ИЗМЕРЕНИЕ ИНСТИТУЦИОНАЛЬНОЙ ДИНАМИКИ
В ОБЛАСТИ БАНКОВСКОЙ ДЕЯТЕЛЬНОСТИ

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Работа посвящена измерению институциональной динамики в банковской сфере в новейший период экономической истории России (1991–2016 гг.) Предложенный автором набор показателей характеризует состав участников банковской деятельности и её место в экономике страны. Среди показателей – количество банков каждой формы собственности, доля государственных банков в совокупных активах, кредитах и частных депозитах, склонность банков к кредитованию нефинансовых предприятий, прибыльность банков, доля банковских кредитов среди всех источников инвестиций в основной капитал предприятий реального сектора и т.д. В начале периода наблюдений разрушилась доставшаяся от предыдущей эпохи кредитная система и механизмы координации между «реальным» и «денежным» секторами экономики. После кризиса 1998 г. вектор эволюции изменился в сторону государственного участия в кредитных учреждениях и централизованного размещения кредитных ресурсов. Структурные сдвиги пока не привели к кардинальному изменению типа функционирования банковского сектора. Эмпирически выявленная траектория эволюции объясняется объективной потребностью в соблюдении пропорции между доминантными и комплементарными институтами. Новизна данного текста в том, что на примере конкретной экономической сферы подобраны статистические показатели для квантификации институциональной динамики.

Ключевые слова: эволюционный анализ; институциональные изменения; мезоэкономика; банки; Россия; государство.

MEASURING INSTITUTIONAL CHANGE:
THE CASE OF THE RUSSIAN BANKING INDUSTRY

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The paper attempts to measure the institutional change using the example of Russian banking industry during the period of 1991–2016. I put forward a set of metrics featuring the actors and the relevance of banking for the economy. The metrics include the number of banks of each type, the share of state-controlled banks in total assets, loans and deposits, bank propensity to lend to the real economy, bank profitability, contribution to investment in fixed assets by non-financial companies, etc. At the first stage, the communist-era credit system fell apart as well as

1 The study received financial support from the Russian Foundation for Basic Research (RFBR), project No. 17-02-00207. This paper is a reduced version of (Vernikov, 2017). I thank, without implication, Sergei Andryushin, Svetlana Kirdina, Dmitry Tulin and Ilja Viktorov for their comments. Aleksandr A. Rubinstein provided valuable assistance in statistical data processing.
coordination mechanisms between monetary and real sectors of the economy. After the Russian economic crisis of 1998, evolution goes in the direction of greater government involvement in banking and centralized allocation of financial resources. The structural change has not yet led to a fully different modus operandi of the banking industry. The contribution of this paper is that it tackles the interplay between structural and institutional change in a particular economic sector.

**Keywords:** evolutionary analysis; institutional change; mesoeconomics; banks; Russia, state.

**JEL:** B25, G21, G28, H82, P20, P34, P52.

1. Introduction

Measurement is a central issue of evolutionary study of institutions. This text tries to measure institutional change in a particular sector, Russian banking, from 1991 to 2016. I put forward a set of metrics reflecting the types of banking institutions, the resources they command, and the relevance of banking.

The analysis is restricted to just one sector (banking) in order to refine the approach and instruments. Banks produce much better statistics than other Russian companies do. The subject choice was ‘path-dependent’ in view of the effort already invested in the study of Russian bank ownership structures (Vernikov, 2012, 2015; Karas and Vernikov, 2016; Kirdina and Vernikov, 2013).

The rest of the paper is organized as follows. Section 2 places my study into a research context. Section 3 focuses on the metrics of institutional evolution. Section 4 provides empirical results and their discussion. Conclusion summarizes the findings.

2. Research framework

The place of this paper in the research context is on the edge between evolutionary microeconomics and analysis of institutional evolution. Focusing on a population of banking firms, I assess the evolution of its institutional structure understood more broadly than the totality of banking and financial institutions (firms). Institutions are understood as humanly devised constraints (North, 1990), rules of conduct and regularities that make microlevel agents act in a certain way. Those rules and regularities might emerge on the meso-level rather than micro- or macro-level (Dopfer et al., 2004).

Joseph A. Schumpeter touched upon various aspects of banking and assigned credit an important role in redistributing factors of production in favor of ‘new combinations’ of resources. Banks finance those ‘new combinations’ by creating new purchasing power. A loan is used as an advantage to expropriate factors of production. It becomes a kind of an order to the economy to adjust to an entrepreneur’s objective by making resources available to him (Schumpeter, 1983 [1934]).

Urazova advances the hypothesis that alternating reforms and counter-reforms in the Russian banking system have fluctuated in a wave pattern that matches the waves of Nikolai Kondratiev’s long-term economic cycle (Urazova, 2015a; 2015b). The author focuses on the evolution of the institutional setup of the banking sector and specifically entry and exit of credit institutions, their total number, and scope of activity. In the ‘new age’ of Russia after 1991, according to Urazova, the upward wave that had started in 1984–1991 turned into a downward wave in 2005–2008. That was another yet shift of gear in the banking system, from a market-oriented regime towards one based on redistribution.

Theory of Institutional Matrices or TIM (Kirdina, 2014) suggests an original interpretation of the institutional dynamics in banking and the economy in general. TIM implies a fluctuating proportion between dominant and complementary institutions peculiar

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2 By institutional aspects some Russian scholars and the Central Bank of Russia mean quantitative characteristics of the banking sector (number of banks, branches and sub-branches), its spatial breakdown and market concentration (Krylova and Krylov, 2014; CBR, 2015. Pp.11–13).
to each of the two main types of economy, X-type or Y-type. If institutional matrix X prevails, then the matching institutions of the alternative matrix Y play a complementary (auxiliary), and vice versa. In this fashion, the institution of private ownership matches social/public ownership practically everywhere, although in a different proportion. The proportion is country-specific: while public banks may prevail in one country, they can be inexistent in another. An X-system mostly relies upon centralized redistribution of resources and on non-private ownership, and this is irreversible and immune to people’s will or desire. In this respect, TIM adheres to the ‘path dependence’ theory.

As for banks and the linkage between credit and the real economy, TIM admits two alternative institutional models of real sector and R&D financing, briefly summarized as «state as investor» and «state as regulator» (Kirdina, 2013).

Literature on political economy of banking and on government banking is also relevant to my research. The government from time to time regards the outcomes of an economic activity (e.g., banking) as a patronized good (Rubinstein, 2013) if for whatever reason these outcomes are deemed socially important. A bank, in turn, can take into account the signals coming from the ruler, the government or some constituency, for good or for bad.

Public bank lending is counter-cyclical, i.e. less likely to shrink during economic downturn than lending by other market participants (Bertay et al., 2015; Coleman and Feler, 2014; Fungáčová et al., 2013). That being said, one can certainly trace political motivations in the activity of public banks when politicians and governments take advantage of public bank lending to pursue objectives not directly relevant for development (Sapienza, 2004; Dinç, 2005; Carvalho, 2014). Back in the period of Tzars, the mission of many financial institutions in Russia was to support the aristocracy by providing mortgage loans. In the 1990s, political connections played a role in the genesis of Russian banks, and those of banks that were connected continued lending to insolvent old industries in view of employment concerns, while private startups had no access to financing (Berkowitz et al., 2015).

R. LaPorta, F. López-de-Silanes and A. Shleifer authored a widely known and frequently cited article that emphasizes negative effects of government ownership of banks on financial development and economic growth (La Porta et al., 2002). Although unbiased empirical research has challenged some of that article’s assertions, Western scholars keep collecting evidence of harm presumably made by government-owned banks and their inefficiency. Just to note that in Russia state-owned banks do not necessarily lag behind private ones in terms of cost efficiency (Karas et al., 2010; Mamonov and Vernikov, 2017).

3. Methodology

3.1. Institutional change

Institutions and institutional change are usually appraised through sets of evaluations (grades, scores, levels, etc.) of the ‘quality’ of Russian political and legal institutions (Freynkman et al., 2009; Baranov et al., 2015).

The more specific institution is measured and the more objective the measurement is, the better (Voigt, 2013). Many institutions are unobservable, and we judge about them via the structures that these institutions create. The ‘power’ of an economic institution depends on the number of economic agents (individual or corporate) who abide by it in a given country and on the volume of resources (land, material or financial) that are used accordingly (Kirdina, 2013).

Previous studies on the evolution of banking in Russia employed such quantitative data as loan size, interest rate, loan tenor, the number of active lenders of that or another type and their respective shares of total loans comprising interest. Qualitative data includes the thrust of government decision-making with regard to selected groups of financial institutions and the regulation of lending as such, i.e. interest rate, other provisions of loan agreements, prohibition of certain transaction types, sources of funding for banks, sectoral and special allocation of loans, etc.). These data appear fragmented and inconsistent. They show little
interplay between qualitative and quantitative information. This paper suggests a few metrics with a transparent method of calculation or directly available from open-source statistical publications, with a focus on ownership and resource allocation.

One must not overestimate the value of quantitative measures of institutional change: quantitative methods work best in combination with qualitative ones and can mislead otherwise (Buchanan et al., 2014). In addition, institutional change can reveal itself differently in each field of economic activity, so indicators should reflect unique features of the object. Banking sector metrics might fail in other sectors.

If the binary approach of the TIM is correct, then each of the main institutional matrices, either X or Y, imposes a particular mode of operation on every economic subsystem including banking. I regard state-controlled banks and their engagement in the funding of government projects and programs (known in the literature as directed lending or policy lending) as a manifestation of an X-economy institute of ownership. It is complemented by decentralized resource accumulation from the market and their allocation in line with financial efficiency criterion. Similarly, privately owned banks that accumulate private savings and invest them into market assets can be viewed as a manifestation of a Y-type institution thus setting a sustainable institutional mix in the system.

Previous studies underpin the hypothesis that in the ‘new age’ of Russian banking history after 1991 the institutions of market economy suppressed the institutions of redistributive economy at first, but subsequently the trend changed. It must manifest itself through diverging dynamics of banks number and the share of national income they appropriate, on the one hand, and indicators of bank lending activity, on the other. I will employ the method of image recognition by screening bank data in search for essential qualities whose presence would signal the presence of a given institutional setup. Institutional matrix X can presumably render banking with the following peculiar features:

- Substantial share of state-controlled banks;
- Limited number of active banks and high barriers for market entry;
- A high loans-to-assets ratio and a substantial share of long-term loans to non-financial enterprises;
- Involvement of sizeable banks in programs and projects on a national scale aimed at modernization of fixed assets;
- Moderate profitability of banking consistent with that of other economic sectors;
- Adequate size of the banking industry proportional to the size, state and requirements of the economy.

3.2. Metrics

The indicators below are meant to define above-mentioned qualities of the banking sector. One set of the proposed metrics describe banks and the resources they command, while the other set describes the relative place of banks in the national economy and their effectiveness (Tab. 1). I give preference to natural and relative measures in order to neutralize the effects of inflation and Rouble exchange rate fluctuation.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Name</th>
<th>Formula*</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUM</td>
<td>Number of banks with a valid license</td>
<td>Number of credit institutions less the number of non-bank lending institutions</td>
<td>CBR</td>
</tr>
<tr>
<td>NUMSOB</td>
<td>Number of state-controlled banks</td>
<td>Number of banks whose equity is at least 50 percent owned by the government in a broad sense, including the CBR, ‘state corporations’ and/or state-owned companies and banks</td>
<td>bank data; Internet; author’s motivated judgment</td>
</tr>
</tbody>
</table>
### Symbol | Name | Formula* | Data source
---|---|---|---
SOB | Share of state-controlled banks in the total number | Number of state-controlled banks / Number banks, or NUMSOB / NUM | calculated from bank data
SOBAS | Share of state-controlled banks in total assets of the banking sector | Assets of state-controlled banks / Total assets of the banking sector | calculated from bank and CBR data
CORESOBAS | Share of the core state-controlled banks in total assets of the banking sector | Assets of core state-controlled banks / Total assets of the banking sector | calculated from bank data
SOBLOAN | Share of state-controlled banks in total lending to non-financial companies | Loans to non-financial companies held by state-controlled banks / Total loans to non-financial companies | CBR
CORESOBLOAN | Share of core state-controlled banks in total lending to non-financial companies | Loans to non-financial companies held by the core state-controlled banks / Total loans to non-financial companies | calculated from bank data
SOBDEPO | Share of state-controlled banks in total household deposits | Household deposits at state-controlled banks / Total household deposits | CBR
SBER | Share of the major state-controlled bank (Sberbank) in total household deposits | Household deposits at the major state-controlled bank / Total household deposits | calculated from bank data
LDR | Loans-to-deposits ratio | Loans to non-financial companies and households / Funds raised from non-financial companies and households | calculated from CBR data
LTA | Banks’ propensity to lend | Loans to non-financial companies / Total assets | calculated from CBR data
LONGTERM | Banks’ propensity to lend long-term | Loans to non-financial companies for tenors over 3 years / Loans to non-financial companies | calculated from CBR data
ROE | Return on equity (ROAE) of banks | Bank yearly profit / ((Equity on January 1 + Equity on December 31)/2) | CBR; Rosstat
ROENOSBER | Return on equity (ROAE) of banks except Sberbank | Yearly profit of banks except Sberbank / ((Equity on January 1 + Equity on December 31)/2) | calculated from CBR data
ROESBER | Return on equity (ROAE) of Sberbank | Yearly profit of Sberbank / ((Equity on January 1 + Equity on December 31)/2) | Sberbank; CBR
LTINV | Share of bank loans within all sources of investment into fixed assets | All bank loans used for investment into fixed assets of non-financial companies less foreign bank loans used for investment into fixed assets / Investment into fixed assets by non-financial companies, for the period | calculated from Rosstat data
PROFIT | Share of banks in the total amount of profit earned by the corporate sector | Financial result of banks / Financial result of all domestic corporates, for the period | Rosstat
PROFITNOSBER | Share of banks except Sberbank in the total amount of profit earned by the corporate sector | Financial result of banks except Sberbank / Financial result of all domestic corporates, for the period | Rosstat, Sberbank
ROAGAP | Return on assets (ROAA) of banks compared to non-financial companies | Return on average assets (ROAA) of non-financial companies less ROAA of banks, for the period | Rosstat; CBR
WAGE | Bank wage handicap | Average wage in banking and finance / Average wage in the economy, for the period | Rosstat
GDP | GDP | Real GDP index | Rosstat

*Unless otherwise indicated, the indicator is quoted on a certain date.
NUM. The number of active banks is more than merely a technical metric. It has a bearing on the mode of banks operations and mutual competition as well as the regulator’s capacity to monitor and steer these processes. Presuming that the number of state-controlled banks cannot grow to infinity, the majority of newly emerging banks represents other forms of ownership. That being the case, the performance of NUM can signal about the specific point in cycle. Periods of financial and general liberalization are probable to bring about a higher number of active banking entities. Market entry and exit always remains the focus of institution researchers.

NUMSOB. State-controlled banks constitute a sub-sample of NUM. State control means ultimate beneficiary ownership of over 50 percent of bank voting shares by federal executive authorities, CBR, regional or municipal authorities, ‘state corporations’ (statutory corporations established by specific legislation), state-owned banks and enterprises. Public banks can pursue other motivation atypical for private institutions¹. I make no judgment about the effectiveness of government control over bank lending decisions which varies very broadly within my sample.

SOB (the share of state-controlled banks in the total bank number) is a derivative from indicators NUM and NUMSOB.

SOBAS (share of state-controlled banks in total assets of the banking sector) is the single major indicator reflecting structural change in banking.

SOBLOAN relates to the key asset item (loans to non-financial enterprises). The performance of SOBLOAN can diverge from SOBAS depending on the share of loans in bank assets.

SOBDEPO shows the share of state banks in household deposits.

CORESOBAS, CORESOBLOAN in SBER are auxiliary indicators featuring the core of the public sector in banking. Russia’s largest state banks stand apart from the rest of the crowd and constitute a separate banking system tier on its own right (Vernikov, 2014).

LDR (loans-to-deposits ratio) refers to functional adequacy of the banking sector in terms of its capability to transform household savings into real sector investment.

LTA displays banks’ commitment to lend to non-financial private sector companies. Abnormally high share of non-loan assets in bank portfolios suggests bank irrelevance and failure to perform the core mission, as was the case in 1998. Loans to non-financial companies were less significant that securities in Russian bank asset books: 28.5 percent and 32.1 percent, respectively (CBR, 2002. P.10. Tab. 9). I emphasize loans to non-financial companies rather than total loans that would also include loans to financial institutions, state agencies, households, etc. Joseph Schumpeter pointed out the distinction between ‘productive lending’, i.e. the ‘primary wave’ of credit that benefits non-financial companies and supports innovation, and the ‘secondary wave’ of credit that finances consumption growth, overinvestment and speculation (Schumpeter, 1983[1934]). Bezemer applied Schumpeterian paradigm to contemporary data to show that a disregard of the essential distinction in the purpose of lending can lead to paradoxical empirical results such as a negative correlation between lending and growth (Bezemer, 2014).

LONGTERM adds another dimension to bank lending. The methodology of calculating ‘productive lending’ is tricky, so I approximate ‘productive lending’ by longer-term lending to non-financial companies for tenors over 3 years on the assumption that longer-term loans are more likely to serve investment purpose, whereas short-term lending goes to finance working capital, trade etc. This proxy is not ideal because the purpose of long-term loans finds no reflection in banking statistics while a public credit register does not exist in Russia. Ownership form has an impact on bank’s willingness to lend long-term: public banks lead in this respect (Vernikov and Mamonov, 2016). State banks presence is associated with

¹ The authors of the theory of economic sociodynamics argue that the state appears as the bearer and protector of autonomous social needs, provided that those actually exist (Grinberg and Rubinstein, 2005).
centralized allocation of credit and employment of public banks as industrial policy vehicles (Vanteeva and Hickson, 2015).

ROE reflects banking business profitability. The default setting here comes from the mainstream view that government ownership makes banks inefficient, so ROE should be in line with the share of privately owned banks, i.e. grow at first and fall thereafter. Sberbank and other big public banks have earned the bulk of the banking sector profit in recent years while the majority of private banks struggle to be in the black. I address this situation by introducing two additional indicators, namely ROENOSBER (return on equity of banks except Sberbank) and ROESBER (return on equity at Sberbank).

LTINV denotes the role of banks in financing fixed assets investment. While bank loans are the main source of investment into fixed assets in no country, in Russia they are an important external source of investment in view of the insignificance of alternative external sources, especially in the current international setting.

PROFIT (share of banks in the total amount of profit earned by the corporate sector) is supplemented by PROFITNOSBER, or the same indicator without Sberbank for reasons exposed above. The assumption is that banks appropriate a growing slice of the total pie during periods of growth of privately owned banks.

ROAGAP compares return on assets of banks and non-financial companies. Statistically, banks have lower ROAA due to a particular sectoral structure of the Russian economy (strong presence of resource-based industries). The indicator thus shows the gap between the two, and I expect a narrowing gap during liberalization and financialization.

WAGE gauges the excess of wages in the banking sector over average wages in the economy including sectors with much harsher and unattractive working conditions. What matters here is not nominal wage ratio, but its trend that I expect to be similar to that of ROAGAP: when banks gain an advantageous position vis-à-vis other economic agents, excess wage ratio should grow.

GDP (real GDP index) features macroeconomic conditions. Banking and financial development is strongly and positively correlated with economic growth (King and Levine, 1993), although endogeneity may play a role here (Valíčková et al., 2015).

3.3. Data

Period of observations is between 1991 and 2016, i.e. it only covers the modern stage in the history of banking in Russia. The purpose of this text is to define the approach and select proper tools. Additional historical material can follow up to extend the time series. Inflection points where the direction changes deserve particular interest. Although my observations start in 1991 and Russia did not exist as an independent state prior to that, a departure from a fully centralized credit system started a few years before 1991, i.e. still under the Soviet Union.

Data on Russian commercial bank financial indicators originate from banking statistics and financial reporting as disclosed via the Central Bank of Russia web site (www.cbr.ru) and partly from the rating agencies RIA Rating and RAEX. Macroeconomic indicators (real GDP; breakdown of investment into fixed assets by source; profit; profitability; wages) come from Rosstat publications.

This author constructed some of the institutional indicators, for instance the sample of state-controlled banks (Vernikov, 2012; 2015). Information on state participation in bank equity only covers the period since 1999. The ‘spontaneous privatization’ of specialized state banks (spetsbanki) in 1990–1992 gave birth to several hundreds of financial institutions with obscure ownership structure. More than one-half of the banks that existed in 1992 (767 out of 1,414) were the offspring of former spetsbanki (Schoors, 2003).

4 Rosstat makes public average wages in ‘financial activity’ rather than banking alone, but banks are responsible for over 90 percent of financial intermediation in Russia, so this approximation is justified.
Data for state-controlled banks are included in aggregate calculation in full without weighing for the share of state participation. The underlying assumption is that a controlling equity stake enables to appoint key directors and managers who exercise decisive influence on a bank’s decision-making in lending and finance regardless of minority interests.

The term ‘core state-controlled banks’ refers to Sberbank, Bank VTB (without subsidiaries) and Rosselkhozbank (Russian Bank for Agriculture). For the first time in the literature, I take into account the loan portfolio of Vnesheconombank whose project finance and corporate lending is similar in nature to those performed by core state banks.

Only three datasets cover the entire period of observations while other datasets are incomplete with sparse data on the pre-1998 period. There are 408 observations. Annex 1 contains descriptive statistics and Annex 2 displays Pearson correlation coefficients (r) within each pair of indicators.

4. Empirical results and interpretation

4.1. Performance of indicators

Tab. 2 below summarizes the statistical survey by showing direction signs for each indicator. The right-hand column shows tentative points of inflection where sign changes. Individual charts for every indicator are in the Annex 3.

**Table 2**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Direction of change</th>
<th>Inflection point(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUM</td>
<td>↑↓</td>
<td>1994</td>
</tr>
<tr>
<td>NUMSOB</td>
<td>↑↑</td>
<td>↑↑</td>
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<tr>
<td>SOB</td>
<td>↓↑</td>
<td>↓↑</td>
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<tr>
<td>SOBAS</td>
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<td>CORESOBAS</td>
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<td>SOBLOAN</td>
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<td>SBER</td>
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<td>↑↓ =</td>
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<tr>
<td>LDR</td>
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<tr>
<td>LTA</td>
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<td>↓↑ =</td>
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<tr>
<td>LONGTERM</td>
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<tr>
<td>ROE</td>
<td>↑↓</td>
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<tr>
<td>ROENOSBER</td>
<td>↑↓</td>
<td>↑↓ =</td>
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<tr>
<td>ROESBER</td>
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<tr>
<td>LTINV</td>
<td>↓↑</td>
<td>↓↑ =</td>
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<tr>
<td>PROFIT</td>
<td>↑↓</td>
<td>↑↓ =</td>
</tr>
<tr>
<td>PROFITNOSBER</td>
<td>↑↓</td>
<td>↑↓ =</td>
</tr>
</tbody>
</table>

Notes. Symbols of indicators with unanticipated actual performance are typed in italics. Sign «=» means no clear direction. Sign «...» means data unavailable.

Source: calculated and estimated by the author.

NUM. The number of banks went into decline as early as in 1994, i.e. during the period of liberal reforming. The number of banks stabilizes after the crisis in 1999–2003, contrary to my expectation.

5 Vnesheconombank (Bank for Development and Foreign Economic Activity) has no banking license, and the Central Bank does not include its figures in the banking statistics nor disclose them via www.cbr.ru.
NUMSOB. The number of state-controlled banks jumped up twice, after 1998 and 2008, when the government had to step in to tackle the failure of private institutions (Fig. 1). Counterintuitively, the number of state-controlled banks has decreased after 2009, though their share in the total count grew because the latter fell faster after 2011, as reflected by indicator SOB.

* Red line (number of state-controlled banks) readings prior to 1999 do not reflect actual data.

**Fig. 1. Number of banking entities in Russia**

* Sources: CBR, author’s calculations and estimates.

SOBAS and CORESOBAS. The upward trend in the share of state banks in total banking assets since 2000 was largely driven by the three ‘national champions’, Sberbank, VTB and Rosselkhozbank (Fig. 2). Joint share of state banks and Vnesheconombank in the loan market exceeds 65 percent, revealing a replacement of private lenders by public ones.

* Sberbank of Russia, Bank VTB, and Rosselkhozbank, without subsidiaries

**Fig. 2. Share of state-controlled banks in total assets of commercial banks, %**

* Source: author’s calculation from data from CBR, RIA Rating Agency (http://riarating.ru/) and (www.kuap.ru)

SOBDEPO and SBER. The trend in household deposits turned out to be the opposite to what happened in the loan market. The drop in Sberbank market share in 2000–2003 is attributable to the novelty and attractiveness of private bank services. Since 2004, the deposit insurance system (DIS) became the key driver.
LDR. Loan-to-deposit ratio (LDR) grew up until 2008 and then started falling. It may reflect the business cycle or the immaturity of the Russian banking industry. I find it hard to interpret this trend from an institutional perspective.

LTA. Banks’ readiness to lend to the real economy stopped growing after 2007, probably due to economic stagnation and the mounting of credit risks.

The continued growth of bank readiness to lend long-term (LONGTERM) after 2013 undermines the credibility of this measure. The share of long-term loans at 45.9 percent of the loan portfolio (2016) looks too high in the context of real economy stagnation. High values of LONGTERM can result from factors unrelated to institutional change, such as window-dressing in order to conceal the true magnitude of non-performing loans.

ROE. Return on bank equity fluctuated within a broad range regardless of macroeconomic conditions or the direction of institutional change. Without Sberbank the return on bank equity (ROENOSBER) looks humbler and evolve more smoothly.

ROAGAP. The gap between return on assets of banks compared to non-financial companies grew after the 1998 crisis, which make sense, and fell after 2008, which does not.

WAGE. Bank wage handicap stopped declining in 2013 and showed some growth in 2016. Banks have learned to take advantage of their oligopoly and the weakness of non-banking financial institutions.

Normalized values of all indicators index appear in a common chart (Fig. 3). I use a reverse scale for indicators NUM, ROE, PROFSHARE and WAGE so that their expected dynamics (see Tab. 2) goes in the same direction as the rest and deviations from it are visible better.

Fig. 3. Indicator performance (indicator description appears in Tab. 1 and Annex 1).

Source: calculated and estimated by the author.

Eight indicators inflected in 1999–2000 and two more did so in 2001. Four indicators inflected between years 2005 and 2008, as Urazova (2015a) had anticipated. Evolutionary change is gradual and non-discretionary, so indicators may work with certain lags. A critical mass of indicators changing direction at the turn of the century may have signaled a shift in the banking industry mode of operation.

Fig. 3 suggests that indicators NUMSOB, SOBDEPO, LDR, ROESBER, PROFIT and ROAGAP performed out of line with the rest. SBER (the share of Sberbank in the household deposits market) acted in antiphase with other structural indicators due to the targeted effect of the deposit insurance system.

Just a few of the time series start before 1998, so there is insufficient data to use statistical processing and perform factor analysis for 1991–1998. Data for 1999–2016 were processed in...
SPSS to perform principal component analysis (PCA). The 1st component aggregates seven indicators with the highest values. SOBAS has the coefficient of 0.986 that justify its use as a proxy of institutional dynamics during that period, even though the share of public banks in total assets is no equivalent to the mode of functioning of banking in general. Replacing SOBAS, SOBLOAN and SOBDEPO by auxiliary metrics (CORESOBAS, CORESObloan and, to a lesser degree, SBER) yields similar results, so core public banks are an acceptable proxy for all public banks.

4.2. Interpretation of empirical findings

The 1998 financial crisis was a turning point. Due to the market failure of largest private banks, the government returns into banking as regulator and service provider, in its capacity of controlling shareholder of largest banks and development institutions. Profitability grows in the public sector and falls in the private sector. Banks stick more to their natural business of lending to the real economy, partly under the industrial policies of the authorities.

Indicators responsible for bank relevance and effectiveness performed less consistently than those displaying institutional structure of the banking sector and the resources that each type of banks commands. That may be due to non-linear relationship between two groups of indicators or its absence altogether or just lagging.

A market-like environment took shape in the banking industry over the past 25 or 30 years and now steers all banks including state-owned ones. Banks’ willingness to lend to the real sector for investment purposes and otherwise has fallen since 2011. State banks are not inclined to restrain their own profits and wages. Public sector growth has yet failed to reverse the operating mode of the sector to make it compatible with institutional Matrix X. An «incremental institutional change» (North, 1990) has yet to produce a critical mass necessary for a first-order phase transition.

![Fig. 4. The direction of institutional change in the Russian banking sector](image)

**Fig. 4.** The direction of institutional change in the Russian banking sector

*Source: calculated and estimated by the author*

Fig. 4 tries to express graphically the direction of institutional change in the banking industry. The ratio of color-filled square to unfilled one reflects the power of institutions of one type or another, according to the quantitative analysis above. The shape of the trendline reflects my assumption that government presence in the banking sector has a ceiling that is within reach now. Excessive socialization and privatization both jeopardize systemic stability. Decay of private capital and exit of too many private banks leaves state banks with excessive market power that is beneficial for financial performance but detrimental
for quality and pricing of banking services. The share of public sector may have already exceeded 2/3 if we include policy lending by Vnesheconombank, Industrial Development Fund and alike development institutions. The hypothesis about wave-like dynamic suggests that the direction will likely reverse after going too far. If so, private initiative in banking will again enjoy encouragement at the expense of the public sector.

Government policies can enhance organic institutional change and can as well counter it. Deposit insurance was enacted in 2003 in order to increase competition and improve the competitiveness of private banks at the expense of Sberbank. It slowed down a restructuring of the sector and postponed its rectification. Depositors keep distrusting private banks (Ibragimova et al., 2015). I regard the stabilization of Sberbank share in the household deposits market and the growing share of other state banks as an equilibrium between the transplanted institution of deposit insurance, on the one hand, and the oppositely pointed vector of trust to state institutions and mistrust to private ones, on the other.

5. Concluding remarks

I found heterogeneity within the period of observations. In 1991–1998, indicators denoting private initiative in banking and bank financial efficiency were growing, whereas indicators denoting government involvement and bank relevance for the real sector were falling. This mode of functioning produced negative outcomes in terms of macroeconomic performance and banking sector adequacy. Since 1994, my indicators change direction one after another and build up a critical mass in 1999–2000. Change manifests itself in the banking sector via a falling number of active banks and growing shares of state-controlled banks in the total number of banks, total banking assets and total loans. The breakdown of household deposits is less informative because of deposit insurance effects.

Some of the indicators featuring the effects of banking reacted earlier than others, namely banks’ propensity to lend and the share of bank loans within all sources of investment into fixed assets, return on equity of banks except Sberbank, and bank wage handicap.

State-controlled banks have adapted themselves to the market-like environment with its incentives and coordination mechanisms by partly abandoning their core mission. Empirical material suggests a fluctuating proportion between public interest, on the one hand, and private ownership, initiative and profit pursuit, on the other. A new wave may have started after 1998, but the banking sector keeps operating by inertia according to much the same rules as over the past 25 or 30 years. Structural change anticipates a qualitative institutional change but does not preempt nor guarantee it.

REFERENCES


Measuring institutional change: The case of the Russian banking industry


## Annex 1. Descriptive statistics

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<th>Symbol</th>
<th>Indicator</th>
<th>Period</th>
<th>Obs.</th>
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<th>Max</th>
<th>Med.</th>
<th>Std. dev.</th>
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*Source:* calculated by the author based on data described in Section 3.3.
Annex 2. Correlation between indicators

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<td>0.91</td>
<td>0.84</td>
<td>0.81</td>
<td>-0.81</td>
<td>-0.97</td>
<td>0.54</td>
<td>0.62</td>
<td>0.84</td>
<td>0.42</td>
<td>-0.44</td>
<td>0.83</td>
<td>0.65</td>
<td>0.48</td>
<td>-0.16</td>
<td>0.10</td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>

Source: calculated by the author.
Annex 3. The metrics of institutional change

Number of banks with a valid license

Number of state-controlled banks

Share of state-controlled banks in the total number

Share of state-controlled banks in total assets

Share of state-controlled banks in total lending to non-financial companies

Share of state-controlled banks in total household deposits

Loans-to-deposits ratio (LDR)

Banks’ propensity to lend
Vernikov A.

Banks’ propensity to lend long-term

Return on equity (ROAE) of banks

Share of banks in the total amount of profit earned by the corporate sector**

Return on assets (ROAA) of banks compared to non-financial companies

Bank wage handicap

* Sberbank, VTB and Rosselkhozbank, without subsidiaries.

** Values are shown equal to 0 for years when aggregated financial result of banks is negative (losses).

Source: author’s calculations.