Journal of Islamic Monetary Economics and Finance, Vol. 8, No. 4 (2022), pp. 535 - 550
p-ISSN: 2460-6146, e-ISSN: 2460-6618

ECONOMIC OUTPUT, MONETARY POLICY TRANSMISSION AND THE ROLE OF ISLAMIC BANKS: EVIDENCE FROM PAKISTAN DUAL BANKING SYSTEM

Azam Ali[1], Muhamed Zulkhibri[2] and Tanveer Kishwar[3]

[1] Commecs Institute of Business and Emerging Sciences, Pakistan, azaminceif@gmail.com
[2] Corresponding Author, Islamic Development Bank Institute, Saudi Arabia, khibri1974@yahoo.com
[3] Jinnah University for Women, Pakistan, Tanveer-kishwar92@gmail.com

ABSTRACT

Using co-integration analysis, this study evaluates the role of Islamic banks in monetary transmission and the economic growth of Pakistani economy. More specifically, it investigates the role of Islamic bank deposits and financing in the transmission of monetary policy impacts to the real economy. The findings suggest that Islamic bank financing and deposits play key roles in Pakistan's monetary transmission process. The bank lending channel has the potential to become a major channel of monetary transmission in Pakistan's economy. The bank lending channel highlights the significance of Islamic financial institutions in disseminating the effects of monetary policy across the economy. Therefore, more efforts should be made to establish a more effective Islamic money market, which might offer Islamic banks with an alternative funding source.

Keywords: Dual banking system, Bank lending, Monetary policy, Pakistan.
JEL classification: G21; E44; E52.

Article history:
Received : June 7, 2022
Revised : July 28, 2022
Accepted : November 12, 2022
Available online : December 8, 2022

https://doi.org/10.21098/jimf.v8i4.1486

I. INTRODUCTION

Since its inception in 1947, Pakistan has maintained a conventional economic framework. The country's central bank, the State Bank of Pakistan (SBP), regulates the banking sector and formulates monetary policy in accordance with statutory requirements. The Islamization of Pakistan's banking industry began in the late 1970s. As there were no Islamic Financial Institutions (IFIs) in Pakistan at the time, macro-level efforts were made to develop such institutions. In the 1980s, regulatory procedures for the Islamization of financial transactions were created to achieve this purpose. In November 1991, the Federal Shari'ah Court identified ambiguities in these measures, which encompass the conventional system under the Islamic framework. Therefore, the court determined that these actions were un-Islamic.

In an Islamic banking system, the central bank serves as the lender of last resort and should be able to provide banks with any liquidity they require, if needed. In Islamic banking system, discount rate policy is less prevalent than in conventional banking system. In contrast, the Shari'ah enables the discounting of a legitimate bill issued on the basis of a real transaction; subject to certain restrictions, this instrument may be utilized in an Islamic banking system. Because any changes to the terms and conditions of giving such a facility will affect the monetary conditions of the economy, the Islamic banking system of the country uses it as a monetary policy instrument.

The empirical research indicates that bank lending only responds after a policy contraction (Bernanke and Blinder 1992). Bank lending, unlike unemployment, operates with the same lag, resulting in equal effects across all interest rate and credit channels. This is in part attributable to the asset-backed structure of the instruments analysed by Samad (1999), Kaleem (2000), and Samad and Hassan (2000), who all give empirical support for the stability of Islamic monetary instruments. The significance of the Islamic banking industry in money transmission, on the other hand, has received scant attention in academic literature. Therefore, understanding the differences between Islamic and conventional bank responses to monetary policy changes requires an understanding of how monetary authorities will exert control over the dual banking system.

This study examines the role of Islamic banks in the transmission of Pakistan's monetary policy. This study contributes to academic literature by shedding fresh insight on the determinant of monetary transmission channels in Pakistan's dual banking system by utilizing more recent data. The goal of this article is to investigate the role of Islamic banks' financing and deposits in channelling monetary policy effects into the real economy. The following outlines the structure of the paper: Section 2 presents an in-depth examination of Pakistan's Islamic banking sector. Section 3 analyses the theoretical and empirical literature on Islamic financing and monetary policy. In Section 4, data and methodology are presented. The empirical findings are provided in Section 5 of the study, while the implications for future research are examined in Section 6 of the paper.

II. LITERATURE REVIEW

2.1. Islamic Banking System of Pakistan

As a response to both religious and economic needs, Islamic banking has gained prominence in Pakistan. Being largely a religiously conservative society, Pakistan's

ever-expanding Islamic finance industry offers chances to a sizable part of the population who are not currently served by the traditional banking system. The majority of significant and practical initiatives to eliminate *riba* throughout the economy, which began in the 1970s, were implemented in the 1980s. However, this system failed because it failed to appropriately address concerns such as establishing an effective Shariah compliance framework. Attempts to reestablish Islamic banking in Pakistan resumed in 2001, when the government declared that Islamic banking will be created progressively in accordance with the most contemporary international standards and giving emphasis to capacity building.

The financial system of Pakistan has changed over time in response to the country's economic growth and the government's development goals. The system is comprised of the State Bank of Pakistan (SBP), commercial banks, and a vast array of Non-Bank Financial Institutions (NBFIs), including Development Financial Institutions (DFIs), investment banks, home financing firms, leasing businesses, Modarabah and mutual funds, brokerage houses, and insurance companies. Banks dominate Pakistan's financial industry, which must diversify to meet the country's long-term finance needs. In addition to monetary policy, the SBP is responsible for bank supervision and oversight of development finance organizations (DFIs). The Securities and Exchange Commission of Pakistan regulates, among other things, investment banks, leasing corporations, insurance companies, Modarabah, and mutual funds. (SECP).

In 2020, the total deposits of the Islamic banking industry increased by 27.8 percent (Table 1). The Islamic banking institution has assets and deposits totaling 4,269 billion rupees (US$27.50 billion) by the end of December 2020, with deposits totaling 3,389 billion rupees (US$21.3 billion). The financing of the Islamic banking industry expanded by 16 percent in 2020. Pakistan has set an ambitious aim of raising its Islamic banking market share to 30 percent by 2025, which would be a huge accomplishment (SBP, 2021).

Table 1.
Pakistan Islamic Financial Industry Progress (Billion Rs)

Period	No. of IsIamic Banks	No. of Branches[1/]	No. of Windows	Assets	Deposits
Dec, 2019	22	3,226	1,373	3,284	2,652
Dec, 2020	22	3,456	1,638	4,269	3,389
Growth (in %)	0	7%	19.3%	30%	27.8%

Note: 1/ including sub-branches

Source: State Bank of Pakistan

The network of the Islamic banking industry consisted of 22 institutions as of the end of December 2020: 5 full-fledged Islamic banks (IBs) and 17 conventional banks with stand-alone Islamic banking branches (IBBs), with 3,456 branches spread across 120 districts (Table 2).

Table 2.
Islamic Banking in Pakistan as of 30 December 2020

Type	Name of Bank	No. of Branches
Islamic Banks	Al Baraka Bank (Pakistan) Limited	181
	BankIslami Pakistan Limited	231
	MCB Islamic Bank Limited	188
	Dubai Islamic Bank Pakistan Limited	210
	Meezan Bank Limited	815
	Sub Total	**1,625**
Islamic *Branches* of Conventional Banks	17 conventional banks (including having standalone Islamic banking branches)	1,674
Sub-branches	6 Conventional and 3 Islamic Banks (except Meezan Bank and MCB Islamic Bank) have sub-branches	157
	Grand Total	**3,456**

Source: State Bank of Pakistan

2.2. Related Literature

Islamic banking is theoretically differentiated from regular banking due to Islam's prohibition on interest (*riba*). Profit-sharing and equity participation (PLS) is a distinctive characteristic of Islamic banking that is primarily based on Islamic contracting concepts like *Mudarabah* (profit sharing) and *Musharakah* (equity participation) (Zulkhibri, 2018). This suggests that in the perspective of the community, only the most "Islamic" and "idealized" version of each notion should be deemed acceptable. In Islamic banking, there is a distinction between two schools of thought when the profit rate or rate of return is used as a substitute for interest. The first perspective takes into account the various notions of PLS, money, interest, and profit in Islamic finance that are discussed in "idealized" literature. This category includes a wealth of Islamic banking and finance literature dating back to the 1960s, as well as theoretical research on Islamic banking.

The second point of view contends that *Maslahah*-oriented literature is an appropriate alternative. According to this viewpoint, riba should not be mistaken for modern bank interest. In theory, an Islamic bank might be any interest-based bank that conforms to the Islamic concepts of justice, equity, fairness, and non-exploitation as its guiding principles; (i) distributes finance to those who "need" it on humane terms; and (ii) adopts a way of supporting economically disadvantaged parts of society in enhancing their standard of life, as defined by Islamic law. Nonetheless, there has been a clear shift in recent years away from an idealistic perspective and toward a more pragmatic, markup-based, and risk-averse position of the Islamic finance system.

Interest rates have long been recognized as a factor influencing the level of savings in the economy, not just by classical and neoclassical economists, but also by current economists, and as having a positive relationship with savings. The declared profit rates of Islamic banks are associated with positive relationship behavior. Due to the absence of a specified rate of return in Islamic banking, the profit maximization hypothesis serves as a guidance for Islamic bank customers. Since Islamic bank depositors may possibly have similar characteristics and incentives to conventional bank depositors, interest rates will continue to have an

effect on Islamic bank operations over the long term.

Other research show that Islamic banks largely use the participative PLS technique to support their commercial activities. It is well-known that Islamic banks construct their asset portfolios utilizing non-PLS, debt-like securities with a stated, fixed rate of return that are comparable to their conventional counterparts (Beck et al. 2013). This study concludes that there are "few statistically significant variations in business orientation, efficiency, asset quality, or stability" between conventional and Islamic retail banks. Due to the implied relationship between PLS rates of return and asset-side interest rates, PLS rates of return are comparable to conventional bank deposit rates.

Recent Islamic finance studies have also attempted to empirically differentiate between the interest rates charged by conventional and Islamic banks. Examining the empirical behavior of conventional bank deposit rates in Malaysia and Turkey, Cervik and Charap (2011) compare the rate of return on retail Islamic PLS investment accounts to the rate of return on conventional bank deposit rates. The results suggest that there is long-run cointegration between traditional bank deposit rates and the rate of return on PLS investments and that traditional bank deposit rates Granger-cause the rate of return on PLS investment accounts. It is also worth noting that both regular bank deposit rates and PLS returns exhibit time-varying volatility that is statistically significant and related.

Ito (2013, 2017) investigates the relationship between monetary policy expectations and Malaysian deposit rates. The results, according to this paper imply that Islamic financing is identical to conventional finance in terms of deposit rate generation, and that Islamic rates of return move in lockstep with conventional interest rates. Mushtaq (2017), on the other hand, finds no significant association between Islamic banking deposits and interest rates using the panel ARDL technique for 23 Muslim nations, implying that Islamic banks are interest rate shock resistant.

Numerous prior studies have concluded that there is no significant difference between the responsiveness of Islamic bank financing and conventional bank lending to changes in monetary policy. Using Malaysia as an illustration, Chong and Liu (2009) demonstrate that retail Islamic deposit rates behave similarly to conventional interest rates. According to the research, only a small fraction of Islamic bank funding is based only on PLS, and Islamic deposits are not interest-free; rather, they are comparable to conventional deposits in terms of interest rate and duration. Furthermore, the data reveals that global Islamic revival, rather than the benefits of the PLS paradigm, is driving rapid growth in Islamic banking, emphasizing the significance of Islamic banks adhering to the same norms as regular banks.

In another study, similar relationships were discovered. Zulkhibri and Sukmana (2017) conducted a study in which they analyse data obtained from Indonesian Islamic banks. The study finds that, while financing rates have a negative impact on Islamic bank funding, bank-specific features have a strong influence. This demonstrates the inefficiency with which the Islamic banking sector transmits monetary policy. According to the findings, the absence of a monetary policy effect on bank funding may be explained by the rapid expansion of Islamic banks over time, which resulted in a significant increase in deposit growth and

a stable liquidity position. In a similar vein, Zulkhibri (2018) evaluates the effect of monetary policy on bank-specific characteristics in Malaysia using bank-level data. According to the research, bank-specific variables play a substantial impact in defining Islamic finance behaviour. Islamic finance procedures are similar to conventional lending techniques in that Islamic bank financing is contingent on the bank's size, liquidity, and capital.

In a more recent study, Akhatova et al. (2016) employ the Structural Vector Autoregression (SVAR) formulation to evaluate the response of Islamic banks to changes in monetary policy shocks. According to the survey's findings, Islamic banks react to interest rate increases faster than their conventional counterparts. Aysan et al. (2018) discover that Islamic bank depositors are much more sensitive to changes in the policy rate than conventional bank depositors. Furthermore, Ergec and Arslan (2013) investigate the impact of interest rate changes on bank savings and deposits, while Sarac and Zeren (2015) investigate the long-term relationship in Turkey between conventional banks and participation banks. In Turkey, both sets of data point to the same conclusion: changes in overnight interest rates affect Islamic and conventional banks differentially, and Islamic banks are heavily integrated with conventional banks.

Shah and Rashid (2019) discuss the unequal impact of monetary policy on bank lending. The research studies empirically the differential influence of monetary policy on the credit supply of Islamic banks in Pakistan and Malaysia. The System-Generalized Method of Moments (GMM) estimator is applied to an unbalanced panel data set for the period 2005-2016. The estimation includes three alternative monetary policy measures on banks' credit supply, and several bank-specific control variables in the specification. There is evidence for the presence of a credit supply channel in both the baseline and extended models for both countries. This study concludes that the influence of monetary policy through Islamic banks in Pakistan differs from that in Malaysia.

On a practical level, the similarity in profit rates between conventional and Islamic banks is attributable to theoretical and practical differences in risk assessments at the institutional and systemic levels, with the exception of the asset side being the most relevant. Despite rising earnings, Islamic banks are experiencing decreases in liquidity, asset and liability concentrations, and operational efficiency. According to some studies, Islamic banking may be able to provide a minimally additional layer of protection against systemic risks in emerging financial systems. Moreover, Hassan et al. (2019) present evidence that there is a negative link between liquidity and credit risk in Islamic banks and that Islamic banks outperform conventional banks in terms of liquidity and credit risk management.

III. METHODOLOGY

3.1. Data

Pakistan's financial system has changed over time in response to the country's economic growth and the government's development aspirations for the country. There were five fully functional Islamic banks and seventeen conventional banks with Islamic banking branches as of the end of December 2020. The sample

for this study covers all of Pakistan's fully operational Islamic banks. The paper explores a model constituted of monetary policy channel variables in order to analyze the role of Islamic banks in the transmission process of monetary policy, in accordance with notable works such as Bernanke and Blinder (1988), Garretsen and Swank (1998), and other important works.

3.2. Method

The VAR model is a dynamic set of equations that permits interactions between economic variables while requiring few assumptions about the underlying structure of the economy. Therefore, the VAR technique provides two distinct benefits. First, the VAR model explicitly allows for variable endogeneity, allowing monetary policy and economic trends to interact. Second, unlike a large-scale, fully detailed structural model, the VAR analysis focuses on reduced form relationships and hence requires only a simple model with a small number of variables.

Cointegration has evolved as a credible econometric technique for empirical study across a wide range of fields. The Johansen technique employs an unconstrained vector autoregression (VAR) model that includes up to k-lags of z_t. This model has the largest number of lags possible. Following the seminal work of Sims (1980), the fundamental specification model of VAR will be a dynamic model with a reduced form VAR, as shown below:

$$z_t = A_1 z_{t-1} + \ldots + A_k z_{t-k} + \mu_t \quad (1)$$

where u, is iid(0, $\sum$). The vector z_t contains the n variables of the system and each of the A_i is an (n x n) matrix of parameters. It is assumed that the variables are at most integrated of order one. A reparameterization of the VAR (k) yields a vector error correction model (VECM):

$$\Delta z_t = \Gamma_1 \Delta z_{t-1} + \ldots + \Gamma_{k-1} \Delta z_{t-k+1} + \Pi z_{t-k} + \mu_t \quad (2)$$

The matrix Π is a (n x n) coefficient matrix, which can be factorized so that $\Pi = \alpha\beta$; Π has rank *r*, where *r* represents the number of cointegration vectors. The matrix α is of dimension (n x r) and gives the speed of adjustment to disequilibrium; β is a (r x n) matrix, which contains the long-run coefficients. The term βz_{t-k} in (2) represents up to (n-1) cointegration relationships in the multivariate model. The Johansen procedure performs a maximum likelihood estimation of the parameters (1995) of the above model. The following model is developed in this perspective:

$$ECOUT = f(IFIN, IDEP, ONRTE) \quad (3)$$

As a proxy for monetary policy, the overnight policy rate (ONRTE) is a monetary indicator. Among the factors to analyse are deposits from Islamic banks (IDEP), financing from Islamic banks (IFIN), and the economic production index (ECOUT). The empirical tests are carried out using a standard bank lending channel of monetary transmission as the unit of analysis for the Islamic banking system (Zulkhibri and Sukmana, 2017; Zulkhibri, 2018). The empirical model examines

whether banks' responses to changes in financing are influenced by the volume of bank deposits (IDEP), Islamic bank financing (IFIN), or economic output, or if they are influenced by a mix of the three variables, or vice versa. The data included in this research spans the years 2003 to 2019, with statistics on Pakistan's Islamic banking industry reported by each Islamic bank every three months. The data for the analysis are obtained from audited published reports from Islamic banks, SBP annual reports, and SBP monthly statistics bulletins.

IV. EMPIRICAL RESULTS

4.1. Unit Root Test Results

The unit root test results are presented in Table 3. The majority of the variables are stationary in the first difference, which indicates that the process is I(1). The unit root tests show that the variables are integrated to the first order. The unit root test verifies the applicability of the VAR method using the collected data. As a result, the cointegration test will be used to establish whether or not these variables in question are in long-run equilibrium. Cointegration vectors are estimated and tested using the Johansen method, which is a form of regression technique (1988).

4.2. Cointegration Test Results

In order to evaluate the long-run relationship of the analysis, the initial VAR must be computed in the first phase. It consists of the variables ECOUT, IFIN, IDEP, ONRTE, as well as an overall trend. The AIC, SC, LR, and FPE lag selection criteria are utilized in cointegration tests. Schwarz and Hannan-Quinn criteria both recommend two lags for the VAR. According to Enders (1995), a linear combination of integrated variables can remain stationary; these variables are known as cointegrated variables. Data must be integrated in the same order in order to be cointegrated. A vector autoregressive model describes the stochastic process that creates the time series of a vector of variables when applied to a vector autoregressive model (VAR).

Table 3.
Unit Root Test Results

Measures	Trend and Intercept (Intercept)	Islamic Finance (IFIN)	Economic Output (ECOUT)	Overnight Rates (ONRTE)	Islamic Deposits (IDEP)
ADF	Level	-3.1879***	-3.1897*	-3.5266**	-7.5082***
		(-3.5925)	(-2.6039)	(-2.9369)	(-2.9458)
	First difference	-4.1924***	-4.1985*	-4.1923*	-3.5442***
		(-3.4829)	(-3.5966)	(-2.9369)	(-3.6329)

Note: 1) * indicates 10 percent, ** indicates 5 percent and *** indicates 1 percent levels of significant, respectively. 2) standard errors are in parentheses

Table 4 summarizes the results of the cointegration test based on the lag selection discussed previously. The data suggests that in the long run, these variables have reached equilibrium. There are three cointegration equations with Trace statistics values greater than the 5 percent critical value (67.66 > 40.17, 49.28 > 43.81, and

19.14 > 12.32). Aside from that, the Max-Eigen statistics indicate the existence of two cointegration equations because the figures exceeding the 5 percent critical limit (47.91 > 24.16, 20.62 > 17.80) are bigger than the critical limit. As a result, the estimated model must include at least three co-integrating equations.

According to the estimated model, economic output and Islamic bank financing are interdependent. Given the strong positive link between economic output (ECOUT) and Islamic bank financing (IFIN), the increase in ECOUT in this study is a direct result of the increase in Islamic bank financing (IFIN). In part because of the inverse relationship between the overnight rate and economic output, as the overnight rate (ONRTE) rises, economic output (ECOUT) falls. On the other hand, the level of economic activity (ECOUT) positively correlates with Islamic bank deposits (IDEP). The idea that deposits (IDEP) increase in response to a rise in ECOUT is supported by the fact that ECOUT rises in response to a rise in deposits (IDEP).

The IRF demonstrated that a reduction in Islamic deposits affects Islamic financing. The bank lending channel of monetary transmission accurately predicts the monetary policy shock responses of objective variables (ECOUT, IFIN, and IDEP). This is significant evidence demonstrating how tight monetary policy limits banks' ability to support the expansion of Islamic banks financing (IFIN), resulting in a decline in the broader economy (ECOUT). Moreover, the VDC study finds that Islamic deposits (IDEP) have a considerable impact on the VDC of the monetary policy rate (ONRTE). This conclusion shows that the Islamic deposit variable (IDEP) has a significant effect on the monetary policy variable (ONRTE), showing that it is an important variable to consider when executing monetary policy in a dual banking sector.

Table 4.
Results of the Cointegration Test

Model→	**R<= 0**	**R <= 1**	**R <= 2**	**R<= 3**
Null Hypothesis	0.680	0.223	0.421	0.004
Trace Statistics	67.662	49.759	19.142	12.320
5 % Critical Value	40.174	24.275	12.320	14.129
Max-Eigen Statistics	47.902	20.617	8.906	3.112
5 % Critical Value	24.159	17.797	11.224	4.181

The normalized cointegration equation is as follows:

$$\begin{array}{cccccc} \text{ECOUT} = & 0.29^{*}\ \text{LIFIN} & + 0.195^{*}\ \text{LIDEP} & - 0.018^{*}\ \text{ONRTE} & + 0.009^{*}\ \text{TREND} & \\ & (0.049) & (0.067) & (0.0017) & (0.0006) & (4) \end{array}$$

where standard errors are shown by parentheses. The estimated model reveals that economic output (ECOUT) and Islamic bank financing are positively correlated (IFIN). This direct positive correlation between economic output (ECOUT) and Islamic bank financing (IFIN) demonstrates that an increase in economic output (ECOUT) is directly attributable to an increase in Islamic bank

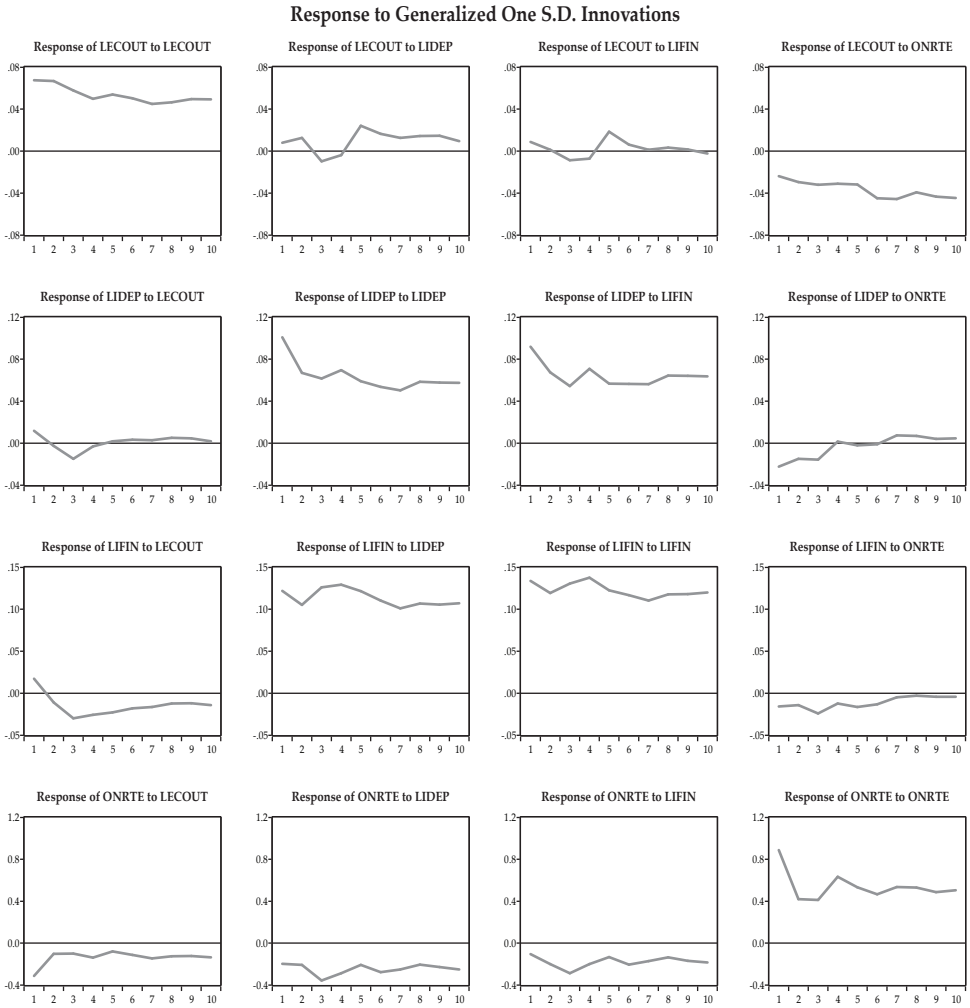
financing (IFIN). In contrast, the negative link between the monetary policy rate (ONRTE) and economic output (ECOUT) indicates that as the monetary policy rate (ONRTE) rises, economic output falls (ECOUT). In contrast, Islamic bank deposits (IDEP) exhibit a positive association with economic output (ECOUT). This lends considerable credence to the notion that an increase in deposits (IDEP) is frequently accompanied by an increase in economic output (ECOUT).

4.3. Impulse Response Function (IRF)

Using impulse response functions (IRF), the impact of monetary policy shocks on macroeconomic indicators can be determined. The simulation characteristics of the VAR model were evaluated using impulse response analysis (IRF) in terms of economic output innovations (ECOUT), the monetary policy rate (ONRTE), Islamic bank deposits (IDEP), and Islamic bank financing (IFIN). Figure 1 depicts the magnitude and duration of the responses to a shock in the monetary policy rate (ONRTE) of the objective variables (ECOUT, IFIN, and IDEP) as determined by the impulse response analysis of the monetary policy rate (ONRTE). From ONRTE to IDEP to IFIN to ECOUT, a strong causal relationship can be established. Islamic deposits (IDEP) exhibit a positive response to the monetary policy rate (ONRTE) shock, indicating that when monetary policy tightens (such as when interest rates are high), Islamic deposits (IDEP) will increase.

The results of the IRF indicate that an increase in Islamic deposits (IDEP) leads to a positive response from Islamic financing (IFIN). Following the bank lending channel of the monetary transmission process, the responses of the objective variables (ECOUT, IFIN, and IDEP) to monetary policy shocks are consistent with those predicted by changes in the monetary transmission process. It shows that restrictive monetary policy impedes banks' ability to provide additional funding, which has a contractionary effect on the real economy. After two quarters, the impact of monetary policy rate (ONRTE) on output (ECOUT) reaches its maximum level before reverting to its initial level. In a situation of monetary policy tightening, the predicted reactions correspond closely to the anticipated movements of macrovariables. As a result, the results for both models confirm the validity of the identifying assumptions.

A further finding of the Variance Decomposition (VDC) analysis is that Islamic deposits (IDEP) considerably contribute to the forecast error variance of the monetary policy rate (ONRTE), accounting for a major share of the forecast error variance. According to this result, the Islamic deposit (IDEP) is critical as a monetary policy shock variable (ONRTE) in Pakistan. This finding demonstrates that the Islamic deposit variable (IDEP) is an effective variable to include in the execution of monetary policy and should be accounted for due to its substantial impact on the monetary policy framework.



Note: One standard deviation shock
Source: authors' own computation

Figure 1.
Impulse Response Function

4.4. Analysis of Variance Decomposition

The Variance Decomposition Analysis (VDC) analyses the relationship between Islamic bank financing and monetary policy. The variance decomposition analysis (VDC) reveals the relative impact of each innovation on the endogenous variables. The VDCs for these variables are also presented to illustrate how Islamic deposit and Islamic financing contribute to the explanation of macroeconomic variable variations. The results of the VDC analysis are presented in Table 5. According to the findings of VDC, Islamic deposits accounted for between 1 percent and 6 percent of volatility over a longer time horizon. This explains why Islamic financing relies heavily on deposits. Due to the limited number of *Shari'ah*-

compliant money market instruments and the tiny number of Islamic banks and finance industry participants, Islamic banks have limited options for receiving funds other than deposits as compared to conventional banks. This also helps to clarify the significance of Islamic deposits in Islamic banks.

Table 5.
Variance Decomposition (%) for Variables in VAR Model

Horizon	S.E.	LECOUT	LIDEP	LIFIN	ONRTE
Variability of LECOUT					
1	0.053	96.689	0.985	1.393	0.414
2	0.057	95.856	1.057	1.875	1.787
3	0.069	94.521	1.534	2.325	3.293
4	0.077	93.235	2.655	2.525	4.485
5	0.085	89.54	4.721	2.758	5.401
6	0.084	88.25	6.871	2.810	5.792
7	0.087	86.75	9.789	2.718	5.980
8	0.091	83.02	13.876	2.685	5.867
9	0.093	79.303	17.756	2.595	5.848
10	0.096	70.25	22.139	2.489	5.625
Variability of LDEP					
1	0.097	0.029	99.987	0.011	0.127
2	0.115	0.152	99.746	0.029	0.224
3	0.126	0.270	95.748	4.009	0.242
4	0.138	0.387	95.322	4.470	0.207
5	0.147	0.490	94.874	4.904	0.220
6	0.157	0.575	94.664	5.141	0.194
7	0.166	0.639	94.690	5.129	0.180
8	0.175	0.699	94.701	5.111	0.186
9	0.183	0.757	94.799	5.014	0.186
10	0.191	0.791	94.913	4.894	0.191
Variability of LIFIN:					
1	0.128	0.275	76.833	23.166	0.121
2	0.164	2.160	74.463	25.404	0.131
3	0.189	6.404	77.384	22.452	0.162
4	0.209	10.897	78.744	21.015	0.239
5	0.224	14.727	80.013	19.686	0.300
6	0.238	17.485	81.210	18.301	0.487
7	0.250	19.085	82.128	17.146	0.724
8	0.260	18.998	82.949	16.058	0.992
9	0.269	19.395	83.595	15.065	1.338
10	0.278	18.989	84.061	14.193	1.745
Variability of ONRTE:					
1	0.842	0.597	0.239	1.846	97.913
2	0.922	0.550	0.229	1.702	98.068
3	0.986	0.678	0.970	2.462	96.567
4	1.170	0.919	0.705	3.805	95.488
5	1.301	1.189	1.031	5.619	93.348

Table 5.
Variance Decomposition (%) for Variables in VAR Model (Continued)

Horizon	S.E.	LECOUT	LIDEP	LIFIN	ONRTE
6	1.416	1.452	0.967	7.953	91.078
7	1.568	1.608	1.088	10.249	88.661
8	1.718	1.780	1.505	12.678	85.816
9	1.864	1.852	1.811	15.093	83.094
10	2.023	1.959	2.187	17.360	80.452

Source: authors' own computation

V. CONCLUSION

The purpose of this study is to examine the role of Islamic banks in Pakistan's monetary transmission system as well as their effect on economic output. In spite of Pakistan's dual banking system, the central bank's monetary policy impacts both conventional and Islamic financial institutions. The fall in Islamic deposits has led to an increase in Islamic financing, according to IRF analysis. The bank lending channel of the monetary transmission process accurately forecasts the responses of all variables to monetary policy shocks (ECOUT, IFIN, IDEP, ONRTE). Islamic deposits have made substantial contributions, as determined by the VDC. As a result, Islamic financing is reliant on deposits for the majority of its financing operations. The analysis reveals that Islamic deposits could be employed as a shock variable in Pakistan's monetary policy.

There is a considerable positive correlation between economic output and bank deposits in Islamic banks, which is consistent with the bank lending theory that lending increases in reaction to an increase in deposits, while economic output rises in response to an increase in lending. The findings of the IRF demonstrate that tight monetary policy reduces the ability of banks to lend, hence reducing economic expansion. Furthermore, the VDC investigation indicate that Islamic banks have less flexibility than conventional banks when it comes to obtaining funds other than deposits, because money market instruments must adhere to Shari'ah rules. A concentrated effort should be made to establish the Islamic money market, which might serve as an alternative source of funding for Islamic financial institutions.

REFERENCES

Akhatova, M., Zainal, M.P., & Ibrahim, M.H. (2016). Banking models and monetary transmission mechanisms in Malaysia: Are Islamic banks different?. *Economic Papers: A Journal of Applied Economics and Policy*, *35*(2), 169-183.

Aysan, A.F., Disli, M., & Ozturk, H. (2018). Bank lending channel in a dual banking system: Why are Islamic banks so responsive?. *The World Economics*, *41*(3), 674-698.

Beck, T., Demirguc-Kunt A., & Merrouche, O. (2013). Islamic vs. conventional banking: Business model, efficiency and stability. *Journal Banking and Finance*, *37*(2), 433-447.

Bernanke, B. S., & Blinder, A. (1988). Credit money and aggregate demand. *American Economic Review Papers and Proceedings, 78*(7), 435–439.

Bernanke, B., S., & Blinder, A. (1992). The federal funds rate and the channels of monetary transmission. *American Economic Review, 82*(4), 901-921.

Cervik, S., & Charap, J. (2011). The behavior of conventional and Islamic bank deposit returns in Malaysia and Turkey. *IMF Working Paper, No. WP/11/156*, Washington DC: International Monetary Fund.

Chong, B., & Liu, M.H. (2009). Islamic banking: Interest-free or interest-based?. *Pacific-Basin Finance Journal, 17*(1), 124-144.

Enders, W. (1995). *Applied econometric time series*. New York, USA: John Wiley & Son, Inc.

Ergec, E.H., & Arslan, B.G. (2013). Impact of interest rates on Islamic and conventional banks: The case of Turkey. *Applied Economics*, *45*(17), 2381-2388.

Garretsen, H., & Swank, J. (1998). The transmission of interest rate changes and the role of bank balance sheets: A VAR-analysis for the Netherlands. *Journal of Macroeconomics, 20*(2), 325-339.

Hassan, M.K., Khan, A., & Paltrinieri, A. (2019). Liquidity risk, credit risk and stability in Islamic and conventional banks. *Research in International Business and Finance, 48*(April 2019), 17-31.

Ito, T. (2013). Islamic rates of return and conventional interest rates in the Malaysian deposit market. *International Journal of Islamic and Middle Eastern Finance and Management*, *6*(4), 290-303.

Ito, T. (2017). Monetary policy expectations and the Malaysian deposit market: Analysis of Islamic rates of return and conventional interest rates. *International Journal of Bonds and Derivatives*, *3*(4), 275–289.

Johansen, S. (1988). Statistical analysis of cointegration vectors. *Journal of Economic Dynamics and Control*, *12*(2-3), 231-254.

Johansen, S. (1995). *Likelihood-based inference in cointegrated vector autoregressive models*. Oxford, New York: Oxford University Press.

Kaleem, A. (2000). Modeling monetary stability under dual banking system: The case of Malaysia. *International Journal of Islamic Financial Services*, *2*(1), 21-42.

Mushtaq, S. (2017). Effect of interest rate on bank deposits: Evidences from Islamic and non-Islamic economies. *Future Business Journal*, *3*(1), 1-8.

Samad, A. (1999). Relative performance of conventional banking vis- à -vis Islamic bank in Malaysia. *IIUM Journal of Economics and Management, 7*(1), 1–25.

Samad, A., & Hassan, M.K. (2000). The performance of Malaysian Islamic bank during 1984-1997: An exploratory study. *International Journal of Islamic Financial Services*, *1*(3), 24-45.

Sarac, M., & Zeren, F. (2015). The dependency of Islamic bank rates on conventional bank interest rates: Further evidence from Turkey. *Applied Economics*, *47*(7), 669-679.

Shah, S. M. A. R., & Rashid, A. (2019). The credit supply channel of monetary policy transmission mechanism: An empirical investigation of Islamic banks in Pakistan versus Malaysia. *Journal of Islamic Monetary Economics and Finance*, *5*(1), 21-36.

Sims, C. (1980). Macroeconomics and reality. *Econometric*a, *48*(1), 1-48.

State Bank of Pakistan (SBP) (2021). Strategic Plan for Islamic Banking Industry (2021-25), State Bank of Pakistan, Karachi.

State Bank of Pakistan (SBP) (various issues). Pakistan's Islamic Banking Sector Review, State Bank of Pakistan, Karachi.

Zulkhibri, M., & Sukmana, R. (2017). Financing channels and monetary policy: Evidence from Islamic banks in Indonesia. *Economic Notes*, *46*(1), 117-143.

Zulkhibri, M. (2018). The impact of monetary policy on Islamic bank financing: Bank-level evidence from Malaysia. *Journal of Economics, Finance and Administrative Science, 23*(46), 306-322.

This page is intentionally left blank