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Article

Do The Islamic Banks Play a Role in The Monetary Policy Transmission in Pakistan? A Comparative Analysis with Conventional Banks Using Panel Data Analysis

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ABSTRACT - In Pakistan, bank lending plays a critical role in economic activities due to the scarcity of stocks and bond options. Islamic banks face an extra layer of difficulty with limited open market instruments and lender of last resort facilities, as well as tough competition with conventional banks. This study analyzes the differences in bank lending by Islamic and conventional banks in transmitting monetary policy by modeling bank credit as a dependent variable while bank-specific assets, liquidity, capital and growth, inflation, and policy rates as explanatory variables. Polled OLS fixed effect panel data models are used to analyze annual data for 2009-2018. The study finds that Islamic bank credit is influenced significantly by policy rates, inflation, and growth, as well as capital and liquidity. Conventional bank credit is significantly affected by the policy rates, growth, and inflation but capital and liquidity are less correlated. This paper concluded that Islamic banks are significant in policy transmission. However, policy tools and differences in operations and contracts affect Islamic bank equity and liquidity which may suffer long-term economic participation.

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INTRODUCTION

Economic policies aim to improve the well-being of the public, and Monetary Policy (MP) by central banks supports this comprehensive goal by centering its efforts on achieving price stability and growth in the country. The objectives of an effective MP consist of managing the money supply and interest rates, leading to control of inflation, growth, and consumption.

Understanding the Monetary Policy Transmission (MPT) mechanism attracted scholars in the literature. Obstfeld and Rogoff (2002) define that there might be a concern about the fact that "countries chose monetary rules that are optimal from a national perspective but not from a global perspective." Farajnezhad and Suresh (2019), Tang (2006) and Khaw and Sivabalan (2017), and Agha et al. (2005) theoretically recognize the existence of a Monetary policy channel in the literature. Ascarya (2012), Wulandari (2012), Yarasevika et al. (2015), Mishkin (1996, 2006), Cecchetti (1995), and Taylor (1995) emphasise the role of the credit channel, asset price channel, and interest rate channel of MPT in affecting real economic activity. Similarly, Bernanke and Gertler (1995) and other scholars in the area recognize the importance of bank loans in economic activity by defining the importance of the credit channel theory and its subchannel, bank lending channel (BLC), and balance sheet channel (BSC) in MPT mechanism. The BLC explains the impact of change in MP on bank loan supply, and BSC explains the MPT in the borrower's balance sheet. Tang (2006) and Khaw and Sivabalan (2017) examine the relative

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strength of the different channels of MPT and conclude that the interest rate and credit channels are the most significant in influencing output and inflation.

Through the credit channel, MP affects the ability of banks to lend and firms to borrow. The efficiency of this channel depends very much on the Central Bank's ability to manage its monetary instruments, such as policy on statutory reserve requirements, ease of open market operations (OMO), and at the same time, the dependence of individuals and business units on the banking channel. Models of the credit channel indicate that financial frictions can indirectly amplify the effects of MP; the credit channel affects the economy by altering the access of credit to firms and households.

Banks are an essential part of every economy, especially for the developing economies where alternative sources of financing like the issuance of stocks and bonds are hardly available. Commercial Banks work as intermediaries to facilitate their depositors and borrowers with various facilities. They attract deposits from customers and create loans to support businesses and individuals in the economy (Karim & Karim, 2014). According to Embi & Shafii (2018), Islamic banks as financial intermediaries not only have to manage the common risks found in conventional banks but also additional risks unique to Islamic banks.

Information asymmetries in the financial market give rise to the credit channel (Bernanke and Gertler, 1995; Kashyap and Stein, 1995). Small firms, new businesses with no track records, and firms with little reputation find it difficult to access primary capital markets for issuing bonds and stocks. Borrowing from banks is the only option for them to get credit facilities as banks are specialized in overcoming information asymmetries (Kassim, 2006). According to Black and Rosen (2007), financial frictions stemming from information may be associated with the cost of capital. If the cost of external financing rises with short-term interest rates in the period of contraction, this may reduce the ease of getting credit. The financial sector as a credit supplier plays an essential role in Pakistan's economy, and the Central Bank of Pakistan targets the bank credit for transmission of MP, leading to control the money creation. Generally, the banks support MP in two dimensions; first, by influencing the cost of loanable funds, and second by the availability of loanable funds.

Pakistan has evolved as a dominantly Muslim country in the world, but in the absence of a robust Islamic Banking system, the contemporary commercial banking system was adopted by the State Bank of Pakistan (SBP). Suffered by divergent political regimes and unstable government systems, Islamic commercial banking (IBs) took time to rise to the aspiration in-country financial system. After the historic Supreme Court of Pakistan decision that pronounced charging interest rates as unlawful in 2001, the SBP planned to promote a Shariah-compliant banking system parallel to the conventional system. The first IB started business in 2002, and from there, Islamic banking growth was phenomenal. SBP, as the central bank, intensely participated in developing the Shariah-compliant banking system by introducing a specialized Islamic banking department to develop Shariah-compliant guidelines for products of IBs.

This paper investigates the importance of Islamic and conventional commercial banks in transmitting MP through credit channels. As discussed above, the two banking systems' structural changes need different policy tools to implement and achieve MP goals effectively. IBs are growing rapidly in the country, but the non-availability of treasury tools puts them at a disadvantage in profitability and inefficient participation in the economy to achieve the MP goals. IBs operating with Muslim-dominated, religiously motivated customers and the profit and loss sharing nature of contractual transactions on both sides of balance sheets give the advantage of safeguarding them from MP shocks. This study intends to empirically investigate the differences in transmission of MP through Islamic and conventional commercial banks in Pakistan.

On the back of the above-mentioned issues, this study aims to understand the contributions of Islamic banks in MP transmission, the similarities and differences between the Islamic and conventional commercial banks in MP transmission, and finally, the liquidity risks attached to the two banking systems in Pakistan.

The Islamic Banks in Pakistan

The transactions of IBs are based principally on equity, leading to profit and loss sharing on both sides of the balance sheet. Charging interest and performing interest-based transactions are principally prohibited in Islamic banking. The relationship between the Bank and depositors is based on a profit and loss sharing basis, leaving depositors with no guarantee on the face value of their deposits. Conventional saving accounts and time deposits are referred to as investment accounts in IB. These accounts offer profit and loss sharing in contrast to the fixed interest rate offered by conventional commercial banks (CBs). However, on the asset side, unlike CBs, IBs use several structural base contracts to fulfill the needs of borrowers. These transactions include profit and loss sharing, operational leases, deferred sales, and many more. IBs do not transact or deal with the projects that are prohibited or *haram* in Shariah principles, for example, business related to alcohol, pornography, pork, *Riba* (interest payments), *Maysir* (gambling), and *Gharar* (excessive uncertainty).

Compared to CBs, IBs are conservative in lending, and besides this, these banks observe due diligence in their lending or financing of the projects. The preferable mode of financing used to meet the financing needs of households and business is *Musharaka* or joint venture arrangements. From the inception, the other challenge faced by IBs is the absence of safe investment, Islamic treasury products, or government securities to fulfill the liquidity management needs or do the open market operation following Shariah principles. This pushes IBs to follow the policy or short-term treasury rates of interest base treasury products to price their transactions like *Ijarah* or *Murabaha*. SBP made extraordinary efforts to arrange short-term treasury products for IBs but meeting the requirement of physical assets for an underline transaction left IBs with minimal opportunities to invest in government securities, which constitutes a significant hurdle in operating the full-fledged IB in Pakistan.

Zaheer et al. (2013) compared both types of banks and found that IBs in Pakistan have a higher fraction of cash reserve, including the treasury and other banks, as compared to CBs, which is also noted in the different countries where IBs exist (Beck et al., 2013). The author further justifies this with the argument that in the early days of establishment, there were fewer investment opportunities for IBs as compared to CBs, mainly due to the lack of Shariah-compliant capital market instruments like *Sukuk* and other alternative secured investment opportunities. From the start of operations till 2008, IBs in Pakistan fulfilled Statutory Reserve Requirement (SRR) and Cash Reserve Requirement (CRR) in cash reserves, making IBs to miss the opportunity cost and become less competitive compared to other CBs. SBP realized the importance and relaxed the reserve ratios for IBs to give them level playing fields. As discussed above, IBs used conventional or interbank lending rates to benchmark their loan supply. According to Zaheer et al. (2013), IBs are less likely to be influenced by the MPT changes as they have fewer investment opportunities in open market operations and treasury products and sit with idler liquidity. In this situation, the lending by IBs in Pakistan is expected not to be affected by MPT changes as these are indirectly linked to policy rates.

A Review of Literature on the Monetary Transmission Mechanism

There is extensive literature available on different aspects of MP; however, the last five decades witnessed the significance of economic decisions. Friedman and Schwartz (1963) first recognized MP as efficient and essential for macroeconomic stability in the country. According to Barro and Gordon (1983) and Cukierman (1992), the initial studies focused mainly on the aggregate impact on the real economy and particularly described the immediate or without the lag effect of MPT in the real economy. These researchers have also reported the impact of monetary policy shocks on banks' lending ability that differs considerably across bank size and bank liquidity positions. Similarly, Jermann (2019, Anwar and Ngyend (2018), Erdogdu (2017), Auclert (2017), Evans et al. (2015), and Aysun and Hepp (2013) have found the significance of Central Banks in the monetary policy transmission mechanism.

The Bank Lending Channel

There are various channels for implementing the MP changes in the economy to achieve the output goals. The multifaceted MPT has been discussed as a 'black box' by Bernanke and Blinder (1992); it is a fact that there are many channels of MP through which they operate concurrently. Here are some distinct channels, i.e., the interest rate channel, credit channel, exchange rate channel, and asset price channel (Cecchetti, 1995; Taylor, 1995). As each central bank exclusively prepares its MP-centering fiscal targets, the relative strength of "monetary policy channels" also diverges from country to country subject to the state of country-specific financial markets.

In emerging economies, the role of bank lending (BL) in an economy is critical due to the limited availability of alternative sources of financing like stocks and bonds are hardly available, and the credit channel plays a vital role in MPT. Banks play a significant role in shaping the economy, and BL is a crucial intermediary between the central banks and the real economic goals. The theory of bank lending states that central banks impact the demand and supply of bank loans through expansionary or contractionary monetary decisions. It is explained that in expansionary MP, bank reserves and deposit increase lead to a substantial increase in the supply of loans, while in a contractionary policy, the opposite happens and leads to a reduction of credit supply by the banks (Kashyap & Stein, 1995, 2000). The change in bank loans in the IS-LM model can only be expressed through changes in loan demand due to the interest rates. Assuming that bonds and loans are the imperfect substitutes in tight MP, bank loans become special for some firms with limited capital resources. After the outflow of bank deposits, banks must attract additional non-reservable liabilities, failure to which will decrease the supply of loans and increase the interest rates. According to Bernanke and Blinder (1988), within the IS-LM framework, this would lead to the shift of the IS curve, and the MPT in this situation would affect small companies in finding substituting bank loans. It is well recorded in the literature that Bernanke and Blinder (1992) researched the relationship between MP and credit channel by utilizing bank aggregate data and three months' treasury bill (T-Bill) rates to understand the exogenous moves in MPT as well as the negative correlation between bank loans and MP.

Kashyap and Stein (1995) and Kashyap et al. (1996) also witnessed the importance of BLC; their studies show that the contractionary MP leads to a decrease in bank loan supply which harms real economic growth. Westerlund (2003) and Bondt (1998) separately studied the European banking system to test the existence of MPT and confirmed the presence of BLC in Continental Europe. Bondt (1998) empirically studied the disaggregated statistical data on European banks from 1990 through 1995; the results imply that the large and small banks, as well as banks with liquid and less liquid balance sheets, responded differently to changes in MP. Strong BLC also existed in Germany, Belgium, and Netherland. Similarly, France and Italy faced liquidity constraints in the sample period. However, in the United Kingdom, the BLC seems nonexistent. Westerlund (2003) statistically tested BLC in Sweden by exploring the panel data covering 1998-2003; results concluded that small, illiquid, and undercapitalized banks are significantly affected by MPT.

Monetary Policy transmission in Malaysia as a pioneer of Islamic Banking

The Islamic banking industry is rapidly growing globally; the MPT in the presence of IBs remains a challenge due to the un-harmonized Shariah acceptance of different transactions in various regions. IBs tend to be influenced by standard MP instruments and frameworks due to the limited or non-availability of treasury instruments. IBs are not isolated from the macro-financial and economic background, and the implications of MPT are the same for both types of banks. A stream of literature has emphasized the role of Islamic banking in the MPT mechanism in the Islamic world (Hafidh, (2021), Uddin et al., 2020, Farajnezhad and Suresh (2019), Yungucu & Saiti, 2016: Akhatova et al., 2016, Sukmana & Kassim, 2010; Majid & Hasin, 2014). Pieces of evidence found in the literature on MPT mechanism in the Malaysian economy, investigated by Tai et al. (2012) and Embi & Shafii (2018), showed that post-Asian Financial Crisis (AFC) in

1997, the pass-through of MPT shock to BL and deposit rates in Malaysia was significantly evident. Khaw and Sivabalan (2017) provided references to earlier literature, concluding that MPT shocks resulted in a heterogeneous impact on several investment sectors and the consumption of goods. Ibrahim (2005), while discussing the Malaysian economic and financial industry, concluded that the finance, insurance, manufacturing, construction, and real estate sectors negatively impacted more than aggregate demand in reaction to contractionary MPT, suggesting that these sectors may be more interest-rate sensitive. Farajnezhad and Suresh (2019) empirically analyzed the importance of the credit channel in transmitting the MP in Malaysia and discovered the fundamental relationship of the credit channel in the modification of inflation in the economy.

Zulkhibri (2018), Ludeen and Masih (2017), and Akhatova et al. (2016) proved empirically that the IB depositor's sensitivity to policy rate changes is higher than the conventional bank (CB) depositors leading to conclude that the contractionary MP brings more deposit losses for IBs in the dual banking system as depositors switched to CBs for higher profits. Kasri and Kassim (2009), while analyzing the IBs in Indonesia, found that level of deposits was correlated negatively with real interest rates. This is likely the heterogeneous amount of all CBs as the bank-specific variables may support IBs to maintain their resources to meet customer lending demands.

Monetary Policy Transmission in Pakistan

The financial system in Pakistan is a dual banking system where the conventional and Islamic commercial banks operate side by side. Several researchers focused on investigating the effects of MPT in the real economy of Pakistan and concluded both in favor of the existence and non-existence of MPT through different channels (Agha et al., 2005; Hussain, 2009; Shabbir, 2012; Janjua et al. (2014). Agha et al. (2005) investigated the MPT mechanism in Pakistan from 1996 to 2004 and concluded that contractionary MP leads to a fall in demand for investment funds, gradually reducing the price pressure and overall price levels. The study recognizes the importance of banks playing a crucial role in the MPT mechanism and acknowledges the existence of the asset price channel and interest rate channel. Gupta (2004) examined the influence of MPT decisions on the real economy in Pakistan and India. The result concluded that contractionary MPT significantly impacted BLC, influencing the economic activity in both economies. Rahooja et al. (2014) concluded the positive role of BLC in the MPT mechanism in Pakistan; the results suggest that bank loans, deposits, and government securities were impacted negatively by contractionary MP. Whereas bank-specific variables like capitalization, size, and liquidity showed a mixed impact. Further, the study also concluded that small-sized and capital-constrained banks responded more to MPT changes.

The earlier notable study on the banking sector in Pakistan by Agha et al. (2005) explained that the BLC, along with the traditional exchange rate channel, was a significant source of MPT in Pakistan. Similar research by Mohsin (2011) explored the impact of MPT on BL and deposit rates in Pakistan. Janjua et al. (2014), while studying the effect of monetary policy on the bank balance sheet in Pakistan, found a negative correlation between MP and bank loan supply, and they opined that contracting MP adversely impacted bank lending in smaller banks compared with larger banks. Zaheer et al. (2013) investigated the response of MPT shocks across the bank-specific variables in two types of banks; bank liquidity differentiates the loan supply in small banks; however, large banks are unaffected by liquidity positions. IBs with small bank assets maintained the loan supply like large CBs. The study concluded that the credit channel might be less affected by the MPT mechanism when dealing with IBs in Pakistan as IBs are growing rapidly. Most recently, Rafay and Farid (2019) examined the significance of IB deposits and financing in transmitting MP in the real economy. The result revealed that IBs are significantly participating in the MPT in Pakistan.

From the above literature review, this study evaluates the role of the credit channel in MPT through IBs in Pakistan. The contribution of IBs in participation in the real economy and capable of transmitting MP actions into the real economy. Islamic banking is multiplying in Pakistan, with limited availability of treasury products as well as open market operation instruments, which makes this study significant for researchers, commercial banks, and central banks to help them broaden the presence of IBs in Pakistan. This comparative study will help identify the essential financial and macroeconomic variables for policymakers to formulate the MPT mechanism through which favorable results can be achieved. Secondly, this research will help determine the direct relationship between the selection of transmission channels and economic targets like price stability, growth, or inflation. Thirdly this research will motivate the stakeholder to enhance their confidence in the strength of IBs, which is growing successfully, as well as contributing to the country's economic growth in the competitive environment. The new insights of the available research in the core area could also be generalized to other financial markets around the globe.

METHODOLOGY

This research used the same method applied by Jiménez et al. (2012, 2014), Kashyap and Stein (1995), Kishan and Opiela (2000), and Asbeig and Kassim (2014). In these research, the significance of bank-specific characteristics and macroeconomic variables on the BLC of MPT were measured.

The role of supply and demand forces in determining movements in banking credit flows is crucial for understanding the transmission of financial shocks and formulating policy (Amiti et al., 2017). On the demand side, Ahmed (2016) finds that higher economic activity provides stimulus to credit whereas inflation dampens it, and on the supply side, banks' lending capacity is found to be the primary driver of credit while government borrowing has a crowding-out effect (Imran & Nishat, 2013). The diagram in Figure 1 is constructed on the concept of demand and supply-side factors affecting bank credit decisions.

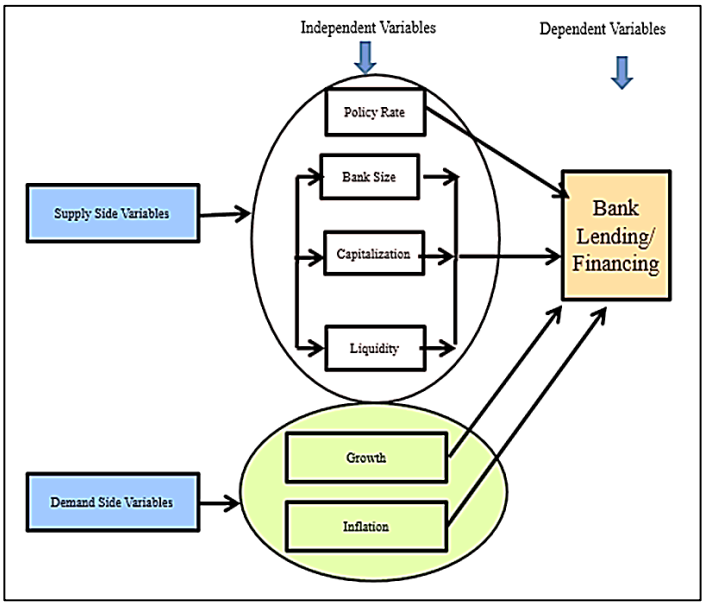

Figure 1: Conceptual Framework

The study employed a static linear panel data model using Ordinary Least Square (OLS), fixed effect model (FE), and random effect model (RE) to analyze the significance of BL in both Islamic and conventional commercial banking in Pakistan from 2009-2018. Here the total bank lending/financing is the dependent variable, bank-specific characteristics bank assets, liquidity,

and capitalization, macroeconomic variables GDP (Growth) and Inflation, and the policy rate as a monetary indicator as an independent variable. Table 1 below explains the definition of each variable selected.

Table 1: Model Variable Descriptions

No.	Variable	Symbol	Definition
1	Total Bank lending/financing	Tblending	Bank's total financing in the banks' balance sheet
2	Inflation Rate	Inflation	Inflation is the rate of increase in the prices of goods and services.
3	Growth	Growth	Gross domestic product (GDP) denotes the aggregate value of all services and goods produced within a country in any given year.
4	Monetary policy Rate	PRate	The average six-month T-bill rate is widely used as a benchmark for banking operations, and the same is used in the analysis of this research.
5	Capitalization	Capital	Total Regulatory Capital ratio, as recommended and required by State Bank of Pakistan.
6	Liquidity	Liquidity	Percentage of Liquid assets to total assets of each bank
7	Bank Total Assets	TAssets	Total Assets of the Bank

From the above literature in support of developing an economic model, this study analyzed the available data using the below-mentioned model.

$$\text{Tblending}_{it} = a + \beta_1 \Delta \text{ Growth }_t + \beta_2 \Delta \text{ Inflation }_t + \beta_3 \Delta \text{ PRate} + \beta_4 \text{Capital}_{it} + \beta_5 \text{Liquidity}_{it} + \beta_6 TAssets_{it} + e_{it}$$

Where i=1,……, N and t=1,…….., T and where the dependent variable *Tblending* represents the total financing measured as a *log* of the first-order difference of the bank loans *i* in time *t. liquidity* is a measurement of the percentage of liquid assets to total assets, and Capitalization (*Capital*) is the ratio of total regulatory capital ratio. The total assets (*TAssets*) of the bank, and the two macroeconomic factors, the real growth rate (*Growth*) and inflation rate *(Inflation*), and finally, the policy rate (*PRate*) is the measure of the average short-term interest rate in time t, and the empirical analysis is performed using STATA version 14. The data analysis focused on descriptive analysis, Pearson correlation analysis, and panel data techniques. Regression analyses such as the ordinary least squares regression model, fixed effect regression models, and random effect model were considered after conforming to the Hausman specification (1978) test.

This study aims to examine the competitiveness and participation of Islamic commercial banks in MPT through bank credit channels as compared to conventional commercial banks in Pakistan. For this purpose, two samples of unbalanced data sets of twenty-four (24) commercial banks were divided into samples of IBs and CBs. The consecutive annual data for the ten-year duration of 2009-2018 consists of 183 observations for conventional and 44 observations for IBs were analyzed to understand the impact of MP changes through the BLC. The data can be divided into many sub-samples, which may not lead us to our core objectives of assessing the role of Islamic bank credit in private sector development. This research selected five Islamic banks in Pakistan in sample one; the first group represents all full-fledged Islamic Banks, and the remaining conventional banks in the second group to investigate the results of this study. The comparison of two independent population means provides a way to test the hypothesis that the two groups differ from each other. The two samples can be different where they are independent, samples that have a different number of elements, subject of analysis, and testing

indicators of the values of the variable. Further from the literature, it is noted that a larger time dimension reduces the extent of the bias, and a more general result that includes explanatory variables follows naturally. Simulation studies reveal that the "Nickell Bias" becomes negligible for T > 30 (Bruno, 2005; Judson & Owen, 1999; Kiviet, 1995).

The bank-specific variables data is collected from the bank's financial statements, and the macroeconomic and monetary policy data is collected from the websites of the SBP and The World Bank.

Table 2 below provides the details of all commercial banks in Pakistan that were selected in this study. Table 2 presents the total assets of all commercial banks; Islamic banks' assets equal one of the top five commercial banks in Pakistan. This may create skewness in the data under analysis, and when analyzing the variables in the model, there are chances of producing errors. Overcome logarithmic transformation is a convenient way of transforming highly skewed variables into a more normalized dataset. This study took a *log* of all variables used for both samples under investigation to improve the results through the normally distributed data.

Table 2: Details of Sample Banks

No	Name of Bank	Total Assets - Banks (PKR-Millions)	Number of Branches	Nature	Ownership
	Islamic Commercial Banks				
1	Meezan Bank Ltd.	828,061.40	602	^ICB	Private
2	Dubai Islamic Bank Pak. Ltd.	214,023.30	200	^ICB	Private
3	Bank Islami Pakistan Limited	205,959.20	330	^ICB	Private
4	Albaraka Bank (Pakistan) Ltd	127,802.00	188	^ICB	Private
5	MCB Islamic Bank Limited	76,324.90	166	^ICB	Private
	Conventional commercial Banks				
6	Habib Bank Limited	2,764,971.90	1751	#CCB	Private
7	National Bank of Pakistan	2,657,794.80	1523	#CCB	Public
8	United Bank Limited	1,816,362.60	1381	#CCB	Private
9	MCB Bank Limited	1,487,103.30	1360	#CCB	Private
10	Allied Bank Limited	1,474,488.10	1254	#CCB	Private
11	Bank Al Habib	1,002,224.80	644	#CCB	Private
12	Bank Alfalah Limited	1,001,134.20	478	#CCB	Private
13	Askari Bank Limited	705,826.50	516	#CCB	Private
14	The Bank of Punjab	691,404.30	540	#CCB	Public
15	Habib Metropolitan Bank Ltd	663,769.60	320	#CCB	Private
16	Standard Chartered Bank Ltd.	556,246.30	89	#CCB	Private
17	Faysal Bank Limited	554,333.30	405	#CCB	Private
18	JS Bank Limited	417,835.70	323	#CCB	Private
19	Soneri Bank Limited	372,164.10	287	#CCB	Private
20	The Bank of Khyber	213,686.80	167	#CCB	Public
21	Summit Bank Limited	199,951.50	193	#CCB	Private
22	Sindh Bank Limited	195,025.60	300	#CCB	Public
23	Silkbank Limited	161,888.60	123	#CCB	Private
24	First Women Bank Limited	24,755.80	42	#CCB	Public

Note: ^ Islamic Commercial Bank # Conventional Commercial Bank

RESULTS

Tables 3 and Table 4 describe the descriptive data analysis of bank variables used in the model; the data is evaluated by mean, minimum and maximum, standard deviation, and the number of observations. The results in the tables show the comparison between the CBs and IBs. CBs (Table 3) with a significant share in the banking sector have a higher average for both total financing and total assets. Contrary to this, IBs (Table 4) are more liquid and capital reliant than CBs. This confirms that IBs operations are not only secured by equity participation as well as have less liquidity risk. In comparison, it is also evident that IBs have a higher standard deviation for managing liquidity, which indicates that the IBs are at a disadvantage and may be missing the opportunity cost compared to CBs.

Table 3: Descriptive Data - Conventional Banks of Pakistan

Variable	Mean	Std. Dev.	Min	Max	Observations
*log*Tblending	12.6108	1.1080	9.6899	14.7089	183
*log*TAssets	12.7664	1.1098	9.8266	14.8731	183
*log*Capital	2.6403	0.4942	-0.5798	4.0303	183
*log*Liquidity	2.2274	0.5382	0.8544	3.8258	183

Table 4: Descriptive Data - Islamic Banks

Variable	Mean	Std. Dev.	Min	Max	Observations
*log*Tblending^	11.4614	0.9734	9.1848	13.6300	44
*log*TAssets^	11.6291	0.9537	9.2211	13.7514	44
*log*Capital^	2.7615	0.4621	2.3194	5.2063	44
*log*Liquidity^	2.7538	0.5763	1.3762	4.3902	44

Note: ^ Islamic Commercial Bank

Tables 5 and 6 below explain the correlation matrix of the variables in the analysis to indicate the significance of the relationship between the dependent and independent variables. As shown in the table, the total financing and total assets of the two samples are significantly positively correlated ($0.99 < 0.1$), which indicates that the primary force of motivation for BL is the bank's assets. CB's capital ratio is correlated insignificantly with total financing compared to IBs, where the capital is correlated negatively to total financing, which may be due to either the equity participation nature of the bank transactions or the high CAR requirements for high-risk lending. Further to measuring the impact of macroeconomic variables, i.e., growth, inflation, and policy rates on total financing, it is observed that lending by IBs has a high negative correlation compared to CBs. This justifies the opinion that there is a high demand for loans due to the non-availability of other sources of funds; CB's lending is stagnant and has a low correlation with macroeconomic factors. The correlation between the bank's capital with economic growth and policy rates contrasts for the two samples. IBs capital is positively affected by the interest rates; however, the CBs have a negative impact which indicates that pass through interest rate is better in IBs due to the profit and loss nature of transactions; CBs may have fixed-rate contracts, which affect the profitability of the bank in the when the interest rate changes.

Table 5: Correlation Matrix-Conventional Banks

Variable	*log*Tblending	*log*TAssets	*log*Capital	*log*Liquidity	Δ*log*PRate	Δ*log*Growth	Δ*log*Inflation
*log*Tblending	1						
*log*TAssets	0.999	1					
*log*Capital	0.038	0.020	1				
*log*Liquidity	-0.056	-0.047	0.046	1			
Δ*log*PRate	-0.321	-0.311	-0.179	0.280	1		
Δ*log*Growth	0.226	0.218	0.206	-0.178	-0.610	1	
Δ*log*Inflation	-0.272	-0.260	-0.227	0.283	0.803	-0.555	1

Table 6: Correlation Matrix-Islamic Banks

Variable	*log*Tblending^	*log*TAssets^	*log*Capital^	*log*Liquidity^	Δ*log*PRate^	Δ*log*Growth^	Δ*log*Inflation^
*log*Tblending^	1						
*log*TAssets^	0.998	1					
*log*Capital^	-0.639	-0.664	1				
*log*Liquidity^	-0.156	-0.175	0.411	1			
Δ*log*PRate^	-0.449	-0.448	0.138	0.351	1		
Δ*log*Growth^	0.438	0.419	-0.153	-0.332	-0.627	1	
Δ*log*Inflation^	-0.346	-0.337	-0.014	0.061	0.789	-0.566	1

Note: ^ Islamic Commercial Bank

Table 7 shows the regression results of the model used for analyzing the conventional banking sample as specified above. The bank's total assets (BS) are omitted from the analysis due to a highly positive correlation with bank lending. The finding shows the significance of BL in transmitting MPT to variables selected in the model. There is a highly significant impact on interest rates, inflation, growth, and bank capital in the BLC. The coefficients of capital, inflation, and policy rates are negative but significant; however, the growth is positively significant. The liquidity of the banks is insignificant in bank lending. Our results in Table 7 concluded that the fixed effect model is appropriate, as confirmed by the Hausman test. Results also indicate that there is no multicollinearity, heteroskedasticity, or autocorrelation.

Table 7: Results of analysis for Conventional Banks

Dependent variable: lTblending^	**Pooled OLS**	**Random Effect**	**Fixed Effect**
*log*Capital	-0.0733	(-0.1760)***	(-0.1745)***
	-0.4400	-3.6300	-3.7000
*log*Liquidity	0.0896	-0.0157	-0.0170
	0.5800	-0.3600	-0.4000
*log*PRate	(-1.0199)***	(-0.8089)***	(-0.8074)***
	-2.1600	-8.6800	-8.9600
*log*GRrowth	0.0730	(0.1374)***	(0.1377)***
	0.5300	5.0500	5.2300
*log*Inflation	-0.0892	(-0.2249)***	(-0.2256)***
	-0.3700	-4.6800	-4.8500
Constant	14.9207	15.0731	15.1457
	15.0900	50.1800	71.6400
*log*TAssets		Omitted because of collinearity	
Breusch-Pagan LM test		585.57***	
		0.0000	
Hausman test			87.8200
			0.0000
Observations	183	183	183
Multicollinearity (VIF)			1.99

Heteroskedasticity	382.07***
(c^2 – stat)	0.0000
Serial Correlation	8.454***
(F-stat)	0.0094

Notes: ***, **, and * indicate significance at 1%, 5% and 10%, respectively

Table 8 represents the regression analysis for IBs. The results show the same results as CBs when testing the significance of policy rate and growth in BL, while the inflation is insignificant in BL in IBs. Bank-specific variables like capital and liquidity are significant in bank lending. The analysis concluded that the random effect model is more appropriate when analyzing the IB; the same is justified by Breusch and Pagan Lagrangian multiplier test and invalid Hausman test results. The results are also the same to indicate that there is no multicollinearity, heteroskedasticity, or autocorrelation.

Table 8: Results of analysis for Islamic Banks

Dependent variable: lTblending^	**Pooled OLS**	**Random Effect**	**Fixed Effect**
*log*Capital ^	(1.4484)***	(-0.7305)***	(-0.6573)***
	-6.4000	-5.9700	-5.7500
*log*Liquidity^	(0.5476)***	(0.1458)**	-0.1273
	2.6500	1.7400	1.6700
*log*PRate^	(-1.0670)*	(-1.0812)***	(-1.1173)***
	-1.7900	-4.5900	-5.2200
*log*Growth^	(0.3260)**	(0.2872)***	(0. .2869)***
	1.8900	4.3800	4.8200
*log*Inflation^	0.0496	-0.1006	-0.1055
	0.1700	-0.8800	-1.0100
Constant	15.7793	15.1500	15.1984
	13.6700	30.4100	37.4800
*log*TAssets^	Omitted because of collinearity		
Breusch-Pagan LM test	90.89***		
Hausman test		-3.1500	
Observations	44	44	44
Multicollinearity (VIF)			2.30
Heteroskedasticity (c^2 – stat)			15.46 (0.0086)***
Serial Correlation (F-stat)			30.5860 (0.0052)***

Notes: ^ Islamic Bank, ***, **, and * indicates significance at 1%, 5% and 10% respectively

CONCLUSION

From the above results and analysis, this study confirms the active participation of Islamic and conventional banks through bank lending channels in monetary policy transmission as proposed in the literature. In comparing the role of Islamic banks in monetary policy transmission with conventional banks, it is evident that macroeconomic variables similarly influence Islamic banks. Policy rates, growth, and inflation significantly impact bank lending.

The bank-specific variable of Islamic banks plays a significant role in bank lending. Bank capital and liquidity have an insignificant correlation with bank lending in conventional banks. However, in Islamic Banks, the capital is negatively correlated, which indicates that the unavailability of risk-free treasury investments and open market facilities negatively impacts the bank's financials. The profit and loss sharing nature of contracts, as well as the difference in maturities of assets and liabilities, put extra pressure on bank capital and liquidity in the absence of risk-free investment by the State Bank of Pakistan. It is evident from the literature that the State Bank of Pakistan accommodated and facilitated Islamic banks in providing level playing

fields. However, the requirement of asset-backed transactions limited the issuance of secured investment opportunities which affected the growth of the Islamic banking industry.

There is limited scope for full-fledged Islamic banks in Pakistan due to unavailable investment opportunities; however, banks with both conventional and Islamic operations enjoy more independence through diversifying their business needs. Pakistan is Muslim dominated economy where banking was not preferred due to the charging of interest, and now when the Islamic banking industry fulfills the gaps and efficiently participates in transmitting the monetary policy through the bank lending channel, it requires a separate set of instruments and monetary policy to explore the untapped economic growth and sustainability.

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