THE ANALYSIS OF BANK CAPITAL ADEQUACY: THE CASE OF LATVIA

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Abstract

The bank capital adequacy management problems have always been topical for each commercial bank and for banks supervisory institutions. After-effects of the financial crises have encouraged strengthening of capital adequacy requirements and therefore supporting the reasonable risk level. Basel Committee on Banking Supervision adopted a range of guidelines, which promote raising of bank stability and safety, stressing the importance of own capital as risk coverage.

The aim of the research is determination of factors influencing bank own capital adequacy and assessment of financial strength of capital of Latvian commercial banks. The subject of this research is Latvian commercial banks. Official statistical data of the supervisory institution of Latvian commercial banks - the Financial and Capital Market Commission - as well as financials statements of Latvian commercial banks have been used in this research. The authors have used such research methods as comparison, factors analysis, ratio analysis, charts showing statistic information and others.

As the result of investigation the authors have stated factors influencing bank own capital adequacy. The most important of these factors is credit risk, which is specially analysed in this research. The obtained results allowed the authors to make a range of conclusions, of which some are: in the period of financial crises Latvian commercial banks were operating on the verge of capital adequacy, banks did not have sufficient buffer capital, due to substantial losses during the period of crises capital adequacy was maintained only by the inflow of new share capital and subordinated capital. The authors have provided several suggestions concerning the management of bank capital adequacy to commercial banks.

Keywords: Capital adequacy, Risk adjusted assets, Credit risk, and Buffer capital.

1. INTRODUCTION

The problems of factors influencing the capital adequacy at commercial banks are always the focus of attention from world banking community. First Capital Adequacy Accord (Basel I) was directed towards restriction of credit risks. Basel II was issued, adding operational risk, as well as a supervisory review process and disclosure requirements. Basel II also updated and expanded upon the credit risk weighting scheme introduced in Basel I, not only to capture the risk in instruments and activities that had developed since 1988, but also to allow banks to use their internal risk rating systems and approaches to measure credit and operational risk for capital purposes (Hannoun, 2010). The new Capital Adequacy Accord (Basel III) adopted in late 2010 is aimed at consolidation of banking system and toughening of requirements towards capital structure at commercial banks. Under the Basel 3 agreement the minimum requirement for common equity will be raised from the current 2% level to 4.5% after the application of stricter adjustments. Implementation of new minimum requirement will begin in 2013. Banks will be required to meet the following new minimum requirements in relation to risk-weighted assets (RWAs): 3.5% common equity/RWAs; 4.5% Tier 1 capital/RWAs, and 8.0% total capital/RWAs. The minimum common equity and Tier 1 capital requirements will be phased in between 1 January 2013 and 1 January 2015. On 1 January 2013, the minimum common equity requirement will rise from the current 2% level to 3.5%. The Tier 1 capital requirement will rise from 4% to 4.5%. On 1 January 2014, banks will have to meet a 4% minimum common equity requirement and a Tier 1 requirement of 5.5%. On 1 January 2015, banks will have to meet the 4.5% common equity and the 6% Tier 1 requirements. The total capital requirement remains at the

existing level of 8.0% (BIS, 2010). Meanwhile, within January 2016 and January the banks will have to create the capital conservation buffer.

A whole series of studies are dedicated to the influence of Basel requirements upon economics in general and upon financial stability of banks.

For an example, G. Steven (Steven, 2009) asserts that one of the reasons for global financial crisis was the inadequate bank capital. According to G. Steven, K. Davis notes the number of the deficiencies in the capital adequacy regime, revealed by the global financial crisis (Davis, 2010). The authors fall into line with K. Davis and consider that for Latvia were characteristic the following named by K. Davis deficiencies in the capital adequacy regime:

- Risk weights based on historical experience over a relatively benign period are inadequate for risk exposures in downturns;
- Valuations of complex financial assets can be problematic, particularly when markets are disrupted, with adverse consequences for reliable measurement of capital;
- Collateralized financing created risks;
- Banks were unwilling to reduce cash distributions to equity and other investors for fear of signaling weakness – even though this reduced their capital bases;
- The current Basel capital framework allows banks to operate with very low shareholders funds;
- Ratings provided by credit ratings agencies were not good signals of default risk.

Impact of Basel III reform upon long-term economic performance, as well as impact of the adoption of countercyclical capital buffers on economic fluctuations was assessed by J. Schantz (Schantz, 2010). Studies by Allen N. Berger (Berger, 2011), P.Angelini, P.Angelini (Angelini, 2011) are dedicated to the effect of capital upon three dimensions of bank performance – survival, market share, and profitability – during financial crises and in normal times.

Studies carried out by the Basel Committee demonstrated that an increase in the banking sector's common equity ratio from 7% to 8% reduced the probability of a banking crisis by at least 1 percentage point. 1 percentage point reduction in the probability of a crisis in turn produces an expected annual GDP benefit of between 0.2 and 0.6%. These are admittedly rough estimates, but it is clear that there are substantial benefits associated with a better capitalized banking sector (BIS, 2011). The important conclusion of studies by the Basel Committee that the higher capital and liquidity standards are likely to reduce not just the probability, but also the severity of banking crises. The problems of bank capital drew attention also of other authors but their studies were mainly associated with the influence of bank capital upon economics, macroeconomic stability and activity of banks in the field of crediting while no studies were made as to what factors and to what extent have impact upon bank capital. The aim of the research is determination of factors influencing bank own capital adequacy and assessment of financial strength of capital of Latvian commercial banks. The authors of the present paper assess the influence of factors upon the bank capital value, the sources of capital formation and the readiness state of banks for creation of the capital buffer by example of Latvian banks. Main tasks of the research: by means of regression analysis to identify, substantiate and analyze factors influencing the capital adequacy at Latvian commercial banks; carry out the comparative analysis of financial strength of capital of commercial banks.

2. REGRESSION ANALYSIS OF THE BANKS CAPITAL

Dynamics of bank capital adequacy at Latvian commercial banks demonstrates that in late 1990's the capital was not employed efficiently enough on the average throughout the system. Meanwhile, in pre-crises period 2001 to 2008 the standard deviation of capital adequacy ratio was insignificant – 1.6%, banks worked with small capital strength. Since within crisis period the commercial banks restricted their risky transactions, also tightening their crediting policies, while carried out the absorption of losses at the expense increase in equity capital, a slight growth in capital adequacy took place in banking system (see Figure 1).

What are those factors which determine the capitalization of Latvian banks? For purposes of regression analysis the authors use data for the period since late 1995 (in 1995 Latvian Law on Credit Institutions was adopted, which for the first time fixed on legislative level the necessity to estimate and control the bank capital) till first quarter of 2011 with quarterly distribution. The modelling was carried out in SPSS statistical program. The regression analysis was performed by *stepwise* method with bank capital adequacy ratio being the independent variable (*cap_adeq*). To carry out the modeling by means of economic analysis, the following indicators were selected:

- Annual inflation rate (*infl*);
- Natural logarithm of gross domestic product (*gdp*);
- Natural logarithm of assets Latvian commercial banks (*size)*;
- Natural logarithm of credit portfolio amount of commercial banks (*cr_portf);*
- Natural logarithm of securities portfolio amount of commercial banks (*sec_portf*);
- Natural logarithm of deposits amount at commercial banks (*deposits*);
- Natural logarithm of subordinate debt of commercial banks (*sub_debt*);
- Natural logarithm of net interbank position of commercial banks (*interbank)*;
- Ratio of credit provisions to gross credit portfolio (*provisions*).

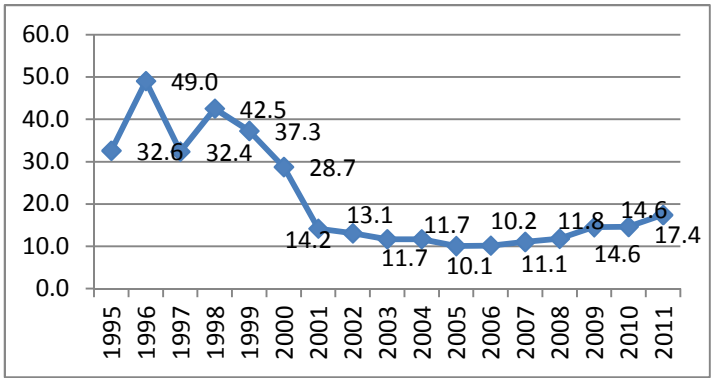

Figure 1**.** Development of bank capital adequacy at Latvian banks in 1995 to 2011/I, per cent.
Source: FCMC

The task of regression analysis is to confirm the hypothesis about influence of factors selected by method of economic analysis upon value of bank capital. Now we perform Durbin-Watson test to check the hypothesis on absence of autocorrelation of balances. Summarized results of regression analysis are presented in Table 1.

Table 1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.842	0.710	0.705	6.1795	
2	0.933	0.870	0.866	4.1690	1.868

2 models were obtained in the result of modeling, of which all demonstrate a high determination ratio. Now consider each model individually and asses the significance of factors (see Table 2).

Table 2

Regression ratios of factors influencing the amount of bank capital

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std.Error	Beta		
1(Constant)	109.324	7.216			0.000
cr_portf	-6.028	0.486	-0.842	15.151	0.000
				-12.406	
2 (Constant)	91.589	5.274			0.000
cr_portf	-9.594	0.523	-1.341	17.367	0.000
sub_debt	6.228	0.712	0.639	-	0.000
				18.332	
				8.742	

0.000 p-values of all factors witness that the selected factors are statistically significant with probability higher than 99.9%. The performed correlation analysis of factors influencing the result (see Table 3) showed that the credit portfolio of commercial banks had the strongest correlation dependence with the result – the bank capital adequacy ratio.

Table 3

Pearson correlation coefficients of factors influencing the amount of bank capital

	cap_adeq	*cred_portf*	*sub_debt*
cap_adeq	1		
cred_portf	-0.842	1	
sub_debt	0.406	0.780	1

We choose second one of the two obtained models. This model describes 87% of variations in the capital adequacy ratio of Latvian banks. The results of dispersion analysis demonstrate that the model is statistically significant with 99.9% probability.

Table 4

The analysis of variance (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	7205.007	2	3602.503	207.273	0.000
Residual	1077.590	62	17.380		
Total	8282.596	64			

Linear regression equation:

$$Cap\_adeq = 91.589 - 9.594 ln\_cred + 6.228 ln\_sub \quad (1)$$

3. THE ANALYSIS OF FACTORS INFLUENCING BANK CAPITAL

Thus, the capital of Latvian banks during the period 1995 - 2011 was sensitive towards variations in credit portfolio which is logical since the loans are the risky investments while the growing risk stimulates the growth in capital. During the crises period deterioration of credit portfolio and formation of provisions reduces the profit of commercial banks and, consequently, also their own capital. It should be noted that the major part of own capital is directed just for coverage of credit risk (see Figure 2)

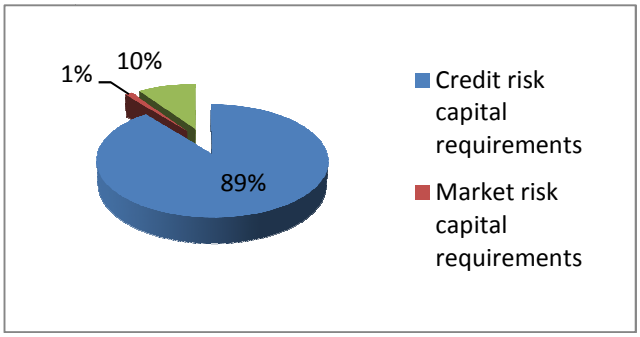

Figure 2. Capital requirements as to risk coverage at Latvian commercial banks in 2011
Source: FCMC

In Latvian banks about 90% of capital is allocated for coverage of credit risk, approximately 6% to 10% - of operational risk and 1% to 3% - of market risk. Thus, credit risk is the determining one in capital allocation.

What trends in variations if crediting amounts are observed in Latvian banking system? Within period 1995 to 2011 the least specific weight of credits in banks assets was registered in late 1995 (24.9%), the

highest in late 2008 – 73.8%. Development of credit portfolio share in assets of banks is shown in chart on Figure 3.

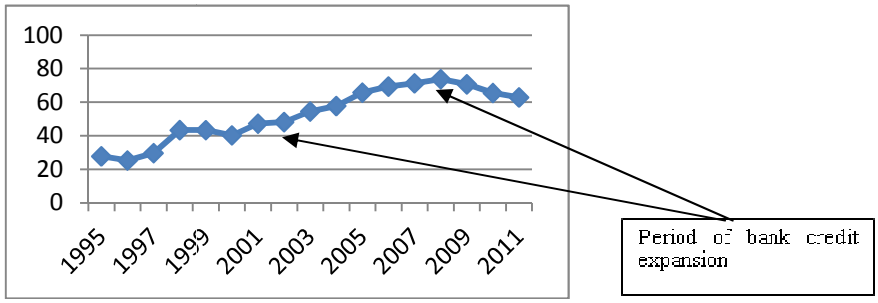

Figure 3. Share of credit portfolio in assets of banks within1995 to 2011, percentage
Source: FCMC

Growth rates of credit portfolio within period 2002 to 2006 were average 40% per year while in 2004 and 2005 - 60% per year and 56% per year, respectively. The quality of a credit portfolio is determined by presence of outstanding debts in the credit portfolio. Specific weight of outstanding debts in credit portfolio within period of highest crediting activity of banks and during subsequent financial crisis are shown in chart on Fig 4.

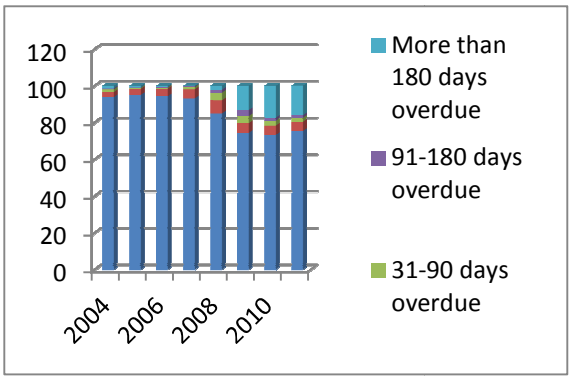

Figure 4. Specific weight of outstanding debts in credit portfolio within 2004 to 2011, percentage
Source: FCMC

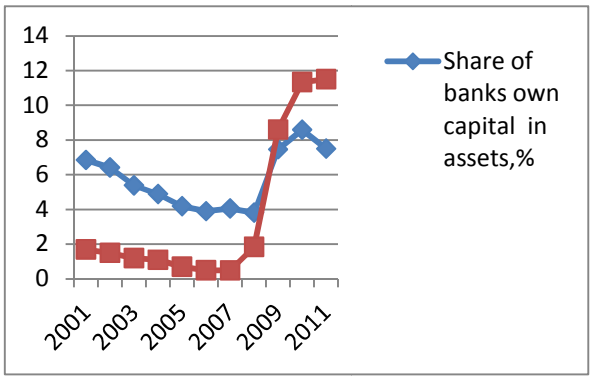

Figure 5. Changes in the share of banks own capital in assets and in Specific weight of provisions for outstanding debts in credit portfolio during 2001 to 2011, percentage
Source: FCMC

It is evident from chart on Fig. 4 that the year 2008 became the start of problems in commercial banks associated with outstanding credits. In accordance with requirements of supervisory body, the Financial and Capital Market Commission (FCMC), the banks formed bigger loan loss provisions which led to considerable losses in banking industry. Year 2009 was most dramatic for Latvian commercial banks when the amount of losses in banking sector of Latvia was 878 mln. LVL while the expenses for creation of special provisions for credits reached 1.3 bln. LVL. Year 2010 also brought losses to Latvian banking industry. Notwithstanding the total amount of losses in 2010 reduced to 364 mln. LVL, the expenses for creation of provisions continued to grow having reached already 1.3 bln. LVL by the end of 2010 (FCMC). To maintain the capital adequacy, banks were forced to increase their equity capital as the major component of own capital. This interconnection is clearly seen in chart on Figure 5. In crisis times when losses reduce the amount of own capital, its adequacy is maintained by infusions of new share capital (see Figure 6). The chart marks out the crisis periods (impact of 1998 Russian crisis upon Latvian banks and 2008-2010 crisis) during which share capital exceeded own capital, i.e. losses of the system were higher than other components of capital.

The model demonstrated that second factor influencing the bank capital adequacy is subordinate debts. Since the effective concord on capital adequacy implies that the subordinate debt is included in the second level of own capital, the bank shareholders increased the stability of banks not only by investments into equity capital but also by rising the subordinate debt. Historical amount of subordinate debt in Latvian banking system did not exceed 3% of assets, but during period 2004 to 2010 the subordinate debt has grown by 5.8 times. In 2010 Basel III principles were approved which provided for improvement of own capital quality,

also at the expense of withdrawal of subordinate debt from capital structure. Latvian banks reacted immediately and at the present time the subordinate debt are decreasing (see Figure 7).

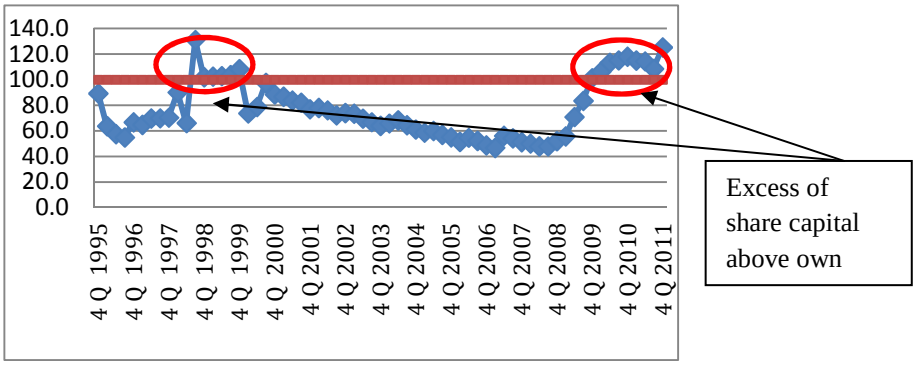

Figure 6. Specific weight of share capital within own capital in banking system during period 1995 to 2011, percentage

Source: FCMC

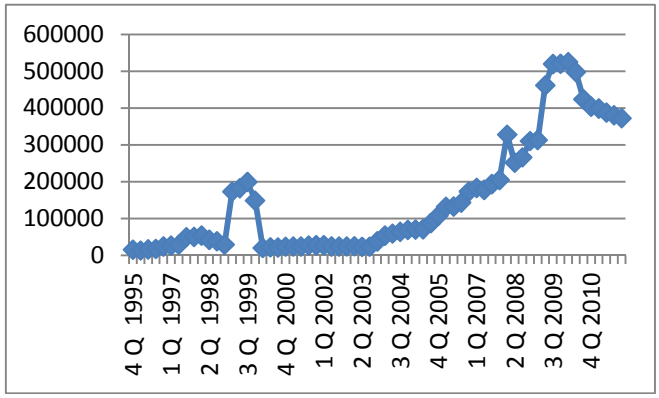

Figure 7. Subordinated at Latvian banks in 1995 to 2011, thousand lats

Source: FCMC

4. ANALYSIS OF CAPITAL STRENGTH BY GROUPS OF LATVIAN COMMERCIAL BANKS

Equity capital of Latvian commercial banks is formed basing on participation of both residents and nonresidents and the most shares (63%) belong to nonresidents of both European and Eastern countries (Fig.8). In this view to identify the degree of readiness of Latvian banks for a transit to more rigid requirements towards the capital and revelation of capital adequacy strength, the authors split all Latvian commercial banks into 4 groups in accordance with the capital belonging criterion[18]:

Group 1 – banks established on private Latvian capital

Group 2 – banks established on European capital

Group 3 – banks established on Eastern capital

Group 4 – banks established on national state capital.

To assess the stability of commercial banks, the authors introduce the concept of a capital "strength margin", defining it as the excess of the actual capital level above minimum standard established by the supervisory body. In the process of analysis of strength margin the authors are guided by a complete fulfillment of requirements towards formation of capital buffer in accordance with Basel III (2.5%). As a result of 10-year study it was found out that banks established on eastern capital are exposed to biggest fluctuations of capital adequacy index. According to the bank's data, the capital adequacy median varied within 11.56% and 69.50% (Figure 9) which evidences that the activity of given group of banks strongly depends on changes in external conditions and they become vulnerable in circumstances of economic

[18] Criterion of capital belonging was chosen by the principle of more than 50% participation.

instability while in rise periods are not able to realize the potential being at their disposal and, as a result, lose a part of profitability. Too excessive capital adequacy leads to inefficiency of its usage and also to reduction of equity return figures. Meanwhile, wide dispersion of value of this index is a symptom of inconsistent development of eastern banks.

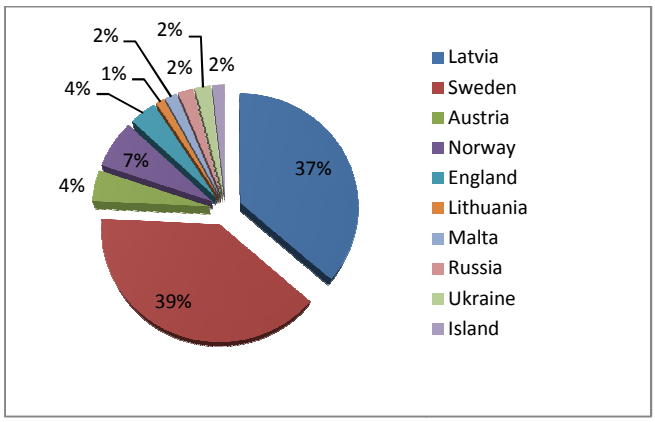

Figure 8. Equity capital structure of Latvian commercial banks in accordance with state belonging as on 31.12.2011, percentage

Sourse: FCMC

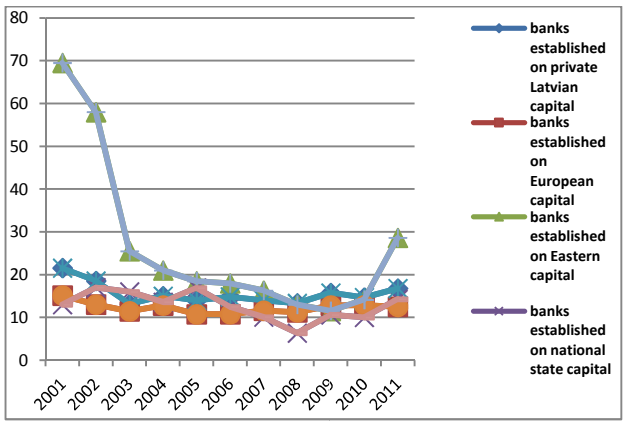

Figure 9. Changes of capital adequacy of Latvian commercial banks within 2001 and 2011, percentage

Sourse: Annual Reports of Commercial Banks

Banks with European capital and private Latvian capital are featured by the least interval gap. Thus, within the studied period the average value of capital adequacy at European banks was between 10.75% and 15.15%, and at Latvian private banks - within 13.32% and 21.55%. This fact witnesses a good enough progress of banks in these groups, their skill to rationally use resources at their disposal and withstand economic shocks. It should be as well noted that the group of banks established on national state capital continuously maintain capital adequacy on proper stable level. Average range of index fluctuations is within 10% to 17%. However, the exclusion was year 2008 when in view of financial problems occurred in activity of one of biggest private Latvian banks, the State made decision on its takeover. Under these circumstances a private Latvian bank (JSC Parex banka) came over into the group of national banks with bad indexes (capital adequacy level of Parex banka as at the end of 2008 was 6% at minimum norm of 8%). It made adverse impact on the whole banking system of Latvia and led to a certain distortion of information on the group of national banks. As a result, in 2008 the average capital adequacy index of national banks was the least: 6.35% (Figure 9, Appendix 4). Despite the problems occurred in Latvian banking sector during the crisis, the system of commercial banks in general is stable and has a good capital adequacy strength margin. Commercial banks established on Latvian capital already today have the capital adequacy strength margin on 7% level. Within the analyzed period 2001 to 2011 they had the capital adequacy strength margin on the level 5% to 13.5% (Appendix 1). Commercial banks working on European capital and being the subsidiaries of big European financial structures also have a sufficient stability margin of capital base which presently is assessed as 5%. Capital strength margin in this group of banks is within 2.75% and 7.15% (Appendix 2). Lower but still sufficient capital strength margin in European group of banks is explained by the fact that these banks utilize their capital more rationally which allows them being more efficient and successful on financial market. Besides, the sign of stable development of these banks is the maintenance of constant level of capital adequacy during the 10-year analyzed period. Within period 2001 to 2011 the average interval gap in capital adequacy index of this group of banks was only 4.5%. Third group of banks working on eastern capital also has a good capital strength margin (in 2010 its level was 6%). However, during the analyzed 10-year period the strength margin of these banks was not featured by stability. Along with wide range of fluctuations of capital adequacy index, its strength margin during this 10-year period varied over the eastern group of banks within 3.5% to 61.5% (Appendix 3). The essential increasing of capital adequacy (28.62%) and its strength margin (20.62%) in commercial banks, established on eastern capital in 2011 is explained by following: in the middle of 2010 new commercial bank JSC “Rigensis” started its activity and implemented very conservation policy. This led to a certain distortion of information about capital strength margin in banks established on eastern capital (Appendix 3). Capital adequacy strength margin in banks established on Latvian national capital in 2011 was 6.3%. Interval value of capital strength margin at national banks in development during the period 2001 to 2011 is within 2% and 9% (Appendix 4). Negative value of capital

strength margin in 2008 for the group of national banks (-1.65%) is explained by inclusion therein of problematic JSC Parex banka. Not counting JSC Parex banka, the capital adequacy strength margin for national banks in 2008 was 1.4%.

To assess the readiness state of Latvian commercial banks to meet the additional requirements towards capital, such indicators were estimated in their dynamic development as the ratio of 1st level capital (Tier 1) to risk-weighted assets (T1C/RWA) and the ratio of aggregate capital to risk-weighted assets (TC/RWA). The results of calculations show that Latvian banking system in general is stable and ready to withstand strict standards of Basel Committee (Appendix 1-4). At the same time, analysis of situation in each bank revealed that particular banks within historical period (2001 thru 2011) not always reached the new requirements towards capital. Thus, if Basel III requirements were implemented already in 2009, then 2 banks among the group of eastern banks could not meet them in full extent. If Basel III requirements were implemented in 2008, the one representative of European banks group would face problems. But if said requirements had to be met by 2007, then 2 of European group banks could not meet them in full extent. In 2006 one European bank could not completely meet Basel III requirements, and in 2005 – 2 representative of European banks group. The reason why certain strong European banks would not be capable to meet Basel III requirements within period 2005 thru 2007 was rapid growth in amounts of crediting which entailed increasing credit risk in these banks. It should be noted that the major factors influencing the changes in indexes T1C/RWA and TC/RWA are the capital structure and the amount of risky assets. Capital structure of Latvian commercial banks by their groups is shown on Figures 10-13.

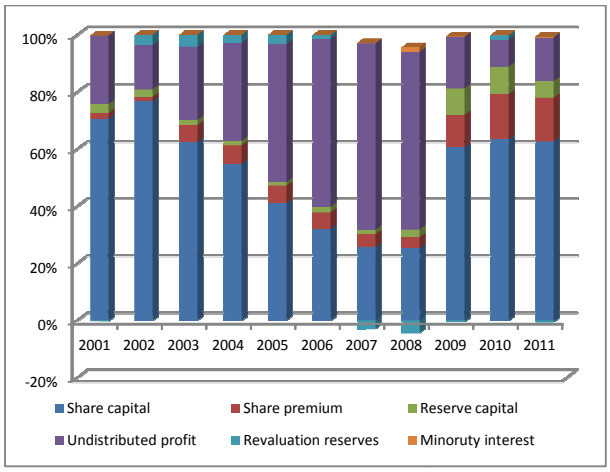

Figure 10. Capital structure of banks established on private Latvian capital in 2001-2011, percentage

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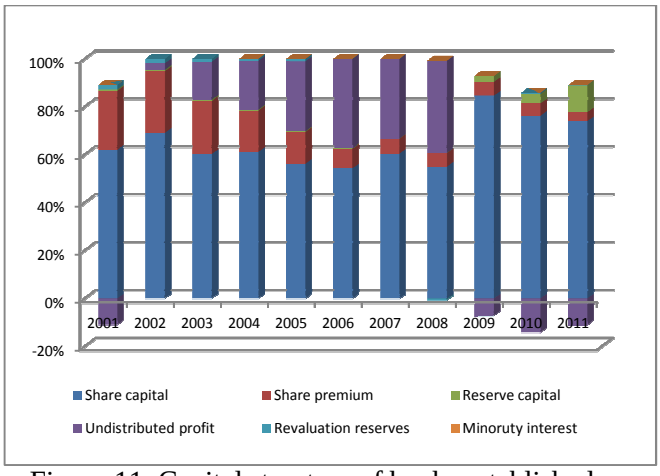

Figure 11. Capital structure of banks established on European capital in 2001-2011, percentage

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As evident from presented data, the biggest share in aggregate capital of banks is occupied by equity (principal paid-up) capital. Latvian banks also actively replenish their capital at the expense on internal sources, and namely, for account of profit accumulation. Big share of undistributed profit in aggregate capital was held by banks established on private Latvian capital (Figure 10). Banks with European capital and national state capital gave more preference to the increase in equity capital (Figures 11, 13). At the same time, these banks, assuming a high credit risk during the active growth period which led to overheated economics and its subsequent downfall, had suffered serious losses that made negative impact upon their own capital, which is especially clearly observed in 2009 and 2010. As a result, in order to retain their stability, the banks had to increase their capital at the expense of emission and placement of shares. Banks with eastern capital also employ both external and internal sources of formation of aggregate capital (Figure 12). The share of reserve capital in Latvian commercial banks is comparatively small. As a positive trend in activity of all Latvian commercial banks should note that in 2009-2010, overcoming the crisis consequences, they have considerably increased the amount and share of equity capital which led them to the state of proper readiness to meet the new Basel framework requirements.

Another factor having impact upon T1C/RWA and TC/RWA is the amount of risky assets. In order to analyze the influence of this factor, the authors studied the development of share of risky assets in total amount of bank assets with the use of comparison method (Figure 14).

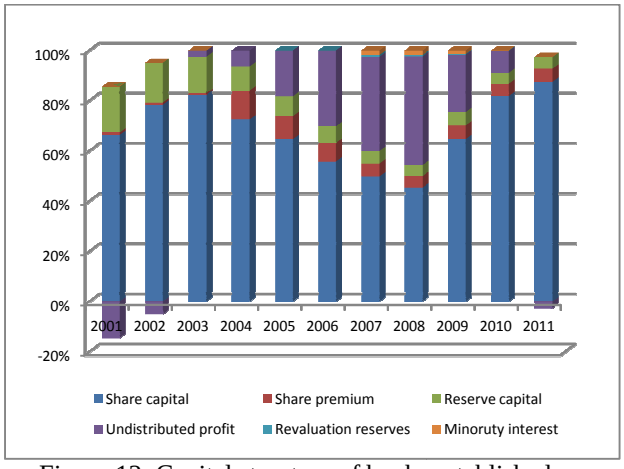

Figure 12. Capital structure of banks established on eastern capital in 2001-2010, percentage
Sourse: Annual Reports of Commercial Banks

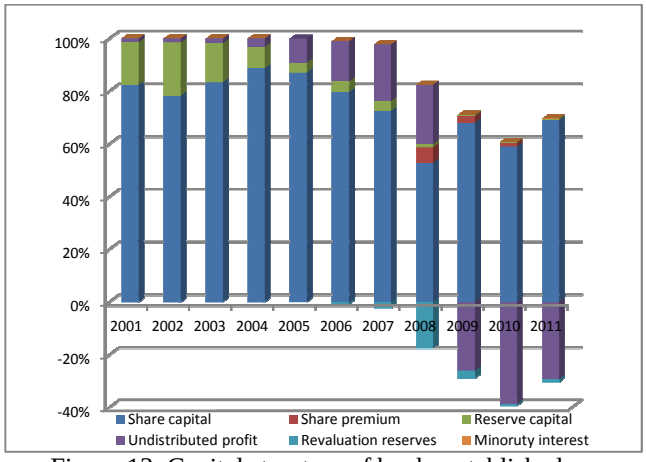

Figure 13. Capital structure of banks established on national state capital in 2001-2010, percentage
Sourse: Annual Reports of Commercial Banks

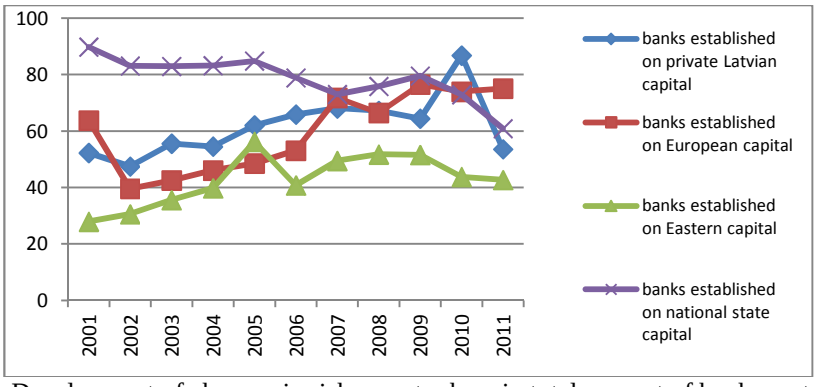

Figure 14. Development of changes in risky assets share in total amount of bank assets, by groups of Latvian commercial banks, 2001 through 2011, percentage
Source: Annual Reports of Commercial Banks

As evident from presented chart, within period 2001 to 2007 the highest risks were assumed by banks established on national state capital. During the same period, European and eastern banks worked with comparatively lower risk. At the same time, European banks as well as private Latvian banks within period 2004 to 2007 rapidly increased the share of risky operations while eastern banks were featured by uncertainty in the sphere of risk assumption and banks established on national state capital during this period started implementing the policy of credit risk restriction, apparently having foreseen the oncoming economic overheating. Notably that in the middle of 2007 (the very peak of growth) three groups of commercial banks (national, private Latvian and European) had the same risk level: their share of risky assets in total amount of aggregate assets was 70%. Thus, the investigation has shown that banks working on Latvian national capital have the biggest capital adequacy strength margin while banks working on eastern capital have the least strength margin.

5. CONCLUSIONS

As a result of the given research the authors has arrived to the following conclusions:

1. In pre-crises period 2001 to 2008 banks worked with small capital strength. Since within crisis period the commercial banks restricted their risky transactions, also tightening their crediting policies, while carried out the absorption of losses at the expense increase in equity capital.
2. Key factors, influencing on capital of Latvian commercial banks are provisions for outstanding debts and amount of banks assets, both factors are statistically significant.
3. 2008 became the start of problems in commercial banks associated with outstanding credits. The amount of losses in banking sector of Latvia in year 2009 was 878 mln. LVL, year 2010 also brought losses 364 mln. LVL to Latvian banking industry. To maintain the capital adequacy, banks were forced to increase their equity capital as the major component of own capital.

4. In crisis times (impact of 1998 Russian crisis upon Latvian banks and 2008-2010 crisis), when share capital exceeded own capital, i.e. losses of the system were higher than other components of capital.
5. As a rule amount of subordinate debt in Latvian banking system did not exceed 3% of assets, but during period 2008 to 2010 the subordinate debt has grown by 5.8 times, and presently subordinated debts are decreasing.
6. Capital adequacy of Latvian commercial banks full correspond Basel requirements.
7. The system of Latvian commercial banks in general is stable and has a good capital adequacy strength margin. Commercial banks established on Latvian capital already today have the capital adequacy strength margin on 8% level. Commercial banks working on European capital as well as banks established on Latvian national capital have a sufficient stability margin of capital base which presently is assessed as 4 - 5%. Banks working on national state capital has a good capital strength margin that presently is on the level of 6%.
8. Estimate of new capital indicators T1C/RWA and TC/RWA showed that most banks were ready to observe them already in the period 2001 to 2011. Still, some Latvian commercial banks also presently are facing problems with observation of new standards, their strength margin according to new indicators T1C/RWA and TC/RWA is either on the limiting level or does not exist at all. But since the new normative requirements will be introduced gradually during the period 2013 to 2019, these banks will have enough time to get prepared for meeting said requirements.
9. Capital structure of Latvian commercial banks has been considerably improved by now; banks are trying to restore a stable capital structure reducing the share of losses through the increase in equity capital.

6. RECOMMENDATIONS

Basing on obtained conclusions, the authors propose to commercial banks:

1. Ensure continuous control and monitoring of capital adequacy and changes in new indicators of capital CET1/RWA, T1C/RWA, TC/RWA; review the capital management policy not rarer than once a year;
2. Estimate the capital demand of banks in stress situations;
3. Timely reveal reasons and factors having impact upon changes in capital indicators;
4. Continuously search for possibilities to increase equity capital through emission of shares.

REFERENCES

1. Angelini, P., Clerc, L., Cúrdia, V., Gambacorta, L., Gerali, A., Locarno, A., Motto, R.., Roeger, W., Van den Heuvel and Vlček, J. (2011), "BASEL III: Long-term impact on economic performance and fluctuations", working paper No 338, BIS.
2. Berger, A. N., Bouwman, C.H. (2011), "How Does Capital Affect Bank Performance during Financial Crises", working paper, BIS, March 2011.
3. An Assessment of the Long-Term Impact of Stronger Capital and Liquidity Requirements (2011), BIS, LEI Report, Basel.
4. Davis, K. (2010), "Bank Capital Adequacy: Where to Now?", working paper, University of Melbourne, 24 May.
5. Group of Governors and Heads of Supervision announces higher global minimum capital standards (2010), BIS, September 2010.
6. Financial Stability Report (2010), Bank of Latvia, Riga.
7. Hannoun, H. (2010), "The Basel III Capital Framework: a decisive breakthrough", working paper, BIS, November 2010.
8. Schantz, J. (2010), "The long-term economic impact of higher capital levels", working paper, Bank of England.
9. Steven, Glenn (2009) "Developments in Financial Regulation" Reserve Bank Bulletin, December, 28 – 34, available at: http://www.rba.gov.au/publications/bulletin/2009/dec/pdf/bu-1209-4.pdf (accessed: 8 June 2012).
10. Website Financial Commission of Market and Capital (FCMC), available at: http://www.fktk.lv/en/statistics/credit_institutions/quarterly_reports/ (accessed: 15 June 2012).
11. Websites of Latvian Commercial Banks, available at: http://www.fktk.lv/en/market/credit_institutions/banks1/ (accessed: 7 June 2012).
12. Website of Basel Committee of Banking Supervision, available at: http://www.bis.org/list/bcbs/index.htm/ (accessed: 18 June 2012).

Appendix 1

Capital "strength margin" in commercial banks, established on Latvian private capital

Ratios	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Capital adequacy (minimum norm)	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Capital adequacy (actual)	21.55%	18.56%	13.14%	15.60%	13.99%	14.85%	14.04%	13.32%	15.76%	14.69%	16.79%
Strength margin of capital adequacy	**13.55%**	**10.56%**	**5.14%**	**7.60%**	**5.99%**	**6.85%**	**6.04%**	**5.32%**	**7.76%**	**6.69%**	**8.79%**
T1C/RWA (minimum norm)	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
T1C/RWA (actual)	15.89%	14.66%	14.54%	13.65%	12.76%	12.27%	11.09%	13.56%	15.99%	13.76%	13.71%
Strength margin of ratio T1C/RWA	**9.89%**	**8.66%**	**8.54%**	**7.65%**	**6.76%**	**6.27%**	**5.09%**	**7.56%**	**9.99%**	**7.76%**	**7.71%**
TC/RWA (minimum norm)	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
TC/RWA (actual)	16.03%	15.12%	15.20%	14.62%	13.47%	12.89%	12.17%	15.78%	17.01%	15.51%	17.32%
Strength margin of ratio TC/RWA	**8.03%**	**7.12%**	**7.20%**	**6.62%**	**5.47%**	**4.89%**	**4.17%**	**7.78%**	**9.01%**	**7.51%**	**9.32%**
TC/RWA + buffer (minimum norm)	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%
Strength margin TC/RWA + buffer	**5.53%**	**4.62%**	**4.70%**	**4.12%**	**2.97%**	**2.39%**	**1.67%**	**5.28%**	**6.51%**	**5.01%**	**6.82%**

Appendix 2

Capital "strength margin" in commercial banks, established on European capital

Ratios	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Capital adequacy (minimum norm)	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Capital adequacy (actual)	15.15%	13.05%	11.45%	12.80%	10.75%	10.79%	11.60%	11.23%	12.83%	12.87%	12.53%
Strength margin of capital adequacy	**7.15%**	**5.05%**	**3.45%**	**4.80%**	**2.75%**	**2.79%**	**3.60%**	**3.23%**	**4.83%**	**4.87%**	**4.53%**
T1C/RWA (minimum norm)	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
T1C/RWA (actual)	13.64%	14.01%	12.14%	12.24%	9.25%	8.93%	10.56%	12.68%	11.64%	12.07%	15.79%
Strength margin of ratio T1C/RWA	**7.64%**	**8.01%**	**6.14%**	**6.24%**	**3.25%**	**2.93%**	**4.56%**	**6.68%**	**5.64%**	**6.07%**	**9.79%**
TC/RWA (minimum norm)	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
TC/RWA (actual)	16.74%	15.28%	12.84%	13.65%	11.08%	10.51%	11.97%	13.69%	15.02%	15.66%	18.96%
Strength margin of ratio TC/RWA	**8.74%**	**7.28%**	**4.84%**	**5.65%**	**3.08%**	**2.51%**	**3.97%**	**5.69%**	**7.02%**	**7.66%**	**10.96%**
TC/RWA + буфер (minimum norm)	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%
Strength margin TC/RWA + buffer	**6.24%**	**4.78%**	**2.34%**	**3.15%**	**0.58%**	**0.01%**	**1.47%**	**3.19%**	**4.52%**	**5.16%**	**8.46%**

Appendix 3

Capital "strength margin" in commercial banks, established on Eastern capital

Ratios	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Capital adequacy (minimum norm)	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Capital adequacy (actual)	69.50%	58.00%	25.50%	21.00%	18.48%	18.00%	16.30%	13.00%	11.56%	14.15%	28.62%
Strength margin of capital adequacy	**61.50%**	**50.00%**	**17.50%**	**13.00%**	**10.48%**	**10.00%**	**8.30%**	**5.00%**	**3.56%**	**6.15%**	**20.62%**
T1C/RWA (minimum norm)	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
T1C/RWA (actual)	41.68%	37.45%	21.89%	19.55%	17.25%	23.44%	15.17%	18.28%	15.96%	18.75%	21.60%
Strength margin of ratio T1C/RWA	**35.68%**	**31.45%**	**15.89%**	**13.55%**	**11.25%**	**17.44%**	**9.17%**	**12.28%**	**9.96%**	**12.75%**	**15.60%**
TC/RWA (minimum norm)	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
TC/RWA (actual)	39.32%	38.77%	22.23%	20.02%	17.93%	24.98%	16.49%	19.34%	17.73%	20.98%	25.28%
Strength margin of ratio TC/RWA	**31.32%**	**30.77%**	**14.23%**	**12.02%**	**9.93%**	**16.98%**	**8.49%**	**11.34%**	**9.73%**	**12.98%**	**17.28%**
TC/RWA + буфер (minimum norm)	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%
Strength margin TC/RWA + buffer	**28.82%**	**28.27%**	**11.73%**	**9.52%**	**7.43%**	**14.48%**	**5.99%**	**8.84%**	**7.23%**	**10.48%**	**14.78%**

Appendix 4

Capital "strength margin" in commercial banks, established on national state capital

Ratios	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Capital adequacy (minimum norm)	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Capital adequacy (actual)	13.00%	17.00%	16.00%	13.60%	16.90%	12.50%	10.10%	6.35%	10.60%	10.00%	14.30%
Strength margin of capital adequacy	**5.00%**	**9.00%**	**8.00%**	**5.60%**	**8.90%**	**4.50%**	**2.10%**	**-1.65%**	**2.60%**	**2.00%**	**6.30%**
T1C/RWA (minimum norm)	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
T1C/RWA (actual)	9.67%	15.43%	12.01%	9.21%	14.35%	10.73%	9.14%	3.68%	7.47%	8.71%	11.75%
Strength margin of ratio T1C/RWA	**3.67%**	**9.43%**	**6.01%**	**3.21%**	**8.35%**	**4.73%**	**3.14%**	**-2.32%**	**1.47%**	**2.71%**	**5.75%**
TC/RWA (minimum norm)	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
TC/RWA (actual)	13.08%	17.74%	15.98%	13.63%	16.93%	12.54%	10.61%	5.43%	10.74%	12.34%	15.61%
Strength margin of ratio TC/RWA	**5.08%**	**9.74%**	**7.98%**	**5.63%**	**8.93%**	**4.54%**	**2.61%**	**-2.57%**	**2.74%**	**4.34%**	**7.61%**
TC/RWA + буфер (minimum norm)	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%	10.50%
Strength margin TC/RWA + buffer	**2.58%**	**7.24%**	**5.48%**	**3.13%**	**6.43%**	**2.04%**	**0.11%**	**-5.07%**	**0.24%**	**1.84%**	**5.11%**