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Banking Sector Competition in Russia

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Abstract

The Russian banking sector includes approximately 1,000 banks, but is it competitive? This paper analyzes bank competition in Russia during 2002–2008. The authors examine indicators of concentration and contestability, and compute non-structural measures of competition. They compare competition in Russia to that in Brazil, China, and India, and contrast competition across different groups of banks within Russia. Contestability in

Russia is obstructed by uneven supervisory practices and an unclear exit process. Non-structural measures reveal that banks in Russia are less competitive than those in Brazil. Within Russia, large banks and state-owned banks exert more market power than the smaller and privately-owned institutions. Finally, business-oriented banks are more competitive than those concentrating on lending to individuals.

This paper—a product of the Finance and Private Sector Development Department, Eastern Europe and Central Asia; and Finance and Private Sector Development Team, Development Research Group—is part of a larger effort in the department to analyze competition in the banking sector. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at danzoategui@worldbank.org, mmartinezperia@worldbank.org, and mmelecky@worldbank.org.

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BANKING SECTOR COMPETITION IN RUSSIA

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1. Introduction

The Russian banking sector consists of 1,007 banks. This number is large both in absolute terms and even when compared to the number of banking institutions in countries of similar size such as Brazil (163), China (370), and India (169).¹ However, the Russian banking authorities recently increased minimum capital requirements and the number of banks is expected to decline as a result. As of February 2009, new banks need to comply with a minimum capital requirement of 180 million rubles (approximately US\$6 million) in order to start operating and existing banks have to meet this requirement by January, 2012. Recently, the Central Bank of Russia (CBR) predicted that approximately 200 banks would not be able to comply with this new limit. Furthermore, the Russian Finance Minister has publicly expressed a desire to take capital requirements to 1 billion rubles (US\$ 33 million) within six years, a policy which if implemented will further reduce the number of banks in the system.² Hence, it is important to understand to what extent the banking sector in Russia is competitive to ascertain the potential impact of these reforms.

The banking literature has shown that there are detrimental effects associated with lack of bank competition. In particular, studies have found that lack of competition in the banking sector can result in higher prices for financial products and reduced access to finance, especially for smaller firms (see Beck, Demirguc-Kunt and Maksimovic, 2004 and Cetorelli and Strahan, 2006, among others). Also, some studies have found that lack of bank competition can lead to less entry and growth of younger firms and also delayed exit of older firms (Cetorelli, 2003). Furthermore, though there is a significant debate on the implications of competition for banking sector stability, new evidence suggests that lack of competition can lead to fragility, especially if

¹ The numbers for Russia as well as those for Brazil, China, and India do not reflect the importance of non-bank institutions such as credit cooperatives that also offer financial services in these countries.

² <http://www.mn.ru/business/20100721/187941655.html>

certain banks become too big to fail (see Koskela and Stenbacka, 2000; Beck, Demirguc-Kunt, and Levine 2006; Carletti, Hartmann, and Spagnolo, 2007; Schaeck and Cihak, 2008 among others).

Using bank-level data for the period 2002-2008, this paper examines the extent of bank competition in Russia. We contrast banking sector competition in Russia to that in similar sized emerging countries, namely Brazil, China, and India. Furthermore, because the Russian banking sector is quite fragmented, we compare measures of competition for different groups of banks. In particular, we conduct tests to examine differences between the top 20 banks vis-à-vis other banks, government-owned banks vis-à-vis privately-owned institutions, foreign banks vis-à-vis domestic banks, and business-oriented vis-à-vis consumer-oriented banks.

There are two main approaches to measuring bank competition: the structural approach and the non-structural approach. As the name suggests, the structural approach assesses bank competition by examining measures of market structure such as concentration ratios (the share of assets held by the top 3 or 5 institutions) or indices (e.g., the Herfindhal-Hirschman index). The theoretical justification for using concentration as a measure of competition comes from the so-called Structure-Conduct-Performance paradigm that postulates that fewer and larger firms (higher concentration) are more likely to engage in anticompetitive behavior.³ However, studies have shown that at times concentration is not a reliable measure of competition (see Cetorelli, 1999) and the link between concentration and performance is not always positive as suggested by the Structure-Conduct-Performance paradigm (see Jackson, 1992). Furthermore, even concentrated banking sectors can be competitive if they remain contestable by promoting entry and exit.

³ For a discussion on the Structure-Conduct-Performance paradigm see Berger (1995).

The non-structural approach based on the “New Empirical Industrial Organization literature” measures competition without using explicit information about the structure of the market. Instead, non-structural measures focus on obtaining estimates of market power from the observed behavior of banks. For example, Panzar and Rosse (1987) show that the sum of the elasticities of a firm’s revenue with respect to the firm’s input prices - the so-called H-statistic - can be used to identify the extent of competition in a market. Under perfect competition, the H-statistic should be equal to one, since any increase in input prices should lead to a one-to-one increase in total revenues. This is true because those firms that cannot cover the increase in input prices will be forced to exit the market. By contrast, the H-statistic will be zero or negative if the firm operates as a monopoly—an upward shift in the marginal cost curve will be associated with no change or a reduction in revenue as a result of the optimality condition for the monopolist. If the banking sector is characterized by monopolistic competition, the H-statistic will lie between zero and one.

An alternative non-structural measure of competition, the Lerner index, measures the markup banks charge their customers by calculating the difference between price and marginal costs, expressed as a percentage of the price. Higher values of the Lerner index imply lower levels of bank competition.

Though there is an extensive literature using non-structural measures to assess competition in many developed and in some developing countries, to the best of our knowledge, there is only one study that has examined bank competition in Russia.⁴ Fungáčová, Solanko, and

⁴ Studies using non-structural measures to examine competition in developed countries include: Nathan and Neave (1989), Shaffer (1993), Molyneux et al. (1994, 1996), Bikker and Groeneveld (1998), Hondroyiannis et al. (1999), De Bandt and Davis (2000), Bikker and Haaf (2002), Hempell (2002), Angelini and Cetorelli (2003), Coccoresse (2004, 2005), Fernandez de Guevara et al. (2005, 2007), Gischer and Stiele (2008), and Carbó et al. (2009). There are fewer studies focusing on developing countries. These include: Gelos and Roldos (2004), which examine banking sector competition in Argentina, Brazil, Chile, Czech Republic, Hungary, Mexico, Poland, and Turkey;

Weill (2010) use quarterly data from the financial information agency Interfax and the Central Bank of Russia to calculate the Lerner index for banks in Russia between 2001 and 2007. The paper examines whether competition depends on the ownership type of banks by comparing market power across private, government-owned, and foreign banks. The authors find that bank competition in Russia is similar to that in other European Union countries and has only slightly improved during the period studied. Furthermore, they find no differences in market power across private, government, and foreign-owned banks.

Our study adds to the work of Fungáčová, Solanko and Weill (2010) in several ways. Most importantly, rather than limiting our analysis to only one non-structural measure of competition, we pursue different approaches to ascertain the degree of banking sector competition in Russia. First, we examine various measures of concentration. Second, because concentrated banking sectors can be competitive as long as they are contestable (e.g. the Canadian banking system as shown by Allen and Engert, 2007), we analyze the regulations and supervisory practices affecting the ease of entry and exit into the banking sector to assess the degree of contestability. Third, as an alternative non-structural measure of competition, we calculate the Panzar and Rosse H–statistic. Finally, while Fungáčová et al. (2010) simply compare the Lerner Index for Russia with other authors’ estimates for European Union countries (Fernandez de Guevara and Maudos, 2007 and Cabo-Valverde et al., 2009) and contrast the estimates for banks in Russia across ownership types, we conduct rigorous tests to evaluate

Mkrtchyan (2005), which focuses on Armenia; Prasad and Ghosh (2005), which investigates the case of India; Mamatzakis et al. (2005), Drakos and Konstantinou (2005), and Yildirim and Philippatos (2007) that study competition in Central and Eastern European countries; Levy Yeyati and Micco (2007), which analyzes banking competition in Latin America; and Anzoategui, Martínez Pería, and Rocha (2010) that focus on competition in the Middle East and North Africa region.

differences between Russia and other countries (Brazil, China, and India) and across different bank groups within the country.

Regarding this last exercise, we not only examine differences across different ownership types, but also we compare measures of market power for the top 20 banks (in terms of assets) vis-à-vis the rest and for banks focused on business lending vis-à-vis those specializing in financing individuals. Larger banks tend to have a more ubiquitous presence and, therefore, have the potential to offer services to a larger percentage of the population. Hence, it is important to ascertain the extent to which they exert excessive market power. Similarly, because individuals tend to rely more on banks to meet their financing needs, relative to corporations that can access capital markets and international sources of financing, it is relevant to determine the extent to which banks that focus on serving individuals are competitive.

Our analysis reveals that though concentration levels in Russia are not high by international standards, contestability is being obstructed by differences in supervisory practices across institutions and an unclear and not entirely credible exit process. Furthermore, though both non-structural measures of competition reveal that bank competition in Russia is no different than that in China and India, banks in Russia are significantly less competitive than their Brazilian counterparts, even though concentration levels across Brazil and Russia are similar. Within Russia, the top 20 banks and state-owned banks seem to be able to exert more market power than the smaller banks and the privately-owned institutions. Finally, there is evidence of greater competition among banks focused on business lending relative to those that primarily cater to individuals.

The remainder of the paper is organized as follows. Section 2 describes the main features of the Russian banking sector in order to provide some context for the analysis of competition in

the country. Section 3 examines the recent evolution of commonly-used measures of bank concentration such as the share of assets held by the top five banks and the Herfindahl-Hirschman (HH) index and compares these measures for Russia to those for Brazil, China, and India. Section 4 reviews the regulatory and supervisory framework governing bank entry and operations as well as bank insolvency and exit in Russia. The objective of this section is to determine whether the regulatory and supervisory framework promotes contestability. Section 5 describes the methodologies and data used to obtain the Panzar and Rosse H-statistic and the Lerner index of market power. Section 6 reports the estimates for the Lerner Index and the H-statistic. Here we compare Russia to Brazil, China, and India and also investigate differences across groups of banks within Russia. Finally, Section 7 concludes and discusses some policy recommendations.

2. The structure of the Russian banking sector

The Russian banking sector consists of 1,007 banks.⁵ Despite the large number of institutions operating in the country, the Russian banking sector is fairly concentrated and dominated by state-owned banks. The largest 20 banks control approximately 70 percent of total bank assets and six government-controlled banks account for 52 percent of total bank assets and 60 percent of deposits. The largest government-owned bank, Sberbank, is also the largest credit institution in the country and accounts for 25 percent of total assets of the Russian banking system.

⁵ This number and most of the statistics in this section come from the following publications produced by the Central Bank of Russia: “Review of the Banking Sector of the Russian Federation,” February 2010, and the “Bulletin of Banking Statistics”, January, 2010.

Foreign bank presence is still relatively low in Russia. There are 108 credit institutions in the country with at least 50 percent foreign ownership. They account for about 18.3 percent of total banking assets and 12 percent of deposits.

The majority of banks in Russia are focused on lending to firms. Over two-thirds of banks receive 50 percent or more of their interest income from lending to businesses. On average, across all banks, the share of income from lending to businesses is 59 percent. On the other hand, the average share of income from lending to individuals is 25 percent and only 15 percent of banks receive the majority (50 percent or more) of their interest income from lending to individuals.

3. Bank concentration in Russia

Bank concentration in Russia declined almost consistently between 2002 and 2007 (see Figure 1). In 2002 the share of assets held by the top five banks stood at 56 percent and by 2007 this ratio came down to 44 percent. Similarly, over this period the Herfindahl index fell from 1574 to 775. However, as a result of a series of bank failures, mergers, and government takeovers concentration increased slightly in 2008. The share of assets held by the top five largest banks stood at 50 percent and the HH index reached 878.

At first glance, bank concentration in Russia is in line with what is observed in other similar-sized emerging economies. In particular, concentration in Russia is similar to that in Brazil, lower than that in China, and somewhat higher than that for India (see Table 1). However, concentration in Russia seems more significant if we consider the fact that the number of banks in Russia is substantially higher than that in the three other countries.⁶

⁶ The share of assets held by the largest 200 banks (a number in between the number of institutions in Brazil and in China) is close to 95 percent.

Moreover, a factor that will prompt further consolidation in Russia is the increased minimum capital required for banks, introduced by the CBR in February 2009, of 180 million rubles (6 million US dollars). Existing banks have to comply with this limit by January 1, 2012. Using data from Interfax as of 2008, Table 2 shows the percentage of banks that can comply with the new capital requirement. While a majority of large banks, government owned banks, and foreign banks seem to have capital in excess of 180 million rubles, approximately 30 percent of non-top 20 banks, and a similar percentage of domestic and business-oriented banks do not appear to be able to comply with this requirement. In the case of individual-oriented banks, the percentage of banks unable to meet the new capital requirement is almost 50 percent. Banks unable to meet the new requirement will need to merge with other banks, transform into a different type of a financial institution which does not require banking license, or would be declared insolvent and resolved accordingly. This will have a significant impact on the number of banks and potentially on bank competition.

4. Banking sector contestability

A concentrated banking sector can remain competitive if it is contestable, that is if entry and exit into the system is easy and if bank regulations and supervision promote a level-playing field across all banks. This section describes the regulations and practices governing bank entry and exit in Russia and discusses the implementation of bank regulations and supervision in the country. Furthermore, we compare the situation in Russia to that in Brazil, China, and India.

Bank entry in Russia has been historically fairly easy.⁷ In particular, during the early 1990s the central bank issued a very large number of banking licenses. Between 1992 and 1995,

⁷ The information in this paragraph comes from Chapter 4 of the *OECD Economic Surveys: Russian Federation, 2009*.

the number of banks rose from 850 to close to 2400 by 1995. Aside from very low capital requirements (US\$100,000) and loose fit and proper screening, there were other important reasons for the proliferation of banks in Russia. In particular, banks unlike other corporations were allowed to deal in foreign exchange and could hold accounts with foreign banks. This meant that owning a bank could facilitate capital flight and money laundering. In addition, banks could be used as corporate treasuries for economic groups of non-financial enterprises. In other words, banks could funnel loans to related companies at rates of interest that had more to do with tax optimization than true cost of capital. Finally, banks also provided a vehicle for speculative investment in securities.

Since the mid-1990s, the number of banks has fallen sharply in Russia. The financial crises the country experienced (in 1998 and, recently in 2008), the acquisition of regional banks by Moscow-based private banks trying to build national branch networks, and some efforts to crack down on illegal activities contributed to the decline in the number of banks. Nonetheless, the number of banks in Russia is still large, relative to that in other similar-sized countries like Brazil, China, and India.

Currently, the minimum capital required for new banks to start operating in Russia (US\$ 6 million) is lower than that for Brazil (US\$ 9 million), but especially much lower than that required by banking authorities in China (US\$ 50 million) and India (US\$ 72.5 million). At the same time, the number of procedures required as part of the licensing process is similar in Russia to those of other countries and the license rejection rate (i.e., the percentage of bank licenses rejected relative to the number of applications) has been higher than that in Brazil (21% for Russia relative to 0 for Brazil), but is significantly lower than the rejection rate for India, which is reported to have reached 80% (see Table 3).

In order to safeguard competition, bank supervision should be conducted in a way that ensures a level-playing field for all institutions. There are a number of reasons to be concerned with how bank supervision is conducted in Russia.⁸ First, small and transparent banks could be disadvantaged compared to large and complex banks due to the absence of proper consolidated supervision. In other words, due to their complexity and because of the lack of adequate consolidated supervision larger banks could “get away with things” (like taking on excessive risks) that smaller banks cannot. Second, the regional and functional fragmentation of the Russian banking system could be causing dispersion of supervisory practices across different types of banks and regions due to the potential for supervisory capture on one side or abuse on the other side. Third, the allocation of supervisory resources to regions decreased over time and, hence, supervision in the regions could be lacking and favoring improper competition in the regions compared with the Moscow district (see Table 4). Fourth, the overall operating environment for banking supervision could be distorted by relatively higher political influence compared to other large developing countries.

The cross-country comparison of some institutional arrangements for supervising problem banks and dealing with failed banks also suggests some differences that may obstruct competition in Russia’s banking sector (see Table 5). Russia is the only BRIC country unequipped with legally enforced cease and desist orders. Further, together with Brazil, Russia’s banking supervisors are not required to make timely disclosure of enforcement actions. While all BRICs’ banking supervisors have the power to suspend distribution of dividends, in Russia the banking supervisors cannot suspend the distribution of bonuses and management fees. This can have negative implications for market transparency, discipline, and effective dealings with

⁸ For a detailed discussion see World Bank (2010).

problem banks. Furthermore, while Russia has a predetermined solvency level, breaching of which can trigger automatic intervention by the banking supervisor, the power of declaring a bank insolvent in Russia is legally in the hands of the courts. In contrast, in Brazil banking supervisors have all the legal powers to declare a bank insolvent. In all BRICs, the banking supervisors, sometimes in conjunction with the government or the court, have the authority to intervene and suspend some or all ownership rights in problem banks. However, Russia's banking supervisors are limited in superseding shareholders' rights.

There have been some changes in the failing-bank resolution mechanism and procedures for bank exits as of late 2008. The initiative to undertake resolution interventions continues to reside with the Banking Supervision Committee of the CBR. As part of the legislative response to the financial crisis, major amendments to the powers and tools at the disposal of the Deposit Insurance Agency (DIA) for resolving failing banks were approved by the Russian Duma in October 2008.⁹ The DIA is thus temporarily¹⁰ authorized to: (i) provide financial assistance to individuals/entities buying shares of a distressed bank giving them control over the shareholders' assembly; to banks buying assets and liabilities of a distressed bank in order to prevent its bankruptcy; to buyers of shares in a distressed banks giving the buyer control over the distressed entity and preventing its bankruptcy; to shareholders of a distressed bank to prevent its bankruptcy; (ii) organize asset auctions of collateral offered by insolvent banks, including collateral pledged to the CBR; and (iii) acquire provisional administration functions based on decisions made by the CBR.

⁹ The DIA has now four main functions: (i) administrator of the Deposit Insurance Fund – including the return of insured deposits to the public in case of bank failures; (ii) banks' receivership functions; (iii) asset management company; and (iv) bank rehabilitation agency.

¹⁰ There is a sunset clause for the DIA's bank resolution powers, to the extent that it will expire in December, 2011 when its effectiveness ends.

In practice, in cases of distress, both the CBR and the DIA are likely to assess the financial condition of particular banks that might be subject to resolution. The DIA has up to ten days to decide on its participation and the terms of such participation, and to negotiate with the parties (the CBR, potential investors, and bank owners) before engaging in a bank rescue operation. The CBR's Supervision Committee must approve the DIA's Action Plan within ten days of its submission. If the CBR resources are involved, the Board of Governors of the CBR must approve the Action Plan.¹¹

During the crisis period, the DIA resolved a large number of banks. For instance, in the last quarter of 2008, the DIA dealt with 20 banks, out of which participations in 5 failing banks resolutions were rejected as their rehabilitation was not viable, 10 failing banks received financial support and were sold to new owners, in 2 failing banks the DIA became the owner, and assets and liabilities of 3 failing banks were transferred to other banks and those banks were sent into liquidation. Anecdotal evidence suggests improved performance of the bank resolution framework during the crisis period. However, it is not clear whether least-cost measures were implemented during this period. Moreover, it is not clear how exactly the objective of the DIA is stated concerning possible tradeoffs between protection of depositors, protection of creditors and minimizing of losses and disruptions to the overall financial system. In sum, the current resolution system is very new, has been only tested in the crisis period, and it is yet to be seen how this system performs in facilitating credible and efficient exit of banks during tranquil

¹¹ The CBR has the right to reduce the capital of the distressed bank to its "fair value" if shareholders have not already done so. If the equity capital is negative it is reduced to one ruble. The Law authorizes the CBR to transfer to a staff member of the DIA the functions of Provisional Administrator to manage the day to day restructuring of the intervened bank, including the full or partial transfer of the assets and liabilities of the bank. The Law foresees that the DIA can access CBR resources - in the form of loans - or even request budgetary support from the Federal Government in case the resources from the Deposit Insurance are insufficient.

periods. Clear objectives and ensuring the least-cost resolution for failing banks is required going forward in order to promote banking sector contestability.

5. Methodologies and data to compute the H-statistic and the Lerner index

Based on the Panzar and Rosse (1982, 1987) methodology and following the empirical strategy pursued by Classes and Laeven (2004), we obtain the H-statistic by estimating equation (1) below:

$$\ln(P_{it}) = \alpha_i + \beta_1 \ln(W_{1,it}) + \beta_2 \ln(W_{2,it}) + \beta_3 \ln(W_{3,it}) + \gamma \ln(Z_{it}) + \delta D_t + \varepsilon_{it} \quad (1)$$

where i denotes banks and t denotes years. P is the ratio of gross revenues to total assets (proxy for banks' output price), W_1 is the ratio of interest expenses to total deposits and money market funding (proxy for input price of deposits), W_2 is the ratio of personnel expenses to total assets (proxy for input price of labor) and W_3 is the ratio of other operating and administrative expenses to total assets (proxy for input price of equipment/fixed capital). Z is a matrix of controls including the ratio of equity to total assets, the ratio of net loans to total assets, and the logarithm of assets. D is a matrix of year dummies. α_i denotes bank-level fixed effects. The error term ε_{it} is assumed to be normally distributed and equation (1) is estimated using Ordinary Least Squares (OLS).

The H-statistic equals $\beta_1 + \beta_2 + \beta_3$, the sum of the input price elasticities of total revenues. Conceptually, the statistic measures the responsiveness of bank revenues to input prices. An H-statistic less or equal to 0 is interpreted as a sign of a monopoly; H equal to 1 indicates perfect competition, and when H is between 0 and 1 the sector operates under monopolistic competition.

The test of perfect competition is only valid if the market is in long-run equilibrium. To verify this condition, the following regression is estimated via OLS:

$$\ln(ROA_{it}) = \alpha_i + \beta_1 \ln(W_{1,it}) + \beta_2 \ln(W_{2,it}) + \beta_3 \ln(W_{3,it}) + \gamma \ln(Z_{it}) + \delta D_t + \omega_{it} \quad (2)$$

Where ROA is the pre-tax return on assets. Because ROA can take on negative values, we compute the dependent variable as $\ln(1+ROA)$. W_1 , W_2 , W_3 , Z , and D are defined above. α_i denotes bank-level fixed effects and the error term ω_{it} is assumed to be normally distributed. We define the equilibrium E-statistic as $\beta_1 + \beta_2 + \beta_3$ from equation (2). The test of long-run equilibrium involves testing whether $E=0$. In other words, the market is in equilibrium if return on assets is not related to input prices.¹²

The Lerner Index is computed using the formula $(P-MC) / P$, where P is the price of banking outputs and MC is the marginal costs. Following the approach in Fernandez de Guevara, Maudos and Perez (2005, 2007) and Berger, Klapper and Turk-Ariss (2008), we proxy bank output using total assets, P is calculated as total bank revenues over assets, and MC is calculated by taking the derivative from a translog cost function shown in equation (3):

$$\begin{aligned} \ln(C_{it}) = & a_{0i} + b_0 \ln(Q_{it}) + b_1 0.5 [\ln(Q_{it})]^2 + a_1 \ln(W_{1it}) + a_2 \ln(W_{2it}) + a_3 \ln(W_{3it}) + \\ & b_2 0.5 \ln(Q_{it}) * \ln(W_{1it}) + b_3 0.5 \ln(Q_{it}) * \ln(W_{2it}) + b_4 0.5 \ln(Q_{it}) * \ln(W_{3it}) + a_4 \ln(W_{1it}) * \ln(W_{2it}) + \\ & a_5 \ln(W_{1it}) * \ln(W_{3it}) + a_6 \ln(W_{2it}) * \ln(W_{3it}) + a_7 0.5 [\ln(W_{1it})]^2 + a_8 0.5 [\ln(W_{2it})]^2 + \\ & a_9 0.5 [\ln(W_{3it})]^2 + \delta D_t + u_{it} \end{aligned} \quad (3)$$

¹² We do not present separate tables with results for the equilibrium tests, but rather in at the bottom of Tables 6-8 we indicate if any of the estimates of the H-statistic fail these tests.

where i denotes banks and t denotes years. C is total operating plus financial costs, Q is total assets, W_1 , W_2 , and W_3 are the same input prices used in equations (1) and (2) and defined above. D and α_{0i} denote time effects and bank-level fixed effects, respectively. As in most papers, our estimations impose the restrictions of symmetry and degree one homogeneity in the price of inputs.¹³

We compute the H-statistic and the Lerner index using bank-level balance sheet and income statement data from Bankscope for the period 2002-2008. We compare competition in Russia to that in Brazil, China, and India using similar Bankscope data for these countries. Appendix Table A1 reports the number of banks and observations that go into the calculations of the H-statistic and the Lerner index for each country in each year. Also, because Russia has a fragmented banking sector, we compute and compare the H-statistic and Lerner index across different groups of banks, namely: top 20 banks (in terms of assets), non-top 20, government-owned, privately-owned, foreign-owned, domestic-owned, business-oriented, and individual-oriented.

6. Results for the H-statistic and the Lerner index

Panel A of Table 6 shows that the Russian banking sector can be best characterized as operating under monopolistic competition, given an H-statistic equal to 0.74 and considering that we can reject the nulls that the H-statistic equals zero and, also, 1. The same can be said about the banking sectors in Brazil, China, and India. Brazil appears to be more competitive than Russia, since the value of the H-statistic for the former is significantly higher than that for the latter.

¹³ However, the results do not change if we drop these constraints.

Table 6 also shows the average (Panel B) and the median (Panel C) Lerner indexes for banks in Russia and for banks in each of the comparator countries. This table confirms the finding that the Russian banking sector is less competitive than the Brazilian one, since the Lerner index which measures market power is higher for the former than for the latter. On the other hand, based on the Lerner index, we find that the Russian banking sector appears to be more competitive than that of China and also India, since the Lerner index is significantly lower for Russia than for these countries.

Given the large number and different types of banks in Russia, it is interesting to investigate whether the non-structural measures of competition for banks in Russia vary depending on the group of banks considered. Table 7 and 8, respectively, report the H-statistic and Lerner index for the following groups of banks: (a) the top 20 banks versus the remaining banks, (b) government-owned versus privately-owned banks, (c) foreign versus domestic banks, (d) business-oriented versus individual-oriented banks.

According to the H-statistics (Table 7), government-owned banks appear to be less competitive (have lower values of the H-statistic) than privately-owned banks, at the 10 percent significance level. Also, banks focused on lending to individuals are less competitive than those that concentrate on financing businesses. Based on the calculations and tests for the Lerner index (Table 8) we find that the top 20 banks appear to exert more market power relative to smaller banks. On the other hand, we find no significant differences in the competitive behavior of foreign and domestic banks.

7. Conclusions

The Russian banking sector is fragmented. Relative to other comparable countries, Russia appears to have too many banks as a result of historically low barriers to entry. To a large degree, the proliferation of banks in the country has been related to low levels of minimum statutory capital requirements, but also to improper screening of applicants. Furthermore, tax loopholes, money laundering, and speculation have been common incentives for bank entry.

The large number of institutions and the limited resources available to the CBR have made supervision a great challenge. The CBR is trying to remedy this in part by increasing minimum capital requirements expecting to focus their supervision resources. The problem with this strategy is that it is likely to significantly reduce the number of banks in the country. This may not be a good strategy considering that the Russian banking sector is fairly concentrated and less competitive than other similar-sized economies such as Brazil. At the same time, there is some evidence that the largest banks and government-owned banks, which already play a dominant role in the country and have no problem meeting the higher capital requirements, are able to exert market power. Also, we find some evidence of larger market power among banks that are primarily oriented to serve individuals rather than firms. This is problematic given that individuals typically have fewer financing options than corporations.

Therefore, while it might be true that the number of banks in Russia is large, it is not clear that the way to deal with the problem is to continue to raise capital requirements across the board as proposed by the Russian authorities. Doing so, might further reduce competition and limit access to finance. Rather, Russian authorities might be best served by directly addressing the issues that have led both to the excessive proliferation of banks and to cases of bank insolvency. In other words, it might be best to tackle the issue of “excess banks” by closing the

existing loopholes and by reevaluating and improving the licensing process. Furthermore, it is important to consider that, given the limited human and budgetary resources available for bank supervision, creating larger and likely more complex institutions will make the task of supervision harder and not necessarily easier.

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Table 1: Concentration ratios and number of banks in BRIC* countries

Countries	Share of assets held by top five banks (%)	Herfindhal-Hirschmann index	Number of banking institutions
	2008	2008	2008/9
Russia	50	878	1007
Brazil	48	903	167
China	77	2655	370
India	37	479	169

*BRIC refers to Brazil, Russia, China and India.

Source: Bankscope, Central Bank of Brazil, Reserve Bank of India

Table 2: Percentage of banks that meet the new capital requirements of 180 million rubles

	% of banks with capital \geq 180 million rubles	% of banks with capital $<$ 180 million rubles
Top 20 banks	100%	0%
Non-top 20 banks	70%	30%
Government -owned banks	100%	0%
Privately-owned banks	70%	30%
Foreign-owned banks	92%	8%
Domestic-owned banks	69%	31%
Individual-oriented banks	53%	47%
Business-oriented banks	74%	26%

Source: Interfax

Table 3: Minimum capital requirements and bank licensing in BRICs*

	Russia	Brazil	China	India
Minimum capital entry requirement (USD millions)				
- Domestic banks	6	9	50	72.5
- Subsidiary of a foreign bank	6	9	39	72,5
- Branch of a foreign bank	n/a	9	13	25
Licensing requirements (number of legal requirements)	8	8	8	6
Share of bank license applications rejected (%)	21	0	n.a.	80

*BRIC refers to Brazil, Russia, China and India. n.a. stands for "not available". Source: 2007 World Bank Regulation and Supervision Survey .

Table 4: Number of CBR off-site and on-site supervisory staff

year	Off-site		On-site	
	Head office	Regional offices	Head office	Regional offices
2002	149	1,403	37	1,048
2003	160	1,451	92	1,045
2004	169	1,450	130	955
2005	173	1,242	149	984
2006	165	1,225	151	981
2007	159	1,162	147	941
2008	174	1,186	150	850

Source: CBR Annual Banking Supervision Report

Table 5: Institutional arrangements for dealing with problem banks in BRICs*

	Russia	Brazil	India	China
A mechanisms of cease and desist type orders exists, whose infraction leads to automatic sanctions on bank management	No	Yes	Yes	Yes
BS is required to make public formal enforcement actions, including cease and desist orders and written agreements	No	No	Yes	Yes
BS can suspend the directors' decision to distribute dividends	Yes	Yes	Yes	Yes
BS can suspend the directors' decision to distribute bonuses or management fees	No	Yes	Yes	Yes
Banking law establishes predetermined solvency levels breaching of which forces automatic actions such as interventions	Yes	No	No**	No
Who can legally declare that a bank is insolvent -- with the declaration superseding some of the rights of shareholders	C	BS	---	C
According to the banking law, who has the authority to intervene, i.e. suspend some or all ownership rights in a problem bank?	BS	BS	BS,G	BS,C
Can a government agency remove and replace management & directors, forbear certain prudential regulations, and supersede shareholder rights?	No	Yes	Yes	Yes

* BRIC refers to Brazil, Russia, China and India. 2007 data; BS, C, G stand for banking supervisor, court and government respectively. ** However, RBI has recently put in place a Prompt Corrective Action (PCA) framework under which certain interventions by supervisor are envisaged with some predetermined levels of solvency deterioration.

Table 6: H-Statistics and Lerner indices for BRICs*

Statistics	Russia	Brazil	China	India
Panel A: H –statistics				
H-statistic (2002-2008)	0.741	0.821	0.73	0.683**
[Std Error]	0.017	0.052	0.048	0.065
P-value for H-stat.=0	0.00	0.00	0.00	0.00
P-value for H-stat.=1	0.00	0.00	0.00	0.00
P-value for H-stat. Russia= H-stat. other vs. H-stat. Russia < H-stat. other		0.05	0.69	0.92
P-value for H-stat. Russia= H-stat. other vs. H-stat. Russia > H-stat. other		0.95	0.31	0.08
Panel B: Average Lerner indices				
Lerner (average 2002-2008)	0.138	0.054	0.209	0.145
[Std Error]		0.010	0.007	0.005
P-value for Lerner Russia = Lerner other vs. Lerner Russia < Lerner other		1.00	0.00	0.09
P-value for Lerner Russia = Lerner other vs. Lerner Russia > Lerner other		0.00	1.00	0.91
Panel C: Median Lerner indices				
Lerner (median 2002-2008)	0.116	0.069	0.211	0.141
P-value for Lerner Russia = Lerner other vs. Lerner Russia < Lerner other		1.00	0.00	0.00
P-value for Lerner Russia = Lerner other vs. Lerner Russia > Lerner other		0.00	1.00	1.00

*BRIC refers to Brazil, Russia, China and India. ** denotes rejection of the long run equilibrium hypothesis.
Source: authors calculations based on Bankscope data.

Table 7: H-statistics across groups of banks operating in Russia, 2002-2008

Stats	Top 20	Non-top 20	Govt.	Private	Foreign	Domestic	Business oriented	Individual oriented
H-statistic (2002-2008)	0.735	0.742	0.562	0.742	0.717	0.737	0.75	0.683
[Std Error]	0.021	0.017	0.108	0.017	0.021	0.018	0.021	0.036
p-value H-stat.=0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
p-value H-stat.=1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P-value H-stat. Top 20 = H-stat. Non-top20 vs. H-stat. Top20 < H-stat. Non-top20	0.29							
P-value H-stat. Top20 = H-stat. Non-top20 vs. H-stat. Top20 > H-stat. Non-top20	0.71							
P-value H-stat. Govt. = H-stat. Private vs. H-stat. Govt. < H-stat. Private				0.05				
P-value H-stat. Govt. = H-stat. Private vs. H-stat. Govt. > H-stat. Private				0.95				
P-value H-stat. Foreign = H-stat. Domestic vs. H-stat. Foreign < H-stat. Domestic						0.12		
P-value H-stat. Foreign = H-stat. Domestic vs. H-stat. Foreign > H-stat. Domestic						0.88		
P-value H-stat. Business = H-stat. Individual vs. H-stat. Business < H-stat. Individual								0.95
P-value H-stat. Business = H-stat. Individual vs. H-stat. Business > H-stat. Individual								0.05

“Top 20” refers to the largest 20 banks by assets. “Govt.” refers to government owned banks while “Private” refers to privately owned banks. “Domestic” refers to domestically owned banks and “Foreign” refers to foreign owned banks. “Business oriented” banks are those focused on lending to businesses and “Individual oriented” cater primarily to individuals. Note: the long run equilibrium hypothesis is accepted in all cases. Source: calculations by authors using Bankscope data.

Table 8: Lerner indices across banks operating in Russia, 2002-2008

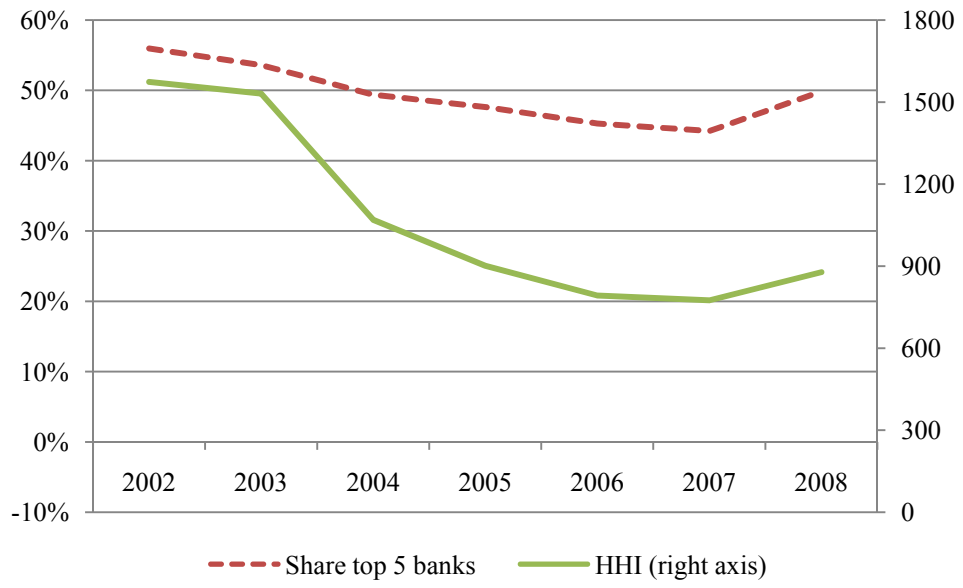
	Top 20	Non-top 20	Govt.	Private	Foreign	Domestic	Business oriented	Individual oriented
Lerner (average 2002-2008)	0.167	0.136	0.153	0.138	0.134	0.139	0.138	0.143
[Std Error]	0.012	0.012	0.026	0.026	0.014	0.014	0.003	0.007
P-value Lerner Top 20 = Lerner Non-top 20 vs. Lerner Top 20 < Lerner Non-top 20	0.99							
P-value Lerner Top 20 = Lerner Non-top 20 vs. Lerner Top 20 > Lerner Non-top 20	0.01							
P-value Lerner Govt. = Lerner Private vs. Lerner Govt. < Lerner private			0.72					
P-value Lerner Govt. = Lerner Private vs. Lerner Govt. > Lerner Private			0.28					
P-value Lerner Foreign = Lerner Domestic vs. Lerner Foreign < Lerner Domestic					0.38			
P-value Lerner Foreign = Lerner Domestic vs. Lerner Foreign > Lerner Domestic					0.62			
P-value Lerner Business = Lerner Consumer vs. Lerner Business < Lerner Consumer							0.24	
P-value Lerner Business = Lerner Consumer vs. Lerner Business > Lerner Consumer							0.76	
Lerner (median 2002-2008)	0.144	0.114	0.169	0.117	0.113	0.118	0.114	0.106
P-value Lerner Top 20 = Lerner Non-top 20 vs. Lerner Top 20 < Lerner Non-top 20	1.00							
P-value Lerner Top 20 = Lerner Non-top 20 vs. Lerner Top 20 > Lerner Non-top 20	0.00							
P-value Lerner Govt. = Lerner Private vs. Lerner Govt. < Lerner private			0.82					
P-value Lerner Govt. = Lerner Private vs. Lerner Govt. > Lerner Private			0.18					
P-value Lerner Foreign = Lerner Domestic vs. Lerner Foreign < Lerner Domestic					0.41			
P-value Lerner Foreign = Lerner Domestic vs. Lerner Foreign > Lerner Domestic					0.59			
P-value Lerner Business = Lerner Individual vs. Lerner Business < Lerner Individual							0.81	
P-value Lerner Business = Lerner Individual vs. Lerner Business > Lerner Individual							0.19	

“Top 20” refers to the largest 20 banks by assets. “Govt.” refers to government owned banks while “Private” refers to privately owned banks. “Domestic” refers to domestically owned banks and “Foreign” refers to foreign owned banks. “Business oriented” banks are those focused on lending to businesses and “Individual oriented” cater primarily to individuals. Source: calculations by authors using Bankscope data.

Table A1: Number of banks per year and total number of observations by country, 2002-2008

Year	Russia	Brazil	China	India
2002	141	114	45	60
2003	148	94	52	61
2004	488	92	61	61
2005	679	86	81	61
2006	841	88	109	62
2007	891	96	114	59
2008	786	84	75	55
Observations	3974	654	537	419

Figure 1: Bank concentration in Russia, 2000-2008



Source: Bankscope