.0000217	26.62*	.0000193	5.37*	.0000113	4.34*	.0000219	25.99*
de	.0360801	32.83*	.0288042	4.75*	.0162685	4.80*	.0366411	32.13*
ee	.0194299	20.27*	.0096014	2.02**	.0086484	2.74*	.0198239	19.97*
_cons	–1.79867	–22.51*	–.8194979	–1.41	–.6370285	–3.24*	–1.834889	–22.20*

Panel B. Interest rate								
Variable	All banks		State banks		Foreign banks		Private domestic banks	
	Model							
	Fixed effects		Fixed effects		Random effects		Fixed effects	
	coefficient	t-statistics	coefficient	t-statistics	coefficient	z	coefficient	t-statistics
A	0.4153		0.7255		72.56		0.4153	
B	0.0000*		0.0000*		0.0000*		0.0000*	
C	0.0000*		0.0102**		0.0000*		0.0000*	
D	0.0000*		0.2535		0.0000*		0.0000*	
E	0.0000*		–		0.6589		0.0000*	
Number of observations	3639		71		81		3487	

*, **, *** — Significant at 1%, 5%, 10% confidence level respectively.

A — R^2 (pooled)/R^2-within (fixed effects)/Wald chi^2 (random effects).

B — F-test for joint significance (p-value).

C — F-test for fixed effects (p-value).

D — Breusch and Pagan Lagrangian multiplier test for random effects (p-value).

E — Hausman specification test (p-value).

Table 23. Disciplining by quantity: all deposits, the influence of DIS (Dependant variable: deposit growth)

Variable	All banks		State banks	
	Model			
	Random effects		Random effects	
	coefficient	z	coefficient	z
ca	432467.9	0.66	–4.09e+07	–0.60
bln	915078.8	0.41	2.02e+09	0.92
cln	724180	0.89	1.95e+07	0.49
nibc	–256416.8	–0.37	3977327	0.05
niexp	101332.2	0.31	–1.31e+08	–0.62
roa	2369793	0.65	1.41e+08	0.20
la	235170.2	0.40	4558068	0.08
lna	278682.5	3.84*	6264308	1.76***
infl	–9170.532	–0.06	–2020995	–0.18
income	66.94958	0.59	–2992.959	–0.20
de	–50993.88	–0.16	–6315885	–0.37
ee	91926.86	0.59	3186307	0.19
dis	–4.13e+07	–1.73**	4.67e+08	0.30
*dis*ca*	654393.8	1.01	–6.23e+07	–0.65

Variable	All banks		State banks	
	Model			
	Random effects		Random effects	
	coefficient	z	coefficient	z
*dis*bln*	605097.8	0.29	4.58e+07	0.02
*dis*cln*	453684.6	0.68	5.65e+07	1.22
*dis*nibc*	236167.4	0.33	7.44e+07	0.85
*dis*niexp*	–391438.5	–0.73	8.54e+07	0.40
*dis*roa*	–4149186	–1.07	–1.01e+08	–0.12
*dis*la*	121854.3	0.22	2.45e+07	0.41
*dis*lna*	139355.1	2.56*	–1133862	–0.30
*dis*infl*	5569.196	0.04	6711436	0.52
*dis*income*	414.351	1.49	3922.808	0.32
*dis*de*	516822.6	1.29	–	–
*dis*ee*	614067.9	1.43	–1.41e+07	–0.33
_cons	–6208382	–0.74	–	–
R^2 (pooled)/R^2-within (fixed effects)/Wald chi^2 (random effects)	51.98*		61.74*	
F-test for joint significance (p-value)	0.0012*		0.0000*	
F-test for fixed effects (p-value)	0.0000*		0.0091*	
Breusch and Pagan Lagrangian multiplier test for random effects (p-value)	0.0000*		0.0001***	
Hausman specification test (p-value)	0.6840		–	
Number of observations	3639		71	

Variable	Foreign banks		Private domestic banks	
	Model			
	Pooled		Fixed effects	
	coefficient	t-statistics	coefficient	t-statistics
ca	1561679	0.29	72808.87	0.30
bln	2.90e+07	1.13	–158985.4	–0.19
cln	2423374	1.20	94544.69	0.29
nibc	–2424431	–1.33	–168151.9	–0.76
niexp	3049374	4.37*	62897.47	0.55
roa	330704.6	0.04	1813919	1.58

Variable	Foreign banks		Private domestic banks	
	Model			
	Pooled		Fixed effects	
	coefficient	t-statistics	coefficient	t-statistics
la	1632719	0.99	98037.59	0.48
lna	224049.3	0.89	–72555.42	–1.11
infl	1223913	0.41	–2925.062	–0.07
income	1163.226	0.48	52.83214	1.58
de	1561525	0.29	–73240.74	–0.77
ee	–1896508	–0.54	45546.81	0.98
dis	–	–	–8218625	–1.12
*dis*ca*	–2831031	–0.51	124337.6	0.62
*dis*bln*	–3.97e+07	–1.40	–57776.11	–0.09
*dis*cln*	–2986896	–1.43	59163.96	0.27
*dis*nibc*	2305065	1.18	–150895.8	–0.69
*dis*niexp*	–2677681	–3.26*	40162.23	0.22
*dis*roa*	–184648.7	–0.02	–2887051	–2.43**
*dis*la*	–2694243	–1.33	–25418.41	–0.15
*dis*lna*	–221146.3	–0.84	30976.19	1.75***
*dis*infl*	–1188412	–0.40	–6335.111	–0.14
*dis*income*	–1246.571	–0.66	36.88377	0.44
*dis*de*	–1652315	–0.34	173593.5	1.44
*dis*ee*	1780246	0.40	76723.38	0.58
_cons	7758083	0.14	1088271	0.39
R^2 (pooled)/R^2-within (fixed effects)/Wald chi^2 (random effects)	0.5106		0.0152	
F-test for joint significance (p-value)	0.0032*		0.0090*	
F-test for fixed effects (p-value)	0.2240		0.0000*	
Breusch and Pagan Lagrangian multiplier test for random effects (p-value)	0.3932		0.0000*	
Hausman specification test (p-value)	–		0.0000*	
Number of observations	81		3487	

*, **, *** — Significant at 1%, 5%, 10% confidence level respectively.

Table 24. Disciplining by price: all deposits, the influence of DIS (Dependant variable: interest rate)

Variable	All banks		State banks	
	Model			
	Fixed effects		Fixed effects	
	coefficient	t-statistics	coefficient	t-statistics
ca	–.0156674	–1.43	–.1042782	–1.08
bln	–.0683337	–1.76***	2.803535	1.17
cln	–.0322534	–2.19**	.1582104	0.85
nibc	–.0193324	–1.94***	.0689178	0.74
niexp	.0049878	0.96	–.0013525	–0.01
roa	–.0313045	–0.61	.398714	0.47
la	.0148554	1.61	–.0927332	–0.89
lna	–.0013066	–0.44	.0047912	0.16
infl	–.0024471	–1.21	–.0409717	–3.25*
income	.0000218	14.11*	–.0000556	–1.76***
de	.0402205	9.16*	–	–
ee	.0148123	6.90*	.1139584	2.37**
dis	–1.892136	–5.72*	–	–
*dis*ca*	–.0225939	–2.46**	–.1471019	–1.47
*dis*bln*	.0374124	1.27	1.04341	0.48
*dis*cln*	.0338914	3.64*	–.0310356	–0.68
*dis*nibc*	.0200612	2.02**	–.1017594	–1.13
*dis*niexp*	–.0076343	–0.98	.0207654	0.10
*dis*roa*	.0542568	1.02	–.8345415	–0.99
*dis*la*	.0204862	2.61*	.025815	0.41
*dis*lna*	.0029487	3.93*	–.001991	–0.54
*dis*infl*	–.0061571	–2.95*	.034494	2.95*
*dis*income*	.0000203	5.31*	.0000971	2.09**
*dis*de*	.0153807	2.80*	.058174	3.27*
*dis*ee*	.0363916	6.09*	–.063276	–2.90*
_cons	–1.735999	–13.73*	–3.681812	–2.07**
R^2 (pooled)/R^2-within (fixed effects)/Wald chi^2 (random effects)	0.4339		0.7932	
F-test for joint significance	0.0000*		0.0000*	
F-test for fixed effects (p-value)	0.0000*		0.0140**	
Breusch and Pagan Lagrangian multiplier test for random effects (p-value)	0.0000*		0.2143	
Hausman specification test (p-value)	0.0000*		–	
Number of observations	3639		71	

Variable	Foreign banks		Private domestic banks	
	Model			
	Fixed effects		Fixed effects	
	coefficient	t-statistics	coefficient	t-statistics
ca	–.1375465	–1.41	–.0176426	–1.57
bln	–.7805441	–1.26	–.070459	–1.79***
cln	.0039182	0.05	–.0364298	–2.38**
nibc	.0518384	1.32	–.020913	–2.01**
niexp	–.0022827	–0.12	.0047432	0.89
roa	–.1407949	–0.76	–.0396764	–0.73
la	–.0693052	–1.59	.0152507	1.60
lna	–.0104883	–0.61	–.0008196	–0.27
infl	–.0070583	–0.11	–.0025103	–1.22
income	–6.25e–06	–0.12	.000022	13.97*
de	.0005933	0.00	.0408831	9.13*
ee	.0232273	0.30	.015234	6.97*
dis	–	–	–1.955055	–5.70*
*dis*ca*	.0879124	0.75	–.0202015	–2.14**
*dis*bln*	.9304847	1.48	.0362235	1.21
*dis*cln*	–.001906	–0.04	.0415349	4.06*
*dis*nibc*	–.0624457	–1.49	.0226723	2.20**
*dis*niexp*	–.0031058	–0.18	–.0092472	–1.09
*dis*roa*	.3367375	1.39	.0597175	1.07
*dis*la*	.0527526	1.09	.0226299	2.75*
*dis*lna*	.005783	1.07	.0035012	4.22*
*dis*infl*	.0043755	0.07	–.0062918	–2.95*
*dis*income*	.0000183	0.44	.0000208	5.26*
*dis*de*	.0159876	0.15	.0159344	2.82*
*dis*ee*	–.0202561	–0.21	.0373865	6.03*
_cons	–.5469661	–0.38	–1.776313	–13.6*7
R^2 (pooled)/R^2-within (fixed effects)/Wald chi^2 (random effects)	0.6707		0.4384	
F-test for joint significance	0.0003*		0.0000*	
F-test for fixed effects (p-value)	0.0000*		0.0000*	
Breusch and Pagan Lagrangian multiplier test for random effects (p-value)	0.0000*		0.0000*	
Hausman specification test (p-value)	–		0.0000*	
Number of observations	81		3487	

*, **, *** — Significant at 1%, 5%, 10% confidence level respectively.

Table 25. Maturity distribution, summary statistics

	Variable	Obs	Mean	Std. Dev.	Min	Max
2q. 2004	On-call deposits	3293	449806.4	4116507	2	113000000
	Growth of on-call deposits	3293	–33293.66	1472471	–73700000	12300000
	Short-term deposits	3293	460561.3	5426054	–38819	129000000
	Growth of short-term deposits	3293	–12389.76	421281	–13700000	4856817
	Long-term deposits	3293	3875681	5.55e+07	34	1400000000
	Growth of long-term deposits	3293	314115	4074467	–7631663	115000000
3q. 2004	On-call deposits	379	579657.6	5875087	25	113000000
	Growth of on-call deposits	379	–81069.94	1715740	–33100000	3156533
	Short-term deposits	379	517503.4	6636677	–38750.5	129000000
	Growth of short-term deposits	379	–66931.17	721184.5	–13700000	533806
	Long-term deposits	379	3050854	4.41e+07	64.5	858000000
	Growth of long-term deposits	379	235253.1	4304085	–5171346	83200000
4q. 2004	On-call deposits	378	575157.1	5110574	5	97500000
	Growth of on-call deposits	378	42231.04	220529.5	–2072055	1755222
	Short-term deposits	378	494336.5	6055320	–38276	118000000
	Growth of short-term deposits	378	2209.582	574364.3	–10800000	1165168
	Long-term deposits	378	3358291	4.82e+07	175.5	935000000
	Growth of long-term deposits	378	310229.1	3624003	–820693	69900000
1q. 2005	On-call deposits	397	617804.1	5113263	38	98800000
	Growth of on-call deposits	397	29929.45	244294.2	–367165	4063768
	Short-term deposits	397	490761.8	5702112	–38795.5	113000000
	Growth of short-term deposits	397	13217.22	251817.4	–3024075	2792956
	Long-term deposits	397	3505882	5.02e+07	206.5	998000000
	Growth of long-term deposits	397	274689.5	2841518	–570906	55800000
2q. 2005	On-call deposits	429	533061.5	5165595	11	105000000
	Growth of on-call deposits	429	–10395.64	822364.7	–9636540	12300000
	Short-term deposits	429	463165.1	5575842	–38819	115000000
	Growth of short-term deposits	429	–11616.73	228212.3	–3692575	632729
	Long-term deposits	429	3508916	5.13e+07	68	1060000000
	Growth of long-term deposits	429	301694.6	3358408	–1031081	67900000
3q. 2005	On-call deposits	423	424539.5	3738121	41.5	74500000
	Growth of on-call deposits	423	–199435.6	3602723	–73700000	4092823
	Short-term deposits	423	436239	5153085	–15804.5	106000000
	Growth of short-term deposits	423	–16390.56	412623.4	–7653860	2180312
	Long-term deposits	423	3813296	5.46e+07	34	1120000000
	Growth of long-term deposits	423	333635.4	3200601	–1314412	62300000

	Variable	Obs	Mean	Std. Dev.	Min	Max
4q. 2005	On-call deposits	420	309460.3	2031895	56	36900000
	Growth of on-call deposits	420	–35724.49	552319.1	–7450621	6353985
	Short-term deposits	420	446284.2	5060572	–35884.5	103000000
	Growth of short-term deposits	420	1553.548	472112	–7866221	4856817
	Long-term deposits	420	4241747	5.92e+07	86.5	1210000000
	Growth of long-term deposits	420	451559	5655545	–621439	115000000
1q. 2006	On-call deposits	420	283179.7	1956054	2	35300000
	Growth of on-call deposits	420	–13975.21	328993.7	–6025668	1236154
	Short-term deposits	420	431058.7	4653981	–37987	94700000
	Growth of short-term deposits	420	–16429.36	248386.4	–4381176	685180
	Long-term deposits	420	4600072	6.41e+07	69	1310000000
	Growth of long-term deposits	420	272319.2	3904977	–7631663	79400000
2q. 2006	On-call deposits	447	316939.9	2027097	2	34300000
	Growth of on-call deposits	447	6575.002	239156.2	–2777828	3647839
	Short-term deposits	447	418550.3	4554955	–38434.5	95700000
	Growth of short-term deposits	447	–7495.306	228168.9	–2400713	3277942
	Long-term deposits	447	4727428	6.64e+07	584	1400000000
	Growth of long-term deposits	447	322858.9	4862917	–6910699	102000000

Table 26. Maturity shifts■

Variable	All banks					
	On-call deposits		Short-term deposits		Long-term deposits	
	coefficient	z	coefficient	z	coefficient	z
ca	–272472.1	–1.13	–150688.8	–2.21**	2133194	3.30*
bln	–388527.7	–0.49	–188617.7	–0.85	2898632	1.37
cln	–351734.1	–1.63	–199890	–3.26*	2668766	4.60*
nibc	–233884.1	–0.99	–140195.8	–2.10**	1103361	1.74***
niexp	140729.1	1.05	53921.43	1.42	–659672.3	–1.84***
roa	88947.84	0.08	174548.3	0.55	–2643827	–0.88
la	–168746.8	–0.83	–84333.98	–1.46	1095729	2.01**
lna	–96092.67	–5.23*	–46448.82	–8.92*	715308.3	14.50*
infl	25377.91	1.21	5914.092	1.00	5300.241	0.09
income	55.02659	1.26	20.03138	1.62	34.74382	0.30
de	–29864.13	–0.53	–14296.51	–0.89	167188.1	1.10
ee	48489.65	1.01	9298.344	0.69	35630.13	0.28
_cons	105150.2	0.04	621455.9	0.76	–1.69e+07	–2.17**

Variable	All banks					
	On-call deposits		Short-term deposits		Long-term deposits	
	coefficient	z	coefficient	z	coefficient	z
R^2	0.0112		0.0287		0.0695	
Chi^2	37.19		97.16		245.94	
P-value	0.0002		0.0000*		0.0000*	
Number of obs.	3293					

Variable	State banks ▪▪			
	Short-term deposits		Long-term deposits	
	coefficient	z	coefficient	z
ca	4517503	0.94	–6.37e+07	–1.50
bln	–1.82e+08	–2.34**	2.04e+09	2.98*
cln	–4902614	–2.43**	6.90e+07	3.87*
nibc	–4853705	–1.28	6.59e+07	1.97**
niexp	8155700	1.57	–8.38e+07	–1.83***
roa	–1.29e+07	–0.31	9.04e+07	0.24
la	–2185356	–0.95	3.16e+07	1.55
lna	–573937.2	–4.21*	7362988	5.72*
infl	125732.7	0.44	1949404	0.78
income	163.2079	0.36	–296.574	–0.07
de	–746941.8	–1.23	2752419	0.51
ee	–184088.1	–0.36	–2529926	–0.56
_cons	3.49e+07	1.12	–1.03e+08	–0.38
R^2	0.4268		0.6985	
Chi^2	44.68		89.45	
P-value	0.0000*		0.0000*	
Number of obs.	60			

*, **, *** — Significant at 1%, 5%, 10% confidence level respectively.

▪ — There are no maturity shifts for foreign banks (p-value = 0.5739 and 0.6068 for short-term and long-term deposits respectively) or private domestic banks (p-value = 0.1269 and 0.3064 for on-call and short-term deposits respectively).

▪▪ — Regression for on-call deposits is insignificant (p-value = 0.4089).

Table 27. Maturity shifts for deposit shares, state banks▪

Variable	On-call deposits		Short-term deposits	
	coefficient	z	coefficient	z
ca	.2771895	1.97**	.0053573	0.07
bln	–5.489607	–2.40**	–.4726715	–0.39
cln	.1002477	1.69***	.0273978	0.88
nibc	–.0003273	–0.00	.0609373	1.04
niexp	.0508009	0.33	–.0646331	–0.80
roa	.3770929	0.31	.8890384	1.37
la	–.1795425	–2.65*	.0172533	0.48
lna	–.0008382	–0.21	.0027421	1.30
infl	–.0001206	–0.01	.0027337	0.62
income	4.17e–06	0.31	–3.73e–06	–0.52
de	–.0239435	–1.35	–.0205817	–2.19*
ee	–.0087103	–0.57	–.0003237	–0.04
_cons	.9464383	1.04	.5428712	1.13
R^2	0.2682		0.2499	
Chi^2	21.99		19.98	
P-value	0.0376**		0.0674*	
Number of observations	60			

*, **, *** — Significant at 1%, 5%, 10% confidence level respectively.

▪ — There are no maturity shifts for long-term deposits (p-value = 0.2821).

Table 28. Maturity shifts for deposit shares: all banks, foreign banks, private domestic banks

		Number of obs.	R^2	Chi^2	P-value
All banks	On-call deposits	3293	0.0027	8.77	0.7222
	Short-term deposits	3293	0.0053	17.71	0.1248
	Long-term deposits	3293	0.0041	13.58	0.3283
Foreign banks	On-call deposits	68	0.1120	8.58	0.7385
	Short-term deposits	68	0.1186	9.15	0.6900
	Long-term deposits	68	0.2227	19.49	0.0775***
Private domestic banks	On-call deposits	3165	0.0029	9.10	0.6944
	Short-term deposits	3165	0.0055	17.47	0.1328
	Long-term deposits	3165	0.0043	13.72	0.3187

*** — Significant at 10% confidence level.

Table 29. Maturity shifts, the influence of DIS▪

Variable	All banks					
	On-call deposits		Short-term deposits		Long-term deposits	
	coefficient	z	coefficient	z	coefficient	z
ca	–153919.1	–0.42	–203371.7	–1.94***	1521489	1.53
bln	–227360.3	–0.21	–217657.6	–0.71	2138957	0.73
cln	–294027.7	–0.77	–353292.3	–3.29*	2474962	2.43**
nibc	–351692.9	–0.85	–264420.4	–2.25**	1597976	1.44
niexp	93418.67	0.62	56878.77	1.34	–369708.2	–0.92
roa	1060856	0.44	486303.7	0.71	–652554	–0.10
la	–108079.3	–0.33	–140269.4	–1.52	927790.9	1.06
lna	–55599.09	–1.81***	–70240.52	–8.06*	623078.3	7.54*
infl	–5531.61	–0.05	–4298.622	–0.14	86829.17	0.29
income	30.58762	0.37	21.35554	0.92	–18.66334	–0.08
de	–77537	–0.33	–73759.58	–1.10	377447.3	0.59
ee	32435.09	0.29	4430.04	0.14	101926.2	0.33
dis	–6501628	–0.37	–6535909	–1.31	–1.55e+07	–0.33
*dis*ca*	–263047.9	–0.54	76770.49	0.55	1361384	1.03
*dis*bln*	–199950	–0.13	36135.3	0.08	1055540	0.25
*dis*cln*	–64625.96	–0.14	223300.6	1.71***	213185.5	0.17
*dis*nibc*	189932.4	0.38	179751.4	1.26	–785348.9	–0.58
*dis*niexp*	193222.7	0.57	12813.44	0.13	–1387049	–1.52
*dis*roa*	–1067764	–0.39	–419409	–0.54	–3389644	–0.46
*dis*la*	–92555.7	–0.22	77161.35	0.65	357157.7	0.32
*dis*lna*	–67267.19	–1.72***	35067.03	3.17*	179369.5	1.71***
*dis*infl*	39754.6	0.35	2774.572	0.09	–107000.4	–0.35
*dis*income*	127.0014	0.62	33.07009	0.57	230.1973	0.42
*dis*de*	80223.33	0.27	112869.9	1.34	67570.63	0.08
*dis*ee*	118938.5	0.38	72232.21	0.81	275799	0.33
_cons	1689153	0.28	2881875	1.71***	–2.38e+07	–1.49
R^2	0.0130		0.0338		0.0714	
Chi^2	43.39		115.29		253.23	
P-value	0.0127**		0.0000*		0.0000*	
Number of obs.	3293					

Variable	State banks ▪▪				Private domestic banks ▪▪▪			
	Short-term deposits		Long-term deposits		On-call deposits		Long-term deposits	
	coefficient	z	coefficient	z	coefficient	z	coefficient	z
ca	6246214	0.88	–5.54e+07	–0.78	20021.04	0.24	12328.94	0.10
bln	–8.55e+08	–4.43*	5.22e+09	2.71*	24626.94	0.10	116722.9	0.32
cln	–4485423	–0.94	5.35e+07	1.12	–1769.396	–0.02	88210.74	0.65
nibc	–2.07e+07	–2.32**	1.57e+08	1.76***	–29586.31	–0.31	60258.28	0.42
niexp	7.00e+07	3.69*	–3.37e+08	–1.78***	–4062.922	–0.12	–29223.92	–0.57
roa	4.02e+07	0.41	–8.45e+08	–0.86	211888.2	0.38	209088.2	0.24
la	–5994997	–0.91	7.67e+07	1.16	10286.89	0.14	81954.85	0.73
lna	–2042643	–6.35*	1.32e+07	4.11*	12253.12	1.68***	57940.7	5.20*
infl	–558664.7	–1.01	5791007	0.49	–200.9873	–0.01	17174.59	0.45
income	751.2977	0.32	–323.5938	–0.02	9.846877	0.54	26.94256	0.96
de	–1012156	–0.58	–3037752	–0.17	9816.473	0.19	25940.95	0.32
ee	–674086.7	–0.20	–3103754	–0.18	26894.83	1.07	33291.19	0.86
dis	–		1.79e+08	0.11	2628860	0.66	–1.31e+07	–2.15**
*dis*ca*	–1134037	–0.12	–7.14e+07	–0.74	–50802.22	–0.46	215643.6	1.28
*dis*bln*	7.23e+08	3.38*	–2.54e+09	–1.19	–95338.15	–0.27	406326.7	0.76
*dis*cln*	26675.08	0.01	4.04e+07	0.77	–24402.87	–0.22	275061.1	1.64
*dis*nibc*	1.87e+07	1.93***	–8.18e+07	–0.85	36873.31	0.32	–265610.4	–1.51
*dis*niexp*	–6.37e+07	–3.25*	2.58e+08	1.32	20658.64	0.26	–36085.25	–0.29
*dis*roa*	–8.04e+07	–0.72	1.22e+09	1.10	–237692.4	–0.38	–1869274	–1.94**
*dis*la*	4494301	0.64	–3.86e+07	–0.55	–67670.92	–0.72	190182.2	1.32
*dis*lna*	1670672	4.82*	–6675422	–1.93***	–35728.06	–3.83*	93251.21	6.52*
*dis*infl*	807587.7	1.47	–3987986	–0.30	–445.6112	–0.02	–33491.67	–0.86
*dis*income*	–1441.786	–0.36	597.2082	0.05	–13.3557	–0.29	94.55531	1.34
*dis*de*	–		–		–34373.51	–0.52	161025.4	1.58
*dis*ee*	–470770.6	–0.70	–2625081	–0.06	–29369.11	–0.41	188837.7	1.73***
_cons	7.92e+07	0.50	–		–1488682	–1.12	–2949884	–1.44
R^2	0.2349		0.6279		0.0120		0.0100	
Chi^2	20.22		101.25		38.52		32.00	
P-value	0.0000*		0.0000*		0.0032*		0.0090*	
Number of observations	60				3165			

*, **, *** — Significant at 1%, 5%, 10% confidence level respectively.

▪ — There are no maturity shifts for foreign banks (p-value = 0.5695 and 0.6471 for short-term and long-term deposits respectively).

▪▪ — Regression for on-call deposits is insignificant (p-value = 0.6840).

▪▪▪ — Regression for short-term deposits is insignificant (p-value = 0.1579).

Table 30. Maturity shifts for deposit shares: state banks, the influence of DIS

Variable	On-call deposits		Short-term deposits		Long-term deposits	
	coefficient	z	coefficient	z	coefficient	z
ca	.1550648	0.69	–.0895113	–0.76	–.0300818	–0.06
bln	–6.467505	–1.06	2.651204	0.83	–1.968313	–0.14
cln	.052441	0.35	.0053364	0.07	.1117241	0.33
nibc	–.1995986	–0.70	.3378383	2.29**	.0303328	0.05
niexp	–.0980052	–0.16	–.3978963	–1.27	.2960191	0.22
roa	–.1723745	–0.06	2.170505	1.33	–3.468516	–0.50
la	–.0425759	–0.20	–.0598673	–0.55	.2156549	0.46
lna	.0100861	0.99	.0061322	1.15	.0034935	0.15
infl	–.0093551	–0.53	.0100065	1.09	–.0179817	–0.46
income	.0000677	0.91	–3.96e–06	–0.10	–.0003687	–2.23**
de	–.0969911	–1.75***	–.0244068	–0.85	.3458157	2.79*
ee	–.1151103	–1.06	–.0210401	–0.37	.6056047	2.49**
dis	–		–		–	
*dis*ca*	.0048891	0.02	.1781673	1.12	–.7788768	–1.14
*dis*bln*	1.547229	0.23	–4.45908	–1.26	20.23752	1.33
*dis*cln*	.1233926	0.74	–.0315556	–0.36	.1178572	0.32
*dis*nibc*	.4083771	1.33	–.3920954	–2.45**	.0325158	0.05
*dis*niexp*	.2934305	0.47	.3169639	0.98	–1.588272	–1.14
*dis*roa*	–.2525064	–0.07	–1.061163	–0.58	2.747512	0.35
*dis*la*	–.1942618	–0.87	.0922341	0.80	.139458	0.28
*dis*lna*	–.0159773	–1.45	–.003379	–0.59	.0202666	0.82
*dis*infl*	.0234535	1.34	–.0086457	–0.95	.020448	0.52
*dis*income*	–.000099	–0.78	–.0000114	–0.17	.0006258	2.21**
*dis*de*	–		–		–	
*dis*ee*	.0192849	0.90	.002801	0.25	–.1021595	–2.13**
_cons	6.388957	1.27	1.358277	0.52	–29.57531	–2.64*
R^2	0.4449		0.4454		0.3631	
Chi^2	48.08		48.18		34.20	
P-value	0.0016*		0.0016*		0.0623***	
Number of obs.	60					

*, **, *** — Significant at 1%, 5%, 10% confidence level respectively.

Table 31. Maturity shifts for deposit shares: all banks, foreign banks, private domestic banks

		Number of obs.	R^2	Chi^2	P-value
All banks	On-call deposits	3293	0.0133	44.37	0.0098*
	Short-term deposits	3293	0.0073	24.28	0.5030
	Long-term deposits	3293	0.0079	26.21	0.3967
Foreign banks	On-call deposits	68	0.2364	23.01	0.5767
	Short-term deposits	68	0.2079	18.60	0.8159
	Long-term deposits	68	0.4274	50.76	0.0011*
Private domestic banks	On-call deposits	3165	0.0143	46.03	0.0064*
	Short-term deposits	3165	0.0076	24.18	0.5090
	Long-term deposits	3165	0.0080	25.57	0.4306

* — Significant at 1% confidence level.

Table 32. Market discipline for groups of private domestic banks: all deposits, the influence of DIS (1st approach)

Variable	Panel A. Deposit growth			
	"Small" banks		"Big" banks	
	Model			
	Random effects		Random effects	
	coefficient	z	coefficient	z
ca	6678.833	0.42	72964.99	0.26
bln	–41840.37	–1.05	181747.6	0.21
cln	63855.25	3.90*	–122828.8	–0.32
nibc	–4910.27	–0.33	–101939.3	–0.29
niexp	–61683.96	–1.55	–48367.2	–0.54
roa	35537.65	0.45	1398294	0.67
la	3058.27	0.26	128516.1	0.45
lna	10844.57	4.08*	140237	4.31*
infl	2015.092	0.49	5956.071	0.08
income	7.14467	2.42*	95.68006	1.63
de	–7200.216	–0.80	–37534.37	–0.23
ee	–88.44538	–0.02	119894	1.50
dis	–730419.3	–1.28	–2.68e+07	–1.95*
*dis*ca*	–4673.616	–0.28	296400.3	0.82
*dis*bln*	–4020.003	–0.09	–770883.3	–0.58
*dis*cln*	–1121.704	–0.07	628385.6	1.39
*dis*nibc*	–230.1655	–0.01	–323185.7	–0.75
*dis*niexp*	68890.93	1.66***	–71986.52	–0.41
*dis*roa*	–52576.61	–0.58	–4207092	–1.87***
*dis*la*	–37598.6	–3.10*	145650.6	0.40
*dis*lna*	–384.5745	–0.15	94576.63	2.34*

Variable	Panel A. Deposit growth			
	"Small" banks		"Big" banks	
	Model			
	Random effects		Random effects	
	coefficient	z	coefficient	z
*dis*infl*	–354.3653	–0.08	–37079.64	–0.47
*dis*income*	–.3505573	–0.05	191.0339	1.20
*dis*de*	16641.32	1.56	408026.5	1.91***
*dis*ee*	7847.651	0.77	359888.6	1.44
_cons	25222.4	0.11	–5936608	–1.45
R^2 (pooled)/R^2-within (fixed effects)/Wald chi^2 (random effects)	160.22*		184.36*	
F-test for joint significance (p-value)	0.0000*		0.0000*	
F-test for fixed effects (p-value)	0.0000*		0.0195**	
Breusch and Pagan Lagrangian multiplier test for random effects (p-value)	0.0000*		0.0000*	
Hausman specification test (p-value)	0.7340		–	
Number of observations	1635		1852	

Variable	Panel B. Interest rate			
	"Small" banks		"Big" banks	
	Model			
	Fixed effects		Fixed effects	
	coefficient	t-statistics	coefficient	t-statistics
ca	–.0190924	–1.10	–.0014181	–0.10
bln	–.0586095	–1.28	–.1080268	–1.50
cln	.0695266	2.86*	–.0227994	–1.08
nibc	–.0049064	–0.33	–.0031833	–0.32
niexp	.0137857	0.35	.0045934	1.37
roa	.0326643	0.44	–.0948906	–2.06**
la	.0263928	2.08**	–.0404877	–2.70*
lna	.0149456	2.86*	–.0095278	–2.88*
infl	–.0022949	–0.62	.0000235	0.01
income	.0000239	8.88*	.0000198	11.64*
de	.0472026	5.79*	.0374047	7.78*
ee	.0147642	3.90*	.011263	4.71*
dis	–2.483594	–4.69*	–1.129396	–3.71*
*dis*ca*	–.0398739	–2.58*	.0400655	2.97*
*dis*bln*	.0501257	1.27	–.0996043	–2.74*
*dis*cln*	–.0000926	–0.01	.0054717	0.43
*dis*nibc*	.0174901	1.18	.0134708	1.36
*dis*niexp*	.0031666	0.08	–.0270554	–4.92*
*dis*roa*	.0101983	0.12	.0531461	1.14

Variable	Panel B. Interest rate			
	"Small" banks		"Big" banks	
	Model			
	Fixed effects		Fixed effects	
	coefficient	t-statistics	coefficient	t-statistics
*dis*la*	.006333	0.56	.0561808	3.62*
*dis*lna*	.0016835	0.70	.0012729	1.18
*dis*infl*	–.0087858	–2.32**	–.0055513	–2.36**
*dis*income*	.0000226	3.71*	.0000149	4.20*
*dis*de*	.0195623	2.02**	.0044533	0.79
*dis*ee*	.0502507	5.32*	.0249831	4.41*
_cons	–2.159247	–9.30*	–1.388301	–10.62*
R^2 (pooled)/R^2-within (fixed effects)/Wald chi^2 (random effects)	0.4660		0.4329	
F-test for joint significance (p-value)	0.0000*		0.0000*	
F-test for fixed effects (p-value)	0.0000*		0.0000*	
Breusch and Pagan Lagrangian multiplier test for random effects (p-value)	0.0000*		0.0000*	
Hausman specification test (p-value)	0.0000*		0.0000*	
Number of observations	1635		1852	

*, ** — Significant at 1%, 5% confidence level respectively.

Table 33. Maturity shifts for groups of private domestic banks, the influence of deposit insurance (1st approach)

	R^2	Chi^2	P-value
"Small" banks, deposit growth			
On-call deposits	0.0192	27.92	0.3113
Short-term deposits	0.0227	33.14	0.1277
Long-term deposits	0.1606	272.70	0.0000*
"Small" banks, share of deposits			
On-call deposits	0.0402	59.65	0.0001
Short-term deposits	0.0161	23.32	0.5587
Long-term deposits	0.0145	20.93	0.6967
"Big" banks, deposit growth			
On-call deposits	0.0189	33.53	0.1183
Short-term deposits	0.0183	32.41	0.1466
Long-term deposits	0.1857	396.73	0.0000*
"Big" banks, shares of deposits			
On-call deposits	0.0549	101.13	0.0000*
Short-term deposits	0.0112	19.69	0.7630
Long-term deposits	0.0089	15.59	0.9266

* — Significant at 1% confidence level.

Table 34. Market discipline for groups of private domestic banks: all deposits, the influence of DIS

Variable	Panel A. Deposit growth				Panel B. Interest rate			
	"Small" banks		"Big" banks		"Small" banks		"Big" banks	
	Model							
	Fixed effects		Random effects		Fixed effects		Fixed effects	
	coefficient	t-statistics	coefficient	z	coefficient	t-statistics	coefficient	t-statistics
ca	44189.35	1.49	–1656195	–1.45	–.0287803	–2.23**	–.0014181	–0.10
bln	–48954.84	–0.48	76590.94	0.03	–.0455886	–1.04	–.1080268	–1.50
cln	103908.2	2.42**	–599965.7	–0.57	.0462905	2.47**	–.0227994	–1.08
nibc	3768.739	0.13	202569.4	0.23	–.0209627	–1.68***	–.0031833	–0.32
niexp	13342.36	0.28	32713.1	0.11	.0191407	0.93	.0045934	1.37
roa	242647.8	1.60	3568621	0.81	–.0212594	–0.32	–.0948906	–2.06**
la	–10900.51	–0.45	–441651.7	–0.35	.0195554	1.84***	–.0404877	–2.70*
lna	8739.335	0.96	279461	2.80*	.016406	4.13*	–.0095278	–2.88*
infl	8277.46	1.52	–24619.66	–0.09	–.003584	–1.51	.0000235	0.01
income	15.67064	3.75*	175.8449	0.85	.0000214	11.76*	.0000198	11.64*
de	–1462.076	–0.12	–155746.9	–0.27	.0432667	8.31*	.0374047	7.78*
ee	2582.66	0.44	283027.8	0.99	.0175485	6.90*	.011263	4.71*
dis	–316481.2	–0.33	–7.22e+07	–2.00**	–2.671148	–6.46*	–1.129396	–3.71*
*dis*ca*	2211.948	0.09	1644484	1.11	–.021094	–1.95***	.0400655	2.97*
*dis*bln*	–12205.63	–0.15	–469104.5	–0.14	.0681293	1.94***	–.0996043	–2.74*
*dis*cln*	–85489.79	–3.15*	2123735	1.62	.0251407	2.13**	.0054717	0.43
*dis*nibc*	–716.6978	–0.03	–1240462	–1.09	.0265029	2.15**	.0134708	1.36
*dis*niexp*	5789.875	0.12	–48527.03	–0.11	–.0154708	–0.71	–.0270554	–4.92*
*dis*roa*	–240783.4	–1.45	–6897309	–1.41	–.0079118	–0.11	.0531461	1.14
*dis*la*	–67826.95	–3.23*	1676863	1.04	.020902	2.28**	.0561808	3.62*
*dis*lna*	–3741.121	–1.15	126415	1.04	.0041093	2.89*	.0012729	1.18
*dis*infl*	–6351.433	–1.12	–84993.42	–0.30	–.0070164	–2.85*	–.0055513	–2.36**
*dis*income*	–8.097438	–0.75	578.5309	1.35	.0000268	5.67*	.0000149	4.20*
*dis*de*	7003.002	0.46	1098575	1.60	.0246959	3.70*	.0044533	0.79
*dis*ee*	7711.824	0.45	989387.6	1.49	.0493441	6.63*	.0249831	4.41*
_cons	–294639.2	–0.82	–1.08e+07	–0.82	–2.151572	–13.75*	–1.388301	–10.62*
R^2 (pooled)/R^2-within (fixed effects)/Wald chi^2 (random effects)	0.0451		82.02*		0.4299		0.8024	
F-test for joint significance (p-value)	0.0000*		0.0508***		0.0000*		0.0000*	
F-test for fixed effects (p-value)	0.0000*		0.0000*		0.0000*		0.0000*	
Breusch and Pagan Lagrangian multiplier test for random effects (p-value)	0.0000*		0.0075*		0.0000*		0.0000*	
Hausman specification test (p-value)	0.0000*		–		0.0000*		0.0000*	
Number of observations	2786		701		2786		701	

*, **, *** — Significant at 1%, 5%, 10% confidence level respectively.

Table 35. Maturity shifts for "small" private domestic banks: the influence of DIS (2nd approach)

Variable	On-call deposits		Short-term deposits		Long-term deposits	
	coefficient	z	coefficient	z	coefficient	z
ca	–1485.703	–0.13	–5857.741	–2.73*	–15855.04	–0.96
bln	3812.588	0.11	1331.738	0.24	8237.476	0.16
cln	3854.837	0.32	–580.298	–0.28	60252.97	3.35*
nibc	–808.0305	–0.06	–2804.619	–0.78	31368.81	1.62
niexp	–1893.46	–0.39	8984.138	0.99	–6430.194	–0.89
roa	–2965.672	–0.04	29977.25	1.84***	9104.792	0.07
la	2035.484	0.21	–1104.18	–0.63	–11129.37	–0.78
lna	1367.69	1.00	–791.8264	–1.66***	13670.43	6.66*
infl	3162.869	0.95	–908.1273	–0.93	5695.316	1.14
income	2.844037	1.14	.2173156	0.33	10.72086	2.87*
de	8114.35	1.12	–3493.584	–1.66***	5647.189	0.52
ee	2280.463	0.67	619.1936	0.68	3306.373	0.65
dis	1333998	2.38**	–7816.148	–0.07	–1633372	–1.95***
*dis*ca*	–2143.803	–0.15	8951.938	3.40*	–22073.82	–1.00
*dis*bln*	–11960.5	–0.24	–6736.335	–0.96	64397.43	0.87
*dis*cln*	–11902.43	–0.81	1974.54	0.79	–12737.83	–0.58
*dis*nibc*	4021.331	0.26	2840.747	0.74	–20662.92	–0.88
*dis*niexp*	19984.7	1.32	–11249.06	–1.04	–26200.43	–1.15
*dis*roa*	–102739.6	–1.07	–32412.61	–1.85***	–180479	–1.26
*dis*la*	–22851.18	–1.86***	762.785	0.32	–32263.46	–1.75***
*dis*lna*	–6340.207	–3.60*	620.6387	0.96	4145.971	1.57
*dis*infl*	–587.9763	–0.17	965.6165	0.97	–4945.192	–0.96
*dis*income*	–10.40371	–1.61	–1.282186	–0.92	7.461988	0.77
*dis*de*	–24583	–2.66*	2929.362	1.21	20963.85	1.52
*dis*ee*	–13400.34	–1.34	–2291.171	–1.10	27567.89	1.84***
_cons	–358872.1	–1.90***	90829.78	1.70***	–526897.8	–1.86***
R^2	0.0313		0.0201		0.1402	
Chi^2	80.36		51.01		404.86	
P-value	0.0000*		0.0016*		0.0000*	
Number of obs.	2483					

*, **, *** — Significant at 1%, 5%, 10% confidence level respectively.

Table 36. Maturity shifts for "big" private domestic banks and "small" private domestic banks (deposit shares): the influence of DIS (2nd approach)

	R^2	Chi^2	P-value
"Big" banks, deposit growth			
On-call deposits	0.0283	19.88	0.7529
Short-term deposits	0.0389	27.57	0.3280
Long-term deposits	0.2113	182.68	0.0000
"Small" banks			
On-call deposits	0.0235	59.75	0.0001*
Short-term deposits	0.0084	21.02	0.6915
Long-term deposits	0.0104	26.00	0.4075
"Big" banks, shares of deposits			
On-call deposits	0.0997	75.54	0.0000*
Short-term deposits	0.0123	8.52	0.9991
Long-term deposits	0.0316	22.23	0.6226

* — Significant at 1% confidence level.

A2. Figures

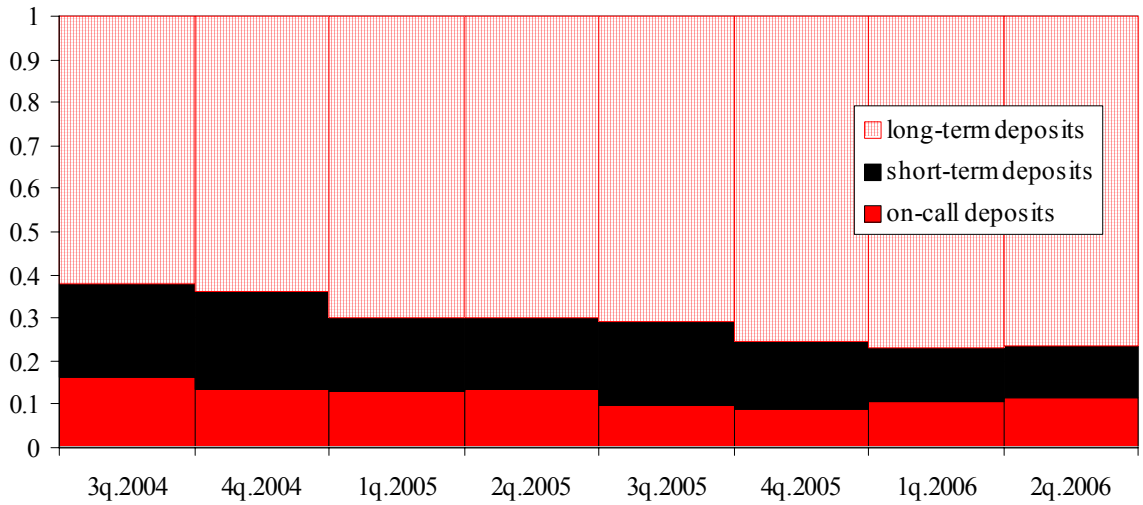

Fig. 7a. Maturity structure change over time, "small" private domestic banks (assets less than 5 mln. euro)

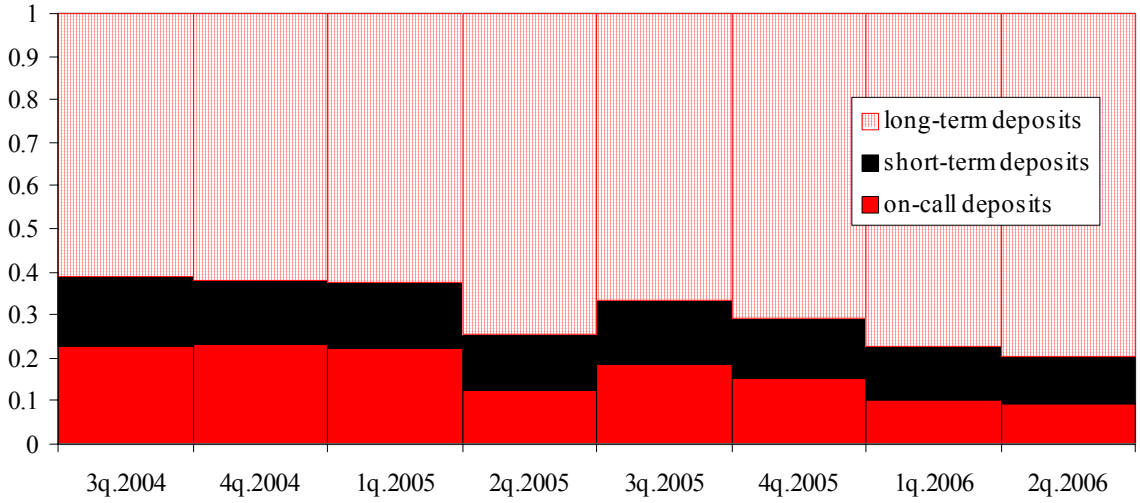

Fig. 7b. Maturity structure change over time, "big" private domestic banks (assets over 5 mln. euro)

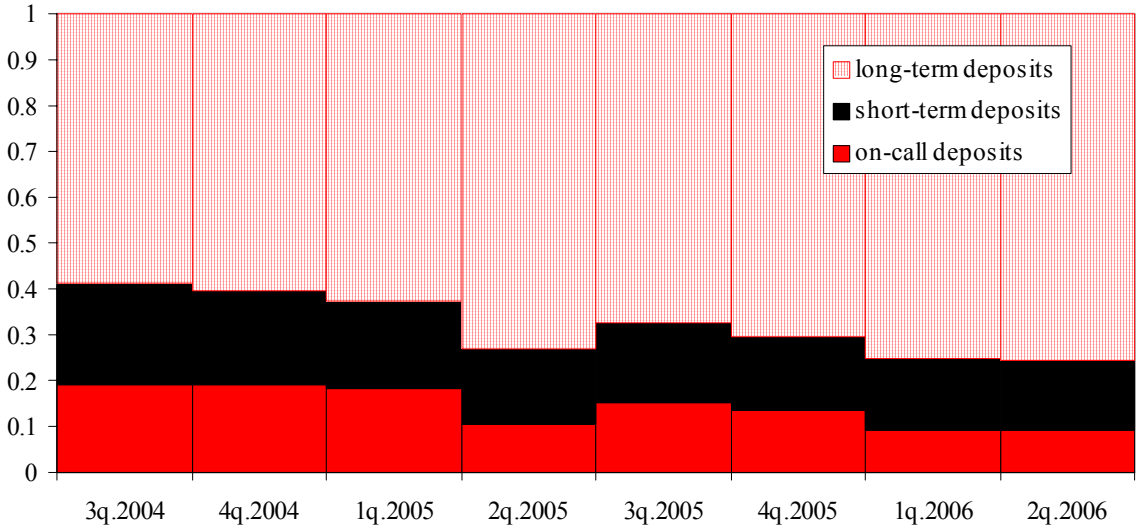

Fig. 8a. Maturity structure change over time, "small" private domestic banks (80%)

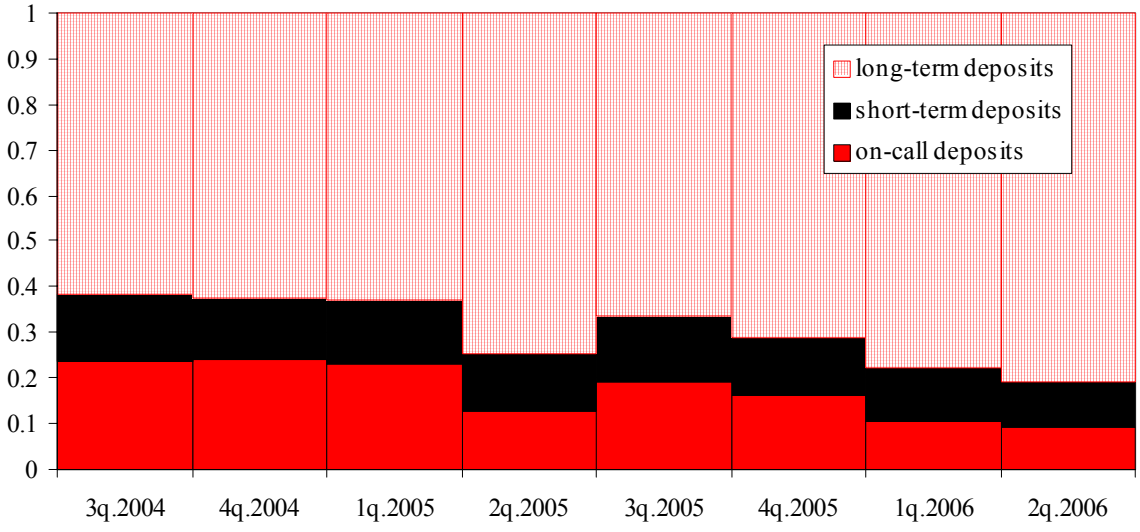

Fig. 8b. Maturity structure change over time, "big" private domestic banks (20%)

A3. Interest rate — Maturity structure Hypothesis

Table 37. Interest rate — Maturity structure Hypothesis (fixed effects)

	Coefficient	t	P-value
Share of on-call deposits	–0.1179363	–0.16	0.871
Share of short-term deposits	(dropped)		
Share of long-term deposits	20.13641	1.21	0.227
_cons	–9.429569	–0.82	0.410
R^2-within	0.0005		
F-test for fixed effects (p-value)	0.0000*		
P-value	0.4722		
Number of observations	3307		

* — Significant at 1% confidence level

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