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Determinants of Liquidity in Selected CEE Countries

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Abstract

Pavla Klepková Vodová: **Determinants of liquidity in selected CEE countries**

The aim of this paper is to describe the development of bank liquidity in six selected Central and Eastern European Countries (Bosnia and Herzegovina, Bulgaria, Croatia, Romania, Serbia and Slovenia) and to find out if selected liquidity ratios are influenced by the affiliation of banks with financial conglomerate or if other determinants are more important. The data cover the period from 2011 to 2017. Results of the panel data regression analysis showed that the affiliation of banks with the financial conglomerate does not statistically significant affect values of liquidity ratios in the selected CEE countries. Instead, other bank-specific and macroeconomic factors are important, such as bank solvency and profitability, quality of the loan portfolio, gross domestic product, the unemployment rate, interest rate on loans and interbank interest rate matter, at least for some countries. Focusing on the buffer of liquid assets, size of the bank is important for all six selected CEE countries. Bank profitability, quality of the loan portfolio, gross domestic product, the unemployment rate, interest rate on loans, interbank interest rate and lagged value of bank solvency matter, at least for some countries. In case of the net interbank position, the lagged value of bank solvency, economic cycle, bank size, interbank interest rate, and quality of the loan portfolio are significant.

Key words

liquidity, liquidity ratios, liquid assets, net interbank position, panel data regression analysis, commercial banks

JEL: G21, C33

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Introduction

Liquidity is an important aspect of overall bank business. Liquidity means that the bank must be able to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses. To ensure that the bank will be liquid at any time, adequate liquidity risk management is essential. This means mainly to hold a sufficient buffer of liquid assets and/or to be able to obtain funds on the interbank market or by the debt securities issuance.

As financial conglomerates are often systematically important financial institutions in many countries, it is evident that their liquidity is crucial for financial stability of whole banking sectors. In spite of an increasing number of financial conglomerates and of the higher attention of regulators and supervision bodies to financial conglomerates and their liquidity, an important gap still exists in the empirical literature. Papers dealing with financial conglomerates are mostly only theoretical, focusing on various aspects of risk management and capital adequacy of the conglomerate. Empirical studies deals mainly with diversification benefits and conglomerate discounts. We can find studies that examined efficiency and performance of European banks, such as Vander Venet (2002) or Palečková (2018). Vander Venet (2002) found that conglomerates were more revenue efficient than their specialized competitors. The results of Palečková (2018) showed that the commercial banks in financial conglomerates were on average more efficient and profitable than other commercial banks in the banking sectors in CEE countries, even though the commercial banks in financial conglomerates reflected a lower average net interest income than other banks. Nevertheless, she did not conclude that all commercial banks in the financial conglomerate were more efficient and profitable than other banks in the banking sectors. However, we cannot find studies focusing on the link between bank liquidity and the affiliation of bank with a financial conglomerate. This paper tries to fill this gap in current empirical research.

The aim of this paper is to describe the development of bank liquidity in six selected Central and Eastern European (CEE) Countries (Bosnia and Herzegovina, Bulgaria, Croatia, Romania, Serbia and Slovenia) and to find out if selected liquidity ratios are influenced by the affiliation of banks with financial conglomerate or if other determinants are more important. The data cover the period from 2011 to 2017. In particular, we will investigate whether banks that belong to a financial conglomerate are more or less liquid than other banks in the sector, i.e. if an affiliation with the financial conglomerate is one of the determinants of bank liquidity in selected CEE countries.

These countries have some common and different features. Their financial systems can be characterized as bank-oriented and concentrated on a model of universal banking. Banks have a dominant role in financial intermediation. Financial conglomerates are often present and systematically important in these countries. On the other side, activities of banks in the financial markets significantly differ, as well as the macroeconomic conditions. An empirical analysis can therefore yield interesting results.

The paper is structured as follows. The next two sections provide review of the relevant literature and describe methodology and data. Then we focus on the results of the analysis and the discussion. The final section offers concluding remarks.

1. Review of Relevant Literature

Determinants of bank liquidity in CEE countries have been already empirically analysed. Vodová (2013a), Vodová (2015) and Klepková Vodová and Stavárek (2017) focused on the Visegrad countries. Dinger (2009) investigated liquidity of banks from ten CEE countries; Trenca et al. (2012) focused on the same region. However, none of these studies investigated the importance of the affiliation with the financial conglomerate. In order to find out possible determinants of bank liquidity, we focused also on other relevant studies. Comprehensive literature review was provided by Stavárek and Vodová (2017). Table 1 therefore only shows which explanatory variables (macroeconomic and bank-specific) were used in individual empirical studies and which relationship between these variables and the dependent variable, e.g. selected liquidity ratio, was found.

Tab. 1: A review of empirical research on determinants of bank liquidity

Explanatory variable	Positive impact on liquidity	Negative impact on liquidity
Gross domestic product	Fielding and Shortland (2005), Vodová (2013a and 2015)	Aspachs et al. (2005), Dinger (2009), Grant (2012), Moore (2010), Rauch et al. (2010), Vodová (2013a)
Unemployment rate	Munteanu (2012), Vodová (2013a)	Munteanu (2012), Rauch et al. (2010), Vodová (2013a and 2015), Klepková Vodová and Stavárek (2017)
Various types of interest rates (monetary policy i.r., money market i.r., interbank i.r., lending i.r.)	Agénor et al. (2000), Bunda and Desquilbet (2008), Dinger (2009), Fielding and Shortland (2005), Lucchetta (2007), Moore (2010), Munteanu (2012), Vodová (2013a and 2015), Klepková Vodová and Stavárek (2017)	Aspachs et al. (2005), Bunda and Desquilbet (2008), Grant (2012), Lucchetta (2007), Moore (2010), Munteanu (2012), Rauch et al. (2010), Trenca et al. (2012), Vodová (2013a and 2015)
Interest margin	Trenca et al. (2012), Vodová (2015)	Aspachs et al. (2005), Grant (2012)
Financial crisis	Berrospide (2013), Cornet et al. (2012), Moore (2010)	Bunda and Desquilbet (2008), Moore (2010), Vodová (2013a and 2015)
Capital adequacy	Berger and Bouwman (2009), Berrospide (2013), and Vodová (2013a and 2015)	Berger and Bouwman (2009), Diamond and Rajan (2001), Dinger (2009), Distinguin et al. (2013), Gorton and Winton (2000), Lei and Song (2013), Munteanu (2012), Roman and Sargu (2014), Vodová (2013a and 2015), Klepková Vodová and Stavárek (2017)
Share of non-performing loans	Roman and Sargu (2014), Vodová (2013a and 2015)	
Bank size	Klepková Vodová and Stavárek (2017)	Berrospide (2013), Cornet et al. (2012), Dinger (2009), Roman and Sargu (2014), Vodová (2013a)
Bank profitability	Vodová (2013a), Klepková Vodová and Stavárek (2017)	Grant (2012), Vodová (2013a), Klepková Vodová and Stavárek (2017)

Source: Author's processing

2. Methodology and Data

First, we will evaluate the level of bank liquidity for each bank in the sample using the following commonly employed liquidity ratios: the liquid asset ratio and the net interbank position (Vodová, 2013b). The liquid asset ratio (LITA) is the share of liquid assets in total assets. This ratio should give us information on a bank's capacity to absorb a general liquidity shock. As a general rule, the higher the ratio, the higher the capacity to absorb liquidity shock is, provided that market liquidity is the same for all banks in the sample. We use the Moody's Analytics BankFocus database measure of liquid assets which includes cash, government bonds, short-term claims on other banks (including certificates of deposit), and where appropriate the trading portfolio.

The net interbank position (NIP) captures the activity of banks on the interbank market. To be able to compare different-sized banks, this ratio measures the share of a net interbank position (i.e. the difference between dues from banks and dues to banks) in the total assets of the bank. The value of this ratio is positive for net lenders and negative for net borrowers. Comparing with clients' deposits, raising funds in the interbank market is significantly more flexible. However due to the low stability of this source of funding (a bank is constantly under the control of its counterparties which in case of doubts about the financial situation of the bank may not roll over loans), it is more risky. Banks who are net borrowers are thus much more vulnerable.

In order to find out determinants of bank liquidity, we use the panel data regression analysis (Equation 1).

$$LR_{it} = \alpha + \beta' \cdot X_{it} + \delta_i + \varepsilon_{it} \quad (1)$$

where LR_{it} is selected financial ratio for bank i at time t (i.e. the ratio LITA or NIP), X_{it} is vector of explanatory variables for bank i at time t , α is constant, β' is a row vector of coefficients that represents the slope of explanatory variables, δ_i represents fixed effects for bank i , and ε_i is the error term. The most crucial task is to determine the appropriate explanatory variables. The selection of explanatory variables is based on the studies cited above and contains both bank-specific and macroeconomic variables. As the aim of this paper is to find out if selected (above mentioned) liquidity ratios are influenced by the affiliation of banks with financial conglomerate or if other determinants are more important, we also employ a dummy variable CONG which represents whether the bank belongs to the financial conglomerate. We focus on banks from five selected financial conglomerates (Erste Group, KBC Group, Raiffeisen Bank International AG, Société Générale Group and UniCredit Group).

As bank-specific variables, we focused on capital adequacy (CAP), quality of a bank's credit portfolio (NPL, i.e. the share of non-performing loans in total loans), size of the bank (TOA, i.e. logarithm of total assets of the bank), profitability of the bank (ROA, i.e. the share of net profit in total assets of the bank; ROE, i.e. the share of net profit in equity of the bank). All bank-specific variables were obtained from the Moody's Analytics BankFocus database and the annual reports of commercial banks. All the data are reported on an unconsolidated basis.

Macroeconomic and sectoral variables include growth rate of gross domestic product (GDP, i.e. GDP volume % change), inflation rate (INF, i.e. CPI % change), interbank interest rate (IRB, i.e. interest rate on interbank transaction with maturity 3-months), interest rate on loans (IRL), interest margin (IRM, i.e. the difference between interest rates on loans and

deposits), monetary policy interest rate (MIR), unemployment rate (UNE). Almost all these data were provided by World Bank. Data about monetary policy interest rate and interbank interest rate were obtained from particular central banks.

The data set used data of commercial banks during the 2011-2017 period. Due to the homogeneity of the data set, we include only data from commercial banks that are operating as independent legal entities. We exclude branches of foreign banks, mortgage banks, building societies and state banks with special purposes. The national panels are unbalanced because some banks do not report or exist over the full period of analysis. The sum of total assets of selected commercial banks covered more than 70% of total assets of banking sector.

3. Results and Discussion

The first part of this section presents the median values of the selected liquidity ratios which were calculated for each bank in the sample. The second part of this section focuses on factors that determine bank liquidity measured by these ratios.

3.1. Development of Bank Liquidity in Selected CEE Countries

Bank liquidity is strongly influenced by the lending policy of the bank. Banks that focus more on lending to non-bank customers usually hold a lower level of liquid assets. On the contrary, banks that prefer operations on the interbank market may have higher claims on banks which result in a higher buffer of liquid assets. Table 2 presents the median values of the liquid asset ratio (LITA) in selected CEE countries' banking sectors within the 2011-2017 period.

Tab. 2: Median values of the LITA ratio (in %)

	2011	2012	2013	2014	2015	2016	2017
Selected CEE	14.18	13.29	17.06	18.64	18.50	17.41	18.70
Bosnia and Herzegovina	21.86	23.29	20.55	21.09	19.52	19.44	19.78
Bulgaria	17.72	17.47	20.80	25.75	29.40	31.08	35.32
Croatia	16.81	18.14	15.88	17.17	17.28	15.22	20.79
Romania	14.27	12.22	19.38	18.93	21.46	20.25	13.22
Serbia	11.95	12.34	16.91	18.75	17.40	15.66	15.69
Slovenia	5.71	4.74	7.38	7.28	10.46	10.91	12.03

Source: Author's processing

Liquidity of Bulgarian and Bosnian banks (for the whole period) and of Croatian and Romanian banks (in most years) is slightly above average. This is proved by higher values of the LITA ratio. On the other hand, Serbian and mainly Slovenian banks have very low buffer of liquid assets. In case of Slovenia, mainly large and medium-sized banks held very low level of liquid assets. At the same time, their lending activity is also low. On the contrary, small Slovenian banks are liquid and provide lots of loans to non-bank customers. The same is, on average, true for Bosnian banks.

Tab. 3: Median values of the NIP ratio (in %)

	2011	2012	2013	2014	2015	2016	2017
Selected CEE	-0.17	-1.23	0.20	1.18	1.07	1.87	2.15

Bosnia and Herzegovina	2.93	2.20	3.04	-0.86	1.30	3.14	1.28
Bulgaria	0.00	0.00	6.46	9.04	4.55	8.15	8.68
Croatia	3.03	1.54	0.04	3.51	4.20	1.95	1.30
Romania	-18.35	-9.03	-2.23	-4.09	-4.78	-3.48	1.86
Serbia	0.63	-1.70	2.68	5.47	1.00	6.33	2.63
Slovenia	-15.06	-18.66	-17.51	-7.49	-4.27	-3.33	-0.82

Source: Author's processing

Banks who are net borrowers on the interbank market are much more vulnerable than net lenders. In case of any doubts about their financial situation, lenders may not roll over their loans. It is, therefore, useful to assess also the second liquidity ratio: the share of net interbank position in total assets (Table 3). Bulgarian and Croatian banking sector as a whole are net lenders for the whole analyzed period. With the exception of one year, Bosnian and Serbian banking sector belongs to net lenders, too. On the contrary, Romanian and Slovenian banks are on average in the position of net borrowers. Especially in the first half of the period, their net interbank position was really large.

With the exception of 2014, Bosnian banking sector as a whole is a net lender for the whole analyzed period. Together with a sufficient level of liquid assets, we can conclude that in terms of liquidity, Bosnian banks are the safest within these six selected CEE countries. On the contrary, the exposure of Slovenian banks to the liquidity risk is very high. The causes are following: (i) their net interbank position is, especially in the first half of the period, very large; they are in the position of the net borrower; (ii) they provide lots of loans to non-bank customers but their buffer of liquid assets is very low. However, liquidity of Slovenian banks is gradually improving. Romanian and Serbian banks are less liquid and more vulnerable than Bulgarian and Croatian banks.

3.2. Panel Data Regression Analysis

To identify the determinants of bank liquidity in selected CEE countries, we employ an econometric package EViews 9. After tests of stationarity, normality and multicollinearity, we proceed with regression estimation. We estimated Equation 1 for each of the specified liquidity ratio. In all cases, first we included all explanatory variables that might have an effect on the dependent variable (all explanatory variables considered in the analysis are those mentioned in section 2). To reduce the number of explanatory variables, we used information criteria (Akaike, Schwarz and Hannan-Quinn). Our aim was to find a regression model for each country with a high value of the adjusted coefficient of determination in which all the variables involved are statistically significant. The results for the LITA ratio recorded in Table 4.

Dummy variable CONG, which represented whether the bank belongs to the financial conglomerate, was statistically significant in none of selected CEE countries. We can therefore say that the affiliation with financial conglomerate does not statistically significant affect the level of liquid assets in six selected CEE countries. Instead, other bank-specific and macroeconomic factors matter.

Size of the bank (TOA) is the only factor which is important in all six selected CEE countries. The negative sign of the regression coefficient for most countries indicates that small banks are more liquid than large banks. This is in accordance with the fact that large banks are less willing to hold liquid assets because they rely more on funds from the interbank market (Berrospide, 2013; Cornet et al., 2012; Dinger, 2009; Roman and Sargu,

2014; and Vodová, 2013a). However, the link between size of the bank and its liquidity is opposite for Bulgarian and Slovenian banks where liquidity increases with size of the bank, such as in Klepková Vodová and Stavárek (2017). Larger banks are usually affiliated with a financial conglomerate and, thus, intra-group fund transfers are possible and available. Therefore, their liquid position may be better.

Tab. 4: Determinants of the LITA ratio in selected CEE countries

Variable	Bosnia and Herzegovina		Bulgaria		Croatia	
	Coefficient	Std. dev.	Coefficient	Std. dev.	Coefficient	Std. dev.
Constant	77.81					
CAP (-1)			-0.41***	0.25		
IRB			-4.59***	2.87		
IRM	-6.33***	3.38			-0.67*	0.21
NPL					-0.08***	0.09
ROA	-0.06***	0.31				
TOA	-5.51***	2.85	20.80***	11.78	-1.68***	2.59
UNE			-2.73*	1.01		
Adj. R2	0.57		0.54		0.58	
D-W stat.	1.89		1.99		1.82	
Total obs.	127		84		131	

Note: The starred coefficient estimates are significant at the 1% (*), 5% (**) or 10% (***) level.

Source: author's calculations

Tab. 4: Determinants of the LITA ratio in selected CEE countries (continued)

Variable	Romania		Serbia		Slovenia	
	Coefficient	Std. dev.	Coefficient	Std. dev.	Coefficient	Std. dev.
Constant	92.87***	47.84	203.61*	33.49	-165.38**	80.30
CAP (-1)	-0.14***	0.15	-0.11***	0.07		
GDP	1.04*	0.37			0.16***	0.26
IRB					-4.49*	1.19
IRL			-0.52**	0.26		
NPL					0.09***	0.09
ROA	-0.17***	0.27				
TOA	-5.14***	0.37	-13.38*	2.59	11.94**	5.49
Adj. R2	0.80		0.57		0.54	
D-W stat.	1.82		1.94		1.81	
Total obs.	75		118		74	

Note: The starred coefficient estimates are significant at the 1% (*), 5% (**) or 10% (***) level.

Source: author's calculations

The lagged value of bank solvency (CAP) was statistically significant in three countries: Bulgaria, Romania and Serbia. The negative link between bank liquidity and solvency shows that banks offset lower solvency in one period with more cautious liquidity risk management and hold sufficient buffer of liquid assets in next period. This fact is also consistent with financial fragility-crowding out hypothesis suggesting that bank capital may impede liquidity creation by making the bank's capital structure less fragile. A fragile capital structure encourages the bank to commit to monitoring its borrowers, and, hence, allows it to extend loans. Additional equity capital makes it more difficult for less fragile banks to commit to

monitoring, which in turn hampers the bank's ability to create liquidity. Capital may also reduce liquidity creation because it crowds out deposits. This negative relationship between bank liquidity and capital adequacy has been reported also by Berger and Bouwman (2009), Diamond and Rajan (2001), Dinger (2009), Distinguin et al. (2013), Gorton and Winton (2000), Lei and Song (2013), Munteanu (2012), Roman and Sargu (2014), Vodová (2013a and 2015), Klepková Vodová and Stavárek (2017).

Bank profitability measured by the return on assets having a negative influence on the level of liquid assets is consistent with the standard finance theory, which emphasizes the negative correlation between liquidity and profitability. This link was proved for Bosnian and Romanian banks and also in some previous studies (Grant, 2012; Vodová, 2013a)

The negative sign of the coefficient for nonperforming loans (for Croatian banks) is a signal of a prudent policy of banks: banks with worse quality of credit portfolio pay more attention to liquidity risk management and hold a higher share of liquid assets (as in Roman and Sargu, 2014); Vodová, 2013a and 2015). In contrary, the behaviour of Slovenian banks is completely opposite. The worse the quality of their credit portfolio, the lower their liquidity. Although this link has not been proved by any study, such finding is completely logical: the worsening quality of the loan portfolio means that the portion of loans that are not fully repaid is increasing. The more loans are not repaid, the lower the inflow of liquidity to the bank and thus the lower the share of liquid assets in total assets.

Among macroeconomic variables, growth rate of gross domestic product was statistically significant in Romania and Slovenia and the unemployment rate in Bulgaria. The impact of gross domestic product on bank liquidity is positive (such as in Fielding and Shortland, 2005; and Vodová, 2013a and 2015); it signals that a cyclical downturn should reduce banks' expected transaction demand for money and therefore lead to decreased liquidity. On the contrary, the link between bank liquidity and the unemployment rate is negative. The unemployment rate can act as a proxy for the general health of the economy. Therefore, an increase in the unemployment rate signals a deterioration of overall macroeconomic conditions which in turn decreases liquidity of Bulgarian banks.

Also the levels of various types of interest rates appeared to be important in some countries: interest rate margin in Bosnia and Herzegovina and Croatia, interest rate on loans in Serbia and interbank interest rate in Slovenia and Bulgaria. The impact of all interest rates was negative. A negative link indicates that if lending activity is more profitable, Bosnian, Bulgarian, Croatian, Serbian and Slovenian banks hold a smaller buffer of liquid assets and prefer to provide loans (such as in Aspachs et al., 2005; Bunda and Desquilbet, 2008; Grant, 2012; Lucchetta, 2007; Moore, 2010; Munteanu, 2012; Rauch et al., 2010; or Vodová, 2013a and 2015).

Table 5 shows the estimated coefficients that fit best the regression models for the NIP ratio, i. e. the share of a net interbank position in total assets of the bank, in selected CEE countries.

Determinants of the banks' behaviour on the interbank market are very similar in selected CEE countries and they are mostly consistent with our findings for the LITA ratio. Also in this case, the dummy variable for the affiliation of the bank with financial conglomerate was not statistically significant.

The lagged value of bank solvency was statistically significant in all countries. However, the link between solvency and liquidity is positive for Serbian and Slovenian banks and negative for Bosnian, Bulgarian, Croatian and Romanian banks. The negative link means that banks offset lower solvency in one period with less risky activities in next period. Instead of

risky lending to non-bank customers, they focus more on less risky lending to other banks on the interbank market. On the contrary, better capitalized banks are more active on Serbian and Slovenian interbank market.

Tab. 5: Determinants of the NIP ratio in selected CEE countries

Variable	Bosnia and Herzegovina		Bulgaria		Croatia	
	Coefficient	Std. dev.	Coefficient	Std. dev.	Coefficient	Std. dev.
Constant	97.64	107.98	11.73*	2.92	116.40**	47.92
CAP (-1)	-1.54***	1.84	-0.44*	0.14	-0.39***	0.20
GDP			0.72***	0.58	0.95*	0.31
IRB	-1.54***	1.84				
NPL			0.15***	0.12		
TOA	-5.69***	6.29			-8.19**	3.65
UNE	-0.95***	2.21				
Adj. R2	0.54		0.76		0.67	
D-W stat.	1.88		2.11		1.87	
Total obs.	104		64		108	

Note: The starred coefficient estimates are significant at the 1% (*), 5% (**) or 10% (***) level.

Source: author's calculations

Tab. 5: Determinants of the NIP ratio in selected CEE countries (continued)

Variable	Romania		Serbia		Slovenia	
	Coefficient	Std. dev.	Coefficient	Std. dev.	Coefficient	Std. dev.
Constant	246.75*	71.05	139.91**	54.73	148.49	161.27
CAP (-1)	-0.26***	0.21	0.21***	0.11	0.68**	0.34
GDP	1.71**	0.68	0.19***	0.53	1.36**	0.57
IRB	-0.96***	0.58	-0.18***	0.29	-2.91***	2.48
NPL						
TOA	-17.305*	4.98	-10.83*	4.07	-11.62***	10.97
UNE						
Adj. R2	0.63		0.62		0.58	
D-W stat.	1.86		1.80		1.84	
Total obs.	75		118		64	

Note: The starred coefficient estimates are significant at the 1% (*), 5% (**) or 10% (***) level.

Source: author's calculations

Economic cycle (GDP) and bank size (TOA) belong to the most important factors as well. With the exception of Bosnian banks, the impact of gross domestic product on bank liquidity is positive. During cyclical downturns, banks reduce their activity on the interbank market. For Bosnian banks, such behavior is confirmed also by the negative size of the regression coefficient for the unemployment rate which is, as it was mentioned above, a proxy for the general health of the economy.

The negative link between size of the bank and the net interbank position was proved also in five countries (with the exception of Bulgarian banks). It is consistent with results for the LITA ratio: small banks are more liquid than large banks; large banks are less willing to hold liquid assets because they rely more on funds from the interbank market on which they are in the position of net borrower.

Interbank interest rate affects position of Bosnian, Romanian, Serbian and Slovenian banks on the interbank market negatively. Such result may be surprising. However, it can be explained. It is consistent with the problem of credit crunch and credit rationing. An increase in the interest rate is connected with two effects (Stiglitz and Weiss, 1971). The incentive effect increases interest incomes and thus the bank's profit. On the contrary, the risk of the bank's credit portfolio can increase due to an adverse selection effect and thus the profit decreases. So the increase in the interest rate on loans does not have to encourage banks to lend more. The same effect can be true also for the interbank interest rate. Banks may perceive an increase in the interbank interest rate as a signal of a higher risk of interbank lending. Their motivation to lend to other banks (which would increase their net interbank position) is therefore lower. These findings are also in accordance with conclusions of Grant (2012) and Moore (2010).

The last statistically significant variable is the quality of bank portfolio. It positively influences the net interbank position of Bulgarian banks. The Bulgarian banks react cautiously on the deterioration of the loan portfolio by limiting the lending activity to non-bank borrowers. Banks can invest these released funds on the interbank market. The probability that Bulgarian banks will be net lenders increases with the growth of the share of classified loans in total loans. It is also in accordance with findings of Vodová (2015).

Conclusion

The aim of this paper was to describe the development of bank liquidity in six selected Central and Eastern European (CEE) Countries (Bosnia and Herzegovina, Bulgaria, Croatia, Romania, Serbia and Slovenia) and to find out if selected liquidity ratios are influenced by the affiliation of banks with financial conglomerate or if other determinants are more important.

We focused on two liquidity ratios (the share of liquid assets in total assets, the share of net interbank position in total assets) and we have calculated these ratios for all banks in the sample. In terms of liquidity, Bosnian banks are the safest within these six selected CEE countries. On the contrary, the exposure of Slovenian banks to the liquidity risk is very high. However, liquidity of Slovenian banks is gradually improving. Romanian and Serbian banks are less liquid and more vulnerable than Bulgarian and Croatian banks.

Results of the panel data regression analysis showed that the affiliation of banks with the financial conglomerate does not statistically significant affect values of liquidity ratios in the selected CEE countries. Instead, other bank-specific and macroeconomic factors are important.

Focusing on the buffer of liquid assets, size of the bank is important for all six selected CEE countries. Bank profitability, quality of the loan portfolio, gross domestic product, the unemployment rate, interest rate on loans, interbank interest rate and lagged value of bank solvency matter, at least for some countries. In case of the net interbank position, the lagged value of bank solvency, economic cycle, bank size, interbank interest rate, and quality of the loan portfolio are significant.

There are many way which may improve the research about the determinants which affect the commercial banks' liquidity in the future. First, we can simply extend the time series and divide the analysis into pre-crisis, crisis and post-crisis periods. Another possibility is to extend the research into other banking sectors, e.g. to include other central and eastern

European countries. It would be also possible to include other variables, mainly other measures of bank liquidity, such as loan to deposit ratio or loan to asset ratio.

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