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Disbursement of Loans and Advances through Agent Banking: A New Frontier for Inclusive Lending in Emerging Economics

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Research Article

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Abstract

Agent banking has become an innovative approach in Bangladesh to provide financial inclusion and reach the unbanked and under banked through financial services. This study investigates the factors that influence the agent banking branch to disburse loans and advances, and finds out whether the agent banking has become a new dimension of inclusive banking. The study aims at exploring the impact of agent banking-specific and macro-economic variables on Agent Loan Disbursement using panel data analysis of 30 scheduled commercial banks during 2015–2024 who operate agent banking services. In order to provide robustness, the study uses Random Effects regression model, Fixed Effects regression model and Pooled Ordinary Least Squares (OLS) regression model. According to the empirical results, Agent Banking Outlets and Agent Banking Deposits are statistically significant and positively related to Agent Loan Disbursement in all estimation models. The findings showed that the presence of agent banking networks and mobilization of deposits via agent banking channels is the key drivers that have a significant positive impact on banks' lending capacity and access to formal credit. The effect of inflation is also found to be positive and significant on loan disbursement, which indicates that the demand for credit through agent banking is higher during inflation period. The study concludes that agent banking is no longer a mere financial inclusion transaction model but it is an effective platform for inclusive banking. The findings underscore the need to broaden the agent network, increase deposit mobilization, and improve digitization financial infrastructure to ensure sustainable and financial inclusion and rural economic development in Bangladesh.

1. Introduction

Governments, regulators and development institutions across the world are increasingly focusing on financial inclusion as a key policy goal due to its ability to alleviate poverty, increase economic empowerment, and foster sustainable economic development. The access to financial institutions provides the means for individuals and businesses to save safely, control financial risks, efficiently engage in transactions and invest in productive activities. Credit service is one of the critical services in support of entrepreneurship and agricultural development, employment creation and household welfare improvement. However, geographical, financial institution, transaction costs, information quality and financial knowledge gap remain issues that exclude a large share of the population in developing countries from formal credit markets (Demirgüç-Kunt et al., 2022; Allen et al., 2016; Ozili, 2021).

In response to these challenges, many developing countries have embraced branchless banking as an innovative way to provide financial services to people who are not located near a bank branch. Agent banking has been one of the most successful branchless banking models in which licensed financial institutions provide financial services through financial agents in the local community. Agent banking offers financial service providers the ability to provide financial services to previously inaccessible and unbanked populations by lowering operational costs, and extending their geographical reach (Beck et al., 2007; Jack & Suri, 2014). For this reason, agent banking has been given more attention as a strategic way to achieve financial inclusion and increase access to formal financial services.

Agent banking was formally introduced in Bangladesh by Bangladesh Bank (2013) Agent Banking Guidelines. The sector has grown tremendously since its inception, with the number of agent outlets, customer accounts, deposits and transactions all increasing at a remarkable pace. Agent banking has considerably improved the

commercial banks outreach, especially in the rural and semi-urban areas where conventional banking facilities are limited. The Bangladesh Bank (2024) report indicates that agent banking has emerged as one of the fastest-growing delivery modes in financial services, catering to millions of users with a network of millions of agent outlets throughout the country. This has significantly improved the availability of formal financial services within the country and has helped achieve financial inclusion targets.

The current literature mainly takes credit for the positive impact of agent banking on financial inclusion. It has been established in previous studies that agent banking has improved account ownership amongst low-income and geographically marginalized people, mobilized rural savings, enabled domestic remittance transactions and enhanced access to banking services (Ahmed & Ahmed, 2018; Nisha et al., 2020; Amir, 2021; Khanam, 2022; Kabir et al., 2024). In addition, digital financial services, mobile banking platforms, biometrics verification, and real-time transaction technologies have improved agent banking operations and its capacity to serve the unbanked. (Barua et al., 2022)

While literature on agent banking is developing, the studies have focused on three areas namely, the mobilization of deposits, account penetration and remittance services and financial inclusion outcomes. Empirical study on the role of agent banking in disbursing loans and advances has been given less attention than what was done in comparison. The failure to do so is significant as access to cheap credit is one of the most crucial aspects of financial inclusion. Formal credit supports household investment, income generating activities and economic resilience, while farmers and micro entrepreneurs and small businesses benefit from formal credit for productive investments. However, many people often face constraints in accessing formal credit, and are forced to take loans from informal lenders who offer high interest rates and terms which can be poor (World Bank, 2022; CGAP, 2018).

This concerns a very important topic in particular in the rural areas of Bangladesh, where a large proportion of the households and small businesses are still excluded from formal credit facilities despite the growth of the banking system. Agent banking offers great promise to help meet these needs, providing lower transaction costs, increased banking outreach, and enabled by digital technology, credit delivery in underserved areas. But the empirical knowledge about the factors influencing the disbursement of loan and advance in agent banking is still scarce. In particular, the effect of agent banking infrastructure, mobilization of deposits, bank-specific characteristics and macroeconomic conditions on lending activities through agent banking channels is little known.

In this context, this study aims to examine the factors influencing the disbursement of loans and advances via agent banking in Bangladesh during the time span 2015–2024 using panel data of 30 scheduled commercial banks. In particular, the research investigates the influence of Agent Banking Outlets (ABO), Agent Banking Deposits (ABD), Bank Size (ASSET), Bank Deposits (BD), GDP Growth (GDPG), and Inflation (INF) on Agent Loan Disbursement (ALD). The study addresses three important questions: (i) does expansion of agent banking outlets have any significant impact on loan disbursement via agent banking outlets; (ii) do agent banking deposits play any role in the expansion of lending activities via agent banking channels and (iii) to what extent do bank-specific and macroeconomic factors influence loan disbursement through agent banking channels?

This study makes a number of important contributions to the literature. First, it fills the void of the literature on financial inclusion that has concentrated on indicators of account access and mobilization of deposits compared to agent banking indicators of loans by the agent banks. Second, it offers empirical evidence on the drivers of disbursement of agent banking loans using an extensive panel data set of commercial banks in Bangladesh. Third, it provides policy guidance on how agent banking could help in reaching the underserved population with formal credit and expanding inclusive lending. The results will help inform the policy and regulatory frameworks and commercial banks' effective strategies to enhance agent banking operation for sustainable financial inclusion in Bangladesh.

2. Literature Review Hypothesis Development

In developing countries, especially where branch-based banking is under-resourced and constrained by geographic distance and/or cost, agent banking has become an important financial innovation that provides access to banking products and services to the unbanked and under-banked. The model enables banks to offer financial services via the agents as financial service providers, enhancing the accessibility and minimizing the financial service delivery cost. Agent banking is recognized by international organizations like the World Bank (2022), and researchers (Owens et. al., 2018) as one of the effective tools in improving financial inclusion particularly to rural and low-income groups.

Agent banking was officially started in Bangladesh by publishing the Agent Banking Guidelines by the Bangladesh Bank in 2013. The sector has since grown by leaps and bounds with regards to the number of outlets, accounts per customer, deposits and number of transactions. Bangladesh Bank (2024) reported that agent banking has emerged as an one of the fastest growing channels of financial service delivery apart from conventional branches where most of the agent outlets are situated in the rural areas. The expansion has resulted in better availability of formal financial services for previously marginalized populations (Uddin et al., 2020).

The studies conducted internationally clearly illustrate the significance of the use of agent and mobile banking to foster financial inclusion and access to formal financial services. Mbiti and Weil (2011) reported that M-Pesa in Kenya lowered transaction costs and increased the access of financial services for the underserved. In the same vein, Musau (2013) found that agency banking improved the banking operations of commercial banks, customer outreach and banking transactions. Based on these studies, it is possible to conclude that agent-based banking models are useful in providing financial services to rural areas and unbanked population and can contribute to the financial inclusion agenda.

Most of the existing studies concentrate on the role of agent banking in financial inclusion. According to Ahmed and Ahmed (2018) agent banking is very important to reduce transaction costs and enhance access to the financial services sector for the disadvantaged population. Likewise, Amir (2021) reveals that the agent banking has made a remarkable contribution to rural households' account ownership, mobilization of deposits and financial participation. Furthermore, the study by Sohrab et al. (2023) and Robin et al. (2024) examined the effects of agent banking in Bangladesh on financial access, especially in enabling the rural poor to conduct their simple financial transactions without traveling to a branch of bank. Agent banking also has proven to be a successful banking channel for serving the population that is not well served by the banking system and bridging geographic gaps in financial access, as has been shown by Khanam (2022).

A few studies also have investigated the association between agent banking and rural financial development. According to Nisha et al. (2020), the growing network of agent banks has brought banking services to more remote regions and improved financial inclusion of low-income groups. Similarly, according to Kabir et al. (2024), with the advent of agent banking, there has been a greater inclusion of people in the formal financial system and the banking system in general, especially in rural areas, where it has become very convenient to transact using the banking system. Shahabuddin et al. (2022) identified that agent banking is successful when having robust regulation, good digitalization, and viable business models. Although considerable progress has been made in expanding access to savings and remittance services through agents, the literature on credit disbursement through agents is relatively scarce. Overall, these studies indicate that agent banking has proven to be a successful medium for attaining financial outreach and inclusive financial development.

While there is a significant amount of literature on the role of agent banking in financial inclusion, the bulk of the existing studies have tended to focus on deposit mobilization, savings behavior, remittance services, account ownership, and transaction activities (Mozumder & M. R., 2023 and Sohrab et al.). For instance, the Bangladesh Bank (2024) has found significant growth in agent banking deposits and customer accounts; and Amir (2021), Khanam (2022), and Nisha et al. (2020) have mainly focused on financial inclusion of agent banking. The lending aspect of agent banking has been given relatively less attention.

Similarly, Pervin et al. (2021) and Osman et al. (2020) assert that agent banking might prove to be a viable instrument for microfinance, provided that it receives adequate training, credit scoring systems and risk assessment tools. They note that agent banking can help to lower transaction costs and help provide credit to the unbanked masses with decentralized banking. But the effectiveness of this model relies on the independence of the agents, and the digitization of loan assessment procedures and monitoring mechanisms set up by the partner banks.

Credit is one of the key components of financial inclusion that allows households and businesses to access productive activities, make consumption payments and boost their economic welfare (Demirgüç-Kunt et al., 2022; Owens et. al., 2018). Zaman et al., (2021) are more conservative, stating that the inconsistent risk measurement systems used by banks and agent banks could result in higher default rates as the number of loans grows. They emphasize the need for biometric verification, mobility in loan tracking, and central credit databases for ensuring the quality of the portfolios and the borrowers' accountability.

But there is limited empirical evidence for the determinants of loan/advance disbursement via agent banking. Bangladesh bank releases data on agent banking loans and advances but there is not much study which has been conducted on the factors affecting agent banking credit expansion. As a result, there is a lack of knowledge regarding the impact of agent banking infrastructure, mobilization of deposits, deposit characteristics of the bank and macroeconomic conditions on agent banking loan disbursement.

The possibilities of agent banking are further enhanced by recent developments in digital financial services to support lending. Barua et al. (2022) believe that the operational efficiency of agent banking has been enhanced and banks have become more capable of delivering financial services in remote areas through the use of digital technologies, mobile financial services and biometric authentication systems. These technological solutions are providing agent banking the opportunity to move beyond being a transaction-based delivery platform to become an effective platform for inclusive lending.

Although the demand for financial services has increased considerably, agent banking and the growing body of literature on financial inclusion has mainly concentrated on deposit mobilization, account ownership, remittance service and transactional activities. There is very little empirical research that has explored the role of agent banking for disbursing loans and advances. Due to this, the lending dimension of agent banking is not much explored in the context of Bangladesh.

In addition, while Bangladesh Bank has periodically released statistics of agent banking outlets, deposits and loans, empirical studies on the determinants of loan disbursement through agent banking outlets are quite limited. In particular, there is limited evidence on the effect of agent banking outlets and agent banking deposits on the number of loans and advances disbursed through agent banking networks. Furthermore, few previous studies have accounted for bank-specific and macroeconomic factors in a unified framework of analysis.

In view of these omissions, the current study has tried to investigate the factors that influence the disbursement of loans and advances through agent banking in Bangladesh for the time period 2015 to 2024 by using panel data of 30 scheduled commercial banks. That is, the study examines the impact of Agent Banking Outlets (ABO), Agent Banking Deposits (ABD), Bank Size (ASSET), Bank Deposits (BD), GDP Growth (GDPG), and Inflation (INF) on Agent Loan Disbursement (ALD). The study highlights the credit dimension of agent banking and offers empirical evidence on the emergence of agent banking as a new ground for inclusive lending in Bangladesh which is missing in the current literature.

2.1 Development of Hypotheses:

2.1.1 Agent Banking Outlets and Agent Loan Disbursement

Agent banking outlets are the main distribution points for banks to provide financial services to geographically distant and underserved people. The density of agent outlets creates greater access to banking services and lowers transactional costs, which boosts customer uptake of formal financial services. The studies conducted so far indicate that financial inclusion has been enhanced due to the growth of agent banking networks in terms of outreach and access to financial products in rural areas (Nisha et al., 2020). The international experiences in the fields of agency banking and branchless banking also suggest that a large network of agents improves the distribution of financial services and facilitates access to credit for the unbanked (Musau, 2013; Beck et al., 2007). A higher number of the agent banking outlets, thus, is likely to lead to higher loan and advance disbursements via agent banking channels.

H1: Agent banking outlets (ABO) is positively and significantly related with agent loan disbursement (ALD).

2.1.2 Agent Banking Deposit and Agent Loan Disbursement

Agent banking is an important source of funds which can be utilized for lending activity. The more deposits a bank has, the more liquid it is and the more that it can lend. Financial intermediation has been linked to financial sector development and deposit mobilization in previous studies is strongly correlated with the growth of loans and financial intermediation (Levine, 2005; Allen et al., 2016). From the perspective of agent banking, the growth in deposit collection is indicative of enhanced customer engagement and enables banks

to access more resources for lending activities (Bangladesh Bank, 2024; Amir, 2021). Therefore, an increase in agent banking deposits is likely to lead to more loans and advances issued via agent banking.

H2: Agent Banking Deposits (ABD) is positively related to Agent Loan Disbursement (ALD) to a significant extent.

2.1.3 Agent Loan Disbursement and Bank Size

Larger banks tend to have a larger capital base, wider branch network, better technology and risk management systems, which can enable them to make more loans. The economies-of-scale view suggests that larger financial institutions have the ability to be more efficient and to provide greater credit availability (Berger & Mester, 1997; Beck et al., 2006). The size of the bank has been shown to have a positive effect on lending activity and outreach to financial services in previous banking studies. Therefore, higher bank size is likely to correlate with the ability of banks to originate loans via agent banking networks.

H3: The relationship between Bank Size (ASSET) and Agent Loan Disbursement (ALD) are significant and positive.

2.1.4 Agent Loan Disbursement and Bank Deposit

One of the main sources of commercial banks funding is customer deposits which are vital for their lending functions. According to the financial intermediation theory, an increase in the amounts of deposits leads banks to make more loans by creating more loanable funds (Diamond, 1984; Levine, 2005). There is also empirical evidence that deposit growth has a positive impact on credit expansion and the performance of the banking sector. Thus, banks with larger deposits will be expected to disburse larger amount of loans by means of agent banking.

H4: Agent Loan Disbursement (ALD) is significantly positively related with Bank Deposits (BD).

2.1.5 GDP Growth and Agent Loan Disbursement

Economic growth generally stimulates investment activities, business expansion, and consumer spending, leading to increased demand for credit. There has been a positive relationship between GDP growth and the banking sector's performance and lending activities (King & Levine, 1993; Beck et al., 2000). When the economy is doing well, homes and companies are more inclined to apply for financing for productive assets. In view of that, GDP growth will be a positive influence on the disbursement of loans via the agent banking distribution system.

H5: There is a significantly positive relationship between GDP Growth (GDPG) and Agent Loan Disbursement (ALD).

2.1.6 Inflation and Agent Loan Disbursement

Inflation affects all areas of financial transaction, loan and borrowing behavior. Rising inflation can lead to a rise in credit demand from businesses and households as they need more credit to sustain their buying power and economic activities. The impact of inflation on banking sector lending and expansion of credit has been highlighted by previous studies (Boyd et al., 2001; Athanasoglou et al., 2008). Thus, agent banking loan disbursement is anticipated to have a significant correlation with inflation.

H6: The inflation (INF) is significantly related to Agent Loan Disbursement (ALD).

2.2 Conceptual Framework:

It is an essential analytical tool for research that helps show the correlation among desired variables and conceptual frameworks are shown that how agent banks' loan disbursement is influenced by banks specified and macro-economic determinants namely agent banking outlets (ABO), agent banking deposit (ABD), bank size (ASSET), bank deposit (BD) GDP growth (GDPG) and inflation (INF). The following frame works are highlighted below:

3. Methodology of the Study

3.1 Data Collection:

We have employed regression method to study the factors that influence the Disbursement of Loans and Advances through Agent Banking in Bangladesh.

To achieve the purposes of the current study aimed to identify the determinants that make impact on the disbursement of loans and advances through agent banking provided by scheduled banks in Bangladesh, the researchers have adopted secondary sources of data. This data has been collected from annual reports of the sample banks. Time study tenure is seven years from 2015 to 2024.

Though there are 62 listed scheduled banks in Bangladesh, the study concentrated on 30 banks that are providing agent banking services to the customers. In this study, the disbursement of loans and advances through agent banking services of 30 scheduled commercial banks has been examined by using panel data.

3.2 Variable Measurement:

Variable measurement is the process of determining the ways in which a variable is observed, measured, and computed for a research study. It tells what does what, how it is measured, and from where it is obtained.

Table 1
Variable Measurement

S. No.	Variable Name	Variable Definition	Sources
Performance Measure (Dependent Variables)			
1	Agent Loan Disbursement	Total value of loans disbursed through agent banking outlets by a bank during a year. It measures the extent to which agent banking contributes to credit delivery and financial inclusion.	Buri, S., Cull, R., & Giné, X. (2023)
Determinants (Independent Variables)			
2	Agent Banking Outlets (ABO)	Total number of agent banking service outlets operated by a bank. A larger outlet network improves accessibility and outreach of banking services, particularly in underserved areas.	Amir, M. K. B. (2021)
3	Agent Banking Deposit (ABD)	Total amount of customer deposits collected through agent banking channels. Deposits mobilized through agents provide a stable funding source that can support lending activities.	Barua, D., Akber, S. M., Akter, R., & Khan, M. R. (2025)
4	Bank Size (ASSET)	Bank size reflects the scale of a bank's operations. Larger banks generally benefit from economies of scale, broader diversification, and greater access to resources. Bank size is commonly measured by the natural logarithm of total assets.	Yarso Sarpong, J., & Adu-Asare Idun, A. (2024)
5	Bank Deposit (BD)	Total deposits held by a bank from customers. Deposits constitute the primary source of funds for lending and other banking operations. A larger deposit base enhances liquidity and lending capacity.	Dalantaibaatar, E., Ganbayar, G., & Uvgunkhuu, G. O. (2026)
Determinants (Macro-economic Variables)			
6	GDP growth (GDPG)	Annual percentage growth rate of Gross Domestic Product at constant prices. Higher GDP growth generally stimulates economic activity, credit demand, and banking sector performance.	Kharabsheh, B. (2026).
7	Inflation (INF)	Annual percentage change in the Consumer Price Index (CPI). Inflation affects borrowing costs, deposit behavior, interest margins, and credit risk within the banking sector.	Saif-Alyousfi, A. Y. (2022)

This is to be mentioned here that natural logarithmic data is used for agent banking outlets (ABO), agent banking deposit (ABD), bank size (ASSET), bank deposit (BD) and percentage for GDP growth (GDPG) and inflation (INF) to improve the normality.

3.3 Econometric Model:

Based on both theoretical and empirical literature reviewed, this study hypothesizes the agent loan disbursement (ALD) along with banks specific, control and macroeconomic variables that are: agent banking outlets (ABO), agent banking deposit (ABD), bank size (ASSET), bank deposit (BD) GDP growth (GDPG) and inflation (INF). The regression models of the study are:

ALD = α + β1ABOit + β2ABDit + β3ASSETit + β4BDit + β5GDPGit + β6INFit + εit……(i)

Here, ALD (Agent Loan Disbursement) is used to denote the total of loans and advances disbursed via agent banking channels. Agent Banking Outlets (ABO) is the number of agent banking outlets operated by the bank and Agent Banking Deposits (ABD) is the amount of deposits mobilized through agent banking outlets operated by the bank. ASSET is the natural log of total bank assets, and BD is the natural log of total bank customer deposits. GDPG is the annual growth rate of the Gross Domestic Product (GDP) and INF is the annual inflation rate based on the Consumer Price Index (CPI). Also, β_0 is the intercept or constant term in the regression model, β_1 through β_6 are the estimates of the regression coefficients for the explanatory variables, and ε_i is the random error term that reflects the effects of factors omitted from the regression model. i, t represent the bank and time period, respectively.

4. Statistical Analysis and Discussion

4.1 Descriptive Statistics:

Table 2 shows the results of the descriptive statistics of the examined variable, where data is employed from 30 commercial banks in Bangladesh from 2015 to 2024. Here, the mean, standard deviation, median, minimum, maximum, skewness and kurtosis are shown for all the variables used in this study. The mean agent loan disbursement (ALD) is 5.426, whereas kurtosis and skewness are 5.149 and 0.131 respectively. The average number of agent banking outlets (ABO), agent banking deposit (ABD), bank size (ASSET), bank deposit (BD) GDP growth (GDPG) and inflation (INF) are 5.154, 7.115, 12.578, 12.193, 6.051, and 4.242 respectively.

Table 2
Descriptive Statistics

Variables	Obs.	Mean	Median	Max	Min	Kurtosis	Skewness
Agent Loan Disbursement (ALD)	204	5.426	5.395	8.8321	2.024	2.149	.0131
Agent Banking Outlets (ABO)	204	5.154	5.170	8.235	2.397	2.320	.079
Agent Banking Deposit (ABD)	204	7.115	7.022	10.526	3.766	2.331	.011
Bank Size (ASSET)	204	12.578	12.734	13.904	10.960	2.759	− .605
Bank Deposit (BD)	204	12.193	12.397	13.165	10.695	2.410	− .733
GDP Growth (GDPG)	204	6.051	6.9	7.9	3.4	2.021	− .681
Inflation (INF)	204	7.242	5.7	10.5	5.5	1.641	.624

Notes: The table shows the mean, standard deviation, minimum, median, skewness, and kurtosis of the agent loan disbursement (ALD) along with banks specific and macroeconomic variables that are agent banking outlets (ABO), agent banking deposit (ABD), bank size (ASSET), bank deposit (BD), GDP growth (GDPG) and inflation (INF) for 30 scheduled commercial banks using the data of 2014–2025.

4.2 Correlation Analysis:

The presence of collinearity between the variables of explanation and the analysis of the linear connection between the variables is identified using the correlation matrix. Here, agent loan disbursement (ALD) showed a positive correlation with agent banking outlets (ABO), agent banking deposit (ABD), bank size (ASSET), bank deposit (BD), and inflation (INF). But it showed a negative correlation with GDP growth (GDPG).

Table 3 also shows that there is no multicollinearity problem, as the variance inflation factors (VIF) test shows the mean value of VIF is 3.09 which justifies that there is little chance of multicollinearity issue among the variables as VIF above 10 indicates a multicollinearity problem ((Kutner, Nachtsheim, & Neter, 1996; Farag, Meng, &Mallin, 2015; O'brien, 2007).

Table 3
Correlations Matrix

Variables	Agent Loan	Agent Outlets	Agent Deposit	Asset	Bank Deposit	GDP	Inflation	VIF
Agent Loan Disbursement (ALD)	1.000							
Agent Banking Outlets (ABO)	0.789***	1.000						2.980
Agent Banking Deposit (ABD)	0.816***	0.771***	1.000					3.570
Bank Size (ASSET)	0.276***	0.304***	0.443***	1.000				5.120
Bank Deposit (BD)	0.115	0.196***	0.277***	0.751***	1.000			4.440
GDP Growth (GDPG)	-0.113	-0.050	-0.109	-0.129*	-0.108	1.000		1.190
Inflation (INF)	0.258***	0.121*	0.214***	0.219***	0.206***	-0.393***	1.000	1.250

*Statistically Significant *p < 0.10, **p < 0.05, *** p < 0.01; t statistics are enclosed in parentheses.*

Notes: The table shows the results of Pearson's pairwise correlation coefficients between the examined variables. Data from 30 scheduled commercial banks in Bangladesh between 2015 and 2024 is used and alalyzed. Moreover, the variance inflation factors (VIF)mean is 3.09.

4.4 Regression Analysis:

To evaluate the bank's specific determinants that affects the disbursement of loans and advances through agent banking in Bangladesh, fixed and random effects panel regression analysis (Baltagi, B. H., 2021; Gujarati, D. N., & Porter, D. C., 2009; Bollen, K. A., & Brand, J. E., 2010; Hausman, J. A., 1978) are applied. Moreover, the pooled OLS model was also solicited along with the above-mentioned analysis. In this case, agent banking outlets (ABO) and agent banking deposit (ABD) are explanatory variables. Moreover, bank size (ASSET) and bank deposit (BD) are taken here as control determinants as well as we also inputted here GDP growth (GDPG) and inflation (INF) as macro-economic factors. In addition, agent banks' loan disbursement (ALD) which is

influenced by banks specified and macro-economic determinants is the dependent variable in our regression model.

The diagnostic tests (normality, multi-colinearity, heteroscedasticity, autocorrelation or serial correlation) related to panel data analysis have been performed and found that there is no issue with normality, multi-colinearity, heteroscedasticity except the autocorrelation or serial correlation problem (Breusch, T. S., & Pagan, A. R., 1980 and Wooldridge, J. M., 2010). Thus, Robust Model also applied to overcome this problem. The results of both panel data analysis models along with Pooled OLS model are shown in Table 4 below:

Table 4
Regression Analyzing of the Banks' Specific Determinants and Macro-economic Factors Regarding the Disbursement of Loans and Advances through Agent Banking:

Variables	**Model -I Random Effect Model**	**Model -II Eixed Effect Model**	**Model -III Pooled OLS Model**
	ALD	**ALD**	**ALD**
	(T-stat)	**(T-stat)**	**(T-stat)**
Agent Banking Outlets (ABO)	3.51***	2.91***	5.51***
	(.341)	(.306)	(.463)
Agent Banking Deposit (ABD)	10.27***	9.69***	6.04***
	(.845)	(.872)	(.511)
Bank Size (ASSET)	.24	0.61	1.78*
	(.082)	(.273)	(.188)
Bank Deposit (BD)	– .85	-0.84	-4.56***
	(-.265)	(-.32)	(-.491)
GDP Growth (GDPG)	.80	0.89	.001
	(.024)	(.027)	(.003)
Inflation (INF)	3.96***	3.21***	2.82***
	(.108)	(.095)	(.119)
Constant	-0.44	-0.80	1.78*
	(-1.086)	(-2.736)	(2.147)
F-Stat/ Chi-Square	-977.488***	154.810***	123.619***
R^2	0.846	0.847	0.741
No. of Observations	204	204	204

*Statistically Significant *p < 0.10, **p < 0.05, *** p < 0.01; t statistics are enclosed in parentheses.*

Notes: The table shows the results of banks specific and macro-economics determinents in Bangladesh using 30 commercial commercial banks' data from 2015 to 2024. Model-I shows the results of the Random Effects model and Model- II shows the results from the Fixed Effects model. Further, Model- III shows the results from the Pooled OLS model.

4.5 Discussion:

The regression analysis demonstrates a significant positive impact of Agent Banking Outlets (ABO) and Agent Banking Deposit on Agent Loan Disbursement (ALD) in all the regression models, indicating that ABO and ABD

have a significant relationship with the disbursement of loans and advances through agent banking in Bangladesh, thereby supporting the alternative hypothesis H*1*, H*2* and H*6*.

The regression analysis shows that Agent Banking Outlets (ABO) have a significant positive influence on Agent Loan Disbursement (ALD) for all of the estimation models and support Hypothesis H1. ABO in Model I (Random Effects) has coefficient value of 0.341 with t value of 3.51 and p value < 0.01 which means that other factors being constant a one unit increase in ABO results in an increase in agent loan disbursement by 0.341 unit. Similarly, the coefficient in Model II (Fixed Effects) is 0.306 (t = 2.91, p < 0.01), while Model III (Pooled OLS) reports a coefficient of 0.463 (t = 5.51, p < 0.01). The results indicate that the network expansion of agents bank has a significant positive impact on the distribution of loans and advances via agent banking channels. If agent outlets are expanded and improved, it becomes more accessible to avail banking services, especially in rural and underserved areas which helps to reach a broader credit outreach and financial inclusion. This is consistent with the arguments of Beck et al. (2007) and Allen et al. (2016), both of which show that branchless banking systems have a positive impact on access to formal financial services, and the empirical findings of Nisha et al. (2020) which indicate that agent banking networks have a significant impact on improving access to financial services in the context of Bangladesh.

The regression results also show that Agent Bank Deposits (ABD) is positively related with Agent Loan Disbursement (ALD) that supports Hypothesis H2. The coefficient of the variable ABD (Random Effects) is 0.845 (t = 10.27, significant at 1%) indicating a one unit increase in agent banking deposits leads to an increase in agent loan disbursement by about 0.845 units. Likewise, the coefficient in Model II (Fixed Effects) is 0.872 (t = 9.69, p < 0.01), while Model III (Pooled OLS) reports a coefficient of 0.511 (t = 6.04, p < 0.01). The results show that agent banking can be a source of loanable funds for banks and significantly boost lending power. The finding is in line with the financial intermediation theory of Diamond (1984) who proposed that deposits are converted to loans by banks, as well as Levine (2005) who claims that deposit mobilization is an important aspect of financial development and credit expansion. Thus, the increase in deposit mobilization via agent banking is a major factor for inclusive lending and financial inclusion.

The size of the bank (ASSET) is found to be positively correlated with Agent Loan Disbursement (ALD) in all the models, but it is not statistically significant in the Random Effects and Fixed Effects models. The coefficients are 0.082 (t = 0.24, p > 0.10) in Model I, 0.273 (t = 0.61, p > 0.10) in Model II, and 0.188 (t = 1.78, p < 0.10) in Model III. The positive sign of the coefficients indicates that larger banks have higher financial resources and capacity to lend, however, the insignificant result indicates that bank size is not a key determinant in bank loans disbursed through agent banking channels. This result confirms the economies of scale argument of Berger and Mester (1997) that larger financial institutions may be more efficient, but suggests that the impact of agent banking is more related to the quality and reach of the agents than to the institution's size.

The regression results show that there is a negative relationship between Bank Deposits (BD) and Agent Loan Disbursement (ALD). The coefficients are − 0.265 (t = -0.85, p > 0.10) in Model I, -0.320 (t = -0.84, p > 0.10) in Model II, and − 0.491 (t = -4.56, p < 0.01) in Model III. Even though typically, banks have a larger base of traditional deposits, the negative coefficients indicate that having a greater traditional deposit pool does not always lead to increased disbursement of loans via the agent banking outlet. The discovery suggests that banks that have big conventional deposits might still have more to invest in their branch services than in the

use of agent banking networks. The result also indicates that the volume of agent banking lending activities is more dependent on the mobilization of deposits via agent banking than total deposits.

GDP Growth (GDPG) has an insignificant but positive effect on Agent Loan Disbursement (ALD). The coefficients are 0.024 ($t = 0.80$, $p > 0.10$) in Model I, 0.027 ($t = 0.89$, $p > 0.10$) in Model II, and 0.003 ($t = 0.001$, $p > 0.10$) in Model III. The results obtained showed that generally an increase in economic growth stimulates investment, business expansion and credit demand but its effect on disbursement of agent banking loans is not very strong during the study period. This contrasts with the results of King and Levine (1993) and Beck et al. (2000), who suggest that there exists a close relationship between economic growth and financial development. It concludes, however, that factors specific to the operation of the banks, rather than macro-economic factors, are behind the lending activities of agent banks in Bangladesh.

The agent loan disbursement (ALD) and inflation (INF) relationship is positive, which is in support of Hypothesis H6. In Model I, the coefficient of the inflation rate is 0.108 ($t = 3.96$, $p < 0.01$), suggesting that for each 1 percentage point rise in inflation, agent loan disbursement rises by 0.108 unit. Similarly, the coefficients are 0.095 ($t = 3.21$, $p < 0.01$) in Model II and 0.119 ($t = 2.82$, $p < 0.01$) in Model III. The results indicate that inflation is associated with an increase in borrowing demand, whereby people and businesses try to find more funds to cover the expenses necessary to keep purchasing power and stimulate economic activities. The finding is also in line with Boyd et al. (2001) who conclude that inflation has a significant impact on the activities of the financial sector and Fatum et al. (2008) who report that generally the macroeconomic conditions, among which the inflation rate, affect the lending activities and performance of the financial sector.

The regression analysis results suggest that Agent Banking Outlets (ABO), Agent Banking Deposits (ABD), and Inflation (INF) significantly and positively affect the agent banking's loan and advance disbursement in Bangladesh. The effects of Bank Size (ASSET), Bank Deposit (BD), and GDP Growth (GDPG) are mixed or statistically insignificant, in contrast. The results highlight the significance of the agent banking infrastructure and mobilization of deposits for reaching credit to the masses through agent banking services and improve financial inclusion in Bangladesh.

5. Conclusion and Scope of the Future Studies

This study investigates the determinants of loan and advance disbursement through agent banking in Bangladesh and evaluates the role of agent banking as a mechanism for promoting inclusive lending. Using panel data from 30 scheduled commercial banks covering the period 2015–2024, the study employs Random Effects, Fixed Effects, and Pooled OLS regression models to examine the influence of agent banking-specific, bank-specific, and macroeconomic factors on Agent Loan Disbursement (ALD).

The empirical findings reveal that Agent Banking Outlets (ABO) and Agent Banking Deposits (ABD) are the most significant determinants of loan disbursement through agent banking. The positive and statistically significant effects of these variables indicate that the expansion of agent banking networks and the mobilization of deposits through agent channels substantially enhance banks' capacity to provide credit to underserved populations. In contrast, Bank Size (ASSET), Bank Deposits (BD), and GDP Growth (GDPG) do not exhibit a significant influence on agent banking loan disbursement, suggesting that the effectiveness of agent banking depends more on the strength and outreach of the agent banking ecosystem than on the overall size

or deposit base of banks. Furthermore, the significant positive effect of Inflation (INF) implies that demand for credit through agent banking tends to increase during inflationary periods.

The findings contribute to the growing literature on financial inclusion by demonstrating that agent banking is evolving beyond its traditional role as a transaction and deposit service platform. Rather, agent banking is increasingly becoming an effective channel for extending formal credit to rural households, small businesses, farmers, and other financially underserved groups. The study therefore provides empirical evidence that agent banking has emerged as a new frontier for inclusive lending in Bangladesh.

From a policy perspective, the results highlight the importance of expanding agent banking outlets, strengthening deposit mobilization through agent channels, investing in digital financial infrastructure, and ensuring effective regulatory oversight. These measures can significantly improve access to formal credit, promote entrepreneurship, support rural economic development, and accelerate financial inclusion. Consequently, policymakers and commercial banks should recognize agent banking as a strategic instrument for achieving inclusive and sustainable economic growth.

Overall, the study concludes that agent banking has transformed the landscape of financial service delivery in Bangladesh by creating new opportunities for inclusive lending. As the agent banking sector continues to expand, its contribution to reducing financial exclusion and improving access to credit is expected to become increasingly important. Strengthening agent banking infrastructure, enhancing customer participation, and promoting innovation in digital financial services will further reinforce its role in bridging the financing gap and fostering broad-based economic empowerment in Bangladesh.

Declarations

Conflict of interest

Author state that they have no financial or other competing interests that might be interpreted as influencing the results or interpretation of the written work presented in this manuscript. Additionally, all of the authors do not anticipate receiving monetary or other nonfinancial benefits from the publication of this article.

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Author Contribution

Md. Al-Amin conceived and designed the study, developed the research framework, conducted the literature review, collected and curated the data, performed the statistical and econometric analyses, interpreted the results, prepared the original manuscript, critically revised the manuscript for important intellectual content, and approved the final version for publication. The author accepts full responsibility for the integrity and accuracy of all aspects of the work.

Data Availability

The data in this study is secondary data that is obtained from the annual report of all scheduled Islamic banks in Bangladesh. The datasets obtained and analyzed during this study are available from the corresponding author on reasonable request.

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Figures

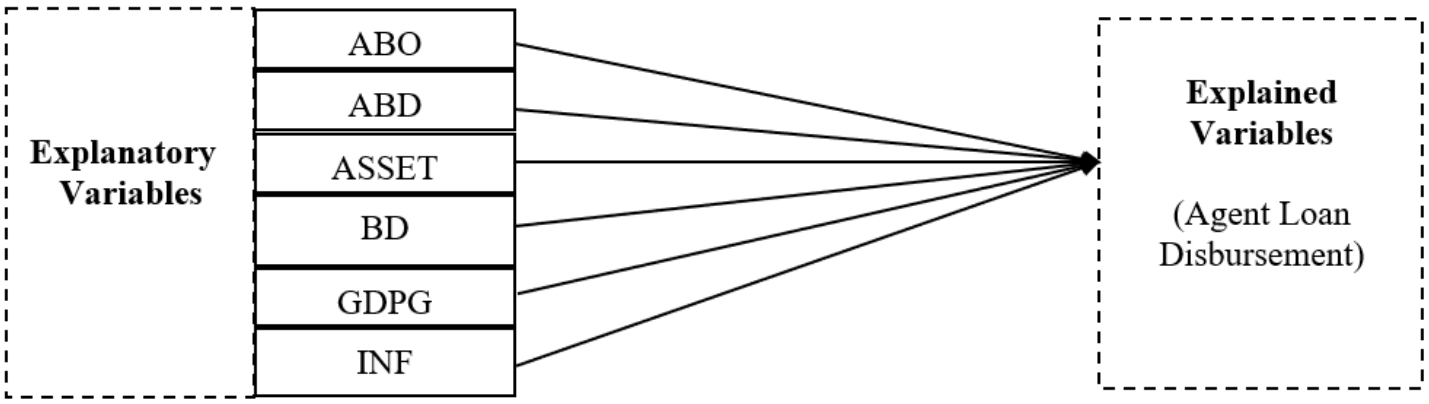


Figure 1

Conceptual Framework