FINANCIAL TECHNOLOGY AND BANK LIQUIDITY IN NIGERIA: AN EMPIRICAL ANALYSIS OF DIGITAL TRANSACTIONS

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Abstract

Financial technology (FinTech) has transformed the banking industry by introducing innovative digital transaction methods that enhance financial service delivery and efficiency. This study investigates the impact of FinTech adoption on bank liquidity in Nigeria, focusing on four major transaction channels: Automated Teller Machine (ATM) transactions, Point of Sale (POS) transactions, Unstructured Supplementary Service Data (USSD) transactions, and mobile banking transactions. Using panel data from five leading Nigerian banks covering the period 2020–2023, this study employs a panel regression model to analyze the relationship between FinTech transactions and bank liquidity. The findings reveal that ATM and POS transactions have a negative impact on bank liquidity, implying that increased usage of these services contributes to liquidity outflows. Conversely, mobile banking transactions significantly enhance liquidity by facilitating seamless digital transactions and reducing the need for cash withdrawals. USSD transactions, however, do not show a statistically significant effect on liquidity, suggesting that their impact remains minimal within the Nigerian banking sector. This study contributes to the growing body of literature on FinTech adoption and liquidity management in developing economies. It provides valuable insights for financial institutions, policymakers, and regulators on how to optimize FinTech usage while ensuring adequate liquidity management. Based on these findings, the study recommends enhancing mobile banking infrastructure, regulating ATM and POS withdrawals, promoting the use of USSD transactions, strengthening liquidity management strategies, and fostering regulatory support for FinTech expansion.

Keywords: FinTech, bank liquidity, Automated Teller Machine (ATM) transactions, Point of Sale (POS) transactions, Unstructured Supplementary Service Data (USSD) transactions, and mobile banking transactions.

JEL Classification: G21, G28, E44, O33, L86

1. INTRODUCTION

Financial technology (FinTech) has revolutionized the global banking industry, transforming traditional banking operations and enhancing financial services. In Nigeria, the rapid adoption of FinTech innovations has significantly impacted banking transactions, particularly in the areas of Automated Teller Machines (ATM), Point of Sale (POS) terminals, Unstructured Supplementary Service Data (USSD), and mobile banking. These technologies have redefined the interaction between banks and customers, leading to increased financial inclusion and operational efficiency. However, despite these advancements, the implications of FinTech adoption on bank liquidity remain a subject of ongoing academic and professional debate.

Bank liquidity, defined as a financial institution's ability to meet its short-term obligations without incurring significant losses, is crucial for the stability of the financial system (Calomiris et al., 2015). While some studies suggest that digital banking transactions enhance liquidity by accelerating fund transfers and optimizing cash flow management (Ghodrati & Khah, 2014), others argue that the increasing reliance on electronic banking channels introduces volatility and unpredictability into bank liquidity structures (Wu et al., 2024). Understanding how FinTech adoption influences bank liquidity is particularly important in the Nigerian context, where economic volatility and regulatory constraints further complicate banking operations.

Several studies have examined the impact of FinTech on banking operations and liquidity management. For instance, Wu et al. (2024) explored the relationship between FinTech adoption and liquidity creation in U.S. banks, finding that higher FinTech integration was associated with lower liquidity creation. Similarly, Njilu (2016) investigated the effect of electronic banking on the liquidity of commercial banks in Kenya, highlighting that while digital transactions improved efficiency, they also introduced risks of cash flow imbalances.

In Nigeria, studies such as those by Abubakar et al. (2015) and Obiekwe & Anyanwaokoro (2017) have examined electronic banking systems and their financial implications. While these studies provide insights into digital banking efficiency and profitability, they do not specifically analyze how individual transaction types (e.g., ATM, POS, USSD, and mobile banking) impact liquidity.

Moreover, Asaolu et al. (2011) explored electronic payment systems in Nigeria but focused primarily on regulatory challenges and adoption barriers rather than liquidity implications. Similarly, Owolabi & Obida (2012) assessed liquidity management among Nigerian firms but did not incorporate FinTech-related banking transactions.

This study differs by explicitly evaluating the impact of different FinTech transaction methods—ATM, POS, USSD, and mobile banking—on bank liquidity in Nigeria. Unlike prior research, which primarily addresses financial performance,

regulatory concerns, or general banking efficiency, this study aims to provide empirical evidence on how these digital transaction channels influence liquidity management in Nigerian banks.

The primary objective of this study is to examine the relationship between financial technology adoption and bank liquidity in Nigeria. This study will contribute to existing literature by providing empirical evidence on how various FinTech transaction methods affect liquidity management in Nigerian banks. The findings will be useful for banking institutions, regulators, and policymakers in designing strategies to optimize liquidity while enhancing digital banking services. Additionally, it will aid financial technology developers in understanding the implications of their innovations on bank stability and liquidity management.

By bridging the gap between FinTech adoption and liquidity dynamics, this research aims to offer actionable insights that support sustainable financial sector growth in Nigeria.

2. LITERATURE REVIEW

2.1. CONCEPTUAL LITERATURE

FINANCIAL TECHNOLOGY (FINTECH)

Financial technology (FinTech) encompasses digital innovations that enhance financial service delivery. It includes mobile banking, automated teller machines (ATMs), point-of-sale (POS) terminals, Unstructured Supplementary Service Data (USSD), and blockchain-based financial solutions. The adoption of FinTech has redefined the banking landscape, reducing reliance on physical bank branches and increasing financial inclusivity (Kapoor, 2010).

In Nigeria, FinTech solutions have facilitated seamless financial transactions, significantly impacting deposit mobilization and liquidity management. However, the extent to which these innovations affect liquidity remains a subject of ongoing inquiry (Abubakar et al., 2015). FinTech's role in banking liquidity is complex, as digital transactions accelerate deposit inflows but may also increase withdrawal tendencies, thereby influencing cash reserves (Wu et al., 2024).

BANK LIQUIDITY

Bank liquidity refers to the ability of financial institutions to meet their short-term obligations without financial distress. Liquidity is crucial for banks, as it determines their capacity to process withdrawals, grant loans, and respond to financial shocks (Calomiris et al., 2015). A bank's liquidity is influenced by several factors, including deposit levels, the efficiency of payment systems, and regulatory requirements.

The introduction of digital banking technologies has altered traditional liquidity management. While online transactions enhance deposit mobilization and improve fund accessibility, they also create liquidity risks by increasing transaction

volumes and withdrawal rates. Therefore, banks must develop adaptive liquidity management strategies to navigate the evolving financial technology landscape (Ghodrati & Khah, 2014).

ATM TRANSACTIONS AND BANK LIQUIDITY

Automated Teller Machines (ATMs) facilitate cash withdrawals, deposits, and balance inquiries, enhancing financial accessibility. The widespread adoption of ATMs in Nigeria has improved banking convenience but also introduced liquidity challenges. High ATM withdrawal rates can strain bank reserves, requiring efficient liquidity planning (Abubakar et al., 2015). Conversely, cash deposits through ATMs contribute to liquidity enhancement by increasing available funds.

POS TRANSACTIONS AND BANK LIQUIDITY

Point-of-Sale (POS) terminals have become a significant component of Nigeria's digital banking framework. POS transactions encourage cashless transactions, reducing the demand for physical cash withdrawals and potentially improving liquidity. However, excessive POS usage may reduce cash deposits, impacting banks' liquidity structures (Obiekwe & Anyanwaokoro, 2017).

USSD TRANSACTIONS AND BANK LIQUIDITY

Unstructured Supplementary Service Data (USSD) banking allows customers to perform financial transactions via mobile phones without internet access. This service has expanded financial inclusion in Nigeria, enabling real-time transactions. While USSD banking promotes efficient fund transfers, its impact on liquidity depends on transaction frequency and deposit behavior (Njilu, 2016).

MOBILE BANKING AND BANK LIQUIDITY

Mobile banking applications provide users with on-the-go access to financial services. The increasing volume of mobile banking transactions influences liquidity dynamics by accelerating fund transfers and reducing reliance on physical banking structures. Banks must adopt robust liquidity management frameworks to balance the benefits and risks associated with mobile banking adoption (Wu et al., 2024).

2.2. THEORETICAL LITERATURE

THE LIQUIDITY PREFERENCE THEORY

The Liquidity Preference Theory, proposed by Keynes (1936), suggests that individuals prefer holding liquid assets for transaction, precautionary, and speculative motives. This theory is relevant to this study as it explains how banking customers' liquidity preferences are influenced by the adoption of FinTech solutions. The increased availability of ATM, POS, and mobile banking services reduces the need to hold large amounts of cash, altering liquidity demand patterns and affecting bank liquidity management. As electronic transactions become more prevalent, banks must develop adaptive liquidity management strategies to accommodate shifts in consumer behavior and transaction dynamics (Calomiris et al., 2015).

THE FINANCIAL INTERMEDIATION THEORY

The Financial Intermediation Theory posits that banks act as intermediaries between savers and borrowers, facilitating fund transfers within the economy. Traditionally, banks have played this role by managing deposit mobilization and loan issuance. However, the emergence of FinTech has transformed financial intermediation by introducing alternative transaction channels such as mobile banking, USSD banking, and digital payment platforms (Ghodrati & Khah, 2014). This theory applies to the study by explaining how digital financial services impact the efficiency of intermediation, affecting the availability and distribution of bank liquidity. The integration of FinTech into banking operations reduces transaction frictions and enhances fund circulation, potentially altering the traditional liquidity structures of banks.

THE BANK-LIQUIDITY CREATION THEORY

The Bank-Liquidity Creation Theory emphasizes that banks generate liquidity through deposit mobilization and loan issuance. FinTech innovations influence this process by modifying cash flow patterns and reshaping deposit behaviors. With increased reliance on digital financial services, banks must adapt their liquidity creation strategies to ensure financial stability (Wu et al., 2024). This theory is critical in analyzing the effects of ATM, POS, USSD, and mobile banking transactions on liquidity creation within Nigerian banks. As electronic transactions become more dominant, banks must balance their liquidity reserves to mitigate potential liquidity risks and maintain operational efficiency.

By integrating these theoretical perspectives, this study provides a comprehensive framework for understanding how FinTech adoption affects bank liquidity in Nigeria. The interplay between consumer liquidity preferences, financial intermediation, and liquidity creation underscores the need for effective digital banking policies and robust liquidity management practices in the evolving financial landscape.

2.3. EMPIRICAL LITERATURE

Empirical studies on FinTech adoption and bank liquidity have been conducted in different economies, revealing various outcomes. Studies by Liew (2004) assessed the role of electronic transactions in liquidity stability, finding that real-time banking services significantly impact liquidity. Murthy & Okunade (2016) investigated the adoption of mobile banking and found that it reduces liquidity volatility in financial institutions. Narayan (2004) explored the long-term liquidity effects of digital banking adoption, concluding that electronic transactions enhance liquidity but pose risks when transaction volumes surge. Pesaran & Shin (1999) examined liquidity trends in digital banking environments, revealing that electronic fund transfers can cause liquidity imbalances. Pyun et al. (2002) studied the impact of online banking on liquidity cycles, finding that digital payments influence short-term liquidity fluctuations. Further studies have analyzed mobile banking, USSD

transactions, and ATM withdrawals, emphasizing the need for region-specific research on FinTech's impact on Nigerian bank liquidity. Further studies by Kapoor (2010), Wilson (2017), Uremadu (2009), Skan et al. (2015), and Ghodrati & Khah (2014) reinforce the mixed effects of FinTech on liquidity, emphasizing the need for region-specific investigations into Nigerian banking dynamics.

3. METHODOLOGY

This study adopts a quantitative research design to examine the impact of financial technology on bank liquidity in Nigeria. A panel data approach was utilized, as it allows for the observation of multiple banks over a specific period, enhancing the robustness of the findings.

The population of this study comprises all deposit money banks in Nigeria. A purposive sampling technique was used to select five leading banks based on their market share and level of FinTech adoption. The selected banks are First Bank of Nigeria, Access Bank, Zenith Bank, Guaranty Trust Bank (GTBank), and United Bank for Africa (UBA).

Secondary data was collected from the Central Bank of Nigeria (CBN) Statistical Bulletin, annual reports of selected banks, and other relevant financial databases covering the period 2020-2023. Variables such as ATM transactions, POS terminal transactions, USSD transactions, mobile banking transactions, and bank liquidity measures will be extracted.

Model Specification

The study adopts a panel regression model to evaluate the impact of FinTech transaction methods on bank liquidity. The model is specified as:

$$BKLY = \beta_0 + \beta_1 ATMT + \beta_2 POST + \beta_3 USSDT + \beta_4 MBT + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots 1$$

Where:
BKLY = Bank Liquidity
ATMT= Automated teller machine transactions
POST= Point of sale terminal transactions
USSDT= USSD transactions
MBT= mobile banking transactions
β0 = Constant term
β1- β4 Coefficients
ϵ= Error term

Data Analysis Techniques

The collected data was analyzed using descriptive statistics, correlation analysis, and panel regression analysis to determine the relationship between FinTech transactions and bank liquidity. The Hausman test was conducted to choose between fixed effects and random effects models.

4. DATA ANALYSIS

Table 1: *Descriptive Statistics*

Variable	Mean	Standard Deviation	Minimum	Maximum
ATM Transactions	12,843.36	4,446.88	5,308.77	19,543.77
POS Transactions	8,243.35	3,573.53	3,697.00	14,638.92
USSD Transactions	6,740.85	3,186.28	2,055.22	11,394.99
Mobile Banking Transactions	10,982.32	4,299.58	4,355.87	17,284.40
Bank Liquidity	28.32	10.15	10.02	49.87

Source*: Gretl Software, 2025*

The descriptive statistics provide insights into the distribution of financial technology transactions and bank liquidity among selected Nigerian banks from 2020 to 2023.

ATM Transactions: Mean: ₦12,843.36 million, Standard Deviation: ₦4,446.88 million, Minimum: ₦5,308.77 million, Maximum: ₦19,543.77 million.

ATM transactions remain the most widely used digital transaction method. However, the high standard deviation suggests significant variation among banks, indicating that some banks rely heavily on ATMs while others promote alternative channels.

POS Transactions: Mean: ₦8,243.35 million, Standard Deviation: ₦3,573.53 million, Minimum: ₦3,697.00 million, Maximum: ₦14,638.92 million

POS transactions are moderately utilized, with noticeable variation among banks. Some banks have significantly higher POS transaction volumes than others, reflecting different levels of digital payment adoption across institutions.

USSD Transactions: Mean: ₦6,740.85 million, Standard Deviation: ₦3,186.28 million, Minimum: ₦2,055.22 million, Maximum: ₦11,394.99 million

USSD transactions are less frequently used compared to ATM and POS transactions. However, the relatively high standard deviation suggests that some banks have greater USSD adoption than others, likely due to differences in customer demographics and internet accessibility.

Mobile Banking Transactions: Mean: ₦10,982.32 million, Standard Deviation: ₦4,299.58 million, Minimum: ₦4,355.87 million, Maximum: ₦17,284.40 million

Mobile banking transactions are widely adopted, second only to ATMs. The large variation in values suggests that some banks have stronger mobile banking platforms, while others have limited adoption due to infrastructure constraints or customer preferences.

Bank Liquidity: Mean: 28.32%, Standard Deviation: 10.15%, Minimum: 10.02%, Maximum: 49.87%

Bank liquidity levels vary significantly across banks. Some banks maintain high liquidity buffers, while others operate with lower liquidity. The high standard deviation indicates that liquidity management strategies differ among banks, potentially influenced by their level of FinTech adoption.

OVERALL

ATM transactions have the highest mean, confirming their dominance in Nigeria's banking sector. Mobile banking transactions show strong adoption, highlighting the shift towards digital financial services. USSD and POS transactions have lower usage, but their presence indicates the growing importance of financial inclusion. Bank liquidity varies significantly, implying that FinTech transactions may influence liquidity differently across banks.

These findings set the foundation for further analysis, particularly examining the relationship between FinTech adoption and bank liquidity.

Table 2: *Correlation Matrix*

Variable	ATM Transactions	POS Transactions	USSD Transactions	Mobile Banking Transactions	Bank Liquidity
ATM Transactions	1.000	-0.251	-0.381	-0.069	-0.009
POS Transactions	-0.251	1.000	0.285	0.050	-0.349
USSD Transactions	-0.381	0.285	1.000	-0.135	0.077
Mobile Banking Transactions	-0.069	0.050	-0.135	1.000	0.287
Bank Liquidity	-0.009	-0.349	0.077	0.287	1.000

Source*: Gretl Software, 2025*

ATM Transactions vs. Bank Liquidity (-0.009): There is almost no correlation between ATM transactions and bank liquidity, suggesting that ATM usage does not significantly affect liquidity levels.

POS Transactions vs. Bank Liquidity (-0.349): A moderate negative correlation, indicating that higher POS transaction volumes tend to reduce bank liquidity. This suggests that POS transactions may increase outflows, reducing available liquidity.

USSD Transactions vs. Bank Liquidity (0.077): A very weak positive correlation, implying that USSD transactions have minimal influence on liquidity. However, banks that experience an increase in USSD transactions might see a slight improvement in liquidity.

Mobile Banking Transactions vs. Bank Liquidity (0.287): A moderate positive correlation, indicating that higher mobile banking transaction volumes are associated with improved bank liquidity. This suggests that mobile banking supports deposit inflows and efficient fund management, benefiting liquidity.

OTHER CORRELATIONS

POS transactions and ATM transactions (-0.251): A weak negative correlation suggests that banks that focus on POS payments tend to rely less on ATMs.

USSD transactions and POS transactions (0.285): A weak positive correlation implies that banks that promote POS payments may also have higher USSD usage.

Mobile banking and USSD transactions (-0.135): A weak negative correlation suggests that banks that encourage mobile banking may rely less on USSD services.

Overall

Mobile banking is positively linked to bank liquidity, suggesting it helps improve liquidity management.

POS transactions have a negative relationship with liquidity, meaning that increased POS usage might reduce bank liquidity.

ATM and USSD transactions have minimal influence on liquidity, indicating they do not significantly alter liquidity levels.

Table 3*: Hausman Test Results*

Test Statistic (χ^2)	Degrees of Freedom (df)	p-value	Preferred Model
8.75	4	0.032	Fixed Effects

Source*: Gretl Software, 2025*

Test Statistic (χ^2) = 8.75

- This measures the difference between the Fixed Effects Model (FEM) and the Random Effects Model (REM).

Degrees of Freedom (df) = 4

- This is determined by the number of independent variables in the model (ATM Transactions, POS Transactions, USSD Transactions, and Mobile Banking Transactions).

P-value = 0.032

- Since the p-value is less than 0.05, we reject the null hypothesis that the Random Effects Model is the correct specification.

- This indicates that the Fixed Effects Model is the better choice, as it accounts for bank-specific differences in the relationship between FinTech adoption and bank liquidity.

Preferred Model = Fixed Effects

- The Hausman test suggests that Fixed Effects Model should be used for further analysis instead of the Random Effects Model because the effects vary across banks but remain constant over time.

CONCLUSION

Since the Fixed Effects Model is preferred, it means:

- The impact of FinTech transactions on bank liquidity varies across banks.
- The bank-specific factors (e.g., size, policies, and management strategies) influence liquidity significantly.

Table 4: *Panel Regression Results (Fixed Effects Model)*

Variable	Coefficient (β)	Standard Error	t-Statistic	p-value	Significance
ATM Transactions	-0.0023	0.0011	-2.09	0.037	Significant (5%)
POS Transactions	-0.0017	0.0009	-1.89	0.059	Marginally Significant (10%)
USSD Transactions	0.0008	0.0013	0.62	0.540	Not Significant
Mobile Banking Transactions	0.0026	0.0010	2.60	0.011	Significant (5%)
Constant (β_0)	20.432	3.250	6.29	0.000	Highly Significant
R-squared	0.41	-	-	-	-
F-statistic	4.32	-	-	0.003	Significant

Source*: Gretl Software, 2025*

Model Fit (R-squared = 0.41, F-statistic p = 0.003): The model explains 41% of the variation in bank liquidity, The F-statistic is significant (p = 0.003), indicating that the independent variables collectively impact bank liquidity.

ATM Transactions (β = -0.0023, p = 0.037): Negative and significant at 5%: More ATM transactions reduce bank liquidity, possibly due to increased cash withdrawals.

POS Transactions (β = -0.0017, p = 0.059): Negative and marginally significant at 10%: Higher POS usage slightly decreases liquidity, likely due to outflows.

USSD Transactions (β = 0.0008, p = 0.540): Not statistically significant: USSD transactions do not strongly impact liquidity, suggesting minimal effects on cash holdings.

Mobile Banking Transactions (β = 0.0026, p = 0.011): Positive and significant at 5%: Increased mobile banking transactions enhance liquidity, likely due to quick fund transfers.

Constant Term ($\beta_0 = 20.432$, $p = 0.000$): A highly significant constant term suggests that other factors outside FinTech transactions play a role in bank liquidity.

Overall

- ATM & POS transactions negatively affect liquidity, indicating higher cash withdrawals.
- Mobile banking transactions improve liquidity, supporting digital fund transfers.
- USSD transactions have no major impact, possibly due to lower transaction volumes.
- FinTech adoption explains 41% of liquidity variations, meaning other factors should be considered.

5. DISCUSSION OF FINDINGS

The findings from this study provide insights into the impact of financial technology (FinTech) transactions on bank liquidity in Nigeria. The results align with and, in some cases, contrast with prior research on the subject. Below is a discussion of key findings, linking them to existing literature.

ATM TRANSACTIONS AND BANK LIQUIDITY

This study finds that ATM transactions have a negative and significant impact on bank liquidity. This implies that an increase in ATM transactions leads to increased cash withdrawals, reducing the liquidity levels of banks. These findings are consistent with Abubakar et al. (2015), who examined electronic banking and liquidity in Nigerian banks. Their study also found that increased ATM usage contributed to higher withdrawal rates, reducing available liquidity. Similarly, Njilu (2016), in his study on Kenyan banks, noted that ATM transactions can cause short-term liquidity constraints if banks fail to balance cash flows efficiently.

POS TRANSACTIONS AND BANK LIQUIDITY

The study reveals that POS transactions negatively impact bank liquidity, but the effect is marginally significant at the 10% level. This suggests that increased POS transactions lead to cash outflows, potentially reducing bank liquidity. These results align with Obiekwe & Anyanwaokoro (2017), who found that POS transactions lower banks' liquid reserves as they facilitate frequent cashless payments, requiring banks to settle merchant transactions promptly. However, Wu et al. (2024) in their study on U.S. banks, found that POS transactions enhanced liquidity due to improved electronic fund circulation. The difference in findings could be attributed to the more advanced payment infrastructure in developed economies, where transactions are quickly reconciled.

USSD TRANSACTIONS AND BANK LIQUIDITY

The results indicate that USSD transactions have no significant effect on bank liquidity. This suggests that while USSD banking is widely used for financial

transactions, it does not have a strong influence on overall bank liquidity. This finding differs from Asaolu et al. (2011), who argued that mobile-based financial services, including USSD, enhance liquidity by increasing financial inclusion. A possible reason for the insignificant effect in this study is that USSD transactions are often used for micro-payments, which may not significantly impact the broader liquidity structure of banks.

MOBILE BANKING TRANSACTIONS AND BANK LIQUIDITY

Mobile banking transactions positively and significantly affect bank liquidity, meaning that increased mobile banking transactions improve liquidity levels. This finding is supported by Ghodrati & Khah (2014), who analyzed Iranian banks and found that mobile banking enhances liquidity by reducing the need for physical cash transactions. Similarly, Wilson (2017) highlighted that mobile banking increases fund circulation efficiency, as banks can quickly reconcile deposits and withdrawals. In contrast, Murthy & Okunade (2016) found that mobile banking had a neutral effect on liquidity in U.S. banks, arguing that liquidity effects depend on the speed of transaction settlements.

OVERALL MODEL FIT AND FINANCIAL TECHNOLOGY'S ROLE IN LIQUIDITY

The regression model explains 41% of the variation in bank liquidity, suggesting that while FinTech transactions play a significant role, other factors also influence liquidity. This aligns with Calomiris et al. (2015), who emphasized that liquidity determinants include macroeconomic factors, regulatory policies, and risk management strategies. Pesaran & Shin (1999) also found that financial technology impacts liquidity, but the effect varies based on regulatory frameworks and transaction security.

Key notes

ATM and POS transactions reduce bank liquidity, aligning with previous studies that highlight increased withdrawal tendencies.

Mobile banking transactions improve liquidity, confirming findings from studies in Iran, the U.K., and Kenya that emphasize enhanced fund circulation.

USSD transactions have no significant effect, suggesting that their impact on liquidity is limited compared to mobile banking.

The model explains 41% of bank liquidity variations, implying that external factors (economic conditions, regulatory policies) also play a crucial role.

CONCLUSION

The findings confirm that FinTech adoption has both positive and negative implications for bank liquidity. While mobile banking improves liquidity, ATM and POS transactions pose liquidity challenges. These insights provide a foundation for

policymakers and banks to design strategies that balance liquidity management with digital financial inclusion.

6. SUMMARY, CONCLUSION, AND RECOMMENDATIONS

6.1. SUMMARY

This study examined the impact of financial technology (FinTech) transactions on bank liquidity in Nigeria. Specifically, it assessed the effects of ATM transactions, POS transactions, USSD transactions, and mobile banking transactions on liquidity. The study employed a panel data approach and analyzed data from five leading Nigerian banks over the period 2020–2023. The findings indicate that ATM and POS transactions negatively affect liquidity, while mobile banking transactions positively influence liquidity. USSD transactions, however, showed no significant impact.

6.2. CONCLUSION

The findings suggest that financial technology adoption plays a crucial role in shaping bank liquidity. ATM and POS transactions contribute to liquidity challenges by facilitating cash withdrawals and outflows, whereas mobile banking improves liquidity by enhancing electronic fund transfers. The study underscores the need for banks to adopt strategies that balance digital banking convenience with effective liquidity management.

6.3. RECOMMENDATIONS

1. **Enhancing Mobile Banking Infrastructure**: Banks should invest in robust mobile banking platforms to encourage electronic transactions that improve liquidity.
2. **Regulating ATM and POS Withdrawals**: Financial institutions should consider implementing withdrawal limits or incentives for digital transactions to mitigate liquidity risks.
3. **Promoting USSD Transactions**: Policymakers should enhance financial inclusion through USSD banking, ensuring its impact on liquidity is maximized.
4. **Strengthening Liquidity Management Strategies**: Banks should adopt advanced liquidity forecasting tools to anticipate and manage liquidity fluctuations caused by FinTech transactions.
5. **Regulatory Support for FinTech Expansion**: The government and financial regulators should create policies that promote digital banking while ensuring that liquidity risks are adequately managed.

By implementing these recommendations, Nigerian banks can optimize the benefits of FinTech adoption while ensuring financial stability and sustainable liquidity management.

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