

## Assessment of Concentration in the Banking Services Market

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**Abstract:** The trend is revealed of the growing financial stability of the Russian banking sector. The level of concentration in the Russian banking services market in the recent 5 years is assessed. Concentration indices CR3, CR5, CR10 and Herfindahl-Hirschman Index are calculated, concentration curves are built. Internationally, the Russian banking sector belongs to the moderately concentrated markets. Increase of the size of credit portfolio produces either insignificant positive or negative effect on forming the bank's net profit. The increased impact of the size of natural persons' investments on the net profit is revealed.

**Key words:** Sustainability, concentration, banking, concentration index, Herfindahl-Hirschman Index, concentration curves, correlation-regression analysis

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### INTRODUCTION

The general financial condition of the world and national economy influences the development of financial sector, a significant component of which is banking system (Kundukchyan *et al.*, 2014; Leuvensteijn *et al.*, 2013). Competition development and decreasing concentration in the banking sector imply much lower spreads between the banking and market interest rates for most products in the credit market (Kulathunga and Rehman, 2015). This creates prerequisites for business development, increasing the financial activity of the population. The results show that high concentration in the banking sector leads to decrease of efficiency and negatively influences the economic growth (Ghasemi and Abdolshah, 2015; Repkova and Stavarek, 2014; Cable, 2014). Development of competition in the banking sector can be provided via initiatives to create local community banks (Bulnina *et al.*, 2015). Regular assessment of the concentration level will help not only reveal the problems of commercial banks but timely take measures to eliminate them.

### MATERIALS AND METHODS

The research of market concentration in the banking services market was carried out basing on the assessment of market shares of three (CR3), five (CR5) and ten (CR10) main banks, Herfindahl-Hirschman Index and concentration curves. To assess the impact of the size of credit portfolio and the size of natural persons' investments on the net profit of commercial bank, correlation-regression analysis was applied.

### RESULTS AND DISCUSSION

We carry out the analysis of the Russian banking sector stability, using groups of indicators to assess assets, capital, profitability and liquidity. As a result of the analysis the following results (Table 1) was obtained. The trend of growing of the most financial stability indicators of the Russian banking sector can be clearly seen. The total assets of the Russian banking sector have grown up to 58.9 trillion rubles during the research period. This is due to the fact that the Russian government actively pursued the policy of financial assistance. The banking capital growth was accompanied with the decrease of the indicators of its sufficiency and profit and assets became the main source of the total bank capital. The total credits of the Russian banking system have reduced. Dynamics of the indicators of financial stability of the Russian banking system is shown in Fig. 1.

Analysis of the structure of banking assets showed that the main part of assets is composed of credits to non-financial sector-about 40%. The share of the population obligations in the structure of banking assets increased up to 19.2%. Figure 2 shows the dynamics of the indicators of the banking system development efficiency.

The dynamics of the indicators of the banking system development efficiency. To assess the market concentration in practice, one should calculate the market shares of three (CR3), five (CR5) and ten (CR10) main banks, Herfindahl-Hirschman Index and entropy index. Herfindahl-Hirschman Index is considered to be the most popular tool and serves as the starting point for other

Table 1: Indicators of the financial stability of the Russian banking system in 2010-2014 (trillion rubles)

Indicators	Years				
	2010	2011	2012	2013	2014
Assets	45.58	49.01	49.51	57.40	58.90
Capital	5.41	5.48	6.09	7.60	7.81
Credits	34.51	34.34	34.00	27.70	24.55
Profit	0.92	0.97	1.00	0.90	0.94
Gross domestic product	60.73	61.35	62.60	66.70	71.23
Share of assets in gross domestic product	1.33	1.25	1.26	1.16	1.21
Return of assets	2.02	1.98	2.02	1.57	1.60
Return on equity	17.02	17.70	16.42	11.84	12.04
Share of credits in assets	75.71	70.06	68.67	48.26	41.68
Return on credits	2.67	2.82	2.94	3.25	3.83

Table 2: Concentration in the banking market of Russia and economically developed countries in 2014

A country	HHI	CR3	CR5	CR10	Number of banks
Switzerland	0.26	0.72	0.77	0.82	325
Netherlands	0.23	0.78	0.87	0.83	45
Greece	0.20	0.66	0.82	0.94	22
Denmark	0.17	0.67	0.80	0.91	91
Ireland	0.17	0.65	0.73	0.84	30
Australia	0.14	0.57	0.77	0.90	31
Austria	0.14	0.53	0.64	0.77	78
Canada	0.14	0.54	0.82	0.94	44
Belgium	0.12	0.52	0.75	0.87	79
Norway	0.12	0.56	0.67	0.81	35
Sweden	0.12	0.53	0.73	0.92	21
Portugal	0.09	0.40	0.56	0.82	40
Spain	0.08	0.45	0.57	0.69	140
Russia	0.08	0.38	0.44	0.53	915
Japan	0.06	0.39	0.49	0.56	140
United kingdom	0.06	0.34	0.47	0.58	186
France	0.05	0.30	0.45	0.54	336
Italy	0.04	0.27	0.40	0.64	331
Germany	0.03	0.22	0.31	0.46	2180
Luxembourg	0.03	0.20	0.30	0.49	118
USA	0.03	0.22	0.33	0.52	1717

concentration indices. Table 2 shows concentration in the banking market of Russia and economically developed countries. According to Herfindahl-Hirschman Index, the Russian Federation ranks 14th among the leading Western countries. Internationally, the Russian banking sector belongs to the moderately concentrated markets. A rather high concentration by Herfindahl-Hirschman Index in Russia is due to the fact that it includes both the number of banks and their market shares. By the number of banks (915) the Russian Federation ranks 3rd after Germany (2180) and the USA (1717). Figure 3 shows the curves of concentration in the Russian banking sector in the recent 5 years.

The top three banks in Russia are Sberbank, VTB and Gazprombank. Concentration coefficient CR3 = 38%. In most countries the three largest banks own >40% of the market. The average value of CR3 is 66% and median is 64%. In the Central and Eastern Europe, the average value of CR3 reaches 70%, of median 67%. On the background of comparable countries and internationally, Russia can

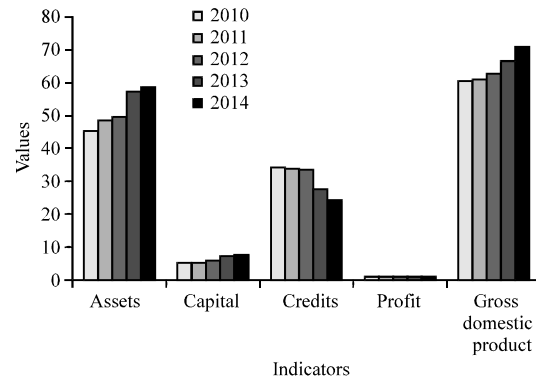


Fig. 1: Dynamics of the indicators of financial stability of the Russian banking system

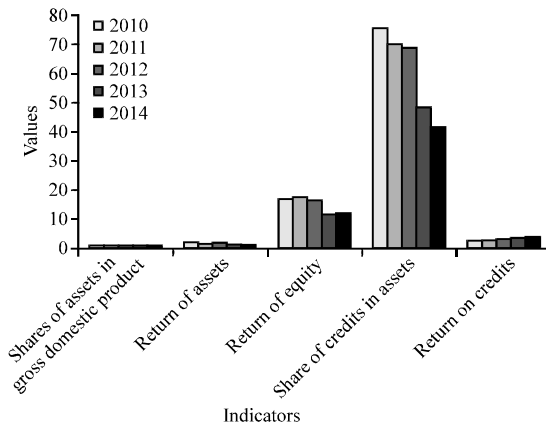


Fig. 2: Dynamics of the indicators of the Russian banking system efficiency

be considered to be a country with low concentration in banking sector. Attracting credit resources by banks, granting investments to natural persons by commercial banks influences the level of concentration in the market. Structural approach reveals a unique dependence between profitability and the level of concentration in the market. Out of the multiple factors which determine the efficiency of bank's functioning in the market, two factors

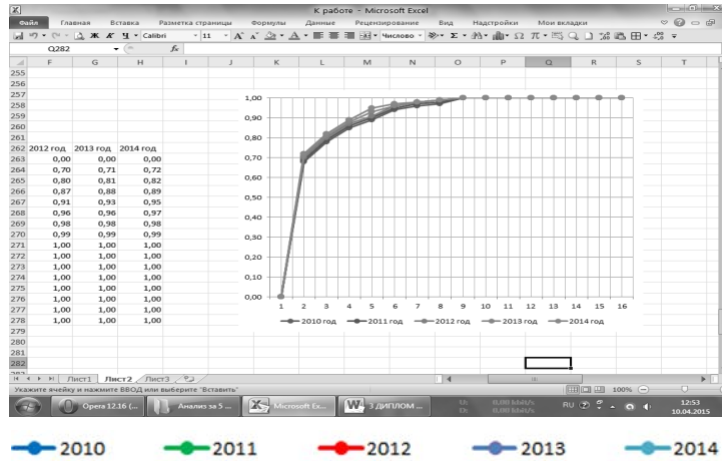


Fig. 3: Cumulative curves of concentration in the Russian banking sector

Table 3: Results of correlation-regression analysis

Indicators	Years				
	2010	2011	2012	2013	2014
Parameter b1 of regression equation	0.00366	-0.00284	-0.00323	-0.01362	-0.03843
Parameter b2 of regression equation	-0.01121	-0.00272	-0.00196	0.01359	0.04947
Multiple correlation coefficient	0.58016	0.82204	0.82553	0.93060	0.95915
Coefficient of determination	0.33658	0.67575	0.68151	0.86601	0.91997

were chosen with the paired coefficients matrix. The two factors make the largest impact on forming the net profit of the bank the size of credit portfolio and the size of natural persons' investments. We have assessed the impact of the size of credit portfolio and the size of natural persons' investments on the net profit of banks. We have built the multiple regression Eq. 1:

$$Y_i = A + b_1 x_1 + b_2 x_2 \quad (1)$$

Where:

- $Y_i$  = Profit of bank
- $x_1$  = The credit portfolio
- $x_2$  = Individual deposits

The multiple regression coefficients and determination coefficients were calculated. As a result of the calculations, the following indicators were obtained. (Table 3).

Increase of the size of credit portfolio produces either insignificant positive or negative effect on forming the bank's net profit. Parameter b2 shows the increased impact of the size of natural persons' investments on the net profit. It should be noted that all of the obtained

regression equations were checked on the basis of F-criterion while coefficient at factor signs of multiple regression equation (considered significant with 95% probability) were checked with t-criterion.

The multiple correlation coefficient grows which testifies to the strengthening of interrelation between the net profit indicators and the considered factors. Determination coefficient also grows. This fact testifies to the increase of the impact of factors «size of credit portfolio» and «size of natural persons' investments» on forming the indicator of «bank's net profit».

### CONCLUSION

Compared to the leading developed countries, the Russian banking sector is characterized as moderately concentrated. The growth of concentration level under the influence of the size of credit portfolio and the size of natural persons' investments influences positively on the net profit of commercial banks.

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