

SOME EMPIRICAL EVIDENCE OF LOAN LOSS PROVISIONS FOR ALBANIAN BANKS

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Abstract

The latest financial crisis has emphasized the need to limit the procyclicality of financial system and the use of macro prudential policy to mitigate this procyclicality. Currently the more proactive prudential rules that have received a lot of attentions are: capital adequacy regulations and loan loss provisioning system. In this paper we have used a panel of Albanian banks for the period 2004-2014 to examine the main determinants of loan loss provisions. In addition we have tested how the latest crisis has affected provisions behavior of the banks. Dynamic panel data estimations based on Arellano and Bond (1991) techniques show that loan loss provisions of banks are drive from non-discretionary component and economic fluctuations. Furthermore we find a positive and significant result between earnings and loan loss provisions, confirming thus income smoothing hypothesis. Our estimated results do not support capital management and signaling hypotheses. We also found that global crisis has contributed significantly to the pro cyclicity of loan loss provisions in Albania.

Key words: Loan loss provisions, Pro-cyclicality, Income smoothing, Albanian banks, Dynamic GMM, Financial crisis

INTRODUCTION

The global financial crisis has led to a renewed debate about the nature and effectiveness of financial regulation, and the extent to which central bank should consider more explicitly financial stability objective in the conduct of monetary policy. Thus a key issue has been the design of macro prudential policies and macro prudential instruments that help to mitigate the pro-cyclicality of the financial system. Most of literature concerns about the factors that explained the fluctuation in banks' lending, since such factor could exacerbate the business

cycle, causing financial instability and a misallocation of lending resources (Bouvatier and Lepetit, 2008).

Despite bank lending channel, (Bernanke and Gertler, 1995) emphasizes the role of imperfections in the market for bank debt and bank capital channel (imperfection in the market for bank capital) is another factor that can amplify the cyclicalities of bank lending is the provisioning system.

Provisioning rules and capital management are linked through the coverage of credit risk, where expected losses have to be covered by loan loss provisions (LLP), while unexpected losses have to be covered by bank capital. Therefore, it is important for the banks to properly manage the LLP to ensure the sufficient amounts are allocated to counterbalance the Non-Performing Loans (NPL) mainly throughout financial turmoil. So the main function of LLP is to cover expected losses but LLP is an important tool to pursue other objectives that drive managerial discretionary behavior such as; income smoothing, signaling and capital management. These factors, together with non-discretionary components and economic fluctuation determine the provisioning policy of the banks.

During the last financial crisis, Albanian economy has experienced a significant slowdown from 6 % to 2% that was accompanied with a shrinking of bank lending, higher ratio of NPL that reached the highest level in SEE region around 22%, reduction of revenues and higher level of LLP which both led to further revenues losses. Thus investigation of the main determinants of loan loss provision is important issue for the stability of financial system in Albania and for the policymakers to determine the most appropriate provisioning system.

In this paper we have used a panel of 15 banks for the period 2004-2014 to examine the main determinants of loan loss provisions LLP in Albania. In addition we have tested how the latest crisis has affect provision behavior of the banks. Based on our best knowledge this study investigates the provisions policy of the banks in Albania and contribute through filling the gap on the empirical evidence for a SEE country.

Our empirical results support the hypothesis that provision for loan losses in the Albanian banking system is pro-cyclical and that increasing the level of provisions during economic downturn can lead to considerable reduction in credit supply, which can further amplify changes in the business cycle. Also non-discretionary component, drive the loan loss provisions behaviors of Albanian banks. Furthermore we find a positive and significant result between earnings before interest, taxes and provisions and LLP confirming income smoothing hypothesis. Our estimated results do not support capital management and signaling hypotheses. We also check if the global crisis has change or not the provisioning policy of banks in Albania. We find that global crisis has contributed significantly to the pro cyclicalities of

loan loss provisioning in Albania and banks have continued to do income smoothing during the crisis.

The structure of the paper is as follows: Section 2 presents a brief literature review and existing empirical results. Section 3 describes the methodology and data. In section 4 we demonstrate the empirical results and Section 5 concludes.

LITERATURE REVIEW

The latest financial crisis has shown the important relationship between credit growth, banks income, capital adequacy ratio and provisioning practices (FSF, 2009). Loan loss provisions policies are critical to assess the stability of financial system and they are vital policies that influence earnings of banks, their capital position therefore the credit supply (Beaty and Liao, 2009).

Basically the loan loss provisioning should reflect the confidence of bank managers about their loan portfolio quality, which means that provisions should cover the entire spectrum of expected credit losses, in case that they really believe that the loan loss provisioning is the best indicator of the true credit risk (Dugan, 2009).

Practically, as it is also emphasized by Borio and Lowe (2001), Bikker and Hu (2002) and Leaven and Majnoni (2003) that the loan loss provisioning has a historical pro-cyclical nature, which relates to the assets' quality. Another factor that affects the provisions pro-cyclicality is the business cycle and its developments. The difficulties on determining the business cycle behavior can bring to lack of coordination between the credit risk assessment and the time of introducing the loan loss provisioning. Meanwhile, also referring to the methodology of calculating the loan losses, the loan loss provisioning takes into account only the losses incurred from loans, but not the expected credit losses (Li, 2009).

The policies on loan loss provisioning are estimated to vary from one country to another and are influenced by accounting practices, regulatory and tax policies of the country. There are two main approach of provisioning; specific provisioning and general provisioning (Cortovaria et al., 2000). Thus specific provisioning is determined based on the specific accounting rules and depend on recognized credit losses, which increase the specific reserve for loan losses and are deducted from total assets. While the general provisioning need to cover expected credit losses and is added to the overall reserve for loan losses, on the liability side (banks' balance sheet liabilities). According to Bouvatier and Lepetit (2008) banks do not strictly implement any of statistical methods to calculate total provisioning, which depend partly on the total credit growth and can be affected easily by the discretionary behavior of banks' managers.

Based on the literature review two components that compose loan loss provisions are: the non-discretionary component and discretionary component (Bouvatier and Lepetit, 2008).

The non-discretionary component is made to cover the expected credit losses in a bank's loan portfolio (Perez et al, 2006). Thus provisioning practice of the banks are depending on the assessment that banks have for the expected credit risk, which is linked with default risk, macroeconomic risk, interest rate risk, exchange rate risk etc. This nature of provisioning is said to be backward-looking since banks mainly relate non-discretionary provisions to identified credit losses. During economic upswings, the number of credit losses is minor that implies that banks make lower provisions, while during the economic downturns, loan loss provisions increase due to higher risk of loans default. Hence, nondiscretionary component strengthens the cyclicity nature of loan loss provisioning and lead to a misevaluation of expected credit losses (Bouvatier and Lepetit, 2008). The expected credit risk appears as soon as the loan is granted and not only during the downturn when the losses are finally recognized. The cyclicity of loan loss provisions effect banks' profits and banks' capital that could influence the banks incentive to grant new loans.

The discretionary component takes into consideration the used of loan loss provisions for management objectives, which are; income smoothing, capital management and signaling (Liu et al, Ahmed et al, 1999, Lobo and Yand, 2001).

Through *income smoothing* banks tend to minimize the variance of reported earnings, which implies increasing loan loss provisions during an expansionary phase and decreasing during a recession phase. As result the income smoothing may have a positive impact on bank lending.

Capital management refers to the use of loan loss provision to achieve regulatory-capital targets when bank face capital constrained. General and specific provisions reduce Tier 1 capital through their effect on earnings. Since loan loss provisions are part of Tier 1 capital and deduct from risk-weighted asset an increase of general provision can increase regulator capital, especially if the increase of Tier 2 is higher than the decrease of Tier. Capital management hypothesis implies a negative relationship between capital and provisions. According to Perez et al, 2006, Fonseca and Gonzales, 2008 the relationship between capital and provisions is not very clear for banks that operate under Basel I, is depend of the level of capital put in Tier 1 and Tier 2, and loan loss reserves are not included in Tier 1 capital.

Signaling behavior refers as an increase of loan loss provisions to signal financial strength of the banks to indicate that they are enough robust to absorb future potentials losses by increasing current loan loss provisions.

The work of Greenawalt and Sinkey (1988) is among the first research studies that have analyzed the loan loss provisioning policy of the banks focusing more from on the account perspective on whether provisions were used by bank to smooth earnings. While another strand of research is focused on the pro-cyclicality of loans loss provisions over the business cycles. Borio et al (2001) in early work reported a negative significant relationship between loan loss provisions of banks in 10 OECD countries over the business cycle. Others studies that have investigated this relationship are those of Cavallo and Majnoni, 2001; Bikker and Hu, 2002; Leaven and Majnoni, 2003; Bikker and Metzmakers, 2003, 2004; Bouvatier and Lepetit, 2008; Perez et al 2008, Skala, 2014.

Based on the empirical literature the main explanatory variables that are used to explain the behavior of loan loss provisioning are presented below:

Credit quality measures are important determinants of loan loss provisions, given that provision are established to cover credit losses. Thus the main variables that are used in the literature to measure credit quality are: the non-performing loan ratio, change of non-performing loan ratio and the loan to asset ratio. We expected a positive relationship between these three variables and loan loss provisioning, so an increase of credit risk implies higher provisioning. These results are found in almost all the studies [eg. see Cavallo and Majnoni, (2001) Bikker and Metzmakers, (2005) Bouvatier and Lepetit, (2008); Perez et al (2008)].

Another variable that is used as a proxy of credit quality is the loan growth, where higher levels of loan growth may reflect higher credit risk. However in some studies, such as Cavallo and Majnoni, (2002) Leaven and Majnoni (2003), Packer and Zhu (2012), and Skala (2014) find a negative relationship between loan growths and provisioning, which reflect the fact the provisions decline when new loans are surges. A positive relationship between loan growth and provisioning is found in the research work of Bikker and Metzmakers(2005) and Fonseca and Gonzales, (2008).

Earnings before interest, taxes and provisioning are another factor that determines the procyclicality behavior of loan loss provisioning. We expect a positive relationship between earnings if banks use provisions to smooth earnings, supporting thus income smoothing behaviors. Bank managers may seek to reduce earnings variability to signal lower business risk, to decrease funding costs, to diminish tax expense or to improve management rewards (Fonseca and Gonzales, 2008). Empirical evidences found in the work of Cavallo and Majnoni, (2002); Leaven and Majnoni, (2003) Bikker and Metzmakers (2005), Bouvatier and Lepetit (2008) confirmed a positive relationship between earnings and provisions supporting thus income smoothing hypotheses.

Capital to asset ratio is used as explanatory variable to test capital management hypothesis. A negative relationship between capital to asset ratio and loan loss provisions implies that banks make higher provision when capital is low. This is consistent with capital reduction being correlated with the efforts to build up greater reserve cushion. Similar results are found in the work of Bikker and Metzmakers (2005), Foncesa and Gonzales, (2008). Bikker and Metzmakers (2005) state that this negative relationship reflects the fact that some banks sustain higher risk compare to the others creating thus higher losses and lower capital ratio.

Real GDP growth is used in the literature to proxy the business cycle. Most of the studies find a negative relationship between loan loss provisions and real GDP confirming thus that provisioning are pro-cyclical. Banks tend to increase provisions during the period of economic downturns and to decrease then during economic upswing [Leaven and Majnoni, (2002), Bikker and Hu (2002)]. An additional approach explained by Borio et al (2001), state that provisioning behavior of banks is countercyclical. So a positive relationship of provisioning with the business cycle implies that banks make higher provision during the period of economic upturns and decrease them during the period of economic downturns. This counter cyclicity behavior of banks implies that they are forward-looking in estimating their risk.

In the case of Albania this empirical paper represent the first attempt using banks level data to assess the determinants of loan loss provisions behavior of the banks. Investigation of this link is important for policymakers not only by assessing the impact that provisions have in credit risk but also for more prudential financial stabilities policies.

METHODOLOGY

The key objective of this paper is to empirically test the determinants of LLP for the Albanian banking sector. Theoretical and empirical literature suggests that two are the main component which may explain loan loss provisioning behavior: non-discretionary component and discretionary component and also economic cycle. As we mentioned above the non-discretionary component is related to cover expected losses and credit risk of banks portfolio. This factor, together with economic cycle could be strongly cyclical. The main variables that we consider to take to account the non-discretionary component are: the ratio of non-performing loans over total loan ($NPL_{i,t}$) and the first differences of nonperforming loans ratio ($DNPL_{i,t} = NPL_{i,t} - NPL_{i,t-4}$), as measures of credit risk. We include also the ratio of loans to total assets, $Loan_rate_{i,t}$ which serve as a proxy for expected loan losses and we expect a positive relationship between these variables and loan loss provisioning.

Discretionary component of LLP results from three different management objective, which are: income smoothing behavior, capital management behavior and signaling behavior. Based on the income smoothing theory banks tend to increase (decrease) LLP when earnings are expected to be high (low). A positive relationship between earning and LLP indicate that banks use provisions to smooth earning, while a negative relationship between these variables indicate pro-cyclicality. The ratio of earnings before interest, taxes and loan loss provision over total assets ($EBTP_{i,t}$) is used as a variable to test the income smoothing hypotheses.

Furthermore as Biker and Metzmakers, (2002), Bouvatier and Lepetit, (2008) we have include capital to asset ratio to test the capital management hypotheses in the case of banks in Albania. Banks with a lower level of capital can use provisions to test build up a greater reserve buffer. To test capital management hypotheses we have include the deviation of the capital adequacy ratio with respect to 12 per cent, divided by 12 percent $CAP_{i,t}$. A negative relationship between capital to asset ratio and loan loss provisions supports capital management hypotheses: more provisioning when the capital ratio is relatively low. This negative link reflects also that some banks hold a greater share of risky loans (Ahmed et al, 1999).

Loan loss provisions could also be used to signal financial strength, so as Bouvatier and Lepetit, (2008) we have used the one-year-ahead percentage change of earnings before interest, taxes and provisions to test signaling behavior of the banks $SIGN_{i,t}$. Where $SIGN_{i,t} = \frac{(EBTP_{i,t+4} - EBTP_{i,t})}{EBTP_{i,t}}$. A positive relationship between this variable and LLP confirm that banks use LLP to signal their financial strength.

$GDP_g_{i,t}$ is a proxy of business cycle conditions measured through real GDP growth, which is used to capture the procyclicality of loan loss provisions. A positive relationship between loan loss provisions and real GDP reflect the counter cycle behavior of banks, so they profit from better economic conditions to expand their reserve buffers (Leaven and Majnoni, 2003). While a negative link between these two variables indicate that banks create additional provisions as a result of economic downturn following a more pro-cyclical behavior.

In order to investigate the determinants of loan loss provisions of banks in Albania we use a similar approach proposed by Bouvatier and Lepetit (2008) and Packer and Zhu (2012). Equations (1) model the link between total LLP and the explanatory variables as follows:

$$LLP_{i,t} = \alpha_0 + \alpha_1 LLP_{i,t-1} + \alpha_2 EBTP_{i,t} + \alpha_3 NPL_{i,t} + \alpha_4 DNPL_{i,t} + \alpha_5 Loan_rate_{i,t} + \alpha_6 CAP_{i,t} + \alpha_7 SIGN_{i,t} + \alpha_8 GDP_g_{i,t} + u_{i,t} \quad \text{Eq. (1)}$$

Where, subscripts i and t , denote respectively banks and quarterly, and $u_{i,t}$ is the error term. Our dependent variable is $LLP_{i,t}$, which represent the level of loan loss provisions (specific

provisions plus general provisions) for banks i at in the quarterly t , scaled by total assets. To take to account the dynamic adjustment of $LLP_{i,t}$, we introduce the lagged dependent variable as explanatory variables. Thus if banks adjust their provisions slowly to recognize potential losses against loans following a default event, then provisions could be systematically related to each period. We have used dynamic panel data analysis, especially Arellano Bond, First Difference Generalized Method of Moments Estimator. GMM is more efficient than other techniques in the presence of heteroscedasticity and to overcome problem of serial correlation.

To investigate the main determinants of loans loss provision in Albania we have used quarterly data for 15 banks in Albania from 2004-2014, while macroeconomic variables are supply from Instat (Albania Institute of Statistics). Our panel includes 15 banks, 13 foreign banks and 2 domestic banks. During this period Albanian banking sector has experienced important improvements and it is account around 90% of financial system. As many countries Albania was hit by the latest financial crisis which shrink economic growth from 6% to 2% in terms of real GDP growth. In banking sector we evidence lower credit growth from 40% to around 0% growth and a rapid increase of NPL ratio from 4% to 22%, the highest level in SEE region. In the aftermath of the latest financial crisis, Bank of Albania (see table 7 in appendix) tight their prudential supervision to ensure that banks establishes reserves proportional with the level of risk in loan portfolios. In table 1 we show some descriptive statistics of the main variables that we have considered in our model.

Table 1: Descriptive statistic of main variables (in percentage)

Variables	Definition	Nr.	Mean	Std.Dev	Min.	Maks.
LLP	Loan loss provision as a ratio of total assets	660	0.00561	0.01092	-0.03453	0.06086
LLR	Loan loss reserve as a ratio of total assets	660	0.03448	0.04617	0	0.23061
EBTP	Earnings before taxes and loan loss provisions as a ratio of total assets	660	0.00616	0.01535	-0.07209	0.18050
SIGN	One-year-ahead % change of earnings before interest, taxes and provisions	600	0.30231	7.66683	-27.2946	159.074
NPL	Nonperforming loan as a ratio of total loans	658	0.11664	0.13183	0	1
DNPL	First differences of nonperforming loans ratio	598	0.02048	0.09714	-0.9999	1
Loan_rate	Loan to asset ratio	660	0.45369	0.20537	0	0.9615
CAP	Total capital(Tier I+Tier II) as a ratio of total assets	660	0.32297	0.31464	0.04417	1.53144
Car_ratio	Total capital as a ratio of risk weighted asset	660	0.36667	0.54157	0.0414	3.951
GDP_g	Annual growth rate of real GDP	660	0.04113	0.03354	-0.03	0.11

Source: Bank of Albania, Instat, author's calculations

Most of the variables are express as a ratio of total assets despite of annual growth rate of real lending and real economic growth. The data show that lending is an important activity of the banks in Albania, with a mean around 45.6% as a ratio of total assets, while annual growth rate of real lending is in average 47%. Loan loss provisions as a ratio of total assets have a mean 1.06% and a maximum 5.53%, while loan loss reserve are in average 3.13% of total assets with a maximum around 18.3%.

The correlation matrix (table 2) displays an overview of some interesting linkages between our main variables. We find a positive correlation between loan loss provisions and earnings before taxes and provisions, non-performing loans and loan rate and a negative correlation between loan loss provisions and real loans growth, capital ratio and real GDP growth.

Table 2: Correlation matrix

Correlation	LLP	GDP_G	Loan_rate	EBTP	SIGN	CAP	NPL	DNPL	Loan_g
LLP	1.000								
GDP_G	-0.1662	1.000							
Loan_rate	0.4779	-0.1262	1.000						
EBTP	0.3220	0.0535	0.2463	1.000					
SIGN	-0.0590	0.0427	-0.1118	-0.0215	1.000				
CAP	-0.1841	0.0162	-0.5123	-0.4871	0.0964	1.000			
NPL	0.1982	-0.3294	0.1411	-0.0759	-0.0482	-0.0891	1.000		
DNPL	0.1350	-0.0373	0.2878	0.1449	-0.0220	-0.2646	-0.355	1.000	
Loan_g	-0.002	0.0504	-0.0314	-0.268	-0.009	0.0321	-0.093	-0.012	1.000

Source: Bank of Albania, Instat, author's calculations

To have robust and unbiased result we have done some preliminary tests. In addition we have run unit root tests for the whole baking series of our sample. In the literature we find a variety of tests for unit roots or stationary in panel datasets such us; The Levin–Lin–Chu, LLC (2002), Harris–Tzavalis, HT (1999), Breitung (2000); Breitung and Das (2005), Im–Pesaran–Shin, IPSH (2003), and Fisher-type (Choi 2001). These tests have as the null hypothesis that all the panels contain a unit root, while the Hadri (2000) Lagrange multiplier (LM) test has as the null hypothesis that all the panels are (trend) stationary. The majority of the tests assume that we have a balanced panel dataset, but the Im–Pesaran–Shin and Fisher-type tests allow for unbalanced panels. So in our case we have considered these two tests. After performing unit root tests we reject the null hypotheses for all the series that we consider in our model confirming that all data are stationary.

Table 3: Unit root test result

	Fisher-type based on ADF test Ho: all panel contain a unit root	Fisher-type based on PP test Ho: all panel contain a unit root	Im-Pasaran-Shin test Ho: all panel contain a unit root
LLP	218.56*** (0.000)	131.18***(0.000)	-7.82***(0.000)
EBTP	155.71***(0.000)	147.39***(0.000)	-10.95***(0.000)
NPL	80.63***(0.000)	41.33***(0.000)	-3.54***(0.000)
Loan_rate	100.4***(0.000)	33.06 (0.42)	-2.71***(0.000)
DNPL	497.85***(0.000)	546.02***(0.000)	-14.48***(0.000)
Loan_growth	263.3***(0.000)	151.93***(0.000)	-9.3***(0.000)
Cap_ratio	191.18***(0.000)	224.71***(0.000)	-7.99***(0.000)
Car_gap	294.07***(0.000)	266.05***(0.000)	-7.31***(0.000)
GDG_g	163.9***(0.000)	241.47***(0.000)	-11.05***(0.000)
SING	628.05	761.3***(0.000)	-16.98***(0.000)

Source: Bank of Albania, Instat, author's calculations

EMPIRICAL RESULTS

Based on the methodology presented above we have analyzed the determinants of loan loss provisions in Albania. The empirical analysis is based on the estimation of generalized method of moments (GMM) using first differences (Arellano and Bond, 1991). Variables are in difference to control for unobservable banks specific effects.

Table 4: The determinants of bank loan loss provisions in Albania-all period

Explanatory variables	Endogenous variable: $LLP_{i,t}$	
	(1) Arellano-Bond estimation- two step estimation	(2) Arellano-Bond estimation-two step estimation
$LLP_{i,t-1}$	0.39673*** (0.003)	0.4986*** (0.008)
$EBTP_{i,t}$	0.16159*** (0.000)	0.20792*** (0.000)
$NPL_{i,t}$	0.01563*** (0.000)	
$DNPL_{i,t}$	0.01109*** (0.000)	
$Loan_rate_{i,t}$	0.01633** (0.010)	0.0140** (0.010)
$CAP_{i,t}$	0.00018 (0.720)	0.0004337 (0.425)
$SIGN$	-0.0000045 (0.828)	-0.0000191 (0.845)
GDP_g	-0.01952** (0.016)	-0.02423*** (0.001)

<i>Loan_g_{i,t}</i>		0.000068*** (0.000)
Number of obs.	540	523
Number of banks	15	15
Sargan test of over identifying restrictions H0: over identifying restrictions are valid		
	Prob> chi2 = 1.0000	Prob> chi2 = 1.0000
Arellano-Bond test for zero autocorrelation in first-differenced errors, H0: no autocorrelation		
Order 1-p value	--2.5347 *** (0.0113)	-2.0112** (0.0443)
Order 2-p value	0.63957 (0.5225)	-1.6605 (0.0986)

Note: p-value in bracket, *, ** and *** represent statistical significance at 90 %, 95 % and 99 %, respectively. Lagged explanatory variables have been used as instruments for differenced equations estimations.

Table 4 present the estimation results of loan loss provisions model for banks in Albania. Nonperforming loans as a ratio of total loans is a measure of bank default probability and we expected a positive relationship between NPL, DNPL and loan loss provisions. In our case we find a positive and significant relationship between two variables and loan loss provisions. So banks with higher irregular loan ratio are expected to make higher reserve to cover their expected credit risk. As we expected we find a positive and significant result between loan loss provisions and loan ratio, which is a measure of expected credit risks. So banks have showed some element of forward-looking by creating more provisions as a higher expected credit risk (Fonseca and Gonzales, 2008).

We find positive and significant coefficient between LLP and earnings before interest, taxes and provisioning confirming thus income smoothing hypotheses. So banks in Albania increase loan loss provisions where income is rising and contracting reserve making when profitability is under pressures. Arellano-Bond estimation technique confirms a positive and insignificant relationship between capital (adequacy) ratio and loan loss provisions, which do not support capital management hypotheses in case of Albania. We have used also capital adequacy ratio gap measured as the difference between capital adequacy and the median to check the robustness of our results.

Estimation results confirm a positive and insignificant relationship between capital adequacy ratio gap and loan loss provision, which do not support capital management hypotheses in Albania. Total LLP seems not to be affected by signaling hypotheses; we find positive but insignificant results between the variable SING and LLP.

The coefficient of real GDP growth is negative, indicating that provisions raise more when the business cycle falls confirming thus that banks provisioning behavior is pro-cyclical and backward looking. We have obtained the same result by including also the GDP gap, confirming the pro-cyclical behavior of banks in Albania.

This result is in line with other empirical research work presented in the literature such as; Leaven and Majnoni, (2003), Bikker and Metzmakers, (2005), Fonseca and Gonzales, (2008), Skala, (2014). However this pro-cyclical behavior is mitigated somewhat by the impact of banks earning on provisions, as banks do provision considerably when earnings are high and vice versa (Bikker and Metzmakers, 2005).

In the second specification (table 4, column 2) we have included loan growth to see more about non-discretionary behavior of the banks. We find positive and significant result between loan growth and loan loss provision, which reflect the fact that higher levels of loan growth may reflect higher credit risk. As in the first specification, we find the same results for other variables by confirming thus income-smoothing behavior of the banks and the pro-cyclicality between provisions and GDP growth. We do not find significant relationship between loan loss provisions, capital ratio and SING, so we do not confirm capital management hypotheses and signaling behavior.

At the bottom of the table we have present the results of Sargan and Arellano-Bond autocorrelation test. Our test result shows that our model is specified correctly, we cannot reject the null hypotheses of Sargan test and Arellano-Bond test show that autocorrelation is not considered a major issue for our results.

Furthermore we have investigated whether the global financial crisis has contributed to the cyclicity of banks provisioning behavior. So as Packer and Zhu (2012) we have used a dummy variable, Dum_cris to indicate the crisis period (2007-2009) and we have interact this dummy with real GDP growth and earnings before taxes, interest and provisions. The estimated results from Arellano-Bond techniques are showed in table 5.

We find that global financial crisis has contributed significantly to the pro-cyclicality of loan loss provisions in Albania, confirmed by a negative and significant coefficient of interactive term between Dum_cris and real GDP growth. Also we confirm that during the crisis banks have continued to make income smoothing, we find positive and significant results between earning and loan loss provisions.

Table 5: The determinants of bank loan loss provisions in Albania-after crisis

Explanatory variables	Endogenous variable: $LLP_{i,t}$	
	(1)	
	Arellano-Bond estimation-two step estimation	
$LLP_{i,t-1}$	0.47917***	(0.006)
$EBTP_{i,t} * Dum_cris$	0.11669***	(0.0008)
$NPL_{i,t}$	0.01736***	(0.001)
$DNPL_{i,t}$	0.01377***	(0.000)
$Loan_rate_{i,t}$	0.01485*	(0.082)
$CAP_{i,t}$	0.000301	(0.486)
$SIGN$	-0.000003	(0.832)
$GDP_g * Dum_cris$	-0.02703***	(0.000)
Number of obs.	540	
Number of banks	15	
Sargan test of over identifying restrictions		
H0: over identifying restrictions are valid		
Prob> chi2 = 1.0000		
Arellano-Bond test for zero autocorrelation in first-differenced errors,		
H0: no autocorrelation		
Order 1-p value	--3.1409***	(0.0017)
Order 2-p value	-1.6874	(0.1002)

Note: p-value in bracket, *, ** and *** represent statistical significance at 90 %, 95 % and 99 %, respectively. Lagged explanatory variables have been used as instruments for differenced equations estimations

CONCLUSIONS

The latest financial crisis has emphasized the need to limit the pro-cyclicality of financial system that has involved the use of prudential policies to offset this pro-cyclicality in order to reduce the risk of financial instability. Currently the more proactive prudential rules that have received a lot of attention are: the adjustment of regulatory capital ratios in a countercyclical way and dynamic provisioning. Dynamic provisioning involves ex-ante general provision to cover the risk associated with economic cycle in addition to the microeconomic risk in specific sectors. Thus in order to help policymakers to take the decision about the use of prudential policies following the

empirical work of Laeven and Majnoni (2003), Bikker and Metzmakers, (2005), Bouvatier, and Lepetit (2008), we investigate the cyclicity of loan loss provisions of Albanian banking sector during 2004-2014.

Our empirical results based on generalized method of moments (GMM) using first differences of Arellano and Bond, (1991)- show that loan loss provisions of banks in Albania is drive from non-discretionary components and macroeconomic variables. Similarly to other studies we support that banks have adopted a pro-cyclical provisioning model towards macroeconomic cycles. We confirm that banks in Albania have used loan loss provisions to smooth income taking the advantages of higher profitability periods. Furthermore our results do not support capital management hypotheses and signaling behaviors.

We show evidence that loss provisioning model in banks in Albania is backward-looking, in the sense that it requires that a loss event occurs before a provision can be made. We suggest the use of systems of forward-looking provisioning for banks in Albania to be more effective in the reducing credit risk.

LIMITATIONS

Despite the robustness of our results we recognized that our analysis has some limitations. One limitation is related about the time span of our series, which are short and subject of different revisions, especially macroeconomic data. Our estimations take to account the financial development of banking sector during the last 10 years, which represent only one financial cycle. Also during this period financial sector in Albania has changed a lot due to the entry of foreign banks. Furthermore in our analysis we have not included the impact that collateralized loans have on loan loss provisions. The treatment of these two main limitations will be part as a future research.

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