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IMPACT OF FINTECH & MONETARY POLICY ON LIQUIDITY CREATION

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Abstract

The study aims to identify the impact of monetary policy and financial technology on bank liquidity creation for commercial banks in Pakistan. The annual time series data was gathered from 2004-2003. The multiple regression technique was used to test the hypotheses. The findings suggest that FinTech and monetary policy significantly positively affect bank liquidity creation in Pakistan. It means that banks' adoption and implementation of FinTech enhance their ability to create economic liquidity. The State Bank of Pakistan must effectively use the monetary policy rate to control the liquidity the banks create in the economy, as the excess amount of liquidity creation harms the economy. However, the State Bank of Pakistan should effectively use the monetary policy rate to manage the liquidity creation. Future researchers should consider other factors, such as adopting artificial intelligence and sustainable development on liquidity creation in Pakistan or other countries. Sustainable liquidity creation must be introduced so that the economy's liquidity creation is environmentally friendly. Liquidity is created when banks finance illiquid assets by utilizing liquid liabilities; the banks must finance only those illiquid loans that are environmentally friendly.

Keywords: *Fin-Tech, Liquidity Creation, Sustainable Liquidity Creation, Monetary Policy*.

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1. INTRODUCTION

1.1 Background to the Study

Financial technology, called FinTech nowadays, has put the traditional financial industry at the apex of innovation in the sector around the world. FinTech is a completely modern term for incorporating innovation in financial services. The rapid growth of FinTech is attributable to innovation in technology and regulation (Daga et al., 2021). FinTech stands for a broad set of financial services, such as funding, payment, e-aggregators, e-trading, e-insurance, and cryptocurrencies such as Bitcoin. These platforms have affected the revolution of financial operations, paving the way for people and businesses in terms of convenience, speed, and efficiency of transactions.

On the other hand, this has led to many FinTech firms providing their services in various forms (Okoli & Tewari, 2020; Suryono et al., 2020). FinTech developments do not only fiddle traditional banks but have also opened up numerous new opportunities and actual problems for the banking sector (Ansari et al., 2020). FinTech impact is multifaceted and, in turn, closely connected with the transformation of the financial environment. FinTech disruptive innovations have created a new paradigm in the traditional banking industry, uniquely changing intermediation, payment processing, and lending practices. The direct or indirect result of these changes in financial liquidity might be significant.

FinTech lowers the efficiency of financial intermediaries, thereby being one of the most important ways FinTech impinges on liquidity. FinTech harnesses technologies such as block-chain, AI, and big data analytics, which shave costs and speed up processes, but also enhance access to financial services that could boost revenue potential, which has been increased through faster communications, removal of borrowers' and lenders' barriers, and facilitating risk ratings. Moreover, FinTech platforms have come into place for segments of the population who experience difficulties lending credit to traditional financial institutions (FI). FinTech adds to the economy by ensuring that marginalised groups can obtain credit and investment opportunities, where, although it does increase liquidity, it does so with challenges such as cyber threats and data privacy issues that arise with it. The crossroads of FinTech and financial use bring another element of complexity to the economy's growth. The central bank is one of the regulatory institutions responsible for manipulating monetary policies to fulfil goals such as price stability, full employment, and financial stability. It is mandatory to reform the regulatory structure to suit FinTech's new economic periods.

Investment banks, which constitute the primary FI's, have yet to adopt FinTech solutions in their operations to expand and remain competitive in the markets. The use of FinTech in Pakistan's banking sector to boost the Bank Liquidity Creation (BLC) is an issue that needs to be researched. FinTech can create liquidity by building many opportunities for Pakistan's commercial banking system (Okoli & Tewari, 2020).

As can be seen from various sources (Ansari et al., 2020), FinTech's influence on BLC was discussed in various contexts. Nevertheless, more studies are needed about how FinTech innovation in Pakistan has affected the BLC function of commercial banking. In recent times, the FinTech industry has been preferred widely, and it has made a mark on how financial transactions are carried out. Such industries provide various aspects of their services, like funding, payment systems, e-trading, and others (Daga et al., 2021). A need for continuous innovation within banks has arisen because of the convenience and efficiency FinTech has found in making banks adapt to customers' demands to maintain their trust and reputation (Guo & Zhang, 2023).

FinTech's effects on creating liquidity through Pakistan's commercial banking and the Monetary Policy (MP) connection are important study topics. The interconnection of FinTech and Pakistan's traditional commercial banking sector can bring about comprehensive changes and impact on BLC. It can lead to increased efficiency in liquidity management, among other payment processes, and better access to funds for all entities, including individuals and organisations. In this regard, the gap in the ongoing research will be filled, and tangible data and evidence on BLC in Pakistan's traditional banking system's role in FinTech will be produced.

1.2 Problem Statement

FinTech and central banks' financial policies have been the primary force behind the global changes seen in the operations of banks and other traditional FIs. However, aside from integrating FinTech developments in Pakistan, there is still a shortage of a full-fledged understanding of the potential consequences for the main liquidity production within its financial body. Concerning the positive effects that FinTech and MP may have in terms of eased liquidity generation, no study has been carried out in the whole area to assess the magnitude of how FinTech initiatives impact the growth of the financial market in Pakistan. The current liquidity position of the nation is shaky. The recently released data by the State Bank of Pakistan shows that Pakistan is currently standing at 15%, which is below the base Shariah rule of 100% that depicts liquidity ratios of Pakistan stand at high-risk levels and liquidity shortages are observed in all principal. It implies that it is crucial to study blockchain technology, digital payment, p2p lending platforms, and other FinTech advancements and their impact on liquidity generators in Pakistan's financial sector. The insufficiency of empirical evidence concerning the impact of FinTech and MP on liquidity generation impedes the capacity of policymakers, FIs, and investors to make informed decisions concerning liquidity challenges. Therefore, there is an immediate need for comprehensive research to assess the impact of FinTech and MP on liquidity creation in Pakistan. Therefore, the research aims to conduct this research to provide priceless knowledge that could guide the development of strategic initiatives and policies that leverage BLC (Wu et al., 2024; Berger & Udell, 1995).

The study of the effects of FinTech on the formation of liquidity, as well as the connection between MP and the creation of liquidity, is the best exemplification of theoretical vitality in describing the non-stop changes in financial systems in economies. One of the main findings of this research is related to the fact that technological innovations, especially in the form of FinTech, affect the processes of BLC. This research brings the financial theories to higher levels as well. Through the lens of FinTech, it offers the ability to examine how MP platforms and tools alter the currently existing BLC institutions and, therefore, complement theories dealing with financial innovation and market dynamics. An empirical approach rather than a theoretical one is chosen in order to disclose the puzzling interconnection of FinTech, the influence of MP adoption on financial markets, and the role of FinTech in specific financial situation stabilisation, which will, in turn, make up for the increasing number of financial economist theories.

It should be noted that FinTech research devoted to the BLC, with the help of MP, provides diverse viewpoints concerning the transformation of financial services in the Internet age. It allows one to scrutinise both the boasting of the disruptive impacts of FinTech and MP and the promotion of novel conduits for fundraising while rendering the traditional banking methods redundant. FinTech startups are brought onto the scene with platforms through which individuals can both borrow and save, sparing the intermediaries who are the traditional sources of liquidity and thus reshaping the whole picture of creating liquidity. Therefore, policymakers, industry practitioners, and researchers need to understand this to comprehend the deeper consequences of FinTech adoption on market structure, regulatory framework, and consumer behaviours.

The gateway to the effects of FinTech and MP on BLC is the key for stakeholders in the ecosystem. Interpretations of expert research findings on this topic can impact the strategic planning process for FIs, banking authorities, and public administrators. By understanding the changing framework of BLC in the FinTech context, authorities can develop a contingency strategy that will allow them to respond to regulatory challenges, capture unprecedented opportunities, and mitigate risks associated with technology disruption. Also, an in-depth perception of FinTech and MP's effect on BLC is vital in stimulating BLC, encouraging a deeper policy, and strengthening the resilience of the financial systems of today's digitised world. In other words, the study's practical implication is that the research's outcome can guide the policy intervention in the informed policy.

2. LITERATURE REVIEW

2.1. Theoretical Background & Underpinning Theory

The theory of financial intermediary forms the basis for the following research paper. Moreover, the financial intermediary theory reveals the function of finance, which accumulates or redistributes the funds from creditors to the savers. The process of deposit-taking from depositors and the subsequent allocation of these resources toward the provision of loans to borrowers is what we call financial intermediate such as banks. Despite the changes in financial intermediaries, especially in countries like Pakistan, the technological factor is yet to come.

FinTech covers a cutting-edge, progressive suite of technologies designed to replace human activity and improve financial services. The growth of digital payment platforms, peer-to-peer lending platforms, and other technology-based financial services in Pakistan is being driven by FinTech. Through extended access to capital that these mainstream financial entities have traditionally ignored, FinTech solutions may facilitate the publication of money (Diamond, 1984; Diamond & Rajan, 2001).

To boost Pakistan's BLC, FinTech empowers the establishment of peer-to-peer lending platforms as a tool. Such platforms circumvent traditional institutions by directly connecting loan seekers and lenders. Besides, FinTech platforms can promote efficiency in capital allocation and liquidity growth by applying technology for credit score determination and long-duration loan processing reorganisation. The other two digital payment solutions that have gained mobility thanks to FinTech are mobile wallets and payment apps. While the impact of FinTech on the BLC in Pakistan cannot be denied, the process is open to hurdles. Regulatory issues, data security threats, and privacy problems may constrain the wide use of FinTech solutions on a large scale. Also, unequal access to FinTech tools could be observed among people in remote areas and vulnerable groups. Finally, financial intermediary theory allows us to build a conceptual framework that improves the understanding of how conventional and innovative FIs form liquidity in an economy. FinTech substantially influences BLC within the Pakistani context, owing to its facilitation of enhanced capital allocation efficiency and advancement. To fully leverage the capacity of FinTech to augment liquidity generation in Pakistan's economy, it is imperative to confront the regulatory and technological obstacles that may arise.

Berger and Bouwman (2017) postulate the "bank liquidity creation channel" as a means by which MP influences the expansion of bank liquidity. In reality, the production of liquidity to power the economy is intrinsically linked to the functioning of banks. Banks generate liquidity on and off-balance sheets through loan commitments and using liquid liabilities to finance illiquid assets (Diamond & Dybvig, 1983; Thakor, 2005). Consequently, Berger and Bouwman (2017) show that the BLC channel persists when all on- and off-balance sheet elements are considered, although via a more convoluted way than the bank lending channel. According to Bernanke and Blinder (1988), easing MP could increase bank liquidity through increased loan-able funds and loan supply. Banks may extend more credit to their clients when interest rates are lower and more loanable funds are available (Kashyap et al., 2002).

2.2. Hypothesis Development:

2.2.1. Liquidity Creation

According to banks' quantitative asset transformation function, banks perform two functions: risk transformation and liquidity creation. Banks create liquidity when they finance illiquid assets by utilizing liquid liabilities, boosting Pakistan's economic growth. The bank has an illiquid claim against the company, but savers end up with a liquid claim against the bank. Banks are said to produce liquidity

because of the difference in liquidity between what they do with their money and how they finance their operations. Liquidity generation is an important function of banks since it promotes profitability and economic growth.

2.2.2. FinTech in Pakistan

According to Boot et al. (2021), banks that heavily utilize FinTech have an advantage in increasing deposit monies, expanding their customer bases, and sustaining customer connections. It leads to higher customer satisfaction and retention rates, which results in fluctuations in inflows (Dadoukis et al., 2021). Because banks cannot generate liquidity without deposit resources, having consistent and easy access to deposit funds will encourage them to do so. Accordingly, from the standpoint of the client relationship, the implementation of FinTech improves the BLC of banks by increasing their deposit inflow.

2.2.3. Monetary Policy

The purpose of MP, which regulatory committees or the central bank oversees, is to influence the amount of money that enters an economy. The supply of bank loans and, by extension, the generation of bank liquidity are both influenced by MP. According to some research (Kishan & Opiela, 2000), households' preference for holding their money rather than depositing it in banks changes due to strict MP, which changes the return on deposits. Hussain and Bashir (2019) state that other writers have offered different views on the connection between deposits and lending during MP contraction. According to Disyatat (2004), if fiat currency, enough capitalisation, and a liberalised financial sector are in place, then deposits could not matter regarding reducing lending. In this scenario, the bank can meet the demand for loans without cutting back on the supply of loans. According to this school of thought, the whole banking system's BLC is governed by MP. According to the existing literature on the subject, three tools exist for a central bank to carry out its MP (Ashcraft, 2006; Ali et al., 2019; Peek & Rosengren, 1995). Open market activities, the needed reserve ratio, and the base interest rate are the tools at your disposal.

2.2.4. Liquidity Creation and FinTech

One of banks' most important tasks is creating liquidity (Bhattacharya & Thakor, 1993). FinTech and digitisation are major developments in the banking industry, and an increasing number of commercial banks are utilising FinTech in their procedures. By bringing innovations and approaches to the methods of information gathering, risk assessment, and service delivery, FinTech has completely changed traditional commercial banks. Therefore, regarding client interactions, risk management, and operational efficiency, banks that have quickly established FinTech have an advantage over their competitors.

H_1: There is a significant impact of FinTech on BLC in Pakistan.

2.2.5. Liquidity Creation and Monetary Policy

FinTech is becoming more and more involved with central bank policies. The technology of FinTech has substantially transformed the dynamics of financial services by facilitating different ways of doing financial transactions for consumers and organisations to participate in them more efficiently and conveniently. The MP might be especially affected after the technology progresses, so central banks and policymakers must actively assess the effects. The financial innovation technology channel to the mechanisms for the transmission of money is sorely founded in the capacity of FinTech to reshape the credit-generating process, the payment system, and the broader financial infrastructures. Besides, central banks are also interested in financial technologies, or FinTech, which they use as instruments rather than a means of controlling the market, e.g., by adopting digital currencies. It may serve as the basis for whether MP should act and how effective it might be. Before central banks go on to adjudging the relevance and impact of FinTech on MP, they ought to powerfully grasp the connection between FinTech and MP so that the already current framework can be reshaped to go with the evolving financial system.

H_2: There is a significant impact of MP on BLC in Pakistan.

2.3. Conceptual Framework

A conceptual framework is an inherent forcing system that is used as a basis, and it is useful in arranging and structuring the theories, concepts, and variables in a certain research setting. The lens provided by this tool enables researchers to interpret and analyse data, directing their investigations and influencing their comprehension of intricate processes. It explains the theoretical foundations and principles that guide a study, presenting a structure for understanding links, patterns, and cause-and-effect mechanisms. Through establishing a conceptual framework, researchers can elucidate the extent and goals of their research, identify crucial variables and their interconnections, and formulate hypotheses or propositions to be empirically examined. Nevertheless, the proposed study integrates a conceptual framework comprising dependent and independent variables. The variables above are, accordingly, FinTech and BLC.

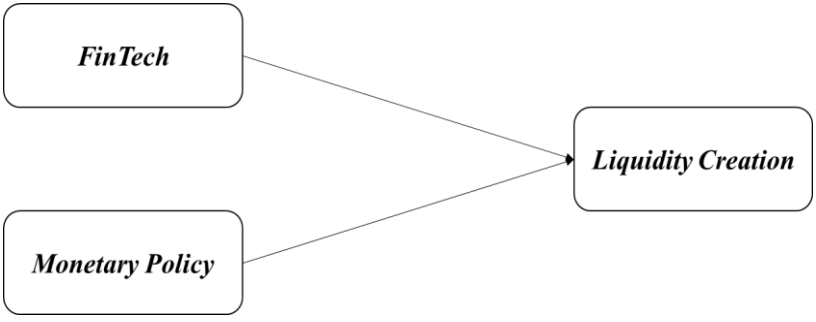

Figure-1: Conceptual Framework
Source: Author's construction

3. RESEARCH METHODOLOGY

The foundational framework that guides the strategy and methods of a study, as well as research philosophy, influences the researcher's understanding of reality and knowledge. Nonetheless, positivism is employed by the study's researchers for the planned investigation. One of the tenets of positivism is the idea that we live in a quantifiable, objective world that can be studied through scientific inquiry. Using quantitative methods and the scientific method to get generalised and replaceable knowledge is central to a positivist worldview. This viewpoint is neutral in pursuing objectivity and establishing general principles. Data can be collected, processed, and analysed using one of two distinct research methods: quantitative or qualitative. Boerman and van Reijmersdal (2020) state that the two strategies differ primarily in their data collection and analysis methods. Numbers and statistical analysis are crucial to the quantitative method, which relies on numerical data. This technique is employed when the data is amenable to numerical measurement or analysis. A quantitative study design will be utilised to carry out the research that has been presented. A comprehensive analysis of FinTech's effect on BLC drives this study (Ali & Ahmad, 2022).

The difference between inductive and deductive methods provides researchers with clear pathways within the intricate world of research procedures. Nevertheless, given the current setting, deductive methods are prioritised due to the quantitative character of the study problem. Also, there is a certain order to the steps taken in deductive reasoning, which begins with general premises and ends with more specific conclusions. In order to decipher and examine specific events, it is necessary to employ a theoretical framework and generalised ideas. Researchers can move from broad to narrow situations with clarity and precision if they follow a systematic and logical approach, which is the focus of future steps. Within the overall research, the current research design is a quantitative secondary research method with attention to detail when numerical data gets analysed with E-views software.

The sample for the research comprises 16 commercial banks listed on PSX (Pakistan et al.), which were selected based on the ease of obtaining their financial data from their annual reports. The companies whose banking sector financial data is easily accessible in primary documents like the PSX website's banking section are the key candidates. Comprehensive data extraction is planned, involving a meticulous examination of these selected banks' annual reports from 2004 to 2023. This extensive data collection strategy includes a wide temporal range, enabling a thorough analysis of the banks' financial performance and trends over nearly two decades.

3.1. Econometric Model

The researcher developed the following regression models to test the hypothesis:

$$LC_t = \beta_0 + \beta_1 FT_t + \beta 2\ MP_t + \varepsilon_t$$

Where,

LC	=	Liquidity Creation
B0	=	Coefficients
FT	=	FinTech
MP	=	Monetary Policy
ε	=	Error Term
t	=	Time Series Data

3.2. Variable and Measurement Tool

BLC is measured using Berger and Bouwman (2009), who submitted a three-step approach to measuring BLC. Step 1 is the Classification of Activities; under Step 2, weights are allocated to the categories based on Step 1. Step 3: Join the first two activities. The current study uses the model developed by Berger and Bouwman (2009), which tabulates BLC by systematic classification, weighting, and adding related balance sheet activities according to their liquidity features. The method represents the underlying linkage among different types of assets and liabilities affecting a commercial bank's overall cash positions.

FinTech is the independent variable; the literature suggests that FinTech can be measured using dichotomous evaluation. FinTech is often quantified in binary terms: it may be expressed (1) or not expressed (0). The binary evaluation focuses on how FinTech technology completely transforms the traditional financial apparatus or remains nonexistent. The binary approach implies the direct influence of FinTech on reshaping the financial system, changing consumer patterns of banking behaviours, and, to a greater extent, impacting the global economic frameworks (Ali & Ahmad, 2023).

MP is used to analyse the impact of MP on BLC; our study specifically concentrates on the alterations in MP as measured by a specific metric. Here are the modifications in the federal funds rate. As the Federal Reserve consistently focused on the federal funds rate during the whole duration of our study, any alteration in the federal funds rate serves as an indicator of the adjustment in MP. Specifically, changes in the federal funds rate may be influenced by information regarding future economic developments, which complicates determining the impact of MP on bank output. The federal funds rate is adjusted during meetings of the State Bank of Pakistan, the governing body responsible for determining MP in Pakistan.

4. FINDINGS & DISCUSSION

4.1. Descriptive Statistics

Table 1 shows the results of the descriptive analysis, where the total number of observations was 20. For FinTech, the mean value is 3.13; for MP, it is 0.4000; and for BLC, it is 12.128. The median value for FinTech is 2.476; for MP, it is 0.000; and for BLC, it is 11.749. Therefore, FinTech is dispersed at 2.028, MP at 0.502, and BLC at 3.876. The value of skewness for FinTech is a positive 0.757. In addition, BLC and MP have a positive skewness value of 1.254 and 0.408, meaning they have a longer right tail. FinTech's kurtosis value is 2.713, meaning

FinTech has a flat distribution, while BLC and MP kurtosis values are 4.197 and 1.166, meaning their distribution peaks.

Table-1: Descriptive Analysis

	MP	FT	LC
Mean	0.400000	3.132948	12.1282
Median	0.000000	2.47689	11.7492
Maximum	1.000000	7.860666	22.0000
Minimum	0.000000	0.296653	7.2575
Std.Dev	0.502625	2.028308	3.8769
Skewness	0.408248	0.757353	1.2548
Kurtosis	1.166667	2.713315	4.1978
Jarque-Bera	3.356481	1.980434	6.4436
Probability	0.186702	0.371496	0.0399
Observations	20	20	20

4.2. Data Normality

The Jarque-Bera probability that is 0.6753 > 0.05 shows that the sample data (2004-2023) is normally distributed.

Table-2: Data Normality

Mean	-6.720016
Median	-0.050597
Maximum	0.984772
Minimum	-1.519292
Std.Dev	0.729349
Skewness	-0.206571
Kurtosis	2.121693
Jarque-Bera	0.785091
Probability	0.675336

4.3. Diagnostics Analysis

4.3.1. Multicollinearity

The VIF is used to determine the model's Multi-Collinearity issue. If the values of the VIF are less than 10, the model does not have a Multi-Collinearity issue. The values of VIF are less than 10. Therefore, we accept the null hypothesis (Ho: No

Multi-Collinearity in the Model).

Table-3: Multi-Collinearity (VIF)

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.344856	11.60092	NA
FT	0.124751	1.678643	1.007186
MP	0.002097	11.38253	1.007186

4.3.2. Autocorrelation

We used Durbin Watson to analyze the Auto-Correlation issue, and the value of 1.590, which ought to be equal to 2, indicates the existence of positive autocorrelation. Nonetheless, the LM test with a null hypothesis (H0 = No Autocorrelation) is used to check the severity of the problem. The results of the LM test suggest that the autocorrelation problem is not severe.

Table-4: Breusch-Godfrey Serial Correlation LM Test

F-Statistics	0.257009	Prob F (2,15)	0.7767
Obs*R-Squared	0.662649	**Prob Chi- square (2)**	0.7180

4.3.3. Heteroskedasticity

We use the Heteroskedasticity White Test to determine the model's heteroskedasticity. The white test shows a p-value of 0.309, which is greater than 5%, which means there is no existence of heteroskedasticity in the model.

Table-5: Heteroskedasticity White Test

F-Statistics	1.314474
Obs*R-Squared	5.190960
Prob. F (4,15)	0.3094
Prob. Chi-Square (4)	0.2683

4.4. Regression Analysis

The OLS technique was used to test the hypotheses. The total number of observations was 20, which were used to analyse the data. The consistent parameter has a negative value of 0.96, indicating that if all the exogenous variables are maintained constant, an increase in any other variable than FinTech and MP will decrease BLC by 0.967 units. Holding other factors constant, FinTech is positively related to BLC, such that a unit rise in FinTech leads to a 3.155 unit increase in BLC. Moreover, MP has a significant positive relationship

with BLC. It implies that if all other factors are consistent, a unit increase in MP will bring about a 0.233972 gain in BLC.

The results show that all explanatory variables significantly impact BLC as the Prob. Value is less than 5%. The exogenous variables in the model can explain 87.06% of the deviation in the endogenous variable. The model incorporates the joint impact of the explanatory variables.

Table-6: Regression Analysis

Variable	Coefficient	Std. Error	T-Statistics	Prob. Value
C	-0.967085	0.587245	-1.646818	0.1180
FT	3.155940	0.353201	8.935253	0.0000
MP	0.233972	0.045791	5.109588	0.0001
R-Squared			0.870699	
Adjusted R-Squared			0.855487	
F-Statistics			57.23795	
Prob (F-Statistics)			0.00000	
Durbin Watson			1.590339	

4.5. Stability Analysis

The CUSUM test specifies whether the model is stable, falling within a blue line, and is used for sensitivity analysis. We use the CUSUM Sum of Square (CUSUM-Q) test to determine if the model is unstable, and if it is, it demonstrates stability. The Chow breakpoint test (CBT), which demonstrates that the model is steady, is used by the researcher if the outcomes of the tests are disputed. The blue line does not cross the red line; however, the CUSUM test in our model indicates that the model is steady.

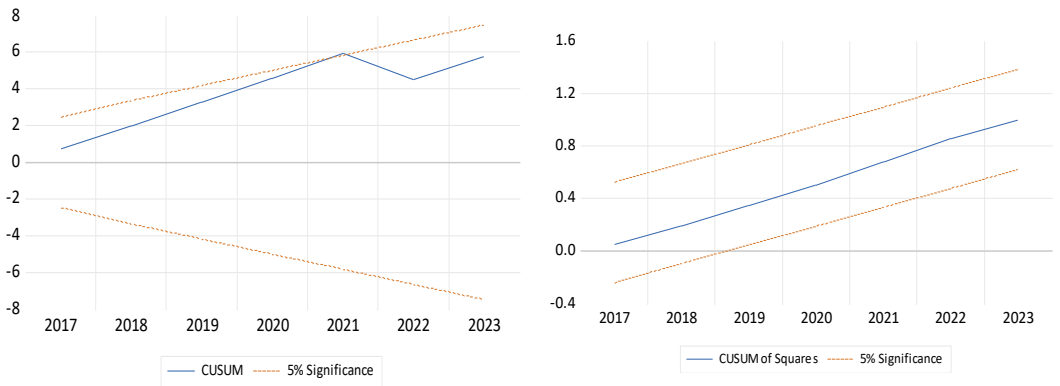

Figure-2: CUSUM & CUSUM Sum of Square

4.6. Pair-Wise Correlation

The correlation between the endogenous and exogenous variables is stated in the table above. The relationship between the same variables shows value 1, which means the variables are 100% correlated. The relationship between LC and FT is positive, as the value is 0.819. The positive sign indicates a positive association. The MP has a positive relationship with LC, as the value is 0.513. In simple words, FT and MP have a positive impact on the bank's LC. The entire explanatory variables have positive relationships among themselves.

Table-7: Pairwise Correlation

	FT	LC	MP
FT			
LC	0.819831		
MP	0.084464	0.513272	

4.7. Discussion

Pakistan's financial system is critical in driving the nation's economic progress. It stimulates economic expansion by facilitating credit accessibility, investment prospects, and effective resource distribution. However, maintaining a robust FI system is critical for fostering long-term economic expansion and increasing international effectiveness. It contributes to long-term economic development by ensuring efficient utilization of funds, stimulating long-term economic growth, and establishing a safe, sustainable environment for speculation and credit. A robust economic system that creates favorable conditions for foreign investment strengthens Pakistan's international competitiveness.

There is a need for resilient capital markets underpinned by sound MP to attract foreign investment, encourage investment diversification and reduce reliance on traditional sectors. All these factors contribute to the flexibility and expansion of the economy as a whole. Accepting deposits, extending credit, facilitating investment, and reducing risks are all measures FIs take to improve economic growth; they are made available to individuals and businesses loans, partake in FIs, and manage weaknesses effectively. FIs are important in driving economic expansion by efficiently allocating resources and capital. Their contributions to economic development include promoting financial inclusion, promoting financial literacy and introducing new financial products and services (Berger et al., 2016; Berger et al., 2020).

The findings and discussion section of the study presents an analysis of the relationship between MP, FinTech and BLC. The endogenous variable is BLC, and the exogenous variables are FinTech and MP. Descriptive statistics provide valuable information about variables' distributions and central properties, thus revealing a data set's mean values, variability, and homogeneity. Although the discourse on normal data does not exist, it is important to check whether data satisfies the assumptions of normality to draw plausible statistics or conclusions and examine heterogeneity, autocorrelation, and multi-collinearity. To assess multi-collinearity indicating a strong relationship between independent variables,

centred VIF is used, and the results support the null hypothesis of no multi-collinearity in the model. The LM test falsifies the first assumption of autocorrelation made by the Durbin-Watson statistic, thus concluding that the data do not show autocorrelation. Also, the white test rules out any significant heterogeneity problems, thereby establishing the validity of the regression analysis.

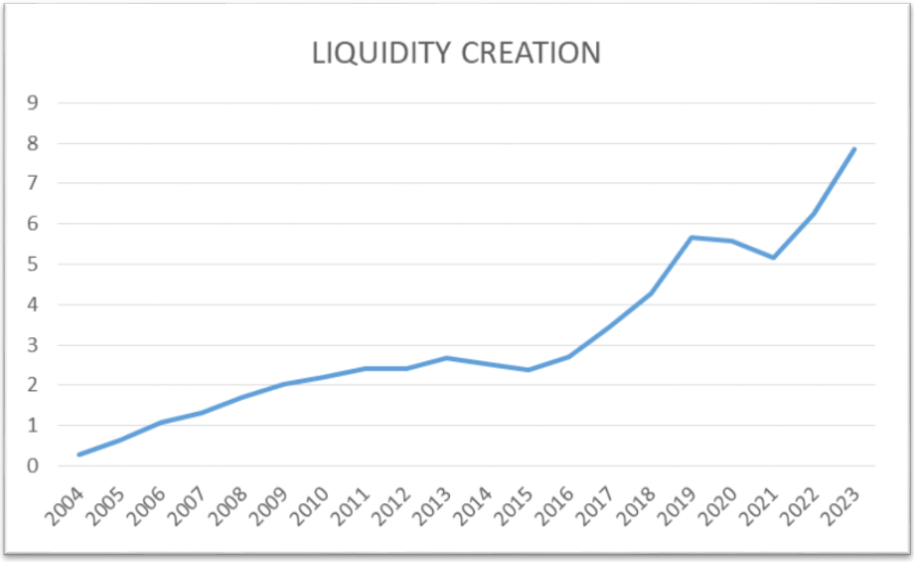

Figure-3: BLC by commercial banks from 2004 to 2023.

Regression analysis using OLS estimation provides evidence of a significant positive association among FinTech, MP and BLC. It indicates that changes in BLC are associated with changes in FinTech and MP and emphasises the importance of explaining changes in working capital. Furthermore, the model's effectiveness in forecasting BLC is highlighted by the significant proportion of variation in the dependent variable that it can account for. The robustness of the model is further supported by stability analysis, wherein the CUSUM and CUSUMQ tests demonstrate the model's stability as time progresses (Ansari et al., 2020). As a result, the positive correlations between FinTech, MP, and BLC are confirmed by the pair-wise correlation analysis, which further supports the regression analysis results (Liu et al., 2024). Nevertheless, in-depth analysis and contextualisation of the outcomes in the wider body of research concerning BLC and financial policy would enrich the discourse by offering significant perspectives on the ramifications of the research's results (Fang et al., 2024).

Essentially, the quantification of BLC by commercial banks in Pakistan was estimated by Ali and Ahmad (2022) utilising Thomson Reuters financial data streams. The same estimated amount of BLC is utilised in the present study to achieve research objectives. There has been a discernible upward trajectory in the occurrence of COVID-19. The bank's performance has significantly improved since the MP rate was reduced to 5% during COVID-19.

At their minimum, MP rates enable banks to extend credit at the most affordable interest rates and on deposits. After the SBP easing of MP, bank lending and deposit activities increased, resulting in greater BLC than during the preceding period.

5. CONCLUSION & RECOMMENDATIONS

In a nutshell, FinTech has emerged as a significant development in economies worldwide. Extending to blockchain, cryptocurrencies, robo-investing, mobile payments, money transfers, and online lending, the overarching notion of FinTech centers on integrating novel technologies within financial services. The FinTech revolution that has emerged in recent years is characterized by its unprecedented speed, abundance of data, and disruptions to the traditional financial sector. These changes result from the involvement of large technology (Big tech) firms and digital platforms that are not exclusively focused on the financial industry. The study investigates the effect of FinTech and MP on BLC using a time series data set from 2004 to 2023.

Furthermore, the research assesses the extent to which bank liquidity is created from several viewpoints. The empirical data consistently confirm the hypotheses, compelling evidence that FinTech and MP boost the BLC capacities of Pakistani commercial banks. This study provides several significant policy implications based on the empirical findings. The researchers utilised a dichotomous method to assess FinTech, specifically focusing on Pakistan's banking business. The study's findings indicate a noteworthy increase in the progress of FinTech within the banking industry throughout the observed time frame.

First and foremost, banks must actively adjust to the swift advancement of FinTech. The company needs to establish a long-term strategic stance for FinTech-driven company development and expedite its efforts to change digitally to improve its capacity to serve the real economy successfully. In addition, banks with distinct attributes should create strategies and routes for FinTech advancement. Small and medium-sized banks should utilize FinTech to exploit their geographical strengths and unique characteristics. Enhancing the structural composition of financial goods can effectively increase the availability of funds for the tangible sectors of the economy. Finally, banks must be cautious of the risks linked to the advancement of FinTech in the BLC. Regulators ought to enhance both micro and macro-prudential oversight to avert undue risks' buildup. Maximizing the utilization of bank FinTech is crucial for optimizing BLC while implementing effective risk management protocols. The banks must finance only those illiquid loans that are environmentally friendly to create sustainable liquidity. Therefore, future researchers should explore the factors affecting sustainable liquidity creation instead of liquidity creation.

This paper had limited access to comprehensive datasets and reliable existing data sources, providing avenues for future researchers. Differences in regulatory frameworks, market structures, and technological adoption across countries or over time could affect the applicability of the results to other settings. Banks must

increase their technological investments to facilitate access and create liquidity. It is imperative that the SBP efficiently execute and devise MP in order to ensure sufficient BLC. While the proposed research focuses on two primary variables, the researchers can broaden the range of variables for future considerations.

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