How Corruption Affects Bank Lending in Russia

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Abstract

The aim of this study is to investigate the impact of corruption on bank lending in Russia. This issue is of major interest in order to understand the causes of financial underdevelopment and the effects of corruption in Russia. We use regional measures of corruption and bank-level data to perform this investigation. Our main estimations show that corruption hampers bank lending in Russia. We investigate whether this negative role of corruption is influenced by the degree of bank risk aversion, but find no effect. The detrimental effect of corruption is only observed for loans to households and firms, in opposition to loans to government. Additional controls confirm the detrimental impact of corruption on bank lending. Therefore, our results provide motivations to fight corruption to favor bank lending in Russia.

JEL Codes: G20, K4, P2.

Keywords: Corruption, Bank, Russia, Financial Development, Economic Transition.

"The doctor keeps talking, talking but his eyes keep darting, darting to my fist – wondering if I'll give him a crisp blue-colored bill."

Anton Chekhov, *The Cherry Orchard*, 1904 (cited by Gradirovski and Esipova, 2006).

1. Introduction

The evidence of corruption in Russia is difficult to refute. Transparency International's 2007 Corruption Perception Index ranked Russia 143rd out of the 179 countries surveyed, making it the second-most corrupt country in Europe after Belarus. Confounding the scholarly intuition that the corruption that has plagued Russia since Chekhov's time should decline with economic prosperity (Shleifer and Treisman, 2000), it appears instead that corruption has thrived unabated during Russia's recent economic resurgence.[2] Levin and Satarov (2000, p.113) conclude that corruption in Russia is an endemic phenomenon that has "become a commonplace theme in discussions of the Russian economy."

The aim of this paper is to investigate the impact of corruption on bank lending in Russia. Our hypothesis is that a high level of corruption discourages banks from engaging in lending. Greater corruption adds to uncertainty of judicial decisions for banks, as they cannot count on the courts to enforce damages recoveries for losses or deficiency judgments against defaulting debtors, and consequently banks are expected to refrain from lending. However corruption is not limited to the misuse of public office as underlined by its common definition provided by Transparency International: "the misuse of entrusted power for private gain". It can also take place in lending through bribes given to bank officials to receive a loan, as observed by Levin and Satarov (2000) in Russia.

While corruption in courts is expected to have a negative impact on bank lending, the role of corruption in lending is not straightforward. It can be considered as a financing obstacle, as it acts as a tax that increases the cost of the loan to the borrower. However, while the latter argument assumes that the bribe is required by the bank official, the borrower may take the initiative to propose a bribe to enhance his chances to obtain a loan. Furthermore, the impact of corruption on bank lending may vary with the type of borrowers, and corruption may consequently influence the breakdown of bank lending between types of borrowers. Thus, we might well ask

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[2] Russia's TI Corruption Perception Index scores were the same in 2001 and 2007.

whether corruption, associated with ill-functioning institutions, exerts the same influence on bank lending to government entities as to other borrowers. We examine these issues using data on corruption in 40 Russian regions from the Transparency International (TI) and Information for Democracy Foundation (INDEM) survey conducted in 2002. Detailed data on banks are drawn from the Interfax database.

Our work then contributes to understand the causes of financial development and of the effects of corruption in Russia, i.e. both fundamental issues for the economic development of the country. First, bank lending remains stunningly low with a ratio of domestic credit to GDP equal to 25.7% in 2005, compared to a world average of 55.8% (EBRD, 2006). Given that a positive relationship between bank lending and growth has long been noted in the literature (e.g. Levine and Zervos, 1998; Levine, Loayza and Beck, 2000), the need for investigating the determinants of bank lending in Russia is self-evident. We ask, therefore, how endemic corruption has played a role in stunting development of bank lending in Russia.

Second, as notably observed by Shleifer and Treisman (2000), there is a commonly accepted view that corruption hampers economic development in Russia, which relies on the cross-country studies showing the detrimental effects of corruption on economic development (Mauro, 1995; Méon and Sekkat, 2005). Yet this consensus has emerged in the absence of studies that actually establish and specify the detriments of corruption in Russia[3]. Moreover, economic boom in the midst of persistent corruption calls into question directly the notion that corruption per se constitutes an obstacle to economic growth. Thus, closer scrutiny is needed to assess the detrimental economic effects of corruption in Russia.

Next to its relevance for Russia, this study brings also significant insights for several strands of literature. By focusing on the impact on bank lending, it analyzes an unexplored effect of corruption. Indeed, in spite of the growing literature on corruption, no study has ever studied the impact of corruption on bank lending. This work also relates to studies investigating the role of legal institutions on the size of credit markets at the macro level (La Porta et al., 1997; Djankov, McLiesh and Shleifer, 2007) and the micro level (Haselmann, Pistor and Vig, 2006). While these papers point out the role of legal origin, creditor rights, and law enforcement, we

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[3] The sole exception to our knowledge is the study of Safavian, Graham and Gonzalez-Vega (2001), which shows the negative impact of corruption on growth of microenterprises in Russia.

extend this literature by investigating the role of corruption and by proceeding to a single-country study.

This national framework is of utmost interest to appraise the economic effects of corruption on bank lending. A cross-country analysis suffers from the drawback of mixing the effects of corruption with country-level variables such as legal origin, laws in the books, or culture. Indeed several studies have shown the relationship between corruption and legal variables (La Porta et al., 1997) and the role of culture on corruption (Treisman, 2000). The use of a national framework allows for teasing out of specific economic effects of corruption on bank lending. Indeed, Svensson (2005) discusses the econometric problems in cross-country analyses of the effects of corruption resulting from omitted variables. Our single-country framework is not subject to these constraints.

The remainder of the paper is organized as follows. Section II presents evidence and literature on corruption in Russia. Section III develops the arguments on the role of corruption on bank lending. Section IV presents the data and variables and section V considers the results. Concluding remarks appear in section VI.

II. Corruption in Russia

In reviewing corruption of the judiciary, Blass (2007) describes the Russian court system as a "supine, underpaid judiciary, ill-equipped to withstand corruptive practices and the influence of economic or political interests." While this situation appears to be changing slowly, thanks in part to reforms implemented during Putin's presidency (e.g. higher salaries for judges), INDEM figures suggest corruption of the courts remains high. The perceived average cost of obtaining justice in a Russian court was 9,570 rubles (US$ 358) in 2005. Furthermore, the share of citizens encountering corruption situations when seeking justice through the courts was 39.5% (INDEM, 2005). In an interview with *Izvestia* (October 25, 2004), Constitutional Court chairman, Valery Zorkin, bleakly observed, "Bribe-taking in the courts has become one of the biggest corruption markets in Russia."

Corruption in bank lending entered the public consciousness with the well-publicized September 2006 assassination of Andrei Kozlov, the first deputy chairman of the Central Bank of Russia in charge of fighting against corruption, money laundering and other abuses in the Russian banking industry. Corruption in lending

practices appears to be supported by a wide array of elements. Levin and Satarov (2000) describe how in the 1990s borrowers gave envelopes filled with cash to bank officials and then present the figures for criminal cases actually prosecuted against employees of Russian banks. In April 2008, the Central Bank of Russia took a new tack in fighting corruption in lending by publishing a blacklist of bank managers sued for criminal account and civil liability (*Kommersant*, April 2, 2008). The World Business Environment Survey (WBES) of the World Bank, carried out between end-1998 and mid-2000, also dealt with this form of corruption in its cross-country survey of firm managers on the possible role of corruption of bank officials as an obstacle for the growth of business. Our computations, which are based on the WBES sample of 363 Russian firm managers, show that 26.72% considered that corruption of bank officials to be a major or moderate obstacle to business at the time of the survey. It must be stressed that these figures are similar to those observed in other regions of the world. Indeed, Batra, Kaufmann and Stone (2004) use the survey findings to show that 20–30% of firms in non-OECD countries consider corruption of bank officials a major or moderate obstacle to their businesses.

Given the strong evidence of corruption's significance in Russia, the dearth of academic papers on the topic is somewhat surprising. Levin and Satarov (2000) lay out the different forms of corruption manifested in the 1990s, underlining the critical role of institutions in their persistence. Safavian, Graham and Gonzalez-Vega (2001) investigate of the role of corruption in the growth of microenterprises. Their ground-breaking work is based on a survey of 304 microenterprises in Samara area in which managers were asked to provide information on the characteristics of their firm and on their perception of corruption. They find that firms were not affected uniformly by corruption (i.e. larger and more successful companies were more tolerant of bribery) and that corruption was detrimental to corporate growth.

Dininio and Orttung (2005) investigate the determinants of corruption by using a measure of corruption based on the amount of bribes from the TI/INDEM dataset. They test several theories for the variation in corruption across Russian regions. This involves considering such variables as economic development, presence of natural resources, institutions, and size of government measured by the number of bureaucrats. Only two variables, per capita income and the number of bureaucrats, are found significant in explaining corruption. Mokhtari and Grafova (2007) show a negative association between corruption among tax office employees and tax

collection in Russia. They develop a model on the motivation of corrupt tax inspectors to accept bribes. They empirically test this prediction and show that increasing the number of tax inspection employees reduces per capita tax collection.

In their description of the Russian transition, Shleifer and Treisman (2000) use a cross-country analysis on the determinants of corruption from Treisman (2000) to comment the causes of corruption in Russia.[4] They observe that per capita income, federal structure, and the lack of exposure to democracy and free trade best explain corruption in Russia. From this, they infer cultural and historical factors are not relevant to explaining the extent of corruption in Russia. In other words, they do not see corruption in Russia as intrinsic to the country. These observations lead them to conclude that corruption "is likely to diminish – though slowly – the longer the country remains democratic and open to trade," and also that it "should fall if economic growth returns" (p.104). Regarding the consequences of corruption, they claim corruption "is not a sufficient explanation for the country's failure to grow" (p.105), and give several historical examples of rapid growth in corrupt countries. Their argument is somewhat finessed: they do not say corruption is not detrimental to growth, rather they suggest that the detrimental effects of corruption may sometimes be insufficient to overwhelm positive influences from other determinants of growth.

In summary, we note that while the presence of corruption in courts and lending in Russia is acknowledged, there has been little investigation into the economic consequences of this phenomenon. By analyzing the role of corruption on bank lending in Russia, we start to fill this gap in our understanding.

III. Linkages of corruption and bank lending

This section presents the elements from the literature on the effects of corruption on bank lending. The key argument that corruption should be expected to hamper bank lending is based on the law and finance theory pioneered by La Porta et al. (1997). Legal institutions protecting banks and enforcing contracts are likely to encourage greater bank lending by increasing the willingness of banks to grant loans. In the case of borrower default, the bank may wish to force repayment, to grab collateral or even in some cases to take control of the borrower in case of a corporate

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[4] See also Goel and Nelson (2008) and Goel (2008) for cross-country investigations on the causes of corruption.

loan. Therefore, the institutions that empower the bank to proceed to these actions exert an influence on its lending behavior. As corruption adds to uncertainty for banks to enforce their claims against defaulting borrowers, it diminishes the willingness of banks to grant loans.

Empirical evidence supports the role of laws on the books and law enforcement on bank lending. While La Porta et al. (1997) observe that better legal protection for creditors contributes to larger debt markets, Levine (1998, 1999) and Djankov, McLiesh and Shleifer (2007) show that better legal protection for lenders is associated with increased levels of bank lending. In a cross-country investigation at the loan level, Qian and Strahan (2007) provide support for this view with the finding that stronger protection for borrowers on the books depresses lending.

The arguments above share a common presumption that corruption hampers bank lending. But might not corruption in lending be beneficial in some cases? For example, when the borrower bribes the bank official to enhance his chances of obtaining a loan, corruption encourages banks to lend. Thus, corruption greases the wheels of the banking industry, or as the Russians say, "one hand washes the other."[5]

A theoretical argument can also be advanced to support this positive impact of corruption in lending. Stiglitz and Weiss (1981) have shown that adverse selection, resulting from ex ante information asymmetry between the bank and the borrower, causes credit rationing (i.e. loan applications from borrowers willing to pay more than the loan rate charged by the bank are rejected). The bank is motivated to do so to avoid adverse selection that results in attracting only bad borrowers. Nevertheless, the existence of credit rationing suggests that some borrowers are willing to pay more than the official loan rate to obtain credit. As a consequence, they have incentive to bribe bank officials to obtain the loan.

Several transition country scholars note the role of corruption in encouraging bank lending. In Russia, Levin and Satarov (2000, p. 115) observe that corruption can take place through "providing a credit from a commercial bank in exchange for a bribe." In the Czech Republic, Lizal and Kocenda (2001, p.150) mention that "in the banking sector, corruption is associated with the provision of loans for unreasonable or even non-existent projects." This remark is in line with the view that some loans

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[5] Bardhan (1997, p.1323) points out the terminological distinction in Russian between "*mzdoimstvo*, taking a remuneration to do what you are supposed to do anyway, and *likhoimstvo*, taking a remuneration for what you are not supposed to do."

may have been granted following bribes given by borrowers to obtain a loan. Furthermore, our own computations on the WBES dataset for Russia show that 58.13% of Russian firm managers did not perceive corruption of bank officials as an obstacle to the growth of their business.

From an empirical perspective, the only paper to our knowledge providing estimations on the role of corruption on bank lending is the investigation of Detragiache, Tressel and Gupta (2008) into the role of foreign bank penetration on bank credit. This work considers corruption as a control variable and finds a negative association with bank credit.

IV. Data and variables

We describe our measures of corruption and our bank-level variables in turn. Table 1 reports descriptive statistics for all variables.

IV.1 Corruption data

To measure corruption, we use the survey conducted by Transparency International and the Information for Democracy Foundation to measure differences in corruption levels across Russia in 2002.[6] The two organizations gathered during July and August 2002 comments from 5,666 individuals and 1,838 entrepreneurs representing small and medium-sized businesses in 40 Russian regions. The survey includes questions related to both perceptions and personal experiences with corruption. The dataset is unique in that it provides corruption measures at the regional level for Russia.

We use two measures from this survey to assess corruption in our estimations: the integral index for the perception of corruption (*Perception*), and the integral index for the amount of corruption (*Amount*), which asks people how much money they give in bribes. Both indices assign 0 to the region with the smallest level of corruption and 1 to the region with the highest level of corruption.

The measure for perception is consistent with the Transparency International CPI score, which is widely used in cross-country comparisons and empirical studies (e.g. Lambsdorff, 2003; Méon and Sekkat, 2005). At first glance the measure based

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[6] Data and description of the survey can be downloaded from www.transparency.org.ru/proj_index.asp.

on amount of bribes seems to have greater objectivity, since it is based on experience and potentially could provide more reliable information than mere perception. Unfortunately, there is no way to verify the accuracy of the amounts reported. The initiators of the project note that while "assessment questions do not trouble respondents, who eagerly answer such questions (…), respondents hesitate to answer questions on corruption practices" (Transparency International and INDEM, 2002, p.1). Moreover, while both measures of corruption have a positive and significant correlation, the coefficient of correlation is not as high as one might expect (0.33). As the indices complement each other, we test both in our investigation.

The survey contains information on corruption for 40 of Russia's 89 regions. This incomplete coverage is not a major limitation for our study, as these 40 regions included 82.5% of Russian banks. Measures of corruption by region are presented in the Appendix.

IV.2 Bank-level data and control variables

We obtain quarterly bank-level data from the financial information agency Interfax. As we have information on corruption for Russian regions only for 2002, we use the four quarters of 2002 for the sample period. Our sample is composed of 3,825 observations for 1,009 banks. The Russian banking industry is particularly fragmented, with 1,329 banks in 2002 (EBRD, 2006), of which 37 were foreign-owned and 27 were publicly-owned.[7]

Following Haselmann, Pistor and Vig (2006), bank lending is measured by the logarithm of total customer loans, i.e. all loans except interbank loans. We take the impact of changes in law on the lending behavior, measured by this variable, in transition countries. We use bank-level control variables to take bank characteristics into account. The ratio of deposits to total assets (*Deposits to Assets*) is controlled in the estimations, as sources of financing can influence the lending behavior of the bank. We also account for the size of the bank (*Size*), measured by the logarithm of total assets as the activities of small and big banks may differ. *Age* is the number of quarters since the creation of the bank. Ownership is controlled with dummy variables for public ownership (*Public*) and foreign ownership (*Foreign*).

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[7] Descriptions of the Russian banking industry can be found in Vernikov (2007), Karas, Schoors and Weill (2008), and Barisitz (2008).

We also use two region-level variables to control for the environment. *Bank Concentration* is the Herfindahl index of regional bank concentration for loans,[8] and computed from our dataset. *Per Capita Income* is the logarithm of Gross Regional product per capita, controlling for economic development. Data are obtained from the Federal State Statistics Service (Rosstat). Dummy variables for each quarter are included to control for seasonal effects.

V. Results

This section presents our results for the impact of corruption on bank lending. We start with the main estimations, and then look at whether bank risk aversion influences the relationship between corruption and bank lending. Next, we consider corruption effects for various borrower groups. Finally, we perform some robustness check tests.

V.1 Main estimations

We perform regressions of bank lending on a set of variables, including a measure of corruption. We use alternatively both measures of corruption and two combinations of control variables (with and without the region-level control variables) to check the sensitivity of the results. These results are displayed in Table 2.

The key finding is the negative coefficient of *Corruption*, which is significant at 1% level. This result is observed when the corruption variable is *Perception* or *Amount*, which shows that it is not dependent on the measure of corruption. It is robust to the set of control variables as the presence of the regional control variables does not affect this finding. The indication is that corruption hampers bank lending.

Most control variables are significant. The positive sign for *Size* results most likely from the fact that bigger banks grant more loans. *Deposits to Assets* has a negative sign, suggesting that banks relying more on deposits are not as aggressive at lending. *Age* is positive in all estimations, but only significant when regional variables are not included. This tends to show that older banks lend more, which is in line with the role of long-term relationships between banks and borrowers to reduce information asymmetries in the loan relationship (Sharpe, 1990). The dummy

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[8] Results are similar with the Herfindahl index for assets.

variables for foreign and public ownership are both significantly negative. Controlling for the size and age of the bank, this finding indicates foreign and public banks lend less than domestic private banks.

Bank Concentration is not significant, suggesting that bank lending is not influenced by the degree of concentration of the banking industry. Finally, *Per Capita Income* is significantly negative, which is in line with the view that greater economic development negatively influences bank lending. This may appear counter-intuitive at first glance, given that the literature on the finance-growth nexus generally finds a positive association between economic and financial development (e.g. Levine and Zervos, 1998). Yet this depressing effect on lending is widely observed at the country level when we perform bank-level estimations. Of course, this finding could be intrinsic to Russia, making it hard to compare against studies elsewhere. To our best knowledge, no other studies have investigated the finance-growth nexus on Russian data.

V.2 The impact of risk aversion of banks

Even if corruption hampers bank lending, it is not clear that this effect is sensitive to the degree of bank risk aversion. Indeed corruption may be initiated by the borrower willing to enhance his chances to obtain a loan. One would expect to find this behavior more commonplace when banks display greater risk aversion, i.e. are more reluctant to grant loans. Indeed this reluctance diminishes the chances of obtaining a loan for the borrower and motivates him to offer a bribe. Therefore, even if the overall effect of corruption on bank lending is detrimental, we need to determine whether it is weakened by the presence of greater risk aversion on the part of banks.

To investigate this, we turn to a second set of estimations of the risk aversion of banks. *Risk aversion* is measured by the difference between the value of the capital adequacy ratio (N1) and the requirement for this ratio. Capital adequacy ratio is defined as the ratio of the bank's equity capital to the overall risk-weighted assets minus the sum of the reserves created for depreciation of securities and possible losses. The minimum level of this ratio required by banking regulation depends on the amount of the bank's equity: in 2002, the requirements were 10% for banks with equity above €5 million, and 11% for other banks. While a few studies use the ratio of equity to total assets as a measure of risk aversion of banks (e.g. Maudos and Fernandez de Guevara, 2004), we believe our measure of risk aversion is better as it

takes into account the capital held in excess of regulatory capital and the different risk-weighted assets.

We add a variable for bank risk aversion and an interaction term between corruption and the degree of bank risk aversion. The overall coefficient of the corruption index is the sum of the coefficient for *Corruption* and the coefficient for the interaction term *Corruption × Risk Aversion* multiplied by the value of *Risk Aversion*. Thus, if the negative effect of corruption on bank lending is weakened in the presence of greater bank risk aversion, we expect that when *Corruption* is significantly negative, the interaction term *Corruption × Risk Aversion* is significantly positive.

The results of these estimations are displayed in Table 3. Note that the coefficient of *Corruption* is negative even if it only remains significant when the measure of corruption based on amount is used. Furthermore, the coefficient of *Risk Aversion* is significantly negative, which jives with the intuitive view that risk-averse banks lend less. We do not, however, find that the interaction term *Corruption × Risk Aversion* is significantly positive. This finding supports the view that the negative impact of corruption on bank lending is not influenced by the degree of bank risk aversion. In other words, the hypothesis that corruption may be less detrimental on bank lending by relaxing the reluctance of banks to grant loans is not supported.

V.3 Estimations by category of loans

We now ask whether corruption may affect different groups of borrowers differently, and even favor some borrowers over others.

Specifically, we test the assumption that corruption is less detrimental for lending to government entities than other borrowers. This assumption is based on two mechanisms.

First, corruption should exert an impact on bank lending by increasing the uncertainty of banks about enforcing their claims against defaulting borrowers. Therefore, this effect is expected to play a greater role for borrowers when the degree of information asymmetries is higher from the bank's perspective. As observed by Haselmann and Wachtel (2006), these asymmetries should be weaker when banks lend money to government entities than to other borrowers as the ability of the government to tax means a lower default risk, which, in turn, leads to lower

requirements for the bank to gather information. Thus, we expect a weaker detrimental effect of corruption on bank lending to government entities.

Second, corruption is associated with institutional inefficiencies, so we ask whether corruption also exerts an impact on loans to government entities through public pressure to satisfy their financing needs. Our dataset allows such investigation as it includes information on loans by borrower type: households, firms, and government (i.e. federal, regional and local entities).

We rerun our estimations considering the logarithm of each category of loans as the explained variable. The results appear in Table 4 (*Perception* corruption variable) and Table 5 (*Amount* corruption variable). We observe the coefficient for *Corruption* is negative in estimations explaining loans to households and loans to firms, with a significant sign in most cases. This indicates corruption hampers bank lending to households and to firms. The most striking finding here concerns the positive coefficient for *Corruption* in estimations explaining loans to government, which is significant in most cases. It suggests corruption favors bank lending to government, and is thus not detrimental for all borrowers. As mentioned above, lower information asymmetries when lending to government entities may explain why these borrowers are less affected by corruption, but it does not explain the positive impact. One possibility is that ill-functioning institutions with dishonest civil servants are extorting money from banks. In any case, the positive impact of corruption on bank lending to government should not be interpreted as a benefit. Unlike bank lending as a whole, bank lending to government does not favor economic development. Further, it is reasonable to postulate that increased bank lending to government entities diverts lending resources away from more appropriate borrowers in terms of economic development.

For the rest, we observe similar results for the control variables in most cases with two interesting exceptions. *Age* is significantly negative when loans to government are explained, suggesting that younger banks grant more loans to government. Moreover, the share of deposits to assets, which was significantly negative in our main estimations, is differently connected to each category of loans: negatively significant for loans to firms, positively significant for loans to households, and not significant for loans to government. As loans to firms represent the majority of customer loans (88.76%), our result from the main initial estimations was driven by these loans. However, we observe that banks that rely more on deposits tend to lend

more loans to households. This is an intuitive result, as these banks are expected to have more households in their client base.

V.4 Robustness checks

Having tested the robustness of this result to alternative measures of corruption and different sets of control variables, we now check the robustness of this finding in other ways.

We use an alternative variable to measure the extent to which banks grant credit: the share of loans in total assets. This considers the importance of lending in the activities of the bank, and takes the size of the bank into account. The estimations are given in Table 6. Note that the coefficient of *Corruption* remains significantly negative while the control variables are unaffected.

Another potential distortion in the results could come from the fact that about half of the banks surveyed were located in the Moscow region and thus makes the level of corruption in the Moscow region determinative. We revise our estimations by considering only banks outside the Moscow region to check whether our findings are preserved. Results presented in Table 7 show that the detrimental effect of corruption on bank lending is not affected by the restriction of the sample to non-Moscow banks, as *Corruption* remains significantly negative. We observe that the coefficients of control variables are slightly affected with notably a non-significant coefficient for foreign ownership, which can be explained by the small number of foreign banks outside the Moscow region.

VI. Concluding remarks

In this paper, we examined the role of corruption on bank lending in Russia using regional data for corruption and bank-level data for lending. Overall, we found corruption diminishes bank lending. Further, the detrimental effect is not weakened when the risk aversion of banks is taken into account. Estimations by type of borrowers showed that corruption favors lending to government entities over lending to households and firms. This latter finding is not necessarily good news as it may indicate institutional susceptibility to public pressure to grant bank loans and divert bank lending away from more appropriate and economically beneficial uses.

Our overall conclusion is that corruption is detrimental to bank lending in Russia. Corruption adds to uncertainty for banks; it reduces their trust in courts and acts as tax on loans for borrowers. These findings provide a better understanding of the causes of Russia's financial underdevelopment and the consequences of corruption. As bank credit has generally been shown to favor growth, these results should give Russian officials an economic incentive to fight corruption actively rather than give in to the widely held view that economic growth in itself will lead to lower corruption levels.

Our analysis could be extended in a number of ways. For example, information on the connections between banks and borrowers could, in the line of Khwaja and Mian (2005), be gathered to investigate the presence of connected lending in Russia. Studies could also be performed for other countries to establish whether the effects of corruption on bank lending are not exclusive to Russia.

Future corruption trends in Russia are, of course, hard to predict. On the optimistic side, Shleifer and Treisman (2000, 2004) do not find corruption in Russia a specific characteristic of this "normal country," giving hope that corruption will soon begin to diminish, even if the trend severely lags economic development. INDEM experts make the more pessimistic assertion that "Russia needs 40 years of meticulous work to reach the corruption level in Portugal or 100 years to come up with corruption statistics in Sweden" (*Kommersant*, October 31, 2006). Sadly, recent evidence of enduring high levels of corruption in this fast-growing country and polls showing a large proportion of Russians still consider various forms of bribery as morally acceptable (e.g. 2006 Gallup poll mentioned by Gradirovski and Esipova, 2006) tend to support a bleak outlook.

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Table 1.
Variables and Summary Statistics

Means and standard deviations for variables used in subsequent estimations. Sources: TI/INDEM survey for *Perception* and *Amount*; Federal State Statistics Service (Rosstat) for *Per Capita Income*; own computations with Interfax database for *Bank Concentration*; and Interfax database for all bank-level variables.

Variable	Description	N	Mean	Std. Dev.
Perception	Integral index for the perception of corruption from 0 (least corrupt) to 1 (most corrupt)	3,825	0.6241	0.1429
Amount	Integral index for the amount of corruption from 0 (least corrupt) to 1 (most corrupt)	3,825	0.7213	0.2601
Loans	Logarithm of total customer loans, i.e. the sum of loans to households, firms, and government (in millions of rubles)	3,825	5.1038	1.8723
Loans to Assets	Ratio of loans to total assets	3,825	0.5203	0.2092
Risk Aversion	Difference between the capital adequacy ratio (N1) and the minimum required ratio	3,825	29.29	23.41
Size	Logarithm of total assets (in millions of rubles)	3,825	5.9039	1.7221
Deposits to Assets	Ratio of deposits to total assets	3,825	0.5698	0.2068
Age	Age (in quarters)	3,825	37.72	9.45
Public	Dummy variable; equals one if the bank is publicly-owned	3,825	0.0167	0.1283
Foreign	Dummy variable; equals one if the bank is foreign-owned	3,825	0.0238	0.1524
Bank Concentration	Herfindahl index of regional bank concentration for loans	3,825	0.1411	0.1692
Per Capita Income	Gross regional product per capita (in thousands of rubles)	3,825	11.5304	0.6546
Loans to Households	Logarithm of loans to households (in millions of rubles)	3,573	2.0847	1.9656
Loans to Firms	Logarithm of loans to firms (in millions of rubles)	3,809	4.9752	1.9474
Loans to Government	Logarithm of loans to government (in millions of rubles)	694	1.9199	2.8126

Table 2.
Main estimations

OLS regressions. The dependent variable is *Loans*. Definitions of variables appear in Table 1. Table reports coefficients with t-statistics in parentheses. *, **, *** denote an estimate significantly different from 0 at the 10%, 5% or 1% level. Dummy variables for quarters are included in the regressions, but not reported here.

Explanatory variables	Corruption variable			
	Perception		Amount	
	(1)	(2)	(3)	(4)
Intercept	-0.742***	1.249***	-0.592***	0.941***
	(8.93)	(3.70)	(7.69)	(2.99)
Corruption	-0.234***	-0.261***	-0.348***	-0.181***
	(2.96)	(3.21)	(7.62)	(3.22)
Size	1.038***	1.063***	1.050***	1.064***
	(148.23)	(143.12)	(147.29)	(143.32)
Deposits to Assets	-0.674***	-0.773***	-0.728***	-0.785***
	(11.70)	(13.38)	(12.67)	(13.60)
Age	0.005***	0.001	0.003***	0.001
	(4.43)	(0.87)	(2.59)	(0.74)
Foreign	-0.568***	-0.578***	-0.563***	-0.572***
	(7.33)	(7.56)	(7.32)	(7.48)
Public	-0.169*	-0.252***	-0.209**	-0.259***
	(1.88)	(2.82)	(2.33)	(2.90)
Bank Concentration	-	0.138	-	0.068
		(1.36)		(0.62)
Per Capita Income	-	-0.166***	-	-0.141***
		(6.37)		(5.54)
Adjusted R²	0.8618	0.8653	0.8636	0.8653
N	3825	3825	3825	3825

Table 3.
Estimations with *Risk Aversion* variable

OLS regressions. The dependent variable is *Loans*. Definitions of variables appear in Table 1. Table reports coefficients with t-statistics in parentheses. *, **, *** denote an estimate significantly different from 0 at the 10%, 5% or 1% level. Dummy variables for quarters are included in the regressions, but not reported here.

	Corruption variable			
Explanatory variables	**Perception**		**Amount**	
	(1)	(2)	(3)	(4)
Intercept	0.241**	1.668***	0.317***	1.473***
	(2.02)	(4.96)	(3.07)	(4.75)
Corruption	-0.160	-0.173	-0.266***	-0.127*
	(1.30)	(1.39)	(3.94)	(1.75)
Corruption × Risk Aversion	0.121E-3	-0.704E-4	0.001	0.002
	(0.03)	(0.02)	(0.53)	(1.02)
Risk Aversion	-0.011***	-0.010***	-0.011***	-0.011***
	(4.19)	(3.89)	(6.03)	(6.35)
Size	0.995***	1.020	1.005***	1.020***
	(136.38)	(130.18)	(132.68)	(129.67)
Deposits to Assets	-1.369***	-1.402***	-1.374***	-1.409***
	(19.24)	(19.81)	(19.44)	(19.95)
Age	0.004***	0.395E-3	0.002**	0.413E-3
	(3.17)	(0.31)	(1.97)	(0.32)
Foreign	-0.346***	-0.370***	-0.351***	-0.366***
	(4.53)	(4.89)	(4.61)	(4.82)
Public	-0.095	-0.170	-0.121	-0.170*
	(1.09)	(1.95)	(1.39)	(1.95)
Bank Concentration	-	0.153	-	0.154
		(1.55)		(1.44)
Per Capita Income	-	-0.126***	-	-0.110***
		(4.92)		(4.43)
Adjusted R²	0.8702	0.8724	0.8710	0.8724
N	3825	3825	3825	3825

Table 4.
Estimations by category of loans with *Perception* variable

OLS regressions. Definitions of variables appear in Table 1. Table reports coefficients with t-statistics in parentheses. *, **, *** denote an estimate significantly different from 0 at the 10%, 5% or 1% level. Dummy variables for quarters are included in the regressions but are not reported.

Explanatory variables	Dependent Variable					
	Loans to Households		**Loans to Firms**		**Loans to Government**	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-2.630***	-3.031***	-1.040***	-0.883**	-3.661***	5.578**
	(13.55)	(4.01)	(11.88)	(2.48)	(4.13)	(2.34)
Corruption	-0.515***	-0.552***	-0.263***	-0.284***	1.363**	0.578
	(3.02)	(3.10)	(3.17)	(3.32)	(2.28)	(0.93)
Size	0.735***	0.719***	1.080***	1.106***	0.894***	1.031***
	(46.98)	(42.51)	(146.14)	(140.80)	(16.43)	(16.10)
Deposits to Assets	1.078***	1.136***	-0.772***	-0.874***	-0.526	-0.733
	(8.10)	(8.41)	(12.70)	(14.31)	(0.97)	(1.35)
Age	0.002	0.004	0.005***	0.665E-3	-0.027**	-0.038***
	(0.59)	(1.35)	(3.88)	(0.49)	(2.13)	(2.96)
Foreign	-1.531***	-1.523***	-0.596***	-0.607***	-1.398	-1.987
	(8.56)	(8.52)	(7.28)	(7.50)	(0.60)	(0.86)
Public	-0.452**	-0.392*	-0.182*	-0.266***	0.164	0.002
	(2.19)	(1.89)	(1.92)	(2.83)	(0.33)	(0.01)
Bank Concentration	-	-0.303	-	0.166	-	-0.475
		(1.33)		(1.56)		(0.72)
Per Capita Income	-	0.037	-	-0.161*	-	-0.799***
		(0.64)		(5.85)		(4.29)
Adjusted R²	0.4195	0.4202	0.8586	0.8618	0.3127	0.3313
N	3573	3573	3809	3809	694	694

Table 5.
Estimations by category of loans with *Amount* variable

OLS regressions. Definitions of variables appear in Table 1. Table reports coefficients with t-statistics in parentheses. *, **, *** denote an estimate significantly different from 0 at the 10%, 5% or 1% level. Dummy variables for quarters are included in the regressions but are not reported.

Explanatory variables	Dependent Variable					
	Loans to Households		Loans to Firms		Loans to Government	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-2.839***	-3.677***	-0.911***	0.532	-3.205***	5.048**
	(15.41)	(5.22)	(11.22)	(1.60)	(4.02)	(2.36)
Corruption	-0.128	-0.373***	-0.345***	-0.168***	0.828***	1.224***
	(1.27)	(3.00)	(7.15)	(2.83)	(2.59)	(3.43)
Size	0.740***	0.721***	1.092***	1.107***	0.840***	1.010***
	(45.97)	(42.62)	(144.96)	(140.95)	(14.76)	(15.81)
Deposits to Assets	1.043***	1.109***	-0.829***	-0.887***	-0.248	-0.639
	(7.79)	(8.22)	(13.63)	(14.53)	(0.46)	(1.20)
Age	0.001	0.004	0.003**	0.510E-3	-0.025**	-0.036***
	(0.34)	(1.20)	(2.15)	(0.37)	(1.99)	(2.81)
Foreign	-1.527***	-1.510***	-0.592***	-0.602***	-1.770	-2.233
	(8.53)	(8.44)	(7.27)	(7.43)	(0.76)	(0.97)
Public	-0.487**	-0.407**	-0.222**	-0.276***	0.272	-0.048
	(2.36)	(1.96)	(2.36)	(2.93)	(0.56)	(0.10)
Bank Concentration	-	-0.444*	-	0.117	-	0.529
		(1.81)		(1.01)		(0.74)
Per Capita Income	-	0.090	-	-0.134***	-	-0.806***
		(1.59)		(5.01)		(4.59)
Adjusted R²	0.4183	0.4201	0.8601	0.8617	0.3143	0.3418
N	3573	3573	3809	3809	694	694

Table 6.
Robustness Check: Alternative measure of bank lending

OLS regressions. The dependent variable is *Loans to Assets*. Definitions of variables appear in table 1. Table reports coefficients with t-statistics in parentheses. *, **, *** denote an estimate significantly different from 0 at the 10%, 5% or 1% level. Dummy variables for quarters are included in the regressions, but not reported here.

	Corruption variable			
Explanatory variables	**Perception**		**Amount**	
	(1)	(2)	(3)	(4)
Intercept	0.608***	1.201***	0.641***	1.079***
	(25.71)	(12.50)	(29.28)	(12.04)
Corruption	-0.090***	-0.102***	-0.106***	-0.066***
	(4.03)	(4.40)	(8.12)	(4.13)
Size	0.015***	0.022***	0.019***	0.022***
	(7.57)	(10.42)	(9.26)	(10.58)
Deposits to Assets	-0.306***	-0.333***	-0.323***	-0.338***
	(18.70)	(20.27)	(19.79)	(20.58)
Age	0.001***	-0.964E-4	0.431E-3	-0.159E-3
	(3.11)	(0.26)	(1.20)	(0.43)
Foreign	-0.110***	-0.112***	-0.108***	-0.110***
	(4.99)	(5.16)	(4.95)	(5.06)
Public	-0.110***	-0.132***	-0.123***	-0.135***
	(4.32)	(5.18)	(4.85)	(5.30)
Bank Concentration	-	0.022	-	-0.002
		(0.75)		(0.05)
Per Capita Income	-	-0.049***	-	-0.040***
		(6.64)		(5.47)
Adjusted R²	0.1048	0.1261	0.1163	0.1256
N	3825	3825	3825	3825

Table 7.
Robustness check: Estimations for non-Moscow banks

OLS regressions. The dependent variable is *Loans*. Definitions of variables appear in Table 1. Table reports coefficients with t-statistics in parentheses. *, **, *** denote an estimate significantly different from 0 at the 10%, 5% or 1% level. Dummy variables for quarters are included in the regressions, but not reported here.

	Corruption variable			
Explanatory variables	**Perception**		**Amount**	
	(1)	(2)	(3)	(4)
Intercept	-0.319***	-0.409	-0.374***	-0.679*
	(3.60)	(1.03)	(4.31)	(1.71)
Corruption	-0.208***	-0.196***	-0.108***	-0.086**
	(4.03)	(3.41)	(2.94)	(1.99)
Size	1.018***	1.021***	1.022***	1.022***
	(135.53)	(127.54)	(135.43)	(127.18)
Deposits to Assets	-0.156**	-0.164**	-0.187***	-0.187***
	(2.45)	(2.55)	(2.93)	(2.91)
Age	-0.006***	-0.007***	-0.007***	-0.007***
	(4.03)	(4.14)	(4.23)	(4.30)
Foreign	0.128	0.126	0.149	0.142
	(0.96)	(0.95)	(1.12)	(1.06)
Public	-0.240**	-0.255**	-0.271***	-0.279***
	(2.32)	(2.43)	(2.61)	(2.66)
Bank Concentration	-	0.069	-	0.063
		(1.00)		(0.85)
Per Capita Income	-	0.006	-	0.026
		(0.18)		(0.75)
Adjusted R²	0.9277	0.9277	0.9274	0.9273
N	1617	1617	1617	1617

APPENDIX

Table A1.
Measures of corruption by region

This table displays integral indices for perception of corruption and for amount of corruption. Source: TI/INDEM survey.

Region	Index for Perception	Index for Amount
Altai Krai	0.551	0.721
Amur Oblast	0.633	0.299
Arkhangelsk Oblast	0.128	0.068
Bashkortostan	0.000	0.114
Belgorod Oblast	0.435	0.403
Chelyabinsk Oblast	0.556	0.853
Karelia	0.864	0.000
Kemerovo Oblast	0.269	0.664
Khabarovsk Krai	0.644	0.782
Krasnodar Krai	1.000	0.681
Krasnoyarsk Krai	0.331	0.117
Kurgansk Oblast	0.658	0.253
Leningrad Oblast	0.530	0.340
Moscow	0.634	0.864
Moscow Oblast	0.754	1.000
Nizhny Novgorod Oblast	0.712	0.929
Novgorod Oblast	0.658	0.181
Novosibirsk Oblast	0.643	0.275
Omsk Oblast	0.542	0.074
Perm Oblast	0.470	0.115
Primorski Krai	0.868	0.201
Pskov Oblast	0.595	0.542
Rostov Oblast	0.747	0.753
Ryazan Oblast	0.558	0.395
Samara Oblast	0.731	0.200
Saratov Oblast	0.913	0.867
St. Petersburg	0.412	0.843
Stavropol Krai	0.707	0.501
Sverdlovsk Oblast	0.582	0.683
Tambov Oblast	0.489	0.580
Tatarstan	0.658	0.245
Tula Oblast	0.486	0.554
Tumen Oblast	0.283	0.033
Tver Oblast	0.629	0.160
Udmurtia	0.872	0.333
Ulyanovsk Oblast	0.580	0.552
Volgograd Oblast	0.803	0.801
Voronezh Oblast	0.626	0.390
Yaroslavl Oblast	0.295	0.010
Tomsk Oblast	0.645	0.352

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