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PRUDENTIAL CONSTRAINS OF BANKS LENDING ACTIVITIES AFTER FINANCIAL CRISIS

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Abstract

Both economic practice and economic theory are interested in analyzing the role of financial sector in promoting the economic development and economic growth. Commercial banks are the most important financial institutions in bank-based economies. The lending activities of commercial banks are limited by regulatory framework, management decisions and credit capacities of borrowers. Regulatory framework has been limited lending potentials of commercial banks because of capital requirements and liquidity management costs. Information asymmetry and adverse selection in decision-making enforce commercial banks to implement credit rationing process even in case of social significance of investment projects. Social responsibility of commercial banks cannot be measured according to the risk-taking activities. Banking financial intermediations have to keep the value of savings deposits under control and protect the stability of financial system. This paper will analyze the risk structure and prudential constrains of bank lending activities. To employ the credit capacity of commercial banks, it is necessary to extend guarantee schemes or promote the alternative financing opportunities in sharing the risk of accelerated growth.

Keywords: Financial Crisis, Prudential Regulation, Bank Lending

1. Introduction

Economic science has always been interested in financial sector influence on promoting real economic growth and development (Christopoulos and Tsionas, 2004). Efficient financial system with different financial institutions and wide range of financial products is involved in financing of productive and consumption deficits and efficient allocation of national resources. In bank-based financial system, there is a dominance of commercial banks between financial institutions (Koetter and Wedow, 2010) and credit assets in leverage structure of non financial companies, what is clearly displayed in Figure 1.

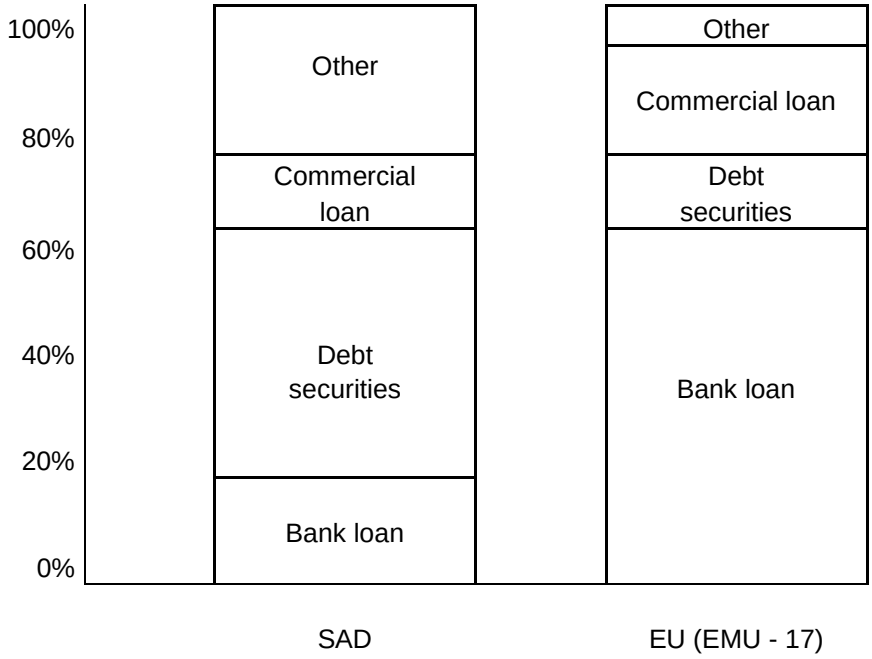

Figure 1. Debt finance structure (December 2014)
Source: ECB (2015), FED (2015)

In earliest economic theories of economic cycles the emphasis was given to the positive effect of credit expansion on economic growth and the importance of financing the production innovation from additional credit potential (Schumpeter, 1934). Some empirical evidence confirmed that countries with more developed financial system enjoy higher economic growth (Levine, 1999)where the bank-lending activities contribute independently to the objective economic parameters (Levine and Zervos, 1998) In regression analysis of credit to private sector volume and volume of GDP of selected area / countries during the period of 2000 up to 2014, it is confirmed strong positive relations even in the market-based financial system like USA through the channel of investment and housing consumption support and national income multiplier effect. Showing results in Table 1, overall regression model for every sample entity is significant ($F_{0,05,\ 13,\ 15} = 2.45$).

Table 1. Regression data of credit and GDP volume (2000 – 2014)

Country	Multiple R	R Square	DF	F
EURO AREA	0.9894	0.9789	15	604.50
Croatia	0.9804	0.9613	15	322.58
USA	0.9796	0.9595	15	308.20

Source: Authors calculation based on World Bank (2016)

To encourage the banks in financial activities, the monetary authorities apply the expansive monetary policy to increase the liquidity available to the banking sector and to reduce the costs of financing. The effect of monetary policy in credit expansion can be reduced because of restrictive credit rationing especially in the period of economic instability. This paper will analyze the usual behaviour of banks in post crisis period supported with intensive regulatory framework changes. That will increase the costs of bank activities with the negative effect on lending policy. This paper will analyze the regulatory and management restriction in lending activities and assets growth of commercial banks that is the sign to the authorities to seek and stimulate the alternative sources of funding productive business activities.

2. Bank behavior in economic cycles

The activity of banking industry has procyclical character in lending function and supporting the economic growth and development. Usual financial crisis implicate the changes of assets prices, volume of bank credit activities, high rate of non-performed banking loans, government intervention in financial sector and increase of level of systematic risk. Impairment of credit quality of debtors, decrease of price of the collateral assets, decrease of interest rates, deflation and reduction of investment activities caused banking industry to reduce the loan supply which enhanced the negative indicators of national economy (Antonin, 2014).

Last financial crisis left the deeper clues in redefining the traditional banking behavior with the consequences on strategic decision of banking business model. Financial crisis is developing in interdependence of different financial, economic and political factors and is not related with separate and single indicator (Minsky, 1980; Kindleberger and Aliber, 2005). The consequences of the last financial crisis on real and financial sector have not been still resolved (Reinhart and Rogoff, 2009). The interbank market in the function of asset and liability management including the risk management has been distressed after the bankruptcy of the systemically importance financial institutions. Because of the distrusts of the financial strength of the financial institutions, the interbank activities and the volume of international assets of international active banks dramatically decreased for the six trillion of USD (Bank for International Settlement, 2013). Opportunities to increase the aggregate demand are exploited, interbank market has adopted new risk taking standards, capabilities of equity growth of financial institutions are limited because of system risk and their asset quality, and new regulatory framework reduced growth of bank lending activities that is clearly illustrated in Figure 2.

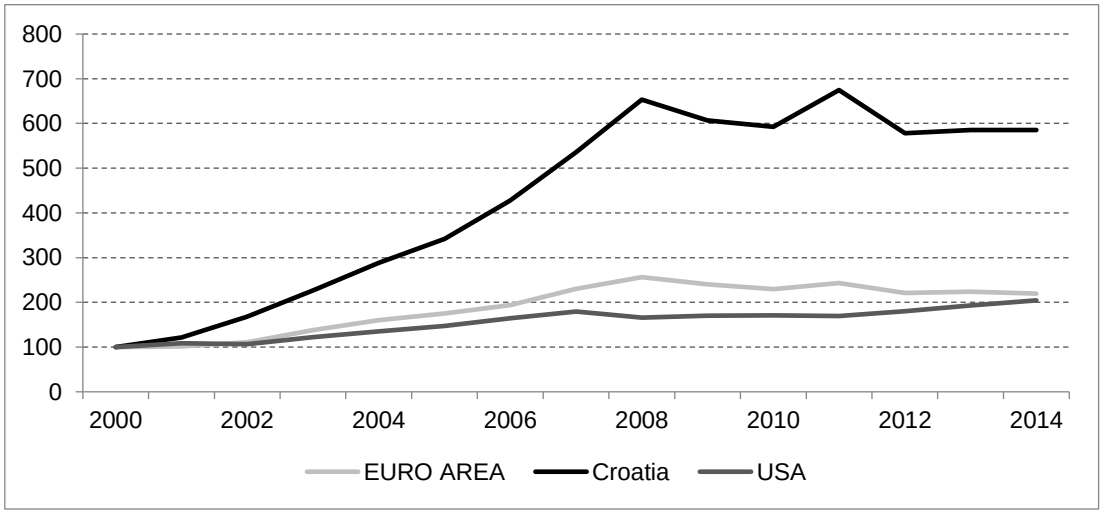

Figure 2. Index of the bank loans (2000 = 100)
Source: World Bank (2016)

Deleverage of the real sector because of the negative expectations and new restrictive regulatory changes caused the reduction of the assets of banking industry and decrease of trading and high profitable activities sensible on the cyclical movement of the economy. Bank lending behaviour is primary related with macroeconomic impact and risk increase of existed and new credit lines.

Regulatory framework and risk aversion changed the assets structure of banking sector. Higher yield loan portfolio has been partially replaced with government bonds and other lower yield securities that can increase portfolio credit quality and increase the volume of liquid assets (Eken *et al.,* 2012) in empirical evidence concluded that banks credit lines where replaced with stronger issued corporate bonds that can be partially explained with sovereign debt crisis of some European countries (Becker and Ivashina, 2014). More than the other participants, small and

medium sized companies are exposed to financing shock in credit supply of banking sector without alternative refinance sources and the limits in access to financial markets (Hadeel *et al.,* 2015).

3. Regulatory and economic limits of expansive lending policy

General conclusion of financial regulators was that regulatory framework before the period of the last global financial crisis was not suitable to ensure financial stability. They have started to implement comprehensive reform of financial system to prevent the financial crisis and transfer the potential failure costs to the shareholders and lenders of subordinated debt. The most important changes in regulative framework are in the scope of:

- Third Basel Accord in regulation of capital request, stress test and liquidity management (Basel III),
- Capital requirements regulation and directive – CRR/CRD IV,
- Markets in Financial Instruments Directive (MIFID) and Regulation on Markets in Financial Instruments (MiFIR),
- European Market Infrastructure Regulation (EMIR) on trading of OTC financial derivatives,
- International Financial Reporting Standards on regulation of assets and liabilities evidence of financial institutions.

Effects of regulation on bank business and operative model is in increasing regulatory costs, reducing the bank trading activities, limiting the growth of bank assets and risk mitigation and management on OTC derivative market. In the banking system of European Union new Basel Accord is transposed in legislation through CRD IV package of capital requirements regulation. Minimum requested common equity is 4.5% of risk weighted assets (RWA) while the minimum ratio of total Tier 1 capital in RWA is 6.0% (total regulatory capital ratio remained at level of 8.0% of RWA). CRD IV redefines the methodology for RWA calculation with comprehensive and restrictive approach to the risk of the all bank activities and products. Banks have the opportunities to manage RWA to reduce capital requirements (with assets classes with lower risk ponder) that can expose banks to the risks in case of economic or financial crisis. Basel Committee on Banking Supervision (BCBS) introduced the leverage ratio requirements like additional protection of model risk, measurement errors and expansion of bank balance sheet volume. Increase of capital request will limit the activities of commercial banks because of risk related with bank shares and high cost and absence of additional bank capital offer.

Instability of the interbank market with negative effect on global liquidity enforced regulators authorities to improve liquidity profile of balance sheet. Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) are designed to amortize liquidity shocks and adjust of liquidity structure of assets and liabilities. Stable funding sources like capital and long term debt instrument of long term retail deposit matched the medium and long term lending products.

The ratio of liquid assets significantly increased from the period of financial crisis that is the consequence of regulatory changes and distrust in functionality of interbank market. The higher ratio of liquid assets increases the costs of bank industry functionality that is commonly transferred to the final user of bank products (Figure 3).

There are some other direct regulatory costs like minimum reserve requirements that are regulatory legacy of Croatian banking system and is part of monetary policy of central bank authorities (including the function of stability of the banking sector) and direct burden for the operative activities of banking firms.

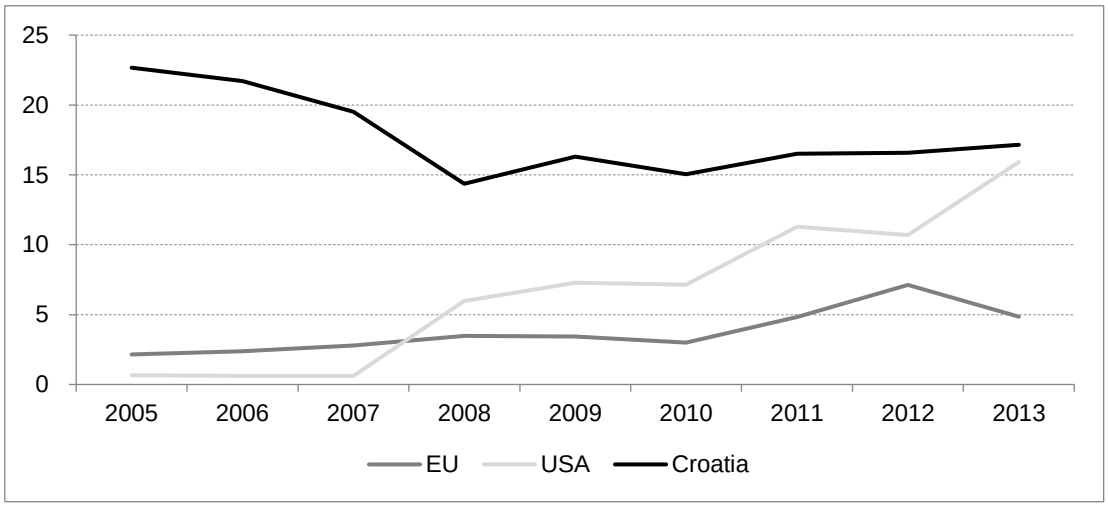

Figure 3. Liquid assets ratio in total bank assets (%)
Source: World Bank (2016)

The most important regulatory costs of expanding lending activities are capital costs, minimum reserve requirement costs and additional liquidity costs of maintaining of liquid assets based on regulatory request minimum ratio:

$$CL\_\Delta = L\_\Delta\ (C\_R + C\_B)\ C\_C + MRR\ (I\_D - RR) + LQ\_C \quad (1)$$

where are:
CL∆ – regulatory costs of additional landing activities (L∆),
CR – regulatory capital ratio (min 8%),
CB – capital buffer (long term tendency up to 2.5% up to year 2019),
CC – cost of capital,
MRR – minimum reserve requirement,
ID – funding costs (client deposit interest rate or market asked interest rate),
RR – remuneration rate,
LQc – liquidity costs related with additional liquidity assets request based on funding term structure (liquidity costs per unit of liquid assets is difference between funding costs, ID, and interbank risk free bid deposit rate, IB).

Under the regulatory required capital (regulator capital ratio and capital buffer ratio) and the assumptions of 8% costs of capital total capital costs per unit of additional lending activities of commercial banks are 84 basis points.

Minimum reserve costs based on the Croatian regulatory act of minimum reserve requirement ratio for loan funding is 11 basis points per unit of HRK funding of lending activities, and 13 basis points per unit of foreign exchange funding (with assumptions of USD structure of foreign exchange minimum required component because of positive interest USD rate in compare with EUR rate what is shown in Table 2 and Table 3 of Appendix of the paper).

Under the assumption that bank will need additional 20% of liquid assets funded by long term deposits to be in compliance with regulatory liquidity request, marginal liquidity costs will be 36 basis points for management of HRK liquidity profile and 43 basis points costs for foreign exchange additional liquidity requests (including CDS rates for foreign funds shown in Table 4 in Appendix).

Beside the regulatory costs every banking firm is faced with cost of risk related with non performing portfolio of assets even in case of conservative credit risk management policy. The cost of risk is function of systematic risk, sector risk or accelerated growth of bank assets (especially loan portfolio growth). Non performing loan ratio for selected banking systems for the period of 2000-2015 is shown in Figure 4.

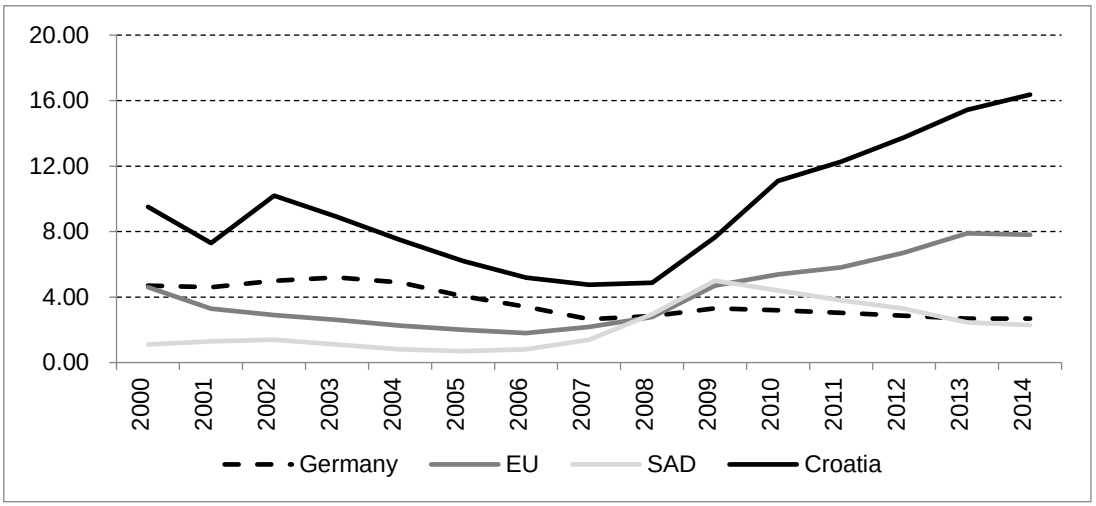

Figure 4. Non performing loan ratios (% of outstanding loans)
Source: World Bank (2016)

Cost of risk influence on bank performance is directly connection with the additional capital request. Heuristic model of credit risk management of banking firm indicates specifically risk the start-up companies and SME companies because of financial capacities to bridge over the period of business or financial crisis. Current analysis of loan portfolio in banking industry shows that more developed financial systems offer the instruments and mechanism to package and transfer the risk to other institutions under the significant discount that can encourage liquidity profile of the bank with negative impact on income statement.

Other regulation of financial markets limits the access of financial institutions to financial markets (MIFID, MIFIR and EMIR) and increases the volume of transaction costs. Changes in reporting standards and international financial reporting standard increase the IT and other related costs with negative influence on bank operating result. Short overview of banking sector environment introduce the limits of expansive lending policy and risk taking activities even motivated with public value development.

4. Alternative financial opportunities

Although the intention of regulatory authority is to constrain the activities of commercial banks from trading to core banking activities, it is hard to anticipate the credit expansion in supporting investment activities. High regulatory costs (costs of capital and opportunity costs of highly liquid assets supported with other costs like obligatory reserve requirements) that banks transfer to final beneficiaries of banking services neutralize effects of low interest rate policy of central banks. Very high uncertainty in banking industry decreases the potentials of credit capacity expansion necessary in banking intermediary function (even the volume of saving is increasing the debt and equity financing of banks are unattractive). High ratio of non performing loans redefines the credit risk policy and adverse selection of potential clients that is limiting usability of standard credit rationing process in bank lending policy (Kundid and Ercegovac, 2011).

Risk aversion is natural behaviour of commercial banks because of obligation to protect the value of borrowed funds. To encourage the investment activities institutional authorities have to activate the alternative mechanisms and instrument in mobilizing financial capacities in taking and sharing the risks of production deficits.

Efficient support of SME sector investments is by state owned financial institutions like European Bank For Reconstruction and Development - EBRD, European Investment Bank - EIB, European Investment Fund – EIF, Kreditanstalt für Wiederaufbau - KfW and other institutions funded by government source and from business activities. They are ready to take over the risk in trade off between economic and social development and growth and the ratio of investment loss. In supporting the entrepreneurship, innovation, employment and development institutions

make the access to direct finance in debt or equity securities, direct or syndicated loans or other type of financial intermediary institutions. Commercial banks can support operative plans (with or without risk exposure) in forms of:

- Funding by own funds and making the institutional guarantee schemes,
- Providing the administrative support in draw downing the lending lines of the financial institutions inside the commissionaire or mandatory banking business,
- Participation in syndicated loans.

Commercial banks can provide the infrastructure of risk analysis function and adverse selection of the clients. They can control the intended use of the loan; provide the service of intermediation of drawdown the loan and control the loan payback. Commercial banks can carry out the legal procedures in forced loan repayment.

In Republic of Croatia the role of Croatia Bank for Reconstruction and Development (HBOR) and Croatian Agency for SMEs, Innovations and Investments (HAMAG-BICRO) are extremely active in funding the financial institutions for financing the selected programs and reduction of financial costs, direct financing or participating in syndicated loans or with guarantee scheme mostly for SME clients and strategic defined areas and business segments.

Market based financial system can develop different opportunities of alternative financial instruments in supporting the financing of new technologies and fast growing industries. Private equity funds, hedge funds, distressed securities, mortgage backed securities and convertible securities are some of institutional and instrument support of debt of equity financing like strategic wealth preservation development vehicle that has to be supported with positive legal environment (Nurmakhanova *et al.,* 2015).

5. Conclusion

Expectation that banking sector finances the investment activities of real sector over the objective capacities is a constant phenomenon particularly present in bank based economies. The function of financial intermediary imposes to the banking firms the responsibility toward the holders of borrowed funds that is a source of credit capacity. Best practice of management of banking firm requires the efficiency adverse selection and risk mitigation activities. Therefore, regulatory framework, especially tightened after last financial crisis, limits the structure and the growth of banking assets with capital request, liquidity profile structure and other measures to provide buffers in case of future banking or financial stress or crisis. Risk taking activities in developing economic activities requested by society have to be encouraged out of banking sector in affirmation of alternative financial opportunities and direct participation of local or central government in financing programs or guarantee schemes in risk taking or risk sharing activities. Affirmation of private equity funds and investors with legal and business environment development have to be long term objective of financial system. Stable and creditworthy companies will mobilize the credit capacities of banks in issuing a long term growth and development.

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Appendix

Table 2. Market bid interest rates (%) as per 31.12.2015

Currency	ON	1M	6M	1Y	5Y
EUR	-0.4500	-0.3000	-0.1300	0.0900	0.5900
USD	0.3600	0.5600	0.8900	1.0500	2.2800
HRK	0.2000	0.6500	1.1000	1.5000	-

Source: Reuters

Table 3. Market ask interest rates (%) as per 31.12.2015

Currency	ON	1M	6M	1Y	5Y
EUR	-0.2500	-0.2000	-0.0200	0.1900	0.8900
USD	0.4600	0.6600	0.9900	1.1800	2.5800
HRK	0.7000	1.1500	1.6000	2.0000	-

Source: Reuters

Table 4. CDS rates for Croatia public debt (in basis points) as per 31.12.2015

Currency	1Y	5Y
EUR	152.6400	299.5100
USD	153.4000	301.0200

Source: Reuters