Does banking sector development promote economic growth? An empirical analysis for selected countries in Central and South Eastern Europe

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Does banking sector development promote economic growth? An empirical analysis for selected countries in Central and South Eastern Europe

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Economic growth is one of the ultimate goals of any economic system. This article examines the question whether in 16 transition economies from Central and South Eastern Europe the banking sector influences economic growth. The empirical investigation was carried out using a generalised method of moments (GMM) dynamic panel method. We measure the development in the banking sector using the bank credit to the private sector, interest rates, and ratio of quasi money (RQM). The research results show that credit to the private sector and interest margin (IM) are negatively related to the economic growth, while RQM is positively related to economic growth.

Keywords: banking sector development; economic growth; Central and South Eastern Europe

JEL classification: E44, E58, G21

1. Introduction

There is a long-debated issue whether there is a connection between financial development and economic growth. The question is whether there is causality and if so in what direction: is it the financial development that induces economic growth or maybe financial development merely follows economic growth. Most empirical studies (Levine, 1997, 2005; Wachtel, 2001 Fink, Haiss and Vukšić 2005) usually conclude that development of the financial sector accelerates economic growth. Financial systems perform several functions that serve to ameliorate these frictional costs (Pagano, 1993; Levine, 1997) and thus bear on capital accumulation and technological progress. Four broad groups of services are examined here: (1) mobilising savings; (2) diversifying risk; (3) allocating savings; and (4) monitoring the allocations of managers. Each of these functions can influence saving and investment decisions and hence economic growth.

It is of this view countries from Central and South Eastern Europe can be an especially interesting aspect of this discussion, because when the transition began in the early 1990s in these countries, the establishment of a properly working financial sector had been delayed or jeopardised by a number of adverse developments like war, political instability, hyperinflation and pyramid schemes.

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Surprisingly the relationship between financial markets and economic growth in the transition economies, from Central and Eastern Europe, has largely been ignored. Only a few studies have focused on these economies (Hermes and Lensink 2000; Koivu, 2002; Berglöf & Bolton, 2002; Drakos, 2002; Bonin & Wachtel, 2003; Bonin et al., 2005; Fink et al., 2005, 2008, Kenourgios and Samitas 2007) and mostly finding a positive relationship between several financial indicators and economic growth. The lack of research focused specifically on the role of financial development in transition economies and the findings that the relationship may depend on the level of development and other economy-specific factors suggest the need for further research focusing on the Central and South Eastern Europe (CSEE) countries. These countries provide an excellent test, because their financial systems are relatively new and vary widely.

The aim of this article is to empirically examine whether the banking sector plays a growth-supporting role in economic growth in transition economies and this is a modest attempt to repair this gap in the literature. We concentrate on banking sector as it has dominated financial intermediation in transition countries. We use panel data from the 16 CSEE countries (Albania, Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Slovak Republic, Slovenia and Ukraine) over the period 1991–2011 to estimate the impact of financial development on economic growth. Unlike earlier studies the data covers a longer time period, and we use the system Generalised Method of Moments (GMM) estimation introduced by Arellano and Bond (1991) and further developed by Arellano and Bover (1995).

The rest of this article is organised as follows. In Section 2, we present a selective literature review of the main empirical findings regarding the financial development–economic growth relationship, including papers concerned with various aspects of financial development during transition. In Section 3 we present the data and methods. We discuss the problems associated with estimating growth equations, as well as the main econometric method used-system GMM. Section 4 describes the results of the analysis of the relationship between financial depth and financial efficiency and economic growth. The main findings are reiterated in Section 5, where we also suggest several topics for future investigation.

2.   Literature review

The modern empirical literature in this area has developed since the 1990s, following King and Levine's (1993), cross-country study using data for 80 countries. In their paper, King and Levine analyse the effect of financial sector development on growth in real per capita gross domestic product (GDP), with four indicators: the amount of liquid liabilities divided by GDP, the importance of commercial banks in relation to the central bank when allocating credit, the ratio of credit allocated to private enterprises to total domestic credit, and credit to private sector divided by GDP. After controlling for other factors affecting economic growth King and Levine (1993) find a strong positive relation between each of the financial development indicators and economic growth.

Cross-country regressions have been used to examine a variety of macroeconomic relationships, including the one between financial development and long-run growth. This approach involves averaging out variables over long time periods (typically three decades) and using them in cross-section regressions aiming at explaining cross-country variations of growth rates. Thus, in principle the investigator is able to estimate the

average influence of the determinants of economic growth. Cross-country regressions, however, are criticised for ignoring large differences between countries (Arestis and Demetriades, 1997; Neusser and Kugler, 1998), as well as the reliability of results due to the instability of long time series used (Quah, 1993).

To address some of the econometric problems associated with cross-country growth analysis (reverse causation, missing variables bias) (Levine, Loayza, & Beck, 2000; Beck, Demirgüç-Kunt, & Levine, 2000; Caporale et al. 2009) used the system GMM for panel data. The results in these papers were very similar to those obtained earlier in pure cross-country analysis, and find a positive effect of financial development on economic growth.

In recent years, several studies have used time-series framework. These studies reach mixed conclusions about the role of financial sector development in economic growth. The study by Demetriades and Hussein (1996), where causality tests are carried out for 16 developing countries, suggests that causality between financial development and growth varies across countries. In about half of the examined countries Demetriades and Hussein (1996), detect a feedback relationship but in several countries, the relationship runs from growth to finance, suggesting that it is by no means universal that financial development can contribute to economic growth.

Drakos's (2002) study about the relation between the financial sector and economic development in 21 transition economies show that imperfect competition in the banking sector tends to lower economic growth and deepen business cycles.

Winkler (2009) reviews the process of rapid financial deepening and the associated vulnerability and risks for the South Eastern European countries. He argues that the strategy of pursuing financial development through the entry of foreign banks does not guarantee financial stability. Finally, a strong consensus has emerged in the last decade that well-functioning financial intermediaries have a significant impact on economic growth (Bonin and Watchel, 2003).

3. Data and methodology

3.1 Data

In our research of banking sector development and economic growth nexus, we estimate standard growth equation using a panel data-set consisting of 16 countries in Central and South Eastern Europe over the period 1991–2011. The choice of the time period in this article was contingent upon the availability of time series data on all the variables included in the model. Data are obtained from various sources. Ratio of quasi money (RQM), interest margin (IM), private credit (PC), export (EX), GDP per capita (GDPPC), investment (INV) and inflation rate (INF) are obtained from the World Development Indicators (WDI) database. Government expenditure (GVE) is obtained from Heritage Foundation. World Bank Rule of law index (RL), is obtained from The Worldwide Governance Indicators. Table 1 provides a summary of the basic features of the data used in this study.

Economic growth is a complex process affected by a number of factors, and theory gives us no clear or single answer to the question about the right model specification. Literature also contains a dilemma as to whether the dependent variable in the empirical analysis of economic growth should be the GDP growth rate or its value (Mervar, 2002). Most analyses use GDP growth rate, starting from the assumption that changes in the explanatory variables have a permanent effect on the GDP growth rate.

Table 1. Descriptive statistics.

	GDPGROWTH	LGDPPC	RQM	IM	PC	EX	INF	INV	GE	RL
Mean	4.015610	6960.990	22.67174	7.903769	47.36631	51.89235	10.75760	25.95445	50.28221	0.21078
Median	4.878266	5386.390	15.16979	5.576633	43.68309	51.47830	5.651846	25.77043	51.00000	0.381491
Maximum	12.23323	27015.08	276.0042	216.3790	121.0435	86.85601	293.6788	40.39200	85.70000	1.466499
Minimum	−17.95499	354.0017	−11.08535	−1.372323	11.09819	12.31652	−1.129460	9.042188	0.000000	−1.296448
Std. Dev.	5.093933	5514.896	31.46589	17.11115	22.52736	15.12106	26.12299	5.359082	16.90767	0.760306
Skewness	−1.842847	1.117105	5.045906	11.23372	0.563827	0.005029	8.495113	0.188906	−0.285536	−0.235795
Kurtosis	7.241387	3.885766	36.65082	136.9096	2.847045	2.622642	8.777957	3.503210	2.599683	1.870920
Jarque-Bera	214.4381	39.23051	8382.429	125214.9	8.795195	0.967812	50776.15	2.689246	3.303307	10.16861
Probability	0.543902	0.987365	0.478912	0.175690	0.112307	0.616371	0.379273	0.260638	0.191733	0.206193
Observations	163	163	163	163	163	163	163	163	163	163

Source: Author calculation.

Consequently, we followed this procedure in this article as well. Because banking sector development is a complex concept, we use multiple alternative measures in order to identify which aspects are most conducive to growth. We use measures of the activity of banking sector, size of banking intermediation and of the efficiency of the banking sector. The ratio of bank credit to PC in relation to GDP (private credit), we used as a measure of banking development. PC is one of the main proxies for financial development used in many empirical studies (Beck and Levine, 2004; Koivu, 2002) and it is especially relevant for the countries studied, because it excludes credits by development banks and loans to the government and public enterprises. RQM (M2–M1), is often taken as an adequate measure of the size of financial sector in developing countries in view of the predominance of the banking sector, as well as owing to the lack of data on other financial assets (Hemming and Manson, 1988, and Liu and Woo, 1994). Following mentioned previous studies we use the RQM (M2–M1) as a measure of banking development. The third variable is the IM measured by spread between bank's lending and borrowing rate. The IM is likely a good estimator for efficiency in the banking sector as it describes transaction costs within the sector. If the margin declines due to a decrease in transaction costs, the share of savings going to investments increases. As growth is positively linked to investment, a decrease in transaction costs should accelerate economic growth. This variable is closely linked to the theoretical models of Blackburn and Hung (1998) and Harrison et al. (1999). The interest rate margin may also reflect an improvement in the quality of borrowers in the economy.

To control for other factors affecting economic growth, we use variables regularly employed in the growth literature. As suggested in neoclassical theory of economic growth (summarised in Barro and Sala-i-Martin 2004), the initial GDP should be entered in the regression in logarithm, represents growth convergence effect. As additional control variables, the regression includes the average INF to account for monetary discipline, the average growth of the terms of trade ratio, and the average ratio of government consumption to GDP as a measure of government burden. The following control variable is investment. We follow common practice for this variable by using gross capital formation (formerly gross domestic investment) as a proxy for investment. Gross capital formation consists of outlays on additions to the fixed assets of the economy plus the net changes in the level of inventors. EX is one of the factors, considered even in traditional Keynesian theory, that can facilitate economic growth. As a measure of EXs, we use the EXs of goods and services in relation to GDP. Numerous theoretical and empirical research suggest that the larger government consumption the less developed will be financial system. Therefore, general government consumption is usually used as a control variable when depicting economic growth (King and Levine, 1993; Levin et al., 2000). We measure GVE as a ratio of general GVE to GDP, and we hypothesise a negative relationship between GVE and economic growth. Levine (1997, 1998) showed that a good investor protection will induce a higher economic growth. This situation is particularly applicable to bank products where relationship with companies tends to be long term. Moreover, with the increasing complexity of bank products, policyholders can suffer from informational asymmetry. The absence of sound legal system may also hamper the efficiency of bank investments, decreasing the profitability and increasing the price of bank products. The RL reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

3.2 Methodology

Following the theories of economic growth Barro, and Sala-i-Marin (2004) suggest that real economic growth should be correlated with the sets of variables which includes: initial values of some variables marked by $\gamma_{i,t}$ (such as: the GDPPC) and control variables, marked by $f_{i,t}$ which reflect the financial development, $C_{i,t}$ reflect a set of conditioning variables μi and εi, t error terms, i (where i = 1, 2 …,. N) the observational unit (country), and t (where t = 1, 2, …, T) the time period, while ε is a white noise error with zero mean, and μ a country-specific component of the error term that does not necessarily have a zero mean. The parameter αi is the country-specific intercept which may vary across countries

The basic regression takes the form:

$$g_{i,t} = \gamma_{i,t} + \alpha_{i,} + \beta f_{i,t} + \gamma_i C_{i,t} + \mu_i + \xi_{i,t} \tag{1}$$

The focus of the analysis is on *f*, which measures the impact of financial sector development on economic growth. In order to measure financial development, we use several indicators of financial development and financial efficiency, which are discussed in more detail in the data section.

A basic problem in empirical analyses of economic growth is which control variables to include in the model. This is the result of what Brock and Durlauf (2001) have called an open-ended theory or causal relationship between one variable and economic growth, proposed a theory does not rule out the connection between another variable and economic growth, proposed by another theory. Literature (Durlauf and Quah, 1999) proposed over 90 variables for potential variables of economic growth. However the primary goal in this article is not to contribute to the theories of economic growth, but to analyse whether and how banking development affects economic growth. For this purpose we specify the minimal model for economic growth, as a tool to address this connection:

$$\begin{aligned}(\text{GDPgrowth})\text{it} = {}&\alpha\text{i} + \beta 1 \text{L}(\text{GDPpercapita})\text{it} + \beta 2 (\text{Ratioofquasi} - \text{money})\text{it} \\ &+ \beta 3(\text{Interestmargin})\text{it} + \beta 3(\text{Privatecredit}) + \beta 4(\text{Export})\text{it} \\ &+ \beta 5(\text{Inflationrate})\text{it} + \beta 6(\text{Investment})\text{it} \\ &+ \beta 7(\text{Government expenditure})\text{it} + +\beta(\text{Ruleoflaw})\text{it} + \text{uit} \end{aligned} \tag{2}$$

The most common methods for investigating the finance-growth nexus are cross-country, time-series models and panel data methods. Each of the above methods has its advantages and disadvantages.

According to (Temple, 1999), the most popular method among economists exploring economic growth are cross-section growth regressions. Economists have used different techniques to mitigate some of these potential problems (e.g. using initial and not average values of variables to alleviate endogeneity), so that the popularity of cross-section regressions is still rather high (Fink et al. 2005). But still, there are many problems associated with this approach, such as parameter heterogeneity, unobserved fixed effects, measurement errors, or endogeneity.

Wachtel (2001) believes that although the above techniques (using the initial or lagged variables) are commonly used to ameliorate the effects of simultaneity, they do not completely solve the problem. He argues that the dynamic panel data methods do a much better job. On the other hand, (Temple, 1999) gives a detailed discussion of advantages and disadvantages of different approaches and argues that conventional panel data regressions, used to supplement (or supplemented with) cross-section results, is a

better method than dynamic panel data approach. Researchers are not unanimous in deciding what kind of data to use, either. Since the underlying relationship is a long-run one, some argue that five or 10 year averages of variables should be used in regressions, preventing short-term macroeconomic effects from influencing the results. Research by (Rousseau and Wachtel, 2000; Hahn, 2003; Beck and Levine, 2004) follows this approach. On the other hand, using averages lowers the number of observations that can be used in estimations. If we do not have longer time series for over two decades or longer, it is impossible to implement such an approach with panel data techniques. In such cases, cross-section studies should be used if the potential problem with short term effects is to be alleviated. But if the number of cross-section units is not large enough, one might get into trouble of not having enough observations for a meaningful estimation. In this case, switching to annual data and applying the panel data method is probably a much better choice (Fink et al. 2005).

For example, Koivu (2002) and Mencinger (2003) follow this approach in similar settings for transition countries. Admittedly, in such cases, one actually addresses the short-run economic activity or performance, rather than long-run economic growth or development. Another open question is whether fixed or time effects, or both or none of those, should be used in panel data specifications. Fixed effects may account for omitted variables, but many researchers believe that these effects are lost with the differencing, i.e. in derivation of the estimated equation from a production function relationship, and that they should not be used in regression. On the other hand, some economists think that they should be used if they enter the equation significantly, but one needs to be cautious because they may cause problems in the context of financial intermediation and growth research (Wachtel, 2001). The reason for this is that the measures of financial development vary significantly across countries, but in a single country very slowly over time.

The estimates of financial development indicators can be biased for a variety of reasons, among them measurement error, reverse causation and omitted variable bias. Therefore, a suitable estimation method should be used in order to obtain unbiased, consistent and efficient estimates of this coefficient. To deal with these biases, researchers have utilised dynamic panel regressions with lagged values of the explanatory endogenous variables as instruments (Beck, Levine, & Loayza, 2000; Rioja and Valev, 2004; Caporale et al., 2009). Such methods have several advantages over cross-sectional instrumental variable regressions. In particular, they control for endogeneity and measurement error not only of the financial development variables, but also of other explanatory variables. Note also that, in the case of cross-section regressions, the lagged dependent variable is correlated with the error term if it is not instrumented (Beck, 2008).

For the above reasons, in this article we will use the GMM dynamic panel method developed by Arellano and Bond (1991) and Arellano and Bover (1995). The advantage of this GMM methodology is that it points out the econometric problems caused by unobserved country-specific effects and endogeneity of the independent variables in lagged-dependent-variable models such as economic growth regressions. This method allows the relaxing of the assumption of strong exogeneity of the explanatory variables by allowing them to be correlated with current and previous realisations of the error term ξ. Parameter identification is achieved by assuming that future realisations of the error term do not affect current values of the explanatory variables, that the error term ξ is serially uncorrelated, and that changes in the explanatory variables are uncorrelated with the unobserved country-specific effect. As (Arellano and Bond, 1991) and (Arellano and Bover, 1995) shows, this set of assumptions generates moment conditions that allow estimation of the parameters of interest. The inclusion of both cross-country and time-series

data introduces additional information about the over-time change in growth and its determinants, and, thus, helps us get more precise results. The consistency of the GMM estimator depends on the validity of the instruments used in the model as well as the assumption that the error term does not exhibit serial correlation.

4. Empirical results

This section presents the results of the model. First, in Table 1 we tested whether the time series are normally distributed. We used the Jarque-Bera statistic, and the results indicating that all the variables are normally distributed.

Next, we estimated the model using dynamic panel method. Because the estimates of financial development indicators can be biased for a variety of reasons, as we said in the previous section, we have used these panel method. The instruments in this case are chosen from the lagged endogenous and explanatory variables. In order to test the validity of the selected instruments, we perform the Sargan test of over-identifying restrictions proposed by Arellano and Bond (1991).

Table 2, column 1, shows the effects of RQM on economic growth. The coefficient of this variable is positive and statistically significant consistently with theory presented by Shaw (1973), that savings deposits increases more rapidly than transaction balances as the financial system expands and helps growth by facilitating economic activity. Shaw (1973) explains the changes in system of finance with a term financial deepening.

Table 2.   The banking sector development and economic growth: dynamic panel regression.

	(1)	(2)	(3)
Const	166.541**	−37.047	−87.757**
	(0.016)	(0.324)	(0.018)
RQM	0.162**		
	(0.012)		
IM		−0.006	
		(0.883)	
PC			−0.415***
			(0.002)
LGDPPC	15.553*	−0.095	11.937**
	(0.071)	(0.985)	(0.027)
EX	0.027	0.203*	0.191
	(0.837)	(0.723)	(0.214)
INF	−0.044	−0.002	0.116**
	(0.270)	(0.925)	(0.345)
GVE	0.356*	0.159	0.219*
	(0.083)	(0.188)	(0.052)
INV	0.697**	0.895**	0.346*
	(0.038)	(0.016)	(0.081)
RL	−4.738	−2.245	7.702
	(0.811)	(0.862)	(0.452)
Countries	16	16	16
Observations	152	147	152
−Sargan test	0.428	0.357	0.479
−2nd. Order Correlation	0.9617	0.4421	0.2417

P-values in parentheses.
***, **, * denote statistical significance at the 1%, 5% and 10% level.
Source: Author calculation.

Also, the Keynesian and Structuralist views support that a country must satisfy financial liberalisation with applying financial reforms actively and especially in developing countries financial growth and economic development are always possible with financial deepening (Mohan, 2006).

According to the results from column 2 in Table 1 interest rate margin variable enters negatively in growth equations, but it lacks significance. These results are in line with theories presented in (Blackburn and Hung, 1998; Harrison et al., 1999), that an efficient banking sector decreases transaction costs and the margin between lending and deposit rates. The share of savings allocated to the investments increases and according to the endogenous growth theory, leads to higher economic growth. The insignificance of this variable could be due either to the measurement errors that interest-rate margin may be subject to, or, as pointed out by Levine (2003), to differences in activity and risk premium, rather than efficiency and competition, that could be reflected by the interest rate margins.

In column 3, the IM variable is replaced with the PC variable. The amount of credit allocated to the private sector is negatively and significantly associated with economic growth. The finding is consistent with Koivu (2002), but in contrast to many earlier studies (Fink et al., 2004; Caporale et al., 2009) the amount of credit does not seem to accelerate economic growth. The reason of this results is because, soft budget constraints that are prevalent in many transition countries and lending to enterprises applying soft budget constraints may have resulted in counterproductive investments and financial losses. According to Mitchell (2001), banks may even make the situation worse by keeping such loans on their balance sheets. As a result, growth in credit has not been profitable. Another phenomenon linked to the negative coefficient may be a number of banking crises that transition countries experienced in the 1990s, 2008 and 2010. Freezing global credit markets and capital flows in 2008 were associated with mounting fears among investors about a systemic crisis involving the CSEE banking system. Following a decade of dynamic growth, capital inflows towards the region came to a sudden stop in the fall of 2008, driving, in tandem with worsening international and internal macroeconomic conditions, a sharp drop in output. Also, new headwinds emerged in 2010 when European markets were thrown into turmoil by mounting concerns over several euro zone countries capacity to finance their large deficits and growing public debt burdens. While the financial markets initially resisted the pessimism spreading from the euro debt crisis, the pressure later became more intense backed by fears that escalating euro debt problems would create instability for the CSEE. In doing that, financial markets have focused on possible spill-over effects mainly through the traditional contagion channels (trade, banking exposure) with South Eastern Europe (SEE) region's countries (particularly Romania, Bulgaria, Macedonia and Albania) having been considered more vulnerable given the strong presence of Greek banks in these markets. As a result, sovereign credit spreads, which experienced a sensible reduction, widened again and all asset classes were under strong selling pressures.

Among the control variables, GDPPC has the impact of the economic growth. As overall income level and the share of middle class rises, we can expect economic growth to rise too. As we expected, inflation affects GDP growth negatively, but not significant in first two regressions, while in third regression in contrary to the majority of results the inflation shows a positive sign. This effect could be explained by hyperinflation among the subsample of formerly planned economies from Central and Eastern Europe during their first years of transition to market economies. The results from Government expenditure (GVE) in all three regressions are also inconsistent with

previous studies (King and Levine, 1993; Levine, et al., 2000) that focused on developed markets. We presume that the possible explanation for this anomaly might be the fact that the state of domestic capital markets development and the role of banking in economic growth is still in its infancy. Therefore, a GVE role in economic growth is most probably exaggerated in current state of economic development. The rule of law seems to have the expected positive sign only in one out of three regressions and the coefficient is not significant in any of the cases. This result is contradicted in the most earlier results of financial growth (Levine et al., 2000) but might be due to the data-set. As we do not have financial sector data on many CSEE countries from the first half of 1990s, we lose many observations and the results for the reform index are different than in earlier papers. The results from investment is in line with our expectations and this variable has positive and significant impact on economic growth, while EX has a positive impact on economic growth, but is significant only in the second regression.

5. Conclusion

Using endogenous growth model and GMM dynamic panel method we examined whether banking sector contribute to economic growth across sample of 16 transition countries in Central and South Eastern Europe in the period from 1991 to 2011. We used three variables to measure the level of banking sector: RQM, amount of bank credit allocated to the private sector as a share of GDP and interest rate margin.

To summarise, the banking sector is found to be lacking in analysed samples, and therefore the contribution of the relatively underdeveloped credit markets to growth has been rather limited, with only a minor positive effect of RQM of financial development. This might be a consequence of the large stock of non-performing loans and the banking crises experienced by these economies at the beginning of the transition period, and 2008s and 2010s.

The findings could be suggestive for bank's policymakers. The key is to implement the policies that are going to provide institutional improvements, encourage competition, and contribute to increasing efficiency, especially in risk management, and product development of banks. Bank should better use their unique position among financial intermediaries regarding the function of providing mechanism of payment which enables them to collect important information on users of their services. The bank efforts should be helped by institutional reforms, too. Beside those that provide competitive bank market structure and adequate banking regulation, the improvements are needed in the field of forming public creditor register, the valuation of collateral and creditor rights protection. With all of these improvements, the banking sector would have more potential to contribute to economic growth.

In a context of lower international liquidity and higher cost of country risks, banks in the CSEE will have to rely much more on domestic funding, thus domestic deposits, matching lending growth to local fund-raising capacity. The loans over deposit ratio will have to grow over time, but the speed of growth has to remain much below the pre-crisis levels. Out of the crisis, banking in CSEE will record a pattern of volumes growth less dynamic than pre-crisis one. Lower volumes growth and higher cost of funding, matched to competitive pressures (even less strong than in the past) mean a lower revenues generation capacity.

Overall, CSEE banking sectors will remain less profitable compared to more mature markets. Challenges ahead for the banking sector in the region include the growing

national regulatory pressures, with moves which are often un-coordinated among countries, as well as Basel III implementation.

It would be interesting for future research to extend the sample and analyse subgroups of transition countries (South Eastern Europe, Baltic and Balkan States) for the time periods observed here, and to include the equity markets, consumer loans into the model and explore the link between financial sector openness – financial sector competition and financial sector competition – economic growth.

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