

The Impact of Reforms on Commonwealth of Independent States' Banking Profitability

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Abstract. *The main objective of the paper is to assess the impact of reforms on bank profitability in the eleven banking systems from the Commonwealth of Independent States (all current or former members): Armenia, Azerbaijan, Republic of Belarus, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Tajikistan, Turkmenistan, Ukraine and Uzbekistan, for the period between 2005 and 2011. We use as proxy for bank profitability the return on average equity (ROAE) and the return on average assets (ROAA). The estimations show that financial freedom and Banking sector reform indicators have a strong statistical significance and negatively impact the bank profitability. This could be explained by the fact that reforms increased competition with the consequence of diminishing profit margins and abnormal returns. However, the Regulatory quality indicator had no statistical significance, meaning that the laws are not enforced. Our secondary result is that Business Mix has a negative significant impact on ROAE, while management efficiency negatively influences both ROAA and ROAE.*

Keywords: Bank profitability, Commonwealth of Independent States, reforms, banking systems

JEL Classification: G21, P34, P52

1. Introduction

After the breakup of the Soviet Union, the Commonwealth of Independent States (CIS) was created on 8 December 1991 by the Republic of Belarus, the Russian Federation, and Ukraine. Just a few days later, on 21st of December 1991, the CIS was expanded with eight additional members, all former Soviet Republics – Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Republic of Moldova, Turkmenistan, Tajikistan, and Uzbekistan. In December 1993, after Georgia joined, the CIS was formed by twelve former Soviet Republics (all except the Baltic States). In August 2008 Georgia withdrew from the CIS. In May 2009, Armenia, Azerbaijan, Belarus, Georgia, Republic of Moldova, and Ukraine joined the Eastern Partnership, a project that was initiated by the European Union (EU). Nowadays, CIS has nine full members (Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russia, Tajikistan, and Uzbekistan) and two “associated members” (Turkmenistan and Ukraine).

In the early 1990s, the Soviet successor countries began the transformation of their financial systems, implementing market-based economy principles. Thus, at the early stages of transition, the banking systems of CIS were dominated by a few state-owned specialized banks. In this context, the need of banking system reform emerged with the following goals: transformation of single-bank arrangements in two-tier systems, introduction of national currencies, bank privatization and introduction of new market-oriented banking regulations. Until the end of 1990s, the banking systems of CIS countries were heavily affected by hyperinflation and the increase of low-performing loans' portfolios. The Russian financial crisis of 1998 had direct negative consequences on the macroeconomic stability of these countries and on banks'

capitalization. For example, the total capital of the Ukrainian banking system dropped by almost one third during 1998 and in the Kyrgyz Republic, it fell by more than half between 1998 and 1999 (EBRD, 1999).

The banking systems of CIS faced fundamental reforms after 1998. Armenia, Georgia, Republic of Moldova, Tajikistan, and Ukraine had tightened their minimum capital requirements for commercial banks starting with 1999. Moreover, in order to increase the financial transparency, some countries introduced International Accounting Standards (Armenia, Ukraine, Republic of Moldova, and Kyrgyzstan). Even if the reforms have made some progress, there was a lack of independency of financial supervision authorities, both from political and financial perspectives. Corruption, weak judicial systems, limited disclosure of information inflated the banking risks. This fact put pressure on operational costs and interest rates.

In this paper we assess the impact of reforms on bank profitability for eleven banking systems from CIS (except Russia), or former CIS members: Armenia, Azerbaijan, Republic of Belarus, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Tajikistan, Turkmenistan, Ukraine and Uzbekistan. We include Georgia in the sample because of the similarities of its economy with other CIS members, taking into account its roots from the former Union of Soviet Socialist Republics (the Soviet Union) and its membership in CIS for sixteen years (1993-2009). We use as proxy for bank profitability two ratios: the return on average equity (ROAE), computed as a ratio of the net profit to average equity, and the return on average assets (ROAA), computed as a ratio of the net profit to the bank's average assets.

We contribute to the literature on banking sector profitability in several ways. First, we enrich the literature related to banking profitability by studying CIS banking systems. Empirical studies regarding banks' profitability determinants for CIS countries are limited, to the best of our knowledge. Moreover, there are no others empirical papers that deal with the impact of reforms on banking profitability in CIS using the tree proxies: financial freedom index, regulatory quality indicator, banking sector reform.

Our study concentrates on the period 2005-2011, very turbulent and challenging, following the transition to the market economy. We focus on this special period, which includes the global financial crisis, to highlight the determinants of the bank profitability for this particular group of countries. All the countries in the sample were transition economies in the 1990s – late transition countries (Djalilov and Piesse, 2016) – and experienced severe and long-lasting recessions – “the great depression of the 1990s” (Kolodko, 2001). We chose 2005 as our reference point for the investigation, because the countries succeeded to recover the (real) GDP loss in comparison to 1988 (Cohen, 2009, p. 171).

The rest of the paper is organized as follows: section 2 reviews the literature regarding the determinants of banks profitability, focusing on the present and former CIS member countries, section 3 presents the methodological approach adopted, while section 4 includes results and the discussion. In section 5, the conclusions are drawn.

2. Literature review

The profitability ratios extensively used in empirical studies are the return on (average) equity (ROAE), computed as a ratio of the net profit to equity, and the return on (average) assets (ROAA), and computed as a ratio of the net profit to the total bank assets. Bourke (1989) is one of the first researchers who investigated bank profitability determinants using as dependent variables the net profit before taxes against total capital ratio and net profit before taxes against total assets ratio. ROAE is the ratio with highest importance for the shareholders, expressing the net return of the capital invested. ROAA is considered a measure of management efficiency, taking into account the risks derived from the leverage (Berger and Humphrey, 1997; DeYoung

and Rice, 2004; Athanasoglou et al., 2006).

A vast amount of studies explore the bank performance determinants. The literature separates the factors that influence banks' profitability in two main groups: internal (bank-specific) factors and industry external factors (industry specific and macroeconomic factors). The internal factors that influence profitability are: bank size (Kosmidou, 2008 and Athanasoglou et al., 2006), capital adequacy (Hassan and Bashir, 2003, Akbas, 2012, Athanasoglou et al., 2006), credit risk (Mansur et al., 1993), management efficiency (Akbas, 2012), liquidity risk (Alexiou and Sofoklis, 2009), and business mix (Goddard et al., 2004, Alexiou and Sofoklis, 2009). An industry specific factor is the level of competition, with different measures, while macroeconomic factors considered are the economic growth and the inflation.

Some of the studies are country specific, whereas others concentrated the investigation on a panel of countries. In consequence, a large and growing body of literature concentrates on single country studies: for Brazil (Afanasiyev et al., 2002), China (Heffernan and Fu, 2008), Colombia (Barajas et al., 1999), Czech Republic (Horvath, 2009), Croatia (Kundid et al., 2011), Greece (Mamatzakis, 2003; Kosmidou, 2008; Alexiou and Sofoklis, 2009), India (Badola and Verma, 2006, Brahmaiah and Ranajee, 2018), Japan (Liu and Wilson, 2010), Korea (Sufian, 2011), Malaysia (Guru et al., 2002), Pakistan (Javaid, 2011; Burki and Niazi, 2010), Philippines (Sufian and Chong, 2008), Spain (Vivas, 1997), Switzerland (Dietrich and Wanzenried, 2009), Taiwan (Ramlall, 2009; Chen and Yeh, 1998), Tunisia (Naceur, 2003; Naceur and Goaid, 2001), Turkey (Alper and Anbar, 2011; Kaya, 2002; Tunay and Silpar, 2006; Acaravci and Çalim, 2013), USA (Berger, 1995; Angbazo, 1997) or Ukraine (Athari, 2021).

Over the last decades, a significant number of studies investigates the bank profitability by groups of countries: 11 European countries (Molyneux and Thornton, 1992; Molyneux and Forbes, 1995), 80 countries (Demergüç-Kunt and Huizinga, 1999, 2001), Middle East countries (Bashir, 2000; Hassan and Bashir, 2003; El-Chaarani, 2019), South Eastern European countries (Athanasoglou et al., 2005, 2006), EU27 (Petria et al., 2015; Bongini et al, 2019; Ercegovic et al., 2020), Post-soviet countries (Yüksel et al., 2018), Eurasian Economic Union (Pak, 2020).

There are very few studies that regard bank performance determinants for CIS countries and the majority of them are country-level. Orazalin et al. (2015) explores the relationship between ownership structures and operating performance of top Russian commercial banks. Their findings show that foreign ownership has a positive impact on bank performance. Davydenko (2010) examines the determinants of bank profitability in Ukraine for the period 2005-2009. The results reveal that Ukrainian banks suffer from low quality of loans and do not manage to extract considerable profits from the growing volume of deposits. In the same vein, Athari (2021) studies the effects of domestic political risk and global economic policy uncertainty factors on the profitability of Ukrainian banks between 2005 and 2015. Yüksel et al. (2018) identify the determinants of bank profitability in thirteen post-Soviet countries between 1996 and 2016. He concluded that loan amount, non-interest income and economic growth are significant indicators of profitability. Pak (2020) investigates the relationship between funding stability, systemic importance, and the profitability of banks in Russia, Kazakhstan, and Belarus, the three founding member states of the Eurasian Economic Union, for the period 2008 - 2017. The results show a strong degree of stability in net interest margin (NIM) and a lack of persistence in return on assets (ROA). In a similar manner, Djalilov and Piesse (2016) focusses on CEE and former USSR countries, divided in early and late transition countries and, for the period 2000-2013, highlights that in late transition countries there is a negative impact of credit risk on bank profitability and that government spending and monetary freedom negatively influence bank profitability.

3. Data and Methodology

In this study, we estimate the impact of a set of variables on bank profitability in CIS countries (except Russia) or former CIS members. We estimate the following equation:

$$Y = X_1\beta_1 + X_2\beta_2 + X_3\beta_3 + year\beta_4 + \alpha + \varepsilon \quad (1)$$

Where:

Y stands for the dependent variables ROAA, ROAE;

X_1 is a vector of bank internal factors;

X_2 is a vector of banking sector factors;

X_3 is a vector of macroeconomic variables;

α is the intercept;

$year$ are the year dummies;

ε is the error term;

β_i is the matrix of variable coefficients.

The bank-specific variables were downloaded from the BankFocus database, while the data for Lerner index, GDP growth and inflation series were retrieved from the World Bank data repository.

The most important structural reforms during the transition of the CIS member states included the legal system, and our focus is to assess the ability of the government to formulate and implement sound policies and regulations that allow and promote private sector development. We used as proxy for this factor the regulatory quality indicator from World Bank Database.

In order to measure the reforms of the banking sector, we use two proxies – financial freedom index and index of banking sector reform. Financial freedom is a measure of banking efficiency as well as a measure of independence from government control and interference in the financial sector. The source for this variable is Heritage Foundation Database. The index of banking sector reform summarizes the progress made in the establishment of banks solvency, prudential supervision, banking competition and interest rate liberalization and is computed by the European Bank for Reconstruction and Development.

In order to check the robustness of the model we estimate an alternative equation without time effects. We include a “crisis” dummy with the intention to test whether and in which extent the global financial crisis (started in USA in 2008) has affected the bank performance in the CIS countries. The dummy will consider 2009 as the starting year of the crisis¹, to reflect the delay of the turmoil development in this part of the world.

Table 1 summarizes the variables used in this paper and their expected effect on bank performance, according to the literature.

¹ The Real GDP cross-country correlations (annual growth rates) between Russia and CIS in the post-crisis period 2009–2016 was 0.58 (Faryna and Simola, 2018, p. 23). According to Guriev and Tsivinski (2010), the effect of the economic crisis for Russia in 2009 was substantial, being the highest in G-20 countries, the difference being over 13 in percentage points comparing with 2008.

Table 1. Variables used and expected effect

Symbol	Variables	Proxy	Expected relation (+/-)
<i>Dependent Variables</i>			
ROAA	Return on Average Assets	Net profit/ Average Asset	
ROAE	Return on Average Equity	Net profit/ Average Common Stock Equity	
<i>Independent Variables</i>			
<i>Bank-specific factors (internal):</i>			
size	Bank Size	Logarithm of Total Assets (log)	+/-
adequacy	Capital Adequacy	Equity / Total Assets	+/-
crisk	Credit Risk	Impaired Loans(NPLs)/ Gross Loans	-
efficiency	Management Efficiency	Cost to Income Ratio	-
lrisk	Liquidity Risk	Loans/ Customer Deposits	-
busmix	Business Mix indicator	Oth Op Inc / Avg Assets	+
<i>Banking system specific factors (external):</i>			
Lerner	Competition	Lerner Index	+/-
finfreedom	Reform	financial freedom index	+/-
regqual	Reform	regulatory quality indicator	+/-
bank_ref_country	Reform	banking sector reform	+/-
<i>Macroeconomic factors (external):</i>			
inflation	Inflation	Inflation, GDP deflator (annual %)	+/-
growth	Economic Growth	GDP per capita growth (annual %)	+

We employed a fixed-effects panel data model with robust estimators of variance. In addition to the individual bank effects, we used year dummies to capture temporal variation that is not due to the explanatory variables. The data was

winsorized at 1% in order to reduce the effect of possible spurious outliers. ROAE and ROAE show persistency over time and we used lagged values of dependent variables as regressors to handle this issue. In addition, we used lags of Financial Freedom, Regulatory Quality, Bank Reform, GDP Growth, Inflation and Lerner Index. The model has been estimated on the entire sample of eleven countries, members and former members of CIS, for a time span between 2005 and 2011, which includes the latest global financial crisis. The sample counts for 332 banks.

Descriptive statistics of all variables included in the empirical regressions are presented in Table 2.

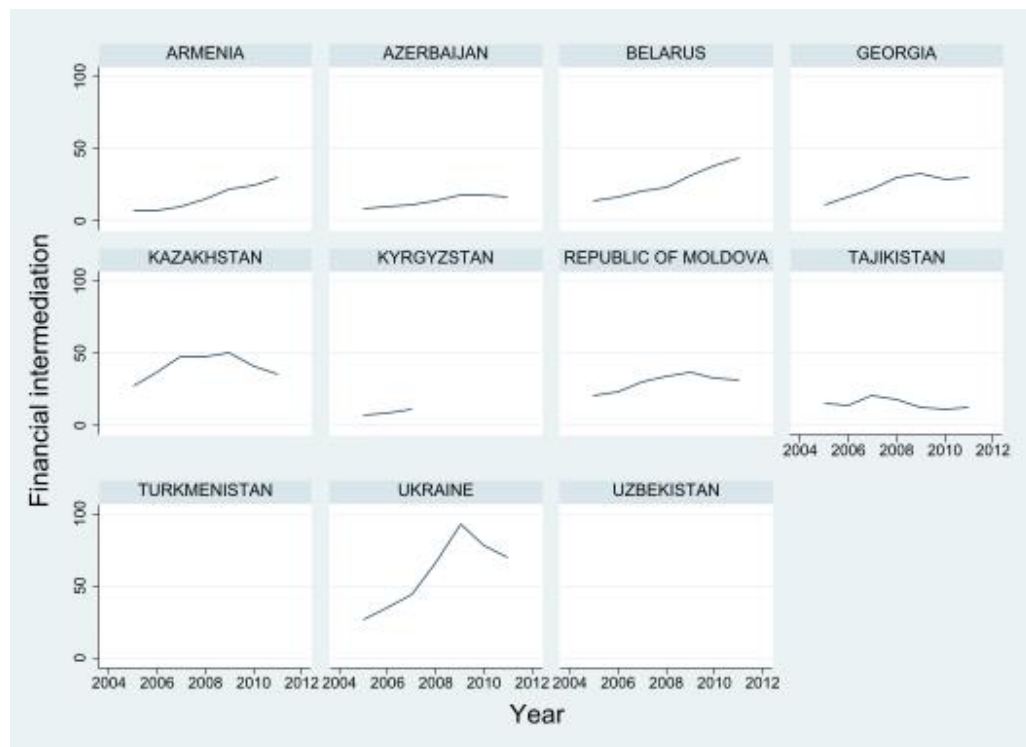
Table 2. Descriptive statistics of data series

Variable	Obs.	Mean	Std. Dev.	Min	Max
ROAA	691	1.05	3.90	-18.71	12.79
ROAE	689	5.84	25.24	-107.69	76.75
Size	691	12.77	1.63	8.98	17.05
Adequacy	691	19.12	13.19	0.99	85.81
Credit risk	691	6.48	6.66	0.00	59.52
Liquidity risk	691	39.26	28.02	1.94	257.03
Efficiency	691	64.51	28.97	13.54	311.43
Business mix	691	4.20	6.11	-2.86	102.65
Financial freedom	691	44.09	18.96	10.00	90.00
Regulatory quality	691	-0.40	0.55	-1.63	0.65
Bank reform	562	2.58	0.38	1.70	3.00
GDP growth	691	6.53	7.72	-14.8	34.50
Inflation	691	14.72	12.95	-18.92	71.17
Lerner Index	682	0.26	0.07	0.09	0.51

The data shows that the banks in the selected sample face low average returns (ROAA equals only 1.05%, while ROAE only 5.84%), which may suggest that the banking systems may underperform. The size varies from 8.89 to 17.05, with an average of 12.77 and a standard deviation of 1.63. The capital adequacy ratio is on average 19.12%, but it ranges between a minimum of 0.99% and a maximum of 85.81%. The banks in the sample may be heterogeneous regarding their risk characteristics. We notice that the liquidity risk ratio ranges between 1.94% and 257.03%, which suggest a high heterogeneity (the mean is 39.26 while the standard deviation is 28.02). The management efficiency (cost to income ratio) exhibit a large variation as well, between 13.54 and 311.43, with an average of 64.51 and a standard deviation of 28.97. The banking systems are also heterogeneous in terms of financial freedom, that ranges between 10% and 90%, with an average below 50%. This characteristic may be connected with the overall political regimes in this part of the world, with some exceptions. The Regulatory quality index equals a negative average of -0.40, and a standard deviation of 0.55, while the Bank reform index is 2.58 on average and has quite low variation (the standard deviation is 0.38). On the contrary, the figures of macroeconomic measures (GDP growth and Inflation) suggest an important volatility of the economies in the region – the GDP growth of 6.53% is much higher than in the high developed countries, but the standard deviation is 7.72%. The inflation/deflation exhibits two digit values, with a negative minimum of -18.92% and a maximum of 71.17%.

In the majority of the countries in our sample (except Ukraine), the financial intermediation (ratio of private credit by deposit money banks and other financial institutions to GDP) is below 50%, which indicates low developed banking systems, as shown in Figure 1, and may explain the lower impact of the financial crisis on the

banking systems in the region. This is a continuation of the behavior manifested since the nineties: the government’s budget deficit was crowding out bank lending to the real sector, because of the high interest rates for credits and very attractive interest rates for treasury bills (Huang et al., 2004, pp. 6-7). As result, the separation between the financial and the real sectors of the economy and the continued decline overtime in the scale of banking activities with respect to the real sector, which hindered the economic growth, prevented also during the crisis a deep impact over the banks’ performance.



Note: Financial intermediation is computed as ratio of Private credit by deposit money banks and other financial institutions to GDP (%).

Data source: BankFocus

Figure 1. Financial intermediation in selected CIS countries in the period 2005-2011

4. Results and discussion

The results are exhibited in Table 3. The estimations show that Financial freedom and Banking sector reform indicators have a strong statistical significance and negatively impacted the bank profitability. This could be explained by the fact that reforms increased competition with the consequence of diminishing profit margins and abnormal returns. However, the Regulatory quality indicator had no statistical significance, meaning that the laws are not enforced, even though most CIS countries have capital market and creditor rights legislation that are comparable with the EU standards (Golodniuk, 2005).

Table 3. Regression Statistics

	(1)	(2)	(1)	(2)
	ROAA	ROAE	ROAA	ROAE
ROAA (lag)	-0.122**		-0.132**	

	(0.0575)		(0.0566)	
ROAE (lag)		0.0118 (0.0439)		0.00736 (0.0440)
Size	0.0106 (0.537)	2.625 (2.841)	0.154 (0.276)	0.516 (1.591)
Adequacy	0.0597 (0.0367)	0.283** (0.135)	0.0594* (0.0351)	0.225* (0.128)
Credit risk	-0.205*** (0.0775)	-1.461*** (0.385)	-0.208*** (0.0739)	-1.603*** (0.347)
Liquidity risk	0.00307 (0.0107)	0.0252 (0.0451)	0.00301 (0.0104)	0.0363 (0.0431)
Efficiency	-0.0557*** (0.0110)	-0.322*** (0.0603)	-0.0556*** (0.0108)	-0.325*** (0.0615)
Business mix	-0.0553 (0.0903)	-1.126*** (0.362)	-0.0556 (0.0868)	-1.015*** (0.361)
Financial freedom	-0.0404*** (0.0133)	-0.256*** (0.0833)	-0.0394*** (0.0111)	-0.282*** (0.0702)
Reg. quality	-1.400 (0.956)	8.543 (5.638)	-1.536* (0.782)	4.333 (4.533)
Bank reform	-3.802*** (1.230)	-18.75*** (5.580)	-3.959*** (1.150)	-22.18*** (4.958)
GDP growth	0.00516 (0.0262)	-0.0578 (0.142)	-0.00992 (0.0179)	-0.0359 (0.101)
Inflation	0.0185 (0.0172)	-0.0334 (0.0965)	-0.00955 (0.00909)	-0.0861 (0.0732)
Lerner	-3.222 (3.090)	-16.60 (17.69)	-4.180 (2.527)	-26.28* (15.65)
Crisis			-0.343 (0.370)	-6.119** (2.659)
Intercept	17.06** (8.388)	65.00 (44.77)	15.95*** (3.884)	112.1*** (24.00)
Bank fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	No	No
<i>N</i>	691	688	691	688
adj. <i>R</i> ²	0.350	0.499	0.350	0.495

These results remain robust when we estimate the alternative model, by

including the “crisis” dummy (the signs and the statistical significance of the coefficients generally remain the same). An interesting result is the non-statistically significant coefficient of the crisis dummy for the ROAA dependent variable. This may be explained by the low level of financial intermediation in the studied countries (see Figure 1). Moreover, the banking system may be partially “disconnected” from the fluctuation of the respective economies. On the other hand, the results exhibit that ROAE was negatively affected during the crisis, which may suggest that the shock generated by the crisis was transferred to the equity owners.

Our secondary result is that Business mix has a negative significant impact on ROAE, while Management efficiency negatively influences both ROAA and ROAE.

5. Conclusions

We conclude that reforms on CIS banking sectors had a negative impact, confirming the idea that the banking reforms are usually accompanied by decrease of profitability, at least for a period of time. The banks were less affected by the financial crisis because of a lower involvement in the real economy, consequence of the crowding out effect. The prudential supervision needed to be strengthened and the regulatory framework be better enforced. The negative impact of the business model and management efficiency, suggests that bank management should be improved in order to change and diversify the business models (income sources) and reduce costs.

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