THE IMPACT OF GDP GROWTH ON FINANCIAL STABILITY OF BANKING SECTOR OF PAKISTAN

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ABSTRACT

The major objective is to uncover strong co-movement among GDP growth and financing, as well as between GDP growth and bank profitability, demonstrating that pro-cyclicality in bank credit and capital increases risk-taking while directly impacting national bank on economic security. The data for our study will be gathered from yearly reports of Pakistan's banking sector, which can be acquired from the website of the State Bank of Pakistan, and will be analyzed from 2010 to 2016. The study used STATA software to discover the impact on financial stability through GDP growth in Pakistan. The findings suggest that there is significant role of GDP growth in the stability of financial sector. All three proxies are significant with stability (ZScore) which means there increase in GDP, it will leads to improve the stability of banks.

Keywords: GDP Growth, GDP Per Capita, Stability, Banking Sector, Financial Crises, Islamic Banks, Conventional Banks, STATA

1. Introduction

The recent global financial turmoil demonstrates a strong link between financial markets and the real economy (Jacobs & Maritz, 2020). The European sovereign debt crisis, as mentioned by (Fan, 2016), adds to the global financial economic crisis by highlighting one of the notable features of the Euro zone sovereign debt crisis: its progressive spread across various Eurozone countries. Following the escalation of tensions in the Greek government bond market in spring 2010, the sovereign crisis engulfed Ireland, Portugal, and eventually Spain and Italy. In addition, sovereign credit default swaps (CDS) in France and Germany increased. If European banks fail as a result of sovereign debt, the resulting financial instability could be disastrous for the real economy. This type of scenario emphasizes the importance of recognizing and comprehending the cyclical behavior of bank risks. During the financial crisis, European banks became a source of risk for international financial markets, and attention to the European banking sector grew during the sovereign debt crisis (Black, Correa, Huang, & Zhou, 2016). Furthermore, banking crisis expenses have been decreased as a result of the recent global economic crisis with huge manufacturing deficits in some European states. These expenditures have a significant bearing on the actual economy, necessitating a greater knowledge of

banks risk's norms and principles. We concentrate on the Euros because, unlike the rest of the European Union (EU), these nations should intensively combine both economic and budgetary plans (Ogbu & Olatunde, 2019). An key argument in favor of more centralized financial regulation in the EU, is still the belief underlying risks in EU individual states' banking industry have gotten increasingly homogenous (Saunders & Willison, 2021). For regulatory authorities focused in validating concerns associated towards the European Union banking regulations, a better knowledge of banks ' risk swings over through the global economy in the European union is critical.

We investigate whether Eurozone commercial banks' financial stability is procyclical (or countercyclical) during economic upturns (or downturns). The relationship between the business cycle and bank risk-taking is defined as the cyclicality of bank stability. A positive relationship indicates financial stability is countercyclical, while a negative relationship indicates procyclicality. Given the obvious inconsistency between greater cross-border economic markets in the EU and primarily great nation regulatory regulations, early detection of weak banks is high on the priority list of Europeans authorities. In result of the global financial problem, EU leaders have decided to take towards a centralized EU-wide precautionary regime (Moloney, 2010). Although most of the resources required for investments are channeled by consumers to enterprises via commercial banks (Szilagyi & Batten, 2004). Some banking systems were categorized as "bank-based." Concentrating on the topic of financial independence is influenced by both scholarly and collection of components. Although since recession, this problem has become a matter of intellectual discussion (Sawyer, 2016). One of the main reasons for discussing the problem is because the nature of financial stability as a public good (Beck & Katz, 2011). However, there is a scarcity of empirical research on the role of Islamic banks in financial stability. With the global financial crisis coming to an end, the differences in financial stability between commercial and Islamic banks have become more apparent. While empirical papers on Islamic banks focus on issues related to efficiency, a number of papers discuss risks in Islamic financial institutions in theoretical terms rather than through data analysis.

The whole banking sector in Sudan and Iran is currently planned on Islamic financial concepts. Islamic banks are most often found in South Africa and South America, although they are also found in Europe and North America as niche groups. Deposited in Islamic banking system, money market funds, social security (known as takaful), and other Islamic financial institutions typical local banks (Hesse, Jobst, & Solé, 2008). However, there would be little actual research on the role of Islamic banking system in the economy instability. As the global economic crisis fades, distinctions between countries are becoming more apparent. In terms of financial sustainability, both commercial and Islamic banks have grown in importance. A lot of studies analyze Islamic banking system hazards, but they do it in a technical way. Although several International Monetary Fund (IMF)/World Bank missions in countries with a substantial presence of Islamic banks have included those banks in the overall financial stability

assessments and the role of Islamic banks in financial stability has not yet been analyzed in a consistent, cross-country, empirical fashion.

1.1 Problem Statement

The Europeans financial crisis to the international financial global recession by highlighting one of its important elements of the Eurozone banking collapse: its continuous spread across different Eurozone countries (Canofari, Marini, & Piersanti, 2015). Following the escalation of difficulties in the Greek government securities market in springtime2010, Ireland, Portugal, and later Italy and Spain found progressively involved in the financial issue. Furthermore, government credit default swaps (CDS) in France and Germany have risen. Banking stability was one of the most serious worries. If European banks failed as a result of national debt, the subsequent economic difficulties might be terrible for the actual economy. This type of situation emphasizes the need of recognizing and comprehending the cyclical pattern of banking risks.

1.2 Research Gap

On the justification of the aforementioned problem, this research explored the relationship between the economic cycle and financial stability, focusing either on the effect of real GDP growth (real economy) and bank size on economic security or the cyclical behavior of banking risk in Pakistan's banking sector. For this analysis in Pakistan, we will first use data from 2010 to 2016.

1.3 Objectives of the study

The major goal is to uncover strong co-movement among GDP growth and financing, as well as between GDP growth and bank profitability, demonstrating that pro-cyclicality in bank credit and capital increases risk-taking while directly impacting national bank on economic security. Guidara et al. (2013). These findings on banking capital growth and GDP are consistent with those of (Guidara, Soumaré, & Tchana, 2013), who found that financial capital buffers show positive co-movement with GDP growth in a study employing quarterly financial statements and stock exchange data for 45 Pakistani banks from 2010 to 2016.

1.4 Contribution of the study

This research adds to the current literature by focusing on both the effect of cyclicality in lending and bank capital on financial security or the cyclical nature of banks performance. Furthermore, banking crisis expenses have been decreased as a result of the recent banking crisis and substantial reduced productivity in various nations. These expenditures have a significant impact on the actual economic, necessitating a deeper understanding of bank risk's cyclical behavior. We'll concentrate on the banking system because Pakistan's economic and fiscal policies must still be tightly coordinated.

1.5 Hypothesis

H0. There is no link between Pakistan's economic growth and its financial security.

H1. There is a strong link between Pakistan's GDP development and its financial security.

2 Literature Review

Financial security goals and financial sector policies have been incorporated into macro theories with monetary policy as a result of the global financial crises. 4 The Tinbergen principle is followed when monetary policy is in responsibility of market stability and macro prudential policy is in charge of financial stability. In theory, it may even allow for actions in different directions when both goals are needed (Cesa-Bianchi & Rebucci, 2017). In practice, however, macro prudential and monetary policies are incompatible likely to have an impact on both goals at the same time. Another important channel involves the central bank using its interest rate tool to combat a credit boom or other indications of bank failures (Woodford, 2012). A huge dataset to show how loose monetary conditions have promoted real estate lending and home price rises in the past, particularly in the post-war era (Chwieroth & Walter, 2020) .

In contrast, there is a paucity of research on state bank lending behavior during economic cycles, with varied outcomes.) The relationship between bank credit growth and GDP growth, as well as the connection between GDP growth and a government ownership variable, for an international sample of banks from 1995 to 2002, finding that state bank credit growth is less procyclical than that of private banks (Detragiache, Tressel, & Gupta, 2008). The offering and use of financial products and services that comply with Islamic religious practices and laws are known as Islamic or Shari'ah-compliant banking. 4 Islamic banking services, in specific, are distinguished by a restriction on the paying and receiving of interest an interest charged that is fixed or predetermined. In previous research that Islamic banking, at least as conducted in Malaysia, deviate from the PLS model and is similar to conventional banking in practice claim (RAHMI, AZMA, OBAD, ZAIM, & RAHMAN, 2020). As a result, the authors propose that, for the sake of the financial sector, Islamic banks, according to this analysis, should be handled similarly to their commercial counterparts. However, this is a minority viewpoint that may or may not be important in other nations. The majority of the relevant research implies that Islamic banks offer risks to the financial sector that are different in many ways from those presented by regular banks (based on theoretical reasoning rather than a formal empirical examination). The special elements of Islamic contracts, as well as the general legal, governance, and financial architecture of Islamic banks, create risks that are special to Islamic banks.

Some other writers mentioned in the preceding paragraphs, suggest (but do not empirically test) that this would have harmed Islamic banks' competition and adaptability

to market fluctuations, with systematic implications (Al Rahahleh, Ishaq Bhatti, & Najuna Misman, 2019). They point out that handling the particular risks of Islamic banking necessitates appropriate cash and cash equivalents, suitable risk pricing and control, good governance, exposure, accountancy, and auditor's report, and financial stability architecture. There are various characteristics that may make Islamic banks less risky than traditional banks. Islamic banks, for instance, can take on a negative asset impact by investing in customers a Mudaraba arrangement. The risk-sharing provisions on the deposits side offer banks an extra layer of security on top of their existing safeguards. Furthermore, the obligation to provide investors with a consistent and efficient dividend, the shareholders' liability for ignorance or misbehavior (operational risk), and the poor accessibility to liquidity all place stress on the company.

Islamic banks are expected to adopt a more responsible approach (resulting in less moral hazard and risk-taking).Additionally, when investors (depositors) share the risk (and often do not have deposit insurance), they have a stronger motivation to monitor the banking sector closely. Finally, Islamic banks have typically held a higher percentage of their assets in reserve accounts with central banks or correspondence deposits than commercial banks. Accordingly, even though Islamic ventures are riskier than reimbursing, the problem is whether the increased risks are offset by higher reserves in terms of financial stability (Fang, Hasan, & Marton, 2014).Our major results indicate that improved institutional improvements contribute to increased banking stability. When borrower claims are enhanced by one standard deviation, a bank's financial stability increases by around 0.53. Because the average cost of bank stability in our sample is 3.26, these impacts are both statistical significance (p 5%) and economically important. Commercial banks also appear to be complementary to legal improvements. In particular, the impacts of shareholder rights and listed companies' initiatives on bank risk are highly dependent on the growth of bank consolidation, with government policies and listed companies' initiatives becoming more effective in enhancing banking stability only after a relatively well-developed banking system has been constructed.

He also looked into different risk measurements to see where reduced risk could come from. For example, we find that after all three types of reforms, asset risk (as measured by ROA volatility) decreases dramatically. After banking sector reforms and corporate governance restructuring, interest rates (as measured by non-performing loans) diminished as well. The equity-to-asset ratio analysis indicates that capitalized levels have decreased since banking liberalization. This could help us improve our performance by implying that the reductions in asset risk and credit risk are significant enough to compensate for the decline in market capitalization. We utilize ROE variability as a significant measure to assess financial risk, and the results obtained hold true. Finally, we use the stochastic-frontier approach to create a new measurement of "relative stability." It measures how closely a bank's financial stability is to the best-performing bank, based on the state of its manufacturing inputs or outputs. Using comparative stability measures, we found that our findings are reliable. While it has been recommended that the changing dynamics of structural arrangements in transition

countries provide an ideal setting for pulling up identifying issues (Allen, 2011) 2 one possible confounding problem with our research is that structural arrangements could occur at the same time as changes in the economic weather or bank-specific economic positions. Moreover, there are specific time-changing factors, both at the nation or bank stage, that primarily affect financial stability, as they DID technique handles skipped variables which are approximately linear but not heterogeneous over nations or banks. As shown above, we take a variety of steps to address the issue of missing data. We have included a number of microeconomics to account for the economic situation of the nations in our collection. Secondly, we use the DID method in a panel data regression structure, where we adjust for both country-and year-fixed impacts in all regression analysis. We also use firm-fixed impact calculations as a reliability coefficient to compensate for observable time-invariant bank features that may influence risk taking. This enables us to accommodate bank-specific missing variables that influence banks' risk-taking decisions, such as changes in risk-taking financial performance and the shareholders' risk-taking rating scale. Third, we look at the links between the historical economic and financial economic environment (e.g., economic growth and domestic credit to GDP) and the current year's performance on structural reform. The findings show that the performance of national institutions is unrelated to these economic variables; removing the possibility of erroneous predictor variables (results will be published). The demonstrated association between administrative improvements and bank risk taking does not appear to be explained by exogenous variables. Financial stability can be defined by its various qualities, such as "improving economic procedures, managing risks, and absorbing shocks" (Schinasi, 2004). Financial stability refers to a financial system's ability to easily absorb the shock it faces. Financial stability is a broad notion that encompasses a variety of financial issues. It applies to market architecture (a high degree of concentration increases the danger of spreading from one bank to another) and financial institutions especially on a micro scale (depending on the fact that their business model requires high or low risk). On a macro level, it also has to do with monetary stability and payment service functionality.

Central banks, responsible authorities, and private corporations coordinate and monitor these sectors to ensure the smooth operation of the payment scheme between financial firms. Financial instability may result from problems with management or the payment method. For banks in the United States and internationally, the literature on the relationship between bank size and stability has produced equivocal conclusions (Kick & von Westernhagen, 2009). We discovered some preliminary evidence for the too-big-to-fail phenomenon in our research. However, larger foreign companies are less stable than small private banks when utilizing the z-score, owing to less capital. This connection is flipped for saving and co-operative banks, owing to better returns. Using the distressed probability values, however, we find that as corporate and savings banks get larger, they are less likely to become troubled. Furthermore, for private banks, there is a negative association between bank size and loan risk. We take this as evidence in support of too-

big-to-fail laws, particularly in the case of private banks, which hold less capitalization as they become larger and rely on government support in the event of insolvency.

Several studies have found that international banks have varying implications for the stability of growing banking sectors, particularly during times of financial crisis. Some multinational banks that develop new products through Greenfield activities face more competitive in the host nation and, as a result, lower earnings (Goldberg, 2004). As a result, in order to increase their earnings, these banks borrow more money than other organizations. They have fewer incentives to do expensive monitoring at the same time. As a result, during a recession, the creditworthiness of these banks' loan portfolios is negatively affected more than that of the other banking sector. The international banks decreased domestic banks' revenues and expenses, resulting in increased efficiency (Goldberg, 2004). Country-specific research backs up these findings of greater bank efficiency and greater competitiveness following a global bank's entry into emerging countries (Hryckiewicz & Kowalewski, 2010). Domestic banks may reduce their own borrowing as a result of international bank entrance, according to (Giannetti & Ongena, 2012). The once international banks entered India, enterprises were eight percent respectively less likely to acquire a loan due to a systematic decline in domestic bank loans (Giannetti & Ongena, 2012). The trend presented in Fig. 1 suggests that foreign banks are becoming more prevalent in SS. As a result, it will be intriguing to see how these entrants affect the country's stability. A small decline in commercial banks from 2009 to 2010 may be noted, indicating the influence of the worldwide financial crisis of 2008/2009. The "competition-stability" viewpoint, on the other hand, claims that bank rivalry actually improves stability. Higher competition, according to the premise, results in lower interest rates. As a result, banks are more cautious when disbursing loans, minimizing systemic problems and market volatility in bank loan distribution. As a result, lending rates would be lower, enhancing stability. The gathered information for EU-25 nations to determine their financial position using the Z-score while adjusting for macro-economic, treasury, legislative, and structural factors (Muharam, 2019). They discovered that the country's banking financial integration has a harmful influence on the financial integrity of German banks. For the period 2001–2008, the 272 banking sectors from fifteen countries in Latin America (Song, 2018) . At the bank level, the writers calculate income and expenditure efficiencies, financial stability (Z scores), and competitiveness (Lerner indices and Boone indicators). Their findings show that an increased competitive environment leads to increased financial stability (where revenue efficacy is high).

The effect of competitiveness and consolidation on bank stability in the Greek banking system was examined by The effect of competitiveness and consolidation on bank stability in the Greek banking system was examined by (Sahul Hamid, 2017). The Boone indication and the efficiency-adjusted Lerner graph were employed as competitiveness measures, while the nonperforming loans (NPL) ratio and Z-scores were utilized as bank stability proxy servers. They discover that competitiveness has a poor association with the NPL ratio but a strong relationship with the Z-score. When they used the polynomial term of the competing evaluations, they got similar findings. Figure 2 depicts the banking

system in SSA during the study period as being unstable. As a result, we'd look into how competitiveness between the ears has impacted the banking system's stability in SSA.

3. Methodology

3.1 Data:

The data for our study will be gathered from yearly reports of Pakistan's banking sector, which can be acquired from the website of the State Bank of Pakistan, and will be analyzed from 2010 to 2016. Because of secondary data approaches, the software that will be used for analysis (STATA and Eviews) will be used. Before performing regression analysis, some normality tests and data diagnostics tests such as hetrescedescity, autocorrelation, and multi-collinearity will be done.

3.2 Econometric Model

$$\text{Bank stability}_{it} = \beta 1 GDP\_G_{it} + \beta 2 GDP\_PC_{it} + \beta 3 LA_{it} + \beta 4 LLP_{it} + \beta 5 CAP\_TA_{it} + \beta 6 ETA_{it} + \beta 7 CAPR_{it} + \beta 8 DEPO_{it} + \beta 9 LIQ_{it} + \beta 10 SIZE_{it} + \beta 11 NIE_{it} + \beta 12 AGR_{it} + \beta 13 INF_{jt} + \varepsilon_{it}$$

3.3 Variable Measurement

Dependent variables: financial stability measures

$$\text{Zscore} = \frac{\text{(return on assets (ROA)+equity to assets ratio (ETA)}}{\text{standard deviation of ROA (σROA)}}$$

Explanatory variables

The explanatory variable (independent variables) is used in previous studies:

1. GDP Growth, we use the natural logarithm of annual GDP growth (GDP_G)

2. Natural logarithm of annual GDP per capita growth (GDP_PC)

3. (LA) loan to total assets ratio, which is calculated as net loans over total assets and is used to control the impact of lending activities on financial stability.

4. (LLP) loan loss ratio, which shows the ratio between loan loss provision and total assets.

5. Leverage ratio is measure by total debts to total assets

6. Bank capital to assets is the ratio of bank capital and reserves to total assets (CAP_TA).

7. Natural logarithm of regulatory total capital ratio (CAPR) to control for bank soundness.

Control Variable

All control variables are used by different authors in previous studies:

1. Bank size (SIZE) is measured by the natural logarithm of total assets.

2. The asset growth rate (AGR) is calculated as ((Asset t – Asset t-1)/Asset t-1)

3. The ratio of liquid assets to total assets (LIQ) is a measure of bank soundness and the ability of the bank to sustain its lending, as well as an indicator of inefficiency, since too much liquidity comes at the cost of less bank intermediation.

4. We introduce into our regressions the ratio of total deposits to total assets (DEPO).

5. Lastly, we introduce the ratio of non-interest expenses to total assets (NIE) to control the bank specific characteristics

4. Analysis and Results:

Table 1: Descriptive Statistics: Overall Sample

Variable	Obs.	Mean	Std. Dev.	Min	25%	50%	75%	Max
ZSCORE	238	26.73717	26.10421	0	8.6792	17.43485	32.9485	91.7686
GDP_G	238	0.572471	0.074548	0.4116	0.5587	0.5843	0.6075	0.673
GDP_PC	238	3.038457	0.019294	3.0171	3.0171	3.035	3.057	3.0717
CAP_TA	238	0.102794	0.10257	0.0123	0.0235	0.069	0.1276	0.3324
LEVERAGE	238	0.865795	0.118074	0.4855	0.8578	0.9091	0.9342	0.9618
LLP	238	0.039458	0.034499	0	0.0123	0.0319	0.0585	0.1637
LA	238	0.418866	0.275374	0.0026	0.3063	0.4218	0.5241	1.6471
CAPR	238	6.03901	2.613551	0	6.5834	6.9955	7.4082	8.1996
SIZE	238	7.030452	2.808776	0.0204	7.2962	7.9974	8.563	9.346
AGR	238	0.179142	0.206578	-0.0909	0.0272	0.141	0.2814	0.5469
LIQ	238	0.09229	0.095168	0.0023	0.0516	0.0714	0.0951	0.644
DEPO	238	0.577102	0.294313	0.0081	0.3711	0.7156	0.8033	0.8871
NIE	238	0.013487	0.016178	-0.0329	0.0059	0.0116	0.0166	0.1864

In table 1, we show descriptive statistics of the overall sample of our study. Descriptive statistics is also measure of data normality in which we can check the normality of the data. The best test to check normality that the mean values of each variable should be greater than its standard deviation, it means your data is less diverse. In our case, all variables these characteristics. In this table, 25% indicated that 25% observations lie in

this figure, 50% means 50% observations lies in this figure of data. 75% means our data is lies 75% in that amount. This table also shows the minimum and maximum value of the data that can easily judge the analysis of data accuracy and reliability. In our study, banking stability is measured by zscore formula defined by Altman, return on assets (ROA) +equity to assets ratio (ETA)) divided by standard deviation of ROA σROA. There are 34 banks of Pakistan including 28 banks are conventional banks and 6 Islamic banks that are pure Islamic. The main predictors of the study are GDP Growth, measured as the natural logarithm of annual GDP growth and GDP per capita is measured through the natural logarithm of annual GDP per capita growth. Loa assets ratio is measure by total net loan of the banks divided by total assets of the banks. The next variable is loan loss ratio is measured by loan loss provision LLP to total assets of the banks. Leverage is measure of solvency of banks, measured by total debts (total liabilities) to total assets of banks. CAP_TA ratio is measured by total regulatory capital including share capital and reserves also by total assets of the banks. CAPR is measure of bank soundness and the formula used for this is the natural log of total regulatory capital. Size of the banks measures the worth of the banks that is determined by natural log of total assets of the banks. AGR is measure of assets growth from previous years which is calculated by total assets of current year minus one period lag of total assets divided by one period lag of total assets of the banks. One of the variable for liquidity that is liquid ratio, measured as liquid assets to total assets to sustain its lending behavior of the banks. Another ratio is DEPO ratio, measured as total deposits to total assets of the banks. NIE is measure of specific features of the banks, determined as non-interest expenses divided by total assets of the banks.

In table 2, we show descriptive statistics of the commercial/conventional banks in our study. Descriptive statistics is also measure of data normality in which we can check the normality of the data. The best test to check normality that the mean values of each variable should be greater than its standard deviation, it means your data is less diverse. This table also shows the minimum and maximum value of the data that can easily judge the analysis of data accuracy and reliability, return on assets (ROA)+equity to assets ratio (ETA)) divided by standard deviation of ROA σROA. There are 28 commercial banks of Pakistan. The variables of the study are GDP Growth, measured as the natural logarithm of annual GDP growth and GDP per capita is measured through the natural logarithm of annual GDP per capita growth. Loa assets ratio is measure by total net loan of the commercial banks divided by total assets of the commercial banks. The next variable is loan loss ratio is measured by loan loss provision LLP to total assets of the commercial banks. Leverage is measure of solvency of commercial banks, measured by total debts (total liabilities) to total assets of commercial banks. CAP_TA ratio is measured by total regulatory capital including share capital and reserves also by total assets of the commercial banks. CAPR is measure of bank soundness and the formula used for this is the natural log of total regulatory capital. Size of the commercial banks measures the worth of the commercial banks that is determined by natural log of total assets of the commercial banks.

Table 2: Descriptive Statistics: Conventional Bank Sample

Variable	Obs.	Mean	Std. Dev.	Min	Max
ZSCORE	196	27.49998	27.53803	0	91.7686
GDP_G	196	0.572471	0.074581	0.4116	0.673
GDP_PC	196	3.038457	0.019303	3.0171	3.0717
CAP_TA	196	0.105517	0.108552	0.0123	0.3324
LEVERAGE	196	0.854722	0.126469	0.4855	0.9618
LLP	196	0.042137	0.036423	0	0.1637
LA	196	0.41593	0.295599	0.0026	1.6471
CAPR	196	5.985924	2.71844	0	8.1996
SIZE	196	6.971605	2.890355	0.0204	9.346
AGR	196	0.179812	0.205841	-0.0909	0.5469
LIQ	196	0.092131	0.10299	0.0023	0.644
DEPO	196	0.538135	0.289389	0.0102	0.8833
NIE	196	0.014634	0.017534	-0.0329	0.1864

AGR is measure of assets growth from previous years which is calculated by total assets of current year minus one period lag of total assets divided by one period lag of total assets of the commercial banks. One of the variable for liquidity that is liquid ratio, measured as liquid assets to total assets to sustain its lending behavior of the commercial banks. Another ratio is DEPO ratio, measured as total deposits to total assets of the commercial banks. NIE is measure of specific features of the commercial banks, determined as non-interest expenses divided by total assets of the commercial banks. These banks are totally based on interest based system and running in Pakistan.

In table 3, we show descriptive statistics of the pure Islamic in our study that are totally 6 banks which are running in Pakistan from starting but few new banks are introduced in Pakistan based upon Islamic regulations. Descriptive statistics of the Islamic banks is also measure of data normality in which we can check the normality of the data. The best test to check normality that the mean values of each variable should be greater than its standard deviation. This table also shows the minimum and maximum value of the data that can easily judge the analysis of data accuracy and reliability, return on assets (ROA)+equity to assets ratio (ETA)) divided by standard deviation of ROA σROA. There are 6 pure Islamic banks, working in Pakistan. The variables of the study are GDP Growth, measured as the natural logarithm of annual GDP growth and GDP per capita is measured through the natural logarithm of annual GDP per capita growth. Loa assets ratio is measure by total net loan of the Islamic banks divided by total assets of the Islamic banks.

Table 3: Descriptive Statistics: Islamic Bank Sample

Variable	Obs.	Mean	Std. Dev.	Min	Max
ZSCORE	42	23.17737	17.7899	0	81.6836
GDP_G	42	0.572471	0.075292	0.4116	0.673
GDP_PC	42	3.038457	0.019487	3.0171	3.0717
CAP_TA	42	0.090086	0.067604	0.0189	0.2679
LEVERAGE	42	0.917469	0.034582	0.7901	0.952
LLP	42	0.02696	0.019388	0.0022	0.0776
LA	42	0.432571	0.150078	0.0172	0.6789
CAPR	42	6.286745	2.064214	0.0118	7.4075
SIZE	42	7.305074	2.403448	0.0352	8.7293
AGR	42	0.176014	0.21248	-0.0909	0.5469
LIQ	42	0.093036	0.043654	0.0056	0.254
DEPO	42	0.758948	0.247525	0.0081	0.8871
NIE	42	0.008136	0.003867	0.0005	0.015

The next variable is loan loss ratio is measured by loan loss provision LLP to total assets of the Islamic banks. Leverage is measure of solvency of Islamic banks, measured by total debts (total liabilities) to total assets of Islamic banks. CAP_TA ratio is measured by total regulatory capital including share capital and reserves also by total assets of the Islamic banks. CAPR is measure of bank soundness and the formula used for this is the natural log of total regulatory capital. Size of the Islamic banks measures the worth of the Islamic banks that is determined by natural log of total assets of the Islamic banks. AGR is measure of assets growth from previous years which is calculated by total assets of current year minus one period lag of total assets divided by one period lag of total assets of the Islamic banks. One of the variable for liquidity that is liquid ratio, measured as liquid assets to total assets to sustain its lending behavior of the Islamic banks. Another ratio is DEPO ratio, measured as total deposits to total assets of the Islamic banks. NIE is measure of specific features of the Islamic banks, determined as non-interest expenses divided by total assets of the Islamic banks. For Islamic banks, there are many sharia compliances to regulate them.

Table 4: Pair-wise Correlation Matrix (Overall Banking Sector)

Variable	ZSCORE	GDP_G	GDP_PC	CAP_TA	LEVERAGE	LLP	LA	CAPR	SIZE	AGR	LIQ	DEPO	NIE
ZSCORE	1												
GDP_G	0.0944	1											
GDP_PC	-0.0064	0.7492*	1										
CAP_TA	0.3888*	-0.0265	-0.0318	1									
LEVERAGE	-0.1524*	0.0244	0.0306	-0.3712*	1								
LLP	-0.2572*	-0.1666*	-0.2511*	0.087	0.0633	1							
LA	-0.1804*	-0.2469*	-0.3732*	0.058	0.0952	0.7109*	1						
CAPR	0.0526	-0.3618*	-0.5835*	-0.034	0.0012	0.0822	0.2141*	1					
SIZE	-0.0286	-0.4134*	-0.6494*	-0.1368*	0.1112	0.2728*	0.4661*	0.9149*	1				
AGR	-0.0755	0.0997	0.1546*	-0.2179*	0.068	-0.2376*	-0.2254*	-0.0947	-0.1524*	1			
LIQ	0.1736*	-0.1685*	-0.2828*	0.3079*	-0.5323*	-0.1980*	-0.1032	0.2940*	0.2396*	-0.1737*	1		
DEPO	0.03	-0.3075*	-0.4870*	-0.1923*	0.3950*	0.0594	0.2371*	0.7617*	0.7894*	-0.1597*	0.0896	1	
NIE	-0.1269	-0.0698	-0.0716	-0.0669	-0.012	0.3642*	0.4478*	-0.0298	0.1789*	-0.2324*	0.0801	-0.0055	1

In the above table 4, we run pair-wise correlation matrix which is used to determine the relationship between two variables in the study. Correlation matrix shows the real relation between two variables because you can also check the separate relationship between them. Pairwise correlation shows the star with each relationship that is significance level of the variables like this star shows 5% relationship and significant.

From above results of correlation, there is positive relationship between zscore and GDP_G and negative affiliation between zscore and GDP_PC. Leverage have negative correlation with Zscore and also significant. LLP and LA have negative correlation with Zscore but also significant. LIQ has positive correlation with Zscore but also significant. DEPO is positive link with zscore and NIE is negative but insignificant relationship with stability of banking sector. CAPR is positively associated and SIZE as well as AGR is negatively linked with the stability of banks.

Table 5: Pair-wise Correlation Matrix (Conventional Banks Only)

Variable	ZSCORE	GDP_G	GDP_PC	CAP_TA	LEVERAGE	LLP	LA	CAPR	SIZE	AGR	LIQ	DEPO	NIE
ZSCORE	1												
GDP_G	0.1163	1											
GDP_PC	0.0102	0.7563*	1										
CAP_TA	0.3843*	-0.0249	-0.0307	1									
LEVERAGE	-0.131	0.0225	0.025	-0.3522*	1								
LLP	-0.2613*	-0.1773*	-0.2857*	0.0834	0.1022	1							
LA	-0.1994*	-0.2600*	-0.3859*	0.0414	0.103	0.7433*	1						
CAPR	0.0657	-0.3758*	-0.5923*	-0.0359	-0.0077	0.0635	0.1635*	1					
SIZE	-0.0208	-0.4379*	-0.6710*	-0.1453*	0.1107	0.2739*	0.4380*	0.9041*	1				
AGR	-0.1062	0.0956	0.1591*	-0.1972*	0.0625	-0.2406*	-0.2311*	-0.0894	-0.1593*	1			
LIQ	0.1765*	-0.1692*	-0.2791*	0.3145*	-0.5559*	-0.2175*	-0.1317	0.2795*	0.2211*	-0.1731*	1		
DEPO	0.0586	-0.3285*	-0.5025*	-0.2015*	0.3868*	0.0907	0.1902*	0.7550*	0.7843*	-0.1733*	0.0573	1	
NIE	-0.1437*	-0.0701	-0.0661	-0.0862	0.0224	0.3497*	0.4556*	-0.0474	0.1783*	-0.2562*	0.0779	0.0216	1

In the above table 5, we run pair-wise correlation matrix which is used to determine the relationship between two variables in the study on conventional banks of Pakistan. Correlation matrix shows the real relation between two variables because you can also check the separate relationship between them. Pairwise correlation shows the star with each relationship that is significance level of the variables like this star shows 5% relationship and significant.

From above results of correlation, there is positive and significant relationship between zscore and CAP TA. LIQ has positive correlation with Zscore and also significant. LLP and LA have negative correlation with Zscore but also significant.

Table 6: Pair-wise Correlation Matrix (Islamic banks only)

variable	ZSCORE	GDP_G	GDP_PC	CAP_TA	LEVERAGE	LLP	LA	CAPR	SIZE	AGR	LIQ	DEPO	NIE
ZSCORE	1												
GDP_G	-0.0551	1											
GDP_PC	-0.1281	0.7157*	1										
CAP_TA	0.4143*	-0.0419	-0.0438	1									
LEVERAGE	-0.5147*	0.0895	0.1667	-0.9311*	1								
LLP	-0.4285*	-0.1268	-0.0288	0.0101	0.0827	1							
LA	0.1071	-0.1801	-0.3382*	0.3319*	-0.2536	0.4092*	1						
CAPR	-0.0419	-0.2898	-0.5538*	0.0117	-0.0185	0.4199*	0.8448*	1					
SIZE	-0.071	-0.2839	-0.5415*	-0.041	0.0359	0.4284*	0.8301*	0.9983*	1				
AGR	0.1314	0.1184	0.1342	-0.4027*	0.28	-0.3056*	-0.2259	-0.1292	-0.116	1			
LIQ	0.1475	-0.2227	-0.4266*	0.2245	-0.1234	0.1576	0.5234*	0.5577*	0.5435*	-0.2459	1		
DEPO	-0.0192	-0.2834	-0.5467*	-0.0345	0.0395	0.3686*	0.8238*	0.9900*	0.9912*	-0.1204	0.5742*	1	
NIE	-0.0516	-0.1734	-0.3018	0.2081	-0.19	0.3943*	0.6722*	0.6411*	0.6296*	-0.1366	0.2891	0.5617*	1

In the above table 6, we run pair-wise correlation matrix which is used to determine the relationship between two variables in the study. Correlation matrix shows the real relation between two variables because you can also check the separate relationship between them. Pairwise correlation shows the star with each relationship that is significance level of the variables like this star shows 5% relationship and significant.

From above results of correlation, there is positive and significant relationship between zscore and CAP TA. LEVEARGE and LLP have negative correlation with Zscore but also significant.

Table 7: Regression Main Results

The next results will the main regression and this study have three models in which we run three regressions with each dependent variable with the presence of default risk and without default risk and compare the result of both regression. The results of the regressions are given below in which we will see either the impact of debt structure is existed with profitability with the presence of default risk or not.

Model: Islamic banks Stability	(Overall Islamic banks)	(Conventional banks)	(Islamic banks)
VARIABLES	ZSCORE	ZSCORE	ZSCORE
GDP_G	86.45***	105.7***	-17.83
	(29.98)	(35.11)	(41.37)
GDP_PC	-298.5**	-330.4*	84.83
	(143.4)	(172.8)	(223.5)
CAP_TA	129.1***	129.1***	-306.1**
	(17.92)	(19.38)	(142.7)
LEVERAGE	-27.91	-28.39	-885.8***
	(19.10)	(20.42)	(252.2)
LLP	-244.6***	-264.9***	-65.80
	(64.08)	(72.55)	(160.2)
LA	-18.13*	-15.41	52.58
	(9.902)	(11.03)	(36.46)
CAPR	-3.937*	-4.233*	-44.23
	(2.075)	(2.183)	(56.85)
SIZE	4.241*	4.147*	0.634
	(2.309)	(2.453)	(48.79)

AGR	-4.156	-9.410	16.90
	(7.874)	(9.155)	(12.15)
LIQ	-46.59**	-46.68*	100.3
	(22.82)	(25.09)	(67.44)
DEPO	14.24	21.35*	315.5***
	(10.54)	(12.04)	(105.4)
NIE	38.32	-1.515	1,543
	(113.2)	(121.4)	(1,012)
Constant	902.7**	990.1*	604.1
	(427.6)	(515.7)	(648.9)
Observations	238	196	42
R-squared	0.300	0.322	0.645

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

According to results of financial stability of banks we concluded that the values show best performance of the banks in Pakistan in 2015 to 2016. 34 banks of overall banking sector of Pakistan are showing best performance in 2010 to 2016 except 2013. The banks are performing new strategies for the growth rate of banks and they are providing customer oriented services according to the need and necessities of the customers in Pakistan. In 2010, the zscore value is upto 0 to 20, in 2011 the value is between 0 to 40 but in 2012 the value is near about upto 5. The best performance of the banks lies in 2015 and 2016 and the score of this is about more than 80 which is strongly stable of banking sector.

Discussion

First we use descriptive analysis then correlation and then regression analysis and then the result are: The results show that GDP_G having a positive sign and is statistically significant at 1% level of significance. This means that if there is increase in GDP_G then there will be 29.98% increase in zscore. GDP_PC having a negative sign and is statistically significant at 5% level of significance. This means that if there is increase in GDP_PC then there will be 143.4% decrease in zscore. CAP_TA having a positive sign and is statistically significant at 1% level of significance. This means that if there is increase in CAP_TA then there will be 17.92% increase in zscore. LLP having a negative sign and is statistically significant at 1% level of significance. This means that if there is increase in LLP then there will be 64.08% decrease in zscore. LA having a negative sign and is statistically significant at 10% level of significance. This means that if there is increase in LA then there will be 9.90% decrease in zscore. CAPR having a negative sign

and is statistically significant at 10% level of significance. This means that if there is increase in CAPR then there will be 2.07% decrease in zscore. SIZE having a positive sign and is statistically significant at 10% level of significance. This means that if there is increase in SIZE then there will be 2.31% increase in zscore. LIQ having a negative sign and is statistically significant at 10% level of significance. This means that if there is increase in LIQ then there will be 22.82% decrease in zscore. LEVERAGE having a negative sign and is statistically insignificant. This means that if there is increase in LEVERAGE then there will be 19.10% decrease in zscore. AGR having a negative sign and is statistically insignificant. This means that if there is increase in AGE then there will be 7.87% decrease in zscore. DEPO having a positive sign and is statistically significant at 10% level of significance. This means that if there is increase in DEPO then there will be 10.54% increase in zscore. NIE having a positive sign and is statistically significant at 10% level of significance. This means that if there is increase in NIE then there will be 113.2% increase in zscore.

5. Conclusion

The key objective is to identify positive co-movements between GDP growth and lending, as well as between GDP growth and bank capital, demonstrating that procyclicality in bank lending and capital increases risk-taking while negatively affecting commercial bank financial stability. These findings on bank capital growth and GDP are consistent with those of Guidara et al.(2013), who found that bank capital buffers show positive co-movement with GDP growth in a study employing quarterly financial statements and stock market data for 45 Pakistani banks from 2010 to 2016.

The result of first variable GDP_G having a positive sign and is statistically significant. The second variable GDP_PC having a negative sign and is statistically significant. The third variable is CAP_TA having a positive sign and is statistically significant. The fourth variable LLP having a negative sign and is statistically significant. The fifth variable is LA having a negative sign and is statistically significant. The sixth variable is CAPR having a negative sign and is statistically significant. The seventh variable is SIZE having a positive sign and is statistically significant. The eight variable is LIQ having a negative sign and is statistically significant. The nine variable is LEVERAGE having a negative sign and is statistically insignificant. The tenth variable is AGR having a negative sign and is statistically insignificant. The Eleventh variable is DEPO having a positive sign and is statistically significant. The twelfth variable is NIE having a positive sign and is statistically significant.

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