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IMPACT OF BASEL ACCORD ON BANK LENDING: A CASE STUDY OF PAKISTANI COMMERCIAL BANKS

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ABSTRACT
The purpose of the study is to analyze the impact of financial regulations imposed by Basel III on commercial banks' lending in Pakistan. The study is based on an empirical analysis of quarterly bank-specific and macroeconomic data from 2017 to 2020 using the dynamic two-step system Generalized Method of Moments technique. The study found that Risk-Based Capital buffer and bank stable liquidity position has a significant and negative relationship with bank lending to private sector. Furthermore, banks need to improve asset quality as low asset quality means higher credit risk which reduces the amount of funds available for further lending. On the contrary, higher profitability and market share in terms of deposits tend to increase bank lending. Macroeconomic variables such as interest rate and GDP growth were found to behave similarly as defined in traditional economic theories.
Keywords: Bank lending, Capital Adequacy ratio, Net Stable Funding Ratio, Leverage Ratio, Basel III

INTRODUCTION
Banks are among the primary sources that can create money in an economy. This bank-created money is a major source of earning for them. However, excessive money creation may deter economic growth. Governments control such bank-created money through financial regulations. Currently, Basel III serves as the global regulatory framework that sets out the financial regulations for banks. The Basel Committee† was formed to enhance the financial strength of banks by improving the quality of banking supervision globally (BIS, 2001).

The global financial crisis in 2008 was the prime reason for the amendment of banking regulations in the form of Basel III. In 2001, the policy interest rate dropped to record low levels in the US, which resulted in a surge in debt financing by banks. Simultaneously, returns on government securities dropped significantly, making mortgage-backed securities one of the attractive investment avenues for investors. This gave a notable rise to lending activities by banks, even to those borrowers who would not be counted as credit-worthy under normal circumstances (Verick & Islam, 2010). Such risk-compromised lending resulted in extraordinary defaults in the financial industry, affecting the US domestic financial market and the global financial system (Pop, 2009).

The financial crisis forced the Basel committee to include liquidity requirements in the Basel framework along with capital regulations. Capital and liquidity requirements were expected to save banks from such failures and the economy from such disasters. Financial regulations can help in preventing a crisis by keeping the financial system away from risky and inefficient investments and moving towards less risky ones (BCBS, 2010).

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However, there has also been an argument against regulations focusing on risk-minimizing policies that may be considered regulatory tax and affect banks' lending behavior, especially when banks are struggling with profits (Andrle et al., 2017). There has been an increase in investment in government securities, particularly in the case of Emerging Markets and Developing Economies (EMDEs), due to strict financial regulations. Reduced private-sector lending may deteriorate economic growth due to less fund availability to the private sector (Bouis, 2019).

In past research has been made to analyze the impact of capital regulations on risk appetite of banks in Pakistan. Ashraf et al., (2016) concluded that commercial banks preferred to reduce risk because of strict risk-based capital requirements. However, the study mainly used capital adequacy ratio as a tool to analyze the impact of risk-based capital requirement.

This study is important in case Pakistan to analyze if financial regulations are affecting banks' lending behavior. This study makes several contributions to the literature. Firstly, this research is one of the few studies which have examined the empirical relationship between Basel's long-term liquidity ratio and banks' lending behavior. To the best of our knowledge, no research is available that includes the Net Stability Funding Ratio (NSFR)[‡] in this area of study, especially in the case of Pakistani commercial banks. Secondly, most of the previous literature associated with the Basel capital regulations emphasizes western nations such as the US and European markets, and there is limited literature focusing on Asian economies. As the Basel reforms are enforced equally in Asian economies, there is a research gap concerning the influence of such regulations on banks' lending behavior.

The study findings suggest that banks who tend to maintain a higher risk-based capital buffer and more stable liquidity base (NSFR), are the ones with relatively reduced lending to private sector. This may be because bank advances contain assets with different risk profiles, so to maintain robust balance sheets, banks either reduce advances or tend to shift lending away from risky assets.

Research Objectives

Considering the issues, this research will address how the long-term liquidity requirements are affecting banks' lending to private sector in Pakistan.

REVIEW OF LITERATURE

As per the traditional theory, banks are financial intermediaries whose basic objective is to connect savers and borrowers. Apart from a financial intermediary, banks are also supposed to perform maturity transformation and minimization of credit risk. However, banks are corporate entities whose ultimate responsibility is to maximize the returns of their shareholders. Improving profitability is also important for banks' management because in the current competitive environment, management's incentives are based on the volume of returns. High profits can be generated if lending is made to those borrowers who are willing to pay more interest, and this is usually the case where risks are high (Rajan, 2006).

Being a financial intermediary, banks are supposed to bring depositors and attract savings first and then lend money to the borrower. However, in recent days, whenever a bank creates a loan, it generates a matching deposit in the borrower's bank account. Thus, banks do not require pre-existing deposits before making loans but rather create loans out of nothing. Hence, commercial banks can increase money creation if financial regulations are weak (Xiong, et al., 2020). Traditionally, banks were required to carefully lend money to the borrowers because, in case of default, it's the bank that had to bear the consequences. But then things changed and now instead of initiating mortgages and holding on to them, some banks initiate mortgages and then sell them after converting them into marketable securities[§]. In this way, when bank-initiated mortgages are sold to others, it is not the problem of the bank in case the borrower defaults. In the 2008 financial crisis, the role of the banking sector cannot be ignored as they advanced mortgage loans to people who couldn't get loans under normal circumstances (sub-prime mortgages) and then sold those mortgages as MBS to others in the

[‡] NSFR is calculated as the amount of available stable funding as a percentage of amount of required stable funding. The resulting ratio should be equal either greater than or equals to 100% on a continuous basis. "Available stable funding" is the segment of capital and liabilities which are most likely to remain reliable over the time horizon considered by the NSFR, which ranges to one year (BIS, 2014).

[§] Mortgage-Backed Securities (MBS)

economy and to an international investor (Allen & Carletti, 2010). Hence, banks played a vital role in triggering financial crises as they are deeply involved in the development of speculative products and excessive loan expansion mostly in the name of financial innovation (Andrieş, 2009).

Berger and Udell (1994) argued that regulations that focus on Risk-based capital (RBC) policies may be considered as a regulatory tax therefore assets with higher risks are assigned higher risk weights because of which, implementation of RBC encourages the substitution of risky assets with less risky ones. This may, however, cause a 'credit crunch' as those who are deprived of lending may not be able to obtain substitute sources of funding from markets leaving the economic activity significantly reduced

In the Basel accord, the RBC requirement is managed through the Capital Adequacy Ratio (CAR) which determines the minimum capital requirement according to the volume of risk-weighted assets. Andrle et al. (2017) found that the banking sector can increase CAR mainly through retained earnings. Apart from increasing retained earnings, banks may issue new equity or reduce the size of their balance sheets to keep themselves in line with the capital-adequacy requirements. However, in times of struggling profits, commercial banks would shift their lending from high-risk assets to low-risk assets because the issuance of new equity can be a costly option. At the time of the financial crisis, Basel II was there to prevent banks from such crises which means that banks were still supposed to maintain a minimum level of CAR.

In recent years, it has been observed that banks are increasingly investing in government securities, particularly in the case of Emerging Market and Developing Economies (EMDEs). The major reason is increasing financial regulations under which banks are supposed to meet a specific risk portfolio and they cannot invest much in risky avenues. This development has raised concerns for credit to the private sector because holding sovereign assets means that funds left for the private sector will be reduced and this can result in deteriorated economic growth (Bouis, 2019).

During the financial crises, banks reduced their lending, especially those banks which were closer to the minimum CAR requirement as an increase in losses would have brought them to a level lower than the minimum required CAR (Košak et al., 2015). For instance, in Europe and US, there has been a negative impact of capital regulations on major banks' lending to the private sector and there was a shift in lending toward the government sector (Naceur et al., 2018).

As per Karmakar and Gambacorta (2017), along with RBC requirements, it is also important to monitor bank leverage position continuously as there are chances that banks, while keeping their RBC high, also manage to maintain excessive leverage at the same time. Therefore, they concluded that asking banks to hold a minimum non-risk-based leverage ratio will act as a supporter of the RBC requirement.

Carlson et al. (2013) in their analysis found that it is difficult for banks to invest in risky assets and increase their leverage, especially at the time of crisis when the financial stability of borrowers is uncertain. However, banks with relatively higher capital buffers experienced stronger loan growth during the global financial crisis because the risk absorbing capacity of banks with higher capital buffer is stronger as it reduces their fear of adverse selection problems. They further concluded that type of loans also affects capital ratios because of their risk factor. Literature provides evidence for the importance of regulatory requirements at several places. In a study, Heuvel (2005) concluded that when banks' equity is significantly low due to any negative shock in the economy, banks are likely to reduce their lending mainly because of regulatory capital requirements. This happens particularly in a situation when the issuance of new equity is costly for them. The fear is so high that they may forgo profitable opportunities because it will increase their risk of capital inadequacy.

Sclip et al. (2019) concluded that apart from the sufficient capital requirement, liquidity management is also essential. Banks may have incentives to increase leverage and grow their balance sheets rapidly by depending on relatively low quality and short-term funding. Such a rapid increase in the balance sheet and liquidity creation increases banks' exposure to risk. High liquidity creation increases the probability and severity of losses. An interrelated financial system tends to worsen these spillovers. To address such liquidity issues, Net Stability Funding Ratio (NSFR) has been introduced in Basel III. During the financial crisis, strict liquidity requirements positively contributed to the lending side of U.S. banks but there has been no impact on the liquidity ratios of European banks. However, NSFR has a contrary effect on lending growth for large U.S. banks and a progressive effect on small U.S. banks (Naceur et al., 2018)

Similar to various international studies, a few research have already been done in Pakistan in this area. Ilyas and Sarwar (2018) found a negative relationship between bank capital and overall liquidity creation in Pakistan. However, medium and large-sized banks showed a positive effect of capital on lending. Their findings advocate that banks with lower capital ratios create more liquidity as they do not have ability to absorb risk. This effect is reduced for medium-sized banks due to the risk absorption effect.

Imran and Nishat (2013) highlighted major factors which are vital to banks in extending their credit to businesses in changing financial situations and evolving challenges in Pakistan. They concluded that there are a few factors such as foreign liabilities, economic growth, foreign exchange rate, domestic deposits, and monetary conditions which are largely linked with banks' credit to the private sector in Pakistan. However, inflation and interest rate do not affect private credit. They also found out that the strong financial and liquidity position of banks is also significant in the creation of loans. Furthermore, Mushtaq (2016) analyzed the causal relationship between GDP and bank lending in Pakistan. She concluded that economic growth has a unidirectional causality toward bank lending. However, no causality has been found from bank lending toward economic growth. This depicts that economic growth has a significant impact on the lending activities of banks in Pakistan.

Like conventional banking, capital ratios also affect the asset position of Islamic banks. Ayub and Javeed (2016) found that the Risk-based capital ratio plays a crucial role in altering the asset portfolio of Islamic banking sector in Pakistan. To meet capital regulatory requirements, Islamic banks either restrict their risk exposure by squeezing their financing activities or shift their asset portfolio from risky bank advances to less risky securities. Such transformation of banking behavior regarding their asset portfolio has policy implications for the regulators. They also emphasized the need to analyze the impact of meeting the risk-based capital requirement at the cost of crowding out private sector financing in Islamic banks.

RESEARCH METHODOLOGY

Data source

This research is based on panel data which includes data of 22 Pakistani commercial banks. Since the implementation of Basel III was induced at the end of 2017 in Pakistan, therefore, data has been analyzed for 13 quarters from quarter 4 of 2017 to quarter 4 of 2020. Data has been extracted from banks' statements of financial position, database of World Bank and State Bank of Pakistan (SBP). To assess the requirements of financial regulations, Basel III accord variables have been used. There are four variables in Basel III, two of which relate to capital structure while the remaining two relate to liquidity of the financial institutions. In this analysis, two capital ratios and one long term liquidity ratio has been used. Few bank-specific variables and macroeconomic variables which can affect bank lending have been used as control variables.

Analytical model

To address the potential problem of endogeneity, two step system Generalized Method of Moments (GMM), developed by Arellano and Bond (1991), Blundell and Bond (1998) have been used as suggested by Roodman (2009). Similar approach has been used by Iftikhar and Iftikhar (2018), Kashif et al. (2016) and Abbas et al. (2019). The study also covers post estimation diagnostic test such as, Sargan test and autocorrelation test.

Explanatory variables including capital and liquidity ratios from Basel III, bank profitability, asset quality, market share and bank size have been used in this analysis. Along with bank specific variables, gross domestic growth rate and interest rate have also been used to capture the impact of economic growth and monetary policy. A similar approach has been used by Naceur et al., (2018) in which they analyzed the impact of capital regulations on bank lending and used data from U.S. and European Banks.

$$\log Bank\_lending = \beta_o + \beta_1 \log Bank\_lending_{i,(t-1)} + \beta_2 CAR\_BF_{it} + \beta_3 NSFR_{it} + \beta_4 Log\_TA_{it} +$$

$$\beta_5 Log\_NPL_{it} + \beta_6 NIM\_TL + \beta_7 MS_{it} + \beta_8 GDP\_GR_{(t-1)} + \beta_9 IR_t + \varepsilon_t$$

Whereas the abbreviations used in above equation denotes the following variables:

- CAR_BF = Capital Adequacy Ratio buffer[**]
- NSFR = Net Stability Funding Ratio
- TA = Total Assets
- NPL = Non-performing loans
- NIM_TL = Net Interest Margin over total loans
- MS = Market Share of Bank in terms of Deposit
- GDP_GR = growth rate of nominal GDP
- IR = Interest Rate

Bank Lending: Natural log of bank lending to private sector[††] has been used as a dependent variable in this research. Bank lending mainly includes loans, cash credits, and running finances. In past, studies have been made where the impact of financial regulations has been analyzed on bank lending (Naceur et al., 2018; Naceur & Kandil, 2007). In this research, our focus is on bank advances because they are risk-based assets, and strict regulations are expected to have an adverse effect on banks' behavior towards them as concluded by Berger and Udell (1994).

Risk-Based Capital *(RBC):* To analyze the impact of RBC on bank lending, the Capital Adequacy Ratio (CAR) buffer has been considered in this analysis which is among one of four Basel III ratios. It is calculated by taking the difference between the capital adequacy ratio (CAR) of bank and total capital adequacy requirement. While calculating banks' CAR, the assets with high risks are assigned a high weight factor, so CAR assesses banks' capital position based on the risk faced by them. Capital adequacy eventually defines the strength of financial institutions towards shocks to their balance sheets specifically the capacity of banks to absorb losses (SBP, 2013).

Bank Leverage: To analyze the impact of leverage on bank advances, Leverage Ratio (LR) is considered in this analysis which is among one of the four Basel III ratios. It is calculated by using the capital measure as a percentage of the exposure measure. The capital measure includes Tier 1 capital and the exposure measure includes both on-balance sheet exposures and off-balance sheet items (BIS, 2017). Total leverage is important to be considered because banks may accumulate high leverage even while maintaining a robust risk-based capital ratio.

Bank liquidity: Maturity transformation is an important role of financial intermediation where banks take short-term sources of finance and convert them into long-term borrowings, leading to resource optimization. However, banks may have private incentives to expand their balance sheets, often rapidly, relying on comparatively low quality and excessive short-term funding. Such balance sheet expansion can reduce the capacity of banks to react to liquidity shocks (BIS, 2014). To deal with such an issue, the Net stability Funding Ratio (NSFR) has been considered in this analysis which is among one of the four Basel III ratios. This ratio focuses on two factors, supply of loanable funds and demand for loans in the form of assets. This ratio encourages flexibility over a longer-term period by encouraging banks to fund their activities with more stable sources. The NSFR assumes that high-quality assets that can be securitized or traded, and therefore can be readily used as collateral, do not need to be wholly financed with stable funding (BIS).

Asset Quality: Non-performing loan (NPL) is used as a bank-specific variable to analyze how the quality of assets can affect bank lending. Asset quality is an important factor as it adversely affects the stability of the banking system and its capacity to lend to the real economy. So, if an economy is highly dependent on banks' lending, credit risk should be dealt with carefully **(**Huljak et al., 2020**)**.

Bank Profitability: Net interest margin (NIM) has been used as an indicator of profitability which is the difference between the amount of money that a bank earns as interest on loans less interest paid on deposits. Profitability encourages banks to increase lending as it is banks' internal source of funds (Naceur et al., 2018).

Bank size: Total assets have been used to analyze the impact of bank size on its lending. It is important because it is easier for smaller banks to produce soft information as those involved in major decision-making are the ones closer to the information collection point. This is in contrast with large

[**] It is calculated as CAR of bank – required CAR

[††] Also referred as bank advances

banks' scenario as they are generally not willing to extend their credit to the less informative customers. Usually, large banks prefer to extend their loans to larger institutions with good accounting records (Berger et al., 2005; Stein, 2002).

Economic Growth: Gross Domestic Product (GDP) has been considered to analyze the effect of economic progression on bank lending. General theory suggests that economic growth and bank lending are, in most cases, bidirectional phenomena. However, in Pakistan, it has been found that GDP growth is resulting in increase in bank lending which depicts that economic growth is significant for bank lending and it encourages bank lending activities (Mushtaq, 2016).

Interest Rate: The interest rate is considered as an indicator of monetary policy in this research. In general, a rise in the interest rate motivates people to increase their savings to maximize benefits from increased returns. Farooq et al. (2016) concluded that an increase in the interest rate results in a rise in the cost of capital, which adversely affects investment within the economy.

Market Power: Market power has been analyzed in this article by using banks' market share in terms of banks' deposits as a percentage of total deposits of all commercial banks. Stepanyan and Guo (2011), Bouis (2019) and Iftikhar et al (2022) considered it as an important variable for the determination of the volume of bank lending.

RESULTS AND DISCUSSION

Table No. 1 Summary of Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Bank Lending $_{(t-1)}$	282	19.35	0.847	17.56	20.99
Bank leverage	276	4.88	1.57	1.49	11.02
Bank stability	279	160.29	53.20	1.298	457
RBC buffer	283	3.98	3.52	-7.34	15.57
Bank size	283	20.06	1.24	14.71	22.07
Asset Quality	274	-3.35	0.87	-10.26	-0.90
Bank Profitability	282	16.66	1.09	12.73	18.78
Market Power	286	4.54	4.00	0.37	20.19
Interest	286	9.058	2.64	5.75	13.25
Economic Growth	286	2.30	0.15	2.04	2.46

Table 1 includes number of observations, mean, standard deviation, minimum and maximum values of key variables for the sample of 22 Pakistani commercial banks. Table 2 consists of pair-wise correlations among bank advances and bank leverage, bank liquidity, RBC buffer, bank size, asset quality, bank profitability, market share, interest, and economic growth. It has been found that correlation of bank advances with RBC buffer, bank leverage, asset quality, bank size, bank profitability and market share are statistically significant at 5%. The pairwise correlation suggests that bank lending has with 87% correlation with bank profitability and 83.7% with market share of deposits. However, to further analyze the multicollinearity, Variance Inflation Factor (VIF) has been calculated in Table A (Appendix) which is found to be less than 5. Considering Table 3, Sargan test confirms the selection of instrumental variables is valid. AR (1) test result shows zero or no autocorrelation among variables. Both tests support the validity of the results. Standard errors in the overall model have found to be less than 0.06 validating that sample mean is closer to the true mean of the overall population.

Table No. 2 Pairwise Correlation matrix

No	Variable	1	2	3	4	5	6	7	8	9	10
1	Bank Lending $_{(t-1)}$	1									
2	RBC buffer	0.3474*	1								
3	Bank stability	0.0871	0.3864*	1							
4	Bank leverage	-0.2996*	0.417*	0.1678*	1						
5	Asset Quality	-0.2509*	-0.2161*	0.0843	0.0240	1					

6	Bank size	0.4546*	0.3311*	0.1444*	-0.1587*	-0.2274*	1				
7	Economic Growth	0.0782	0.1561*	0.0059	0.0042	-0.0711	0.1021	1			
8	Bank Profitability	0.8701*	0.4751*	0.1668*	-0.1795*	-0.2664*	0.4929*	0.0900	1		
9	Interest	0.0435	-0.1999*	-0.1604*	-0.0101	0.0121	0.0142	0.3332*	0.0157	1	
10	Market Power	0.8370*	0.3587*	0.2497*	-0.2078*	-0.1502*	0.3266*	-0.0179	0.8340*	0.0005	1

Here, (*) indicates the 5% significance level

Table 3 also provides estimated results and supports the findings of previous studies. A significant and negative relationship of risk-based capital buffer with bank advances of Pakistani commercial banks has been observed during the period between 2017 to 2020 as shown in columns (1) to (5) of Table 3. This means if banks wish to improve their risk-based capital buffer, they will reduce their lending to the private sector as concluded by Naceur et al. (2018) and Berger and Udell (1994).

Columns (1) to (5) also conclude that banks' net stable fund position is significant and has a negative relationship with bank lending. This is because if a bank wants to improve its net stable fund position, it may have to reduce its advances bearing high risk profile. This result is similar to Setiyono and Naufa (2014).

Banks' leverage is found to be insignificant with advances in all cases. Therefore, it is suggested that this may be because banks' leverage ratio is independent of assets' risk profile, hence it is expected to affect the overall asset portfolio of the bank making the effect on bank advances significantly diluted.

Results depict that asset quality has a significant and negative relationship with bank lending as it deteriorates banks' lending ability. This is also in line with the earlier analysis by Huljak et al. (2020).

Bank size is found to be significant and negative with bank advances depicting that increase in bank size tends to reduce lending. This is in line with the study made by Uchida et al. (2008) who concluded that small banks have an advantage in relationship lending compared with large banks. Profitability has a significant and positive relationship with bank lending. This may be because usually, firms prefer to use their internally generated funds compared with external funds and tend to generate equity via profit retention (Myers & Majluf, 1984). These results are in line with Gunji and Yuan (2009) and Lartey et al. (2013)

Table No. 3 Dynamic panel estimation results

Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Bank lending $_{(t-1)}$	1.055*	0.841*	0.8383*	0.897*	0.852*
	(0.015)	(0.044)	(0.0425)	(0.048)	(0.054)
RBC buffer	-0.009*	-0.008*	-0.008*	-0.0086*	-0.006**
	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)
Bank Liquidity	-0.0004	-0.001*	-0.0013*	-0.001*	-0.001*
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.00)
Bank leverage	0.0063	-0.0064	-0.009	-0.001	-0.004
	(0.006)	(0.008)	(0.007)	(0.005)	(0.005)
Economic Growth $_{(t-1)}$	0.1936*	0.186*	0.1781*	0.208*	0.170*
	(0.051)	(0.045)	(0.045)	(0.047)	(0.05)
Interest	-0.0095**	-0.01**	-0.01**	-0.013*	-0.012*
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Profitability		0.164*	0.1602*	0.108*	0.109*
		(0.033)	(0.033)	(0.034)	(0.033)
Bank Size			0.0067**	-0.015*	-0.011**
			(0.003)	(0.0036)	(0.004)
Asset Quality				-0.058*	-0.039**

				(0.014)	(0.0183)
Market Share					0.014**
					(0.007)
Number of observations	186	182	182	176	176
Banks	22	22	22	22	22
Sargan	0.0954	0.1259	0.1311	0.2278	0.41
AR (1)	0.0302	0.0221	0.0223	0.01	0.019
Number of instruments	18	19	20	21	22

Note: The dependent variable is bank advances. RBC, Bank liquidity, Bank leverage, Economic Growth, Interest, Profitability, Bank Size, Asset Quality and Market power as dependent variables

(*) coefficients are statistically significant at 1%,

(**) coefficients are statistically significant at 5%

(***) coefficients are statistically significant at 10%,

The results also conclude that market power plays an important role in determining the volume of bank lending as deposits are the main source of funds for banks. The results show a significant and positive relationship between the market share of bank deposits with bank lending. This is in line with Stepanyan and Guo (2011). The interest rate in Pakistan is found to have a significant and negative relationship with bank lending, which is evident in columns (1) to (5). This means that an increase in interest rate tends to decrease bank advances. This is consistent with Farooq et al. (2016). GDP growth is significant and tends to increase bank lending due to an increase in economic activity. However, the results show that the GDP growth of the preceding period is significant, which may be because it takes time for GDP to create an impact on bank lending. The same conclusion has been made by Mushtaq (2016), Caldero´na and Liu. (2002), Naceuret al. (2018) and Imran and Nishat (2013).

Since the requirement to maintain liquidity ratios in Basel III was induced at the end of 2017 in Pakistan, we could only perform the research with this much available data. However, the topic is open for more detailed research once the data unfolds in future.

CONCLUSION AND RECOMMENDATIONS

Financial regulation is getting important with the passage of time due to excessive increase in bank lending with innovation in financial instruments which has caused a significant increase in the risk of financial crisis. Financial regulation is a tool which is used to reduce probability of such risks. So, it is important to analyze how financial regulations are affecting bank lending. This paper investigated the impact of Basel III regulations on bank lending in Pakistani commercial banks. This study found that Risk Based Capital buffer and bank stable liquidity position have a significant and negative relationship with bank lending. This may be because if a bank needs to improve its RBC buffer, it can do so by reducing its advances as bank advances carry higher risk. Similarly, bank liquidity position calls for banks to have higher available stable funds compared with required stable funds. Therefore, if a bank wishes to keep it high, it either has to reduce its advances or increase its stable funds.

Furthermore, it’s important for banks to improve asset quality as low asset quality means higher credit risk which reduces the amount of funds available for further lending. On the contrary, higher profitability and market share in terms of deposits tend to increase bank lending. Macroeconomic variables such as interest rate and GDP behave in similar manner as defined in traditional economic theories.

Regulations are important but it is vital to understand that excessive regulations in a struggling economy like Pakistan may encourage banks to reduce their lending to private sector as it comes along with risk resulting in economic slowdown

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Appendix Table A:

Variation Inflation Factor (VIF)

Variable	**VIF**	**1/VIF**
RBC buffer	2.29	0.437413
Bank liquidity	1.32	0.755304
Bank Leverage	1.53	0.652889
Economic Growth $_{(t-1)}$	1.08	0.92984
Interest	1.4	0.713352
Profitability $_{(t-1)}$	1.06	0.94299
Bank size	1.41	0.707887

Asset Quality	1.21	0.827175
Market Share	1.64	0.608646
Mean VIF	1.44	

Table B: Minimum CAR by State Bank of Pakistan (SBP)[‡‡]

	2013	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
CET1 (in %)	5	5.5	6	6	6	6	6	6
Total Capital (in %)	10	10	10	10	10	10	10	10
CCB (in %)	n/a	n/a	0.25	0.65	1.275	1	2.5	1.5
Total Capital + CCB (in %)	10	10	10.25	10.65	11.275	11	12.5	11.5

Source: SBP BPRD circular # 06 dated August 15, 2013

[‡‡] https://www.sbp.org.pk/bprd/2013/Basel_III_instructions.pdf.