

UDC 336.71:339.137.2]:336.76.055.4(496.5)

WHAT ABOUT THE RELATIONSHIP BETWEEN BANKING COMPETITION AND FINANCIAL STABILITY? CASE OF ALBANIA

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Abstract

The banking sector serves as a key instrument through which instability may be transmitted to other sectors in the economy. The scare due to banking fragility caused by upper concentration, has usually strained policymakers to focus on developing policies which sustain stability of banking sector. Currently, we faced to global financial crisis and consequences of it. That's one more reason to be more careful at this time, particularly, concerning banking sector.

Banking competition is more complicated by the requisite of maintaining financial stability. Increasing competition may be good for efficiency, but bad for financial stability. Some theoretical and empirical results emphasized that more concentrated banking markets are associated with greater risk of bank failures. Various cases provide empirical evidence of a positive relationship between banking market concentration and bank risk-taking. The article examines the empirical nature of the correlation between bank concentration, as an indicator to assess competition, and financial stability, using unique datasets of Albanian banking system.

JEL Classification: C 13, G 32, D 53

Keywords: Bank Competition, Financial Stability, Z score, Non Performing Loans

1. The slight view about Albanian Financial System

The structuring of financial system has been the key element of transition reforms. Over 20 years, the transition of Albanian financial system has undergone dramatic changes due to successes and failures of macro and micro reforms, changes of institutional framework. The main features of structure about Albanian financial system are:

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The market structure of the Albanian Banking Sector has changed obviously in recent years. On 1990s, our country has practiced deregulation, foreign bank penetration, an accelerated process of consolidation and competition in the banking sector.

The banking sector remains the largest and most developing segmentation of Albanian financial market. Actually, there are 16 second level banks on banking market. After two decades of transition process, the Albanian financial system belongs to model of *the financial system dominated by the bank sector*.

Capital market is under-developed and non-estimating. Capital markets barely exist and regulatory capacity remains weak. Albania's capital markets remain embryonic. The Tirana Stock Exchange was established in 1996, but no companies have been listed so far. There is a well-developed primary market for government securities, where most banks 'park' their excess supply, but the secondary market for government treasuries is poorly developed.

The more sophisticated market is foreign exchange market. Furthermore derivatives are not almost ever used by corporations, but they show up once in the commercial banks' balance sheets at foreign exchange sections.

Debt markets are hugely underdeveloped and hardly exist. Credit is constrained by difficulties to assess credit-worthiness, the lack of collateral (especially land titles) and limited institutional framework.

The lack of sophisticated financial market destined on limited sources for investment/speculation. The common savings managed to treasury bills so far. The spectrum of financial services has enlarged slowly.

The diversification of banking sector is almost non-existent. Instead, the banks afford soaring interest rates for loans with mortgages or invest to treasury securities.

The banking sector seems quite solid strong until now, mostly due to the lack of investing to foreign assets. The banks have focused to domestic market, and only 10% of their portfolio invested to global markets. The return on capital was 11.4% in 2008; lower compare to 20.7% in 2007, but it remains quite high again. Approximately 62% of deposits have been reinvested in loans. On the average banks are holding about 17.2% of capital.

The non-developed financial markets in Albania related to under-developed of non-banking intermediaries.

This article is organized as follows. Section 2 related to theoretical and empirical literature about banking competition and financial stability. Section 3 gives a view about Albanian case. Finally, Section 4 concludes remarks.

2. Theoretical backgrounds

Various studies related to concentration and fragility depends on the two controversial streams: concentration either increases stability or decreases stability. We distinguish a similar outline related to the literature⁹ on competition and stability. Matutes and Vives (1996) based on the Diamond and Dybvig (1983) model argue the instabilities which it can arise in any kind of market structure like propensity of depositors to run, is determined exogenously. Smith (1984) puts ahead a theoretical explanation how increasing competition for bank deposits goes up vulnerabilities in the system. Matutes and Vives (2000) also examine bank risk taking behavior and deposit insurance. Moreover, they consider social costs related to bank failures and find out the excessive competition increases to maximal bank risk due to the lack of risk-based deposit insurance. Except study of Matutes and Vives (1996), above-mentioned theoretical studies denote a positive relation between competition and fragility. Contrary to Caminal and Matutes (2002) expose that monopoly banks with intermediate monitoring costs have a propensity to initial risky loans which it increases probability of consequent failure. Using a dynamic duopolistic model, Perotti and Suarez (2002) investigate potential failure of financial firms due to competition. They argue that the failed institution can be either closed or merged with another agent,

stress the trade-off between stability and competition. They confirm that an active merger policy by the regulatory authority which encourages takeovers of failed institutions, contributes to banking stability.

However Allen and Gale (2004) demonstrate the trade-off between competition and stability thus the relationship is comprehensive and inappropriate. Rather, they make out the efficient levels of both competition and stability relying on various theoretical models. Finally, they emphasize that fragility also depends on the structure of the interbank market. Also Boyd and others (2004) focus on the probability of observing a banking crisis and conclude it does not only depend on the degree of competition. As well monetary policy is a main determinant. Monopolistic banking markets are found to be more fragile if the rate of inflation is under a confident verge, while more competitive banking markets are more exposed if inflation is over this verge.

Passing on the empirical studies according to the “competition–fragility” versus “competition – stability” literature is more ambiguous.

If banks benefit from higher franchise value resulting due to their market power, they possibly will keep this value from the higher loan risk with other methods. In particular, they are able to compensate the higher risk exposure through more equity capital, reduced interest rate risk, sales of loans or credit derivatives, a smaller loan portfolio, or other risk-mitigating techniques. Thus, when a bank charges higher rates for business loans and has a riskier loan portfolio, the bank may still choose a lower overall risk. Relying on this argument it is significant to distinguish theories on reflecting both loan risk and bank risk. Whereas some previous researches used the Z-index as an inverse proxy for overall bank risk, other researches focused on nonperforming loans, which only measure loan risk. No prior study which has estimated the effects of market power or measures of competitiveness on both loan risk and overall bank risk using the same model. Few studies have also examined the effect of competition on banks' capital ratios. Schaek and Cihak (2007) show that banks tend to hold higher capital ratios in more competitive environments inside framework of European banking.

The core issue of these disparate theories is the measurement of market power. Some studies use the assessment of concentration, such as HHI (Herfindahl – Hirschman index) or *n*-firm concentration ratio, to indicate market power, but they have shown to be ambiguous indicators¹⁰. Beck, Demirguc-Kunt, and Levine (2006) find out that concentration might not be an appropriate indicator for banking competition. Some studies use H-statistic to assess the banking competition¹¹. We considerate some issues referring to it, particularly, it requires that banks operate in long-run equilibrium (Shaffer 2004). The Lerner index uses to analyze the effect of concentration on bank loan risk (Jimenez, Lopez, and Saurina 2007). In the circumstance of Spanish banks, the authors make a Lerner index based on bank-specific interest rates as an indicator of market power in the commercial loan market. They find out a negative correlation between loan market power and portfolio risk. Additionally they confirm the negative correlation between nonperforming loans and market power in the loan market, thus promoting financial stability. Various studies use several assessment of banking competition to check for robustness of them.

We use dissimilar risk disclosure indicators as dependent variables to proxy for financial stability: the volume of nonperforming loans (NPLs) to total loans, Z-index as an inverse indicator of overall bank risk, and equity to total assets (E/TA) for the bank's capitalization level. The Z-index is a converse replacement for the firm's probability of failure. It combines profitability, leverage, and return volatility in a single computation. It is given by the ratio:

$$Z_i = \frac{ROA_i + E/TA_i}{\sigma_{ROA_i}}$$

where ROA_i is the period-average returns on assets for bank *i*, E/TA represents the period-average equity to total assets ratio for bank *i*, and σ_{ROA_i} is the standard deviation of return on assets over the period under study. Z-index increases with higher profitability and capitalization levels, and decreases with unstable earnings reflected by a higher standard deviation of return on assets.

10) e.g., Berger, Demirguc-Kunt, Levine, and Haubrich (2004).

11) e.g., Claessens and Laeven (2004), Schaek, Cihak, and Wolfe (2006), Molyneux and Nguyen-Linh (2008).

3. Case of Albania

Banking sector contain the main share to total financial system's assets. At the end of 2010¹², its assets accounted for about 94.4 percent of total financial system's assets, and about 80.9 percent of GDP.

After 1997 crisis, the macroeconomic environment led to important changes in Albanian banking sector which was involved in liquidation, restructuring, privatization and acquisition activities of some banks. Albanian banking sector has been recently characterized by important structural developments. The most important of them are:

(i) the enlarged number of banks; (ii) restructuring and privatization of state-owned banks; (iii) establishment of domestic capital banks; (iv) entrance of powerful foreign banks through acquisitions of the existing ones; which have changed the Albanian banking sector into a dynamic environment. There are more and more efforts made by banks to be better positioned in the market.

Referring to Panzar-Rosse model¹³, we conclude that the Albanian banking sector operates actually in monopolistic competition market. In recent years, the Albanian banking sector is characterized by a steady increase, both in terms of number of banks as well as in enhancing the banking activity. It has been evident in recent years who are accompanied by high growth and expansion of credit activity range of products offered by banks. These developments have had major impact on market concentration. Empirical data (Table 1) emphasize that market of assets and deposits in Albania have high concentration ratios, CR3 and CR5, respectively. Also, the high values of index Herfindahl – Hirschman (HHI) strengthen this fact, because they are away from their optimal value. While according to the empirical results, credit activity is one less concentrated among other activities in our country. Values of CR3 and CR5, and also HHI, indicate a moderate concentration of this activity.

Table 1. Concentration ratios of assets, deposits and credits

Concentration Ratios (%)		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Assets	CR3	80	75	72	70	69	64	62	56	55	56	56
	CR5	89	87	86	85	83	78	76	72	74	72	71
	HHI	0.44	0.37	0.32	0.30	0.27	0.21	0.18	0.15	0.15	0.14	0.14
Deposits	CR3	84	80	77	75	73	68	65	60	62	60	58
	CR5	92	90	88	87	85	81	79	76	79	75	74
	HHI	0.50	0.43	0.37	0.35	0.31	0.24	0.20	0.17	0.17	0.16	0.15
Credit	CR3	78	69	62	54	46	43	43	45	47	44	43
	CR5	91	86	83	79	69	63	64	66	68	65	64
	HHI	0.27	0.20	0.17	0.15	0.11	0.10	0.11	0.11	0.12	0.11	0.11

Source: Author calculations based on database of BoA.

Additional factors such as foreign bank penetration, information technology, and asymmetric information may also affect banking competition. Foreign bank penetration is found to be positively associated with banking competition in the Albanian banking sector.

Empirical results of several authors confirmed that the banking default probabilities would occur probably in a weak macroeconomic environment characterized by slow GDP growth and high inflation. Also banking crises depend not only on macroeconomic variables; meanwhile depend on structural characteristics of

12) Source: Financial Stability Report, 2010, Bank of Albania.

13) See Note (2006).

economy and particularly financial sector. In times of banking crises, complex interactions arise between banks and macro determinants. Due to the specific characteristics of banking sector, other significant factors are adverse selection and moral hazard. Asymmetric information can also be a source of banking crisis. Stiglitz and Weiss (1981) confirm that higher interest rates may increase the riskiness of loan portfolios because of adverse selection and moral hazard problems. While increased funding costs discourage safer borrowers, other borrowers are stimulated to choose riskier projects and are likely to face a higher probability of default. The volume of nonperforming loans would enhance, adding to the bank's risk exposure and undermine financial stability.

Empirical results of Albania case¹⁴ show a significant relation between components of bank concentration and Z-index as an inverse indicator of overall bank risk and other factors. This analysis focused on indicators of concentration (Herfindahl-Hirschman index (HHI) for assets of banking system) and risk taking (Z-index) during first quarter of 2003 until second quarter of 2010¹⁵. The components of risk taking on banking sector depend on other indicators, macroeconomic indicators especially inflation rate (π). Empirical results examines through the following estimation of linear model:

$$Z = 0.244 + 4.911 * H^2 + 0.299 * \pi$$

$$R^2 = 0.876 \quad p(0.000) \quad p(0.33)$$

The results of estimation and variables' coefficients are significant. We conclude that HHI (H) for assets has a positive impact on Z-index (Z). This positive impact of HHI on Z-index related to higher bank concentration ratios. More concentrated market reflected higher prices according to the economic theories; in banking market reflected higher interest rate. Thus growing up of interest rate defined more costs for borrower. This behavior inclined the moral hazard problem; some borrowers will have a less possibility to pay the loan. The lack of repayment increased the Z-index due to default probabilities of borrowers. Results of linear model rely on competition hypotheses based on theoretical background.

Also the model confirms the positive correlation between inflation rate (π) and Z-index. If the inflation rate increased, it means higher nominal interest rate which it reflects rising costs of loan. This trend linked to the prospect of clients' behavior towards lacking of repayment which stimulates going up risk taking.

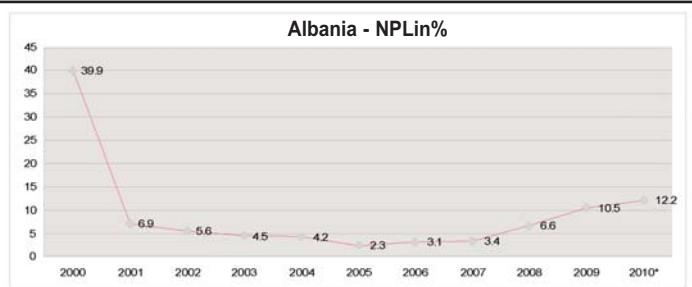
Based on the last developments, Albanian banking sector is characterized by high levels of non – performing loans ratio. Enlargement of banking sector disclose to credit risk due to rising of loan portfolio by total assets. On the other hand, the rising of non – performing loans, associated with the restriction of loan portfolio by banks, induce high level of non – performing loans ratio. Graph 1 demonstrates the trends of non – performing loans during years in Albanian banking sector.

Graph 1

Albanian Non – Performing Loans (gross) to total loans, in percent (%)

Source:

Bank of Albania,* Data up to June 2010



14) Empirical analysis related to banking sector due to financial system dominated by banks. Z-index is calculated to whole banking sector.

15) Source: Dataset of Bank of Albania and authors' calculation.

Empirical results of Albania case illustrate a significant relation between components of bank concentration and non-performing loans and other factors. This analysis focused on indicators of concentration (Herfindahl-Hirschman Index (HHI) for assets of banking system) and risk taking (Non-performing loans (NPL)) during first quarter of 2003 until second quarter of 2010¹⁶. The components of risk taking on banking sector depend on other indicators, macroeconomic indicators especially inflation rate (π) and efficiency indicator, equity to total assets (E/TA) for the bank's capitalization level. Empirical results examines through the following estimation of linear model:

$$NPL = -0.137 + 1.184 * H^2 + 0.52 * \pi + 0.114 * E$$

$$R^2 = 0.765 \quad p(0.000) \quad p(0.000) \quad p(0.000)$$

Analysis emphasize that the results of estimation and variables' coefficient are significant. The model confirms the positive correlation between HHI for assets (H) and non-performing loans. This positive impact of HHI on NPL related to higher bank concentration ratios. The data¹⁷ related to performance of lending activity in 2009 demonstrate that four banks of the system have recorded the largest contribution to 2009 credit growth, accounting for 57% of this growth.

Linear model demonstrate the positive correlation between inflation rate (π) and non-performing loans. This effect caused by the impact of inflation rate on nominal interest rate due to growing up costs of loan. Also inflation rate includes effects of exchange rate which reflects exchange rate risk on loans. Meanwhile, non-performing foreign-currency credit unheeded against exchange rate risk accounts for about 49.9% of the total non-performing foreign-currency loans. About 70.5% of household credit and 49.6% of business credit is unheeded against exchange rate risk¹⁸. Small-sized banks are assessed to better hedge against foreign exchange rate risk, arising from granting foreign-currency loans when borrowers' income is in ALL.

Indicator of efficiency, equity to total assets (E) for the bank's capitalization level, has a positive effect on non-performing loans. If banks reflect high level of equity to total assets (E) means higher profitability due to earning assets as long as banks' perception of credit risk. As a result of it, banks will take the lower loan portfolio deterioration rate. The banking sector has shown stability throughout 2009 in terms of investing in earning assets and collecting paying liabilities.

Let's see now the relation between banking crisis and concentration ratios through empirical estimation of Albanian case, particularly probability of banking crisis.

Asli Demirguc – Kunt and Enrica Detragiache (1998) estimated the probability of a banking crisis *probit model* using a multivariate logit model. The probability that a crisis will occur at particular time in particular country was hypothesized to be a function of a vector of n explanatory variables $X(i,t)$. $P(i,t)$ denoted a dymmy variable that took the value of one when a banking crisis occurred in country i and time t and the value of zero otherwise. β is a vector of n unknown coefficients and $F(\beta'X(i,t))$ is the cumulative probability distribution function evaluated at $\beta'X(i,t)$. Then, the log-likelihood function of the model is:

$$\ln L = \sum_{i=1,T} \sum_{t=1,n} \{P(i,t) \ln[F(\beta'X(i,t))] + (1-P(i,t)) \ln[1 - F(\beta'X(i,t))]\}$$

They used the logistic functional form in modelling of the probability distribution. In this case, it is important to emphasize that the estimated coefficients do not indicate the increase in the probability of a crisis given a one unit increase in the corresponding explanatory variables. The coefficients reflect the effect of a change in an explanatory variable on $\ln [P(i,t) / (1 - P(i,t))]$.

Based on these theoretical and empirical approaches, we estimated a relation on banking crisis in Albania. In modeling of Albanian banking crises, we used the probity model due to it is more comfortable according

16) Source: Dataset of Bank of Albania and authors' calculation.

17) Supervision Annual Report, Bank of Albania, 2009.

18) Supervision Annual Report, Bank of Albania, 2009.

to Albanian case. According to theoretical background included macroeconomic and structural variables and examined them at period 2002 until 2010.

$$\text{The probity model estimated is Banking crisis} = \alpha + \beta_1 \text{HHI}_{i,t} + \beta_2 \text{GDP}_{i,t} + \beta_3 \text{Inflation}_{i,t} + \varepsilon_{i,t}$$

The dependent variable is a crisis dummy that takes on the value of one if there is a systemic and the value of zero otherwise. Inflation (INFL) is the rate of change of consumer price index. Real GDP based on quarterly data. Banking concentration is calculated by Herfindalh - Hirschman index (HHI) for assets in banking sector over the sample period. Bank data refer to Bank of Albania dataset and authors' calculations.

Variable	HHI2	INFL	GDP
	42.004	15.938	- 2.84 E-05
	(0.0645)*	(0.0138)**	(0.0111)**

** and * indicate statistical significance at 5 and 10 percent, respectively.

The results of above model reveal a positive effect of concentration on probability of banking crisis. It is consistent with theoretical (concentration-fragility views) and other empirical results. Allen and Gale (2004), and Beck et al (2004) argue that more concentrated banking systems would be in better condition to avoid a crisis because large banks hold more assets and financial resources than the smaller ones. Similarly, large banks would perform better incorporating international regulation and risk sharing than small banks.

4. Concluding Remarks

There is no consensus related to the probable risk effect of bank competition. Theoretical and empirical results are ambiguous predictions. Albanian case supports the competition – stability hypotheses. Less competition of banking sector induce higher loan rates and more rents earned by the bank. Meanwhile, a higher loans rate will increase the default probabilities of the borrowers. While the loan market is more affected by moral hazard on the part of borrowers, a higher loan rates charged by banks, will induce them to adjust their investment policies in favor of more risk. Albanian banking sector is characterized by a high level of concentration in spite of the underlined downward trend over the years. Decreasing trends of concentration in banking sector is attributed to reorganization of the sector. Banks of G2¹⁹ group are benefiting from losing ground to major banks of G3 group. The market concentrations have linked to banks consolidation.

Meanwhile, Albanian banking sector is characterized by increasing non – performing loans ratio, showing that financial institutions have not been attentive, taking excessive risk. Referring to empirical results of relation between banking concentration and risk taking on Albanian case, we emphasize a tough relation between them.

Thus, analysis of risk taking depends on structural components of banking market and other significant variables, macroeconomic and financial variables. The higher rate of non-performing loans overcomes due to more concentrated banking market. There is one of reasons for rising of non-performing loans, also rely on theoretical background. The non- performing loans show an upper trend. This detail should take into consideration by banking supervisor authorities. It is one of the most essential determinants that caused the fragility of banking sector, particularly financial crises. Albanian empirical results demonstrate that the banking crises would occur probably in a weak macroeconomic environment characterized by slow growth of GDP and high inflation rate.

Finally, we conclude that Albanian case on assessment of concentration effects on bank crisis is consistent with concentration – fragility views. Otherwise, financial stability was focused on banking stability in this article due to the circumstances of Albanian financial market, has been reliable so far, but it should be monitor in the future.

19) Classification of Bank of Albania: G1- small banks, G2 – medium banks, G3 – large banks.

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