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## Impact of Financial Inclusion on Firm Performance with Moderating Role of Ownership Concentration and Board Independence

Samavia Munir

(Corresponding Author)

PhD Scholar Institute of Banking & Finance, Bahauddin Zakariya University Multan, Pakistan

Lecturer University of Education Lahore Multan Campus, Pakistan

Email: [samavia.munir@ue.edu.pk](mailto:samavia.munir@ue.edu.pk)

Dr. Muhammad Irfan

Assistant Professor Institute of Banking & Finance, Bahauddin Zakariya University Multan, Pakistan

Email: [dr.mirfan@bzu.edu.pk](mailto:dr.mirfan@bzu.edu.pk)

Muhammad Sameer Imam

MBA Scholar, Lahore University of Management Science (LUMS) Lahore, Pakistan

Email: [sameermalik933@gmail.com](mailto:sameermalik933@gmail.com)

### Abstract

*Financial inclusion and financial performance have garnered considerable attention due to the demanding conditions prevalent in today's business landscape. Moreover, financial inclusion are considered as central issues to assess firm performance of organizations in marketplace. Thus, the aim of current research is to scrutinize the association of financial inclusion with firm performance within banking industry of four countries from the South Asian Association for Regional Cooperation (SAARC) namely Pakistan, India, Bangladesh and Sri Lanka. The data used in the research was obtained from secondary sources, including audited financial statements of banks from 2010 to 2021. Pooled OLS, random effect, and fixed effect are three estimation techniques implemented for analyzing the data. Thus this study contribute in earlier research in its empirical approach, choice of countries, and the range of variables examined. The findings endorse the notion of robust association between financial inclusion, and firm performance. Furthermore, ownership concentration and board independence performs a significant function in moderating the connection among financial inclusion, and firm performance. These outcomes provide valuable insight for policymakers, and regulators in understanding the importance of financial inclusion towards improved firm performance. These findings also emphasize the significance of ownership concentration and board independence in fostering inclusive growth in the banking sector.*

**Keywords:** Financial Inclusion, Firm Performance, Ownership Concentration, Board Independence, Banking Sector, South Asian Association for Regional Cooperation

### 1. Introduction

Financial industry is necessary for the evolution of every nation as it delivers wide variety of services to a considerable part of the national population and attracting new consumers. Regardless of its significance, a considerable segment of society, specifically the impoverished including marginalized groups like low-income earners and rural inhabitants are still facing a problem of lack of delivery of basic financial services (Vo et al., 2020). The procedure that ensure equal provision of basic financial services for all adults and businesses by active participation in the regulated financial sector is termed as financial inclusion (Ozili, 2018). Financial inclusion is essential in routine life. It helps households and commercial entities plan for various requirements, from future objectives to sudden contingencies. Adults with access to formal deposit accounts are more likely to make use of other

banking products such as savings, withdrawals, credit and risk coverage. Such access facilitate their ability to start and expand business activities, devote funds to education and healthcare facilities, mitigate risks, and resist monetary shocks that will ultimately improve their whole living standard.

The Global Findex database is very comprehensive source of information on financial inclusion as it acquire information directly from individuals using financial services. It facilitates inter-country analysis at both global and regional levels by providing a detailed perspective on how people accumulate savings, obtain loan, make withdrawals, and manage financial uncertainty. Moreover, this database guides to pinpoint disparities in the accessibility and utilization of financial services within certain demographic categories. The Global Findex (2021) reveals that 1.4 billion young population, which represents 24% of young population globally, remain without access to a basic deposit account by rendering them without banking services. This report also highlights significant progress in the financial inclusion as reporting that 76 % of respondent adults now maintain a deposit account which shows a substantial increase from 51 percent in 2011.

Financial inclusion involves enabling people and businesses to carefully access a range of essential banking products such as deposits, withdrawals, lending, and insurance. In pursuit of this objective, at the Spring Meetings hosted by World Bank Group-IMF in 2015, they decided to collaborate alongside public and private sector entities committed to set measurable goals to accomplish Universal Financial Access (UFA) at the end of 2020 (UFA, 2020). These UFA goal aimed to ensure that by 2020, every adult worldwide would be equipped with a transactional account or have an access to digital platform for saving funds and receiving money. As part of UFA2020, the association of World Bank and IFC have dedicated to enable 1 billion adults in securing operation accounts through precise strategies. By the end of December 2017, their efforts in consultative services, technical support, funding initiatives, and capital investments were expected to contribute to acquire 738 million new customers having bank account, aiming to reach the target of 1 billion by the end of 2020.

Many individuals worldwide still face challenges in accessing financial services, with approximately 25 percent of the adult population globally lacking a transactional or profit sharing account (Stringham, 2023). Despite this, the rate of account maintenance has shown different growth across developing economies. As still there exists a significant difference in the holding a simple account in developing and developed economies.

Ownership concentration and board independence are essential components of corporate governance that have a profound effect on firm performance. A high level of ownership concentration can alter how decisions are made within a business, possibly influencing their long term planning and risk mitigation approaches (Al Lawati & Sanad, 2023). Meanwhile, board independence plays crucial role in providing oversight and ensuring accountability and thereby protecting stockholders objectives and encouraging transparency (Guizani & Abdalkrim, 2021). These components collectively shape the organizational governance system, enhancing the robustness and sustainability of the business. Identifying their critical role highlights the importance of effective governance framework in fostering sustainable value generation and encouraging stakeholder confidence.

The stakeholder theory of the firm suggests that businesses should adopt their strategies to meet the expectations of various stakeholders within specific markets. Therefore, carefully considering stakeholder priorities is important in designing operations that achieve a delicate balance among financial performance and financial inclusion (Naseem et al., 2020). This approach emphasizes long-term value creation over the traditional focus on short-term profit generation.

The current investigation expands the existing literature in various key aspects. Initially, we investigate the relationship amongst financial inclusion and firm performance. Second, prior investigations generally implemented a limited number of proxies to assess financial inclusion

(Chauvet and Jacolin, 2017). In contrast, present research covers six components of financial inclusion, examining the specific influence of every component on financial performance. Third, this study aims to investigate the moderating effect of ownership concentration and board independence on the association of financial inclusion, and firm performance, which is a reasonable contribution in existing literature. Finally, the sample of present study is four SAARC countries to evaluate relationship between targeted variables. Significantly, our research contrasts with previous studies in its time interval, empirical approach, country selection, and variable considerations. As a result, it will substantially advance the understanding of the association among financial inclusion and financial performance in the framework of these four SAARC member countries and thus providing findings that might be relevant to other countries as well.

Additionally, from a practical perspective, our research contributes on three grounds. This research's main contribution lies in providing compelling evidence regarding the financial inclusion's impact on the accounting-based measures of bank performance. Second: this study's findings are expected to influence the future decisions and strategies of regulators, banks, accountants, and auditors. Furthermore, Regulators in emerging nations could potentially utilize our findings to enhance the formulation of mandated sustainable spending laws or regulations and encouraging financial inclusion initiatives. Additionally, our findings provide valuable insights for accountants and auditors tasked with evaluating the adequacy of a company's financial inclusion practices. Moreover the empirical results of this research can contribute the wider discussion presenting compelling reasons for banking firms to incorporate the integration of these measures into their standard practices. Finally: the outcomes of our study hold relevance for national regulators and diverse global financial institutions like International Monetary Fund and World Bank.

The subsequent sections of this paper are designed as: The second part includes the existing literature. Section 3 outlines theoretical frameworks underpinning our research and elaborates on the formulation of our hypotheses. Fourth part comprises research methodology. Last part delves into empirical findings. Finally, the concluding section offers insights, and practical implications, and acknowledges the study's limitations.

## **2. Theoretical and empirical evidence of financial inclusion on firm performance**

### **2.1. Theoretical background**

The Stakeholder theory suggests that businesses operate as independent entities interconnected with various stakeholders while striving to meet their goals (Bonnafous-Boucher & Rendtorff, 2016). According to Porter and Kramer (2006), the effect of a business's go beyond its stockholders, operating within a competitive business environment and interacting with various businesses and persons. Therefore, businesses need to implement rules and regulations that yield best possible results, considering not only shareholders but also diverse group of stakeholders such as governmental entities, employee unions, suppliers, consumers, and societies at large (Clement, 2005). This highlights management's obligations are not limited to stockholders but also include the broader society where they conduct their activities. Hence, as argued by Hannan and Freeman (1984), managers should acknowledge the expectations of all stakeholders in the company and not solely focusing on the interests of stockholders.

Providing access to financing, deposits, and insurance through financial inclusion initiatives can improve stakeholder satisfaction and strengthen trust among previously excluded individuals and businesses (Kandpal et al., 2023). Participants receiving benefits from financial inclusion are more prone to endorse the corporate's operations and may act as promoters of their financial services. Such enhanced support from interested parties can directly improve firm performance by fostering greater customer loyalty and enhancing community engagement. Moreover, independent directors on the board can perform a significant responsibility in representing the benefits of various stakeholders,

ensuring that their concerns are addressed appropriately (Naciti, 2019). This balanced representation can enhance their financial performance.

## 2.2. Financial Inclusion

Cabeza-García et al., (2019) explained inclusive services as these can involve a comprehensive variety of financial offering provided by various other financial organizations, however the key offering commonly includes deposit accounts, ATM facilities, remittances and variety of advancing facilities. So, financial inclusion pertains to the provision and usage of affordable, reliable and protected financial offering for all economic participants of economy. Because most of these monetary offerings are delivered via banking industry, so financial inclusion is mostly seen as provision of variety of banking products to different sectors of the nation, comprising upon the remotest parts of the country (Datta & Singh, 2019). Marginalized groups, especially women and economically disadvantaged adults, gain considerable advantages from financial inclusion (Ozili, 2021). Financial inclusion has the capability to offer adults those lacking in banking services in the accessibility and implementation of economical financial products, comprising deposits, payments financing and many more (Vo et al, 2021). Therefore, financial inclusion signifies that basic monetary services for example deposit, withdrawals and advances are easily accessible to customers, and individuals those are proactively and proficiently utilize banking services to address their specific requirements (Van et al, 2021). In this regard, banks provide innovative services to fulfill customer needs by investing their funds in service development and attaining appropriate returns to enhance its financial performance. Such as, banks can extend their network of branches, ATMs, electronic terminals, and point of sales (POS) to enhance customer approach, attain deposits, and offer financial services. As a result of this strategy capital expenditure will expand, and profit might decline because of cost addition. Most of the banks cannot generate profit from these short-term developments, but their goal is to increase it in the long term.

## 2.3. Financial Inclusion and Firm Performance

Influence of financial inclusion on bank performance can diverge across different banking environments, regulatory contexts, and market conditions. Additionally, the specific strategies and approaches adopted by individual banks can also influence the outcomes. Banks that actively promote financial inclusion initiatives tend to attract a broader customer base, including previously unbanked individuals and businesses. Research by Ozili (2018) suggests that financial inclusion can lead to improved profitability for banks. As they expand their customer base and offer a broader range of financial services, banks can generate additional fee-based income and lending opportunities. By reaching out to previously underserved segments of the population, banks can diversify their loan portfolios, reducing concentration risk. A study by Kodongo, (2018) found that banks with more diversified loan portfolios were less prone to adverse economic conditions and exhibited improved financial performance. Financial inclusion can positively impact banks' asset quality. An investigation led by Beck et al. (2009) revealed that expanding availability of financial services leads to improved loan repayment rates and lower default rates among previously excluded borrowers. As financial inclusion expands and more customers access formal financial services, it can contribute to decreased transaction costs. Research by Klapper et al. (2016) suggests that banks can benefit from economies of scale and lower transaction costs when serving a larger customer base.

**Hypothesis 1:** Financial inclusion has a positive significant impact on firm performance.

## 2.4. Moderating Role of Ownership Concentration

In emerging economies, concentrated ownership has evolved over several decades as a result of economic reforms and privatization. Subsequently ownership concentration has captured the attention of policy makers and researchers (Lins, 2003). In most of the economies, large publicly listed organizations generally exhibit concentrated ownership instead of dispersed ownership. Jo and Harjoto (2012) define ownership concentration as the presence of at least one shareholder holding

equity share beyond a predetermined threshold limit, such as 5%, 10%, or 20%. This concentration demonstrate the level of stockholdings within the organization (Jo and Harjoto, 2012).

Ownership concentration can further classified according blockholdings within the firm (Dam and Scholtens, 2013). Considerable disparities among management and stockholding can generate motivations for monitoring stockholders to give precedence to their personal benefits over remaining shareholders (Peng and Yang, 2014). Consequently, concentrated ownership can synchronize the benefits of major shareholders and minority shareholders (Bouvatier et al., 2014).

Agency theory indicates that more concentrated ownership can closely bring into line the objectives of controlling stockholders (principals) with firm's administration (agents) by possibly mitigating principal-agent issues and enhancing overall financial performance (Shahrier, Ho & Gaur, 2020). Through concentrated ownership, major shareholders can increase their supervision and control over management decision-making. This heightened supervision can facilitate more efficient execution of financial inclusion strategies, consequently can positively impact firm performance.

**Hypothesis 2:** Ownership Concentration positively significantly moderates the relationship between financial inclusion, and firm performance.

### 2.5. Moderating Role of Board Independence

Agency theory persists the significant role of independent directors in enhancing firm performance (Leung et al. 2014). An independent board is often linked with improved governance mechanism within corporations, confirming that decisions are carried out objectively and without individual preferences (Romano et al., 2020; Jizi, 2017). Board independence significantly contribute by supervising of management decisions and thus improving the organizational performance (Fuji et al., 2016). Board independence encourage accountability, building confidence, and assuring that stakeholder expectations are incorporated. In accordance with the legality perspective, higher level of board independence enhances the transparency in social responsibility efforts, which benefits the company's long-term sustainability (Fernandez-Gago et al., 2018). Hence, the higher level of board independence will be better able to fulfill the diverse interests of the related parties and employ strategies that support the corporate's lawfulness in its operational landscape and thus improving the overall performance of firm.

**Hypothesis 3:** Board independence significantly moderates the relationship between financial inclusion, and firm performance.

## 3. Research design

### 3.1. Methodology

This study utilizes the panel firm-level data of 91 banking firms of Bangladesh, India, Pakistan, and Sri Lanka. The major reason of selection of this sample of financial firms, especially from the banking sector is their vital participation toward financial inclusion. Data for each country were obtained from the companies' audited financial statements available on their websites and organized in a cross-sectional time series (Panel) format. This study examines data from 2010 to 2021, an eleven-year timeframe selected for multiple reasons. The primary reason for this timeframe is the availability of data across countries and companies. Additionally, this period provides the most current company-level data. Consequently, the total number of observations is 1,092.



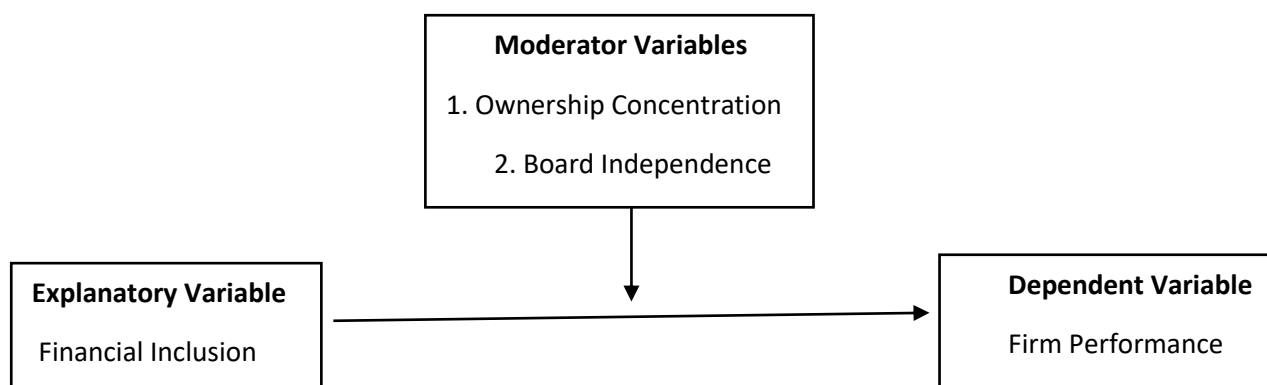


Figure 1: Empirical Model

### 3.2. Measurement of Variables

#### 3.2.1. Firm Performance

Present research employed accounting-driven metrics due to their foundation in audited financial statements, rendering them highly credible, authentic, and universally recognized. Moreover Investors often gauge a company's profitability through earnings per share (EPS). The success or performance of a company is commonly evaluated by investors based on the EPS considered as a key indicator of its financial strength (Farnoush, et al., 2022). This ratio serves as a measure of management's effectiveness in delivering financial gains to stockholders. Where lowest ratio implies that administration has not met stockholders' expectations, while a high ratio indicates increased shareholder wealth, reflecting a more favorable rate of return (Purnamasari, 2015). This approach is impervious to market speculations or investors' perceptions, ensuring heightened reliability in assessing both profitability and market share values (Munir et al., 2022). A frequently utilized accounting-based measure for evaluating firm performance is Earnings per Share (EPS), acknowledged in prior research (Azevedo & Earnhart, 2010).

$$\text{EPS} = \frac{\text{Net earnings after interests and taxes}}{\text{No. of common stock outstanding}}$$

#### 3.2.2. Independent Variable

##### 3.2.3. Determinants of Financial Inclusion

Concept of financial inclusion includes two dimensions: Provision of banking services and how effectively they are utilized. Provision of banking services includes banking network including ATMs, banks offices, banks employees, and many more (Maity & Sahu, 2022). In current study it can be measured by.

1. Branch density per 1,000 square kilometers (BBPT);
2. Branch density per 100,000 adults (BBPP);
3. ATM density per 1,000 square kilometers (APT); and
4. ATMs density per 100,000 adults (APP).

Resultant utilization of financial services evaluates the level and efficiency with which clients make use of different types of financial services including deposits, loaning, withdrawals, remittances, etc. This aspect measures the competence of the banking network, emphasizing that increased provision alone is not sufficient for comprehensive financial inclusion (Omar and Inaba, 2020). It can be measured with

1. Outstanding deposit percentage relative to GDP (ODGDP); and
2. Outstanding credit percentage relative to GDP (OCGDP).

### 3.2.4. Moderating Variable and Control Variables

Ownership concentration in most of the research studies is typically assessed by share capital purchased by the majority stockholder (Earle et al., 2005; Rogers et al., 2008). Moreover, research like Gupta et al. (2022) also examined collectively the concentrated biggest stockholding and the percentage of capital owned by various largest block holders, such as major 2, major 3, or major 5 stockholders. As such, the percentage of share capital purchased by the major 5 shareholders serves as a component of measuring ownership concentration (Abdullah, 2019).

Board independence serve as another moderation variable which is computed as a ratio of independent directors in relation to total directors (Malik, Munir, 2024), i.e. Board Independence (BI) can further be calculated as a ratio of the entire sum of independent directors participating in board (Jaidi et al., 2022). Current study uses Firm Size (Size) as control variable that can be assessed through the logarithm of sales (Opeyemi, 2019). Leverage is used as a control variable which is calculated as the proportion of corporate's book price of its total liabilities to total assets (Jin et al, 2020). Board size is another control variable calculated by sum of all directors forming a board (Gallego-Álvarez and Pucheta-Martínez, 2020). Firm size, leverage, and board size may also exert an influence on company performance (Kao et al., 2019).

### 3.3. Regression Model and Specification

In current study, we investigate the influence of financial inclusion on financial performance with ownership concentration and board independence as moderating factors. To conduct an econometric analysis on dataset and demonstrate the endogeneity bias can lead to inaccurate estimates, we employ three distinct approaches: ordinary least squares (OLS), fixed effects, and random effects models. Mathematically, regression equations of the hypothesis 1 are modeled as follows:

$$EPS_{it} = \beta_0 + \beta_1 BBPT_{it} + \beta_2 BBPP_{it} + \beta_3 APT_{it} + \beta_4 APP_{it} + \beta_5 ODGDP_{it} + \beta_6 OCGDP_{it} + \beta_7 Size_{it} + \beta_8 Lev_{it} + \beta_9 BS_{it} + \varepsilon_0 \quad \dots\dots (1)$$

Where  $EPS_{it}$  is the earnings per share, and  $BBPT_{it}$ ,  $BBPP_{it}$ ,  $APT_{it}$ ,  $APP_{it}$ ,  $ODGDP_{it}$  and  $OCGDP_{it}$  are the six proxies of financial inclusion. Furthermore, the three control variables of the study are firm size ( $Size_{it}$ ), leverage ( $Lev_{it}$ ) and boards size ( $BS_{it}$ ). For this analysis framework, the notation "(i)" states the single firms, "(t)" specifies the duration (years), " $\beta_0$ " denotes constant, and " $\beta_1$ " to " $\beta_9$ " presents the regression coefficients. Furthermore, " $\varepsilon$ " stands for an error term. Thus, the regression equations of hypothesis 2 is modeled as follows:

$$EPS_{it} = \beta_0 + \beta_1 BBPT_{it} + \beta_2 BBPP_{it} + \beta_3 APT_{it} + \beta_4 APP_{it} + \beta_5 ODGDP_{it} + \beta_6 OCGDP_{it} + \beta_7 OC_{it} + \beta_8 BBPT_{it} * OC_{it} + \beta_9 BBPP_{it} * OC_{it} + \beta_{10} APT_{it} * OC_{it} + \beta_{11} APP_{it} * OC_{it} + \beta_{12} ODGDP_{it} * OC_{it} + \beta_{13} OCGDP_{it} * OC_{it} + \beta_{14} Size_{it} + \beta_{15} Lev_{it} + \beta_{16} BS_{it} + \varepsilon_0 \quad \dots\dots (2)$$

Where the interaction beta among all six proxies of financial inclusion and ownership concentration are presented as follows ( $BBPT_{it} * OC_{it}$ ), ( $BBPP_{it} * OC_{it}$ ), ( $APT_{it} * OC_{it}$ ), ( $APP_{it} * OC_{it}$ ), ( $ODGDP_{it} * OC_{it}$ ) and ( $OCGDP_{it} * OC_{it}$ ) are presented in equation 2. A statistically significant interaction coefficient  $\beta$  suggests that a moderation effect is present (Jaidi et al., 2022).

Moreover, the regression equations of hypothesis 3 is modeled as follows

$$EPS_{it} = \beta_0 + \beta_1 BBPT_{it} + \beta_2 BBPP_{it} + \beta_3 APT_{it} + \beta_4 APP_{it} + \beta_5 ODGDP_{it} + \beta_6 OCGDP_{it} + \beta_7 BI_{it} + \beta_8 BBPT_{it} * BI_{it} + \beta_9 BBPP_{it} * BI_{it} + \beta_{10} APT_{it} * BI_{it} + \beta_{11} APP_{it} * BI_{it} + \beta_{12} ODGDP_{it} * BI_{it} + \beta_{13} OCGDP_{it} * BI_{it} + \beta_{14} Size_{it} + \beta_{15} Lev_{it} + \beta_{16} BS_{it} + \varepsilon_0 \quad \dots\dots (3)$$

Where ( $BBPT_{it} * BI_{it}$ ), ( $BBPP_{it} * BI_{it}$ ), ( $APT_{it} * BI_{it}$ ), ( $APP_{it} * BI_{it}$ ), ( $ODGDP_{it} * BI_{it}$ ) and ( $OCGDP_{it} * BI_{it}$ ) are the interaction terms among six proxies of financial inclusion and board

independence are presented in equation 3. Where the positive interaction coefficient beta is statistically significant which present the positive moderation effect.

#### 4. Findings and Discussion

##### 4.1. Summary Stats

Statistical summaries of all variables are discussed in table 1. It consists number of observations (N), Mean values, standard deviation (S Dev.), minimum value (Min), and maximum values (Max). Also data in the table reveal that the total observations is 1092. The Leverage disclosure levels vary significantly among the banks, with minimum being 0.129 and maximum being 1653.740. Mean value of EPS is 10.924. Meanwhile, the average value of various dimensions of financial inclusion falls within the range of 0.297 to 1.792.

**Table 1. Descriptive Statistics**

	EPS <sub>it</sub>	BBPT <sub>i</sub>	BBPP <sub>i</sub>	APT <sub>i</sub>	APP <sub>i</sub>	ODGDF	OCGDF	BI <sub>it</sub>	Size <sub>i</sub>	Lev <sub>it</sub>	BS <sub>it</sub>
<i>N</i>	1092	1092	1092	1092	1092	1092	1092	1092	1092	1092	1092
<i>Me an</i>	10.92 4	1.371	0.297	1.716	0.405	1.792	1.354	0.54 4	26.85 2	115.2 96	9.32 9
<i>S.D</i>	22.45 4	1.897	0.482	3.743	0.864	2.127	1.772	0.33 1	1.485	261.7 60	2.84 2
<i>Min</i>	- 26.59 8	0.016	0.001	0.000	0.000	8.190	0.001	0	19.97 4	0.129	3.00 0
<i>Ma x</i>	154.0 20	11.30 9	3.570	33.12 0	7.454	16.398	12.799	1	31.51 2	1653. 74	23.0 00

Where BBPT = Branch density per 1,000 square kilometers; BBPP = Branch density per 100,000 adults; APT = ATM density per 1,000 square kilometers; APP = ATMs density per 100,000 adults; ODGDP = Outstanding deposit percentage relative to GDP; and OCGDP = Outstanding credit percentage relative to GDP.

##### 4.2. Correlation of Variables

Correlation coefficients of all independent, dependent and control variables are presented in correlation of variable table 2. These coefficients confirms that not any kind of multicollinearity issue exists among the variables.

**Table 2 Correlation of variables**

	EPS <sub>it</sub>	BBPT <sub>it</sub>	BBPT <sub>it</sub>	APT <sub>it</sub>	APP <sub>it</sub>	ODGDP <sub>it</sub>	OCGDP <sub>it</sub>	Size <sub>it</sub>	Lev <sub>it</sub>	BS <sub>it</sub>
<b>EPS<sub>it</sub></b>	1.00 0									
<b>BBPT<sub>it</sub></b>	0.30 9	1.000								
<b>BBPT<sub>it</sub></b>	.000 0.35 6	0.855 0.000	1.000							



	0.00									
	0									
	0.16		0.493	1.000						
<b>APT<sub>it</sub></b>	0	0.416	0.000							
	0.00	0.000								
	0									
	0.22		0.689	0.855	1.000					
<b>APP<sub>it</sub></b>	5	0.537	0.000	0.000						
	0.00	0.000		0						
	0									
	0.38		0.793	0.570	0.730	1.000				
<b>ODGDP<sub>it</sub></b>	7	0.753	0.000	0.000	0.000					
	0.00	0.000								
	0									
	0.40		0.794	0.599	0.750	0.936	1.000			
<b>OCGDP<sub>it</sub></b>	0	0.731	0.000	0.000	0.000	0.000				
	0.00	0.000								
	0									
	0.34		0.366	0.287	0.359	0.587	0.532			
<b>Size<sub>it</sub></b>	6	0.334	0.000	0.000	0.000	0.000	0.000	1.000		
	0.00	0.000								
	0									
	0.29		0.008	0.053	0.064	0.165	0.173			
<b>Lev<sub>it</sub></b>	4	-0.022	0.785	0.075	0.031	0.000	0.000	0.513	1.00	
	0.00	0.461						0.000	0	
	0									
	0.01		-0.127	-	-	-0.067	-0.034		0.03	1.00
<b>BS<sub>it</sub></b>	1	-0.056	0.000	0.133	0.129	0.025	0.256	-	0.03	1.00
	0.69	0.063		0.000	0.000			0.043	2	0
								0.154	0.27	
									8	

### 4.3. Unit Root Test

We conducted an augmented Dickey-Fuller (ADF) test and Levin-Lin Chu test to assess stationarity characteristics of all variables. Outcomes, presented in Appendix, indicate that, excluding ODGDP the remaining variables exhibit stationarity. Nevertheless, following the introduction of the first lag the variables achieve stationarity, implying that they are incorporated of order one I (1).

### 4.4. Multicollinearity Test

The present study additionally examined the potential presence of multicollinearity within the study's models by implementing variance inflation factor (VIF) test. Findings of VIF test are provided in Appendix, indicating a mean VIF of 4.373. This analysis reveals the nonappearance of multicollinearity between the independent variables. While there isn't a universally applicable rule for determining a VIF threshold that denotes multicollinearity, several previous studies have proposed that the value should remain below 10 (Shihadeh et al. 2018).

### 4.5. Regression Findings

Table 4 presents the findings of regression for hypothesis discussed in section 3. Three-panel data techniques called pooled OLS, random effect, and fixed effects techniques are three-panel data regression techniques employed for analysis. In following tables, Column 1 represents the results of pooled OLS, column 2 presents the empirical findings of fixed effect and Column 3 depicts the findings of the random effect regression technique.

Moreover, findings confirms that branch density per 1,000 square kilometers (BBPT) significantly negatively influence the firm performance by using fixed and random effect regression techniques. These findings are consistent with Harimaya and Kondo (2016), as by expanding the branch network initially causes cost ineffectiveness to a specific extent but after few time limit it results in cost efficiency.

Bank branches per 0.1m adults (BBPP) and outstanding credit percent GDP (OCGDP) positively significantly improve the firm performance by using all three analysis models. These outcomes are aligned with the empirical observations of Kumar et al. (2022), Chen et al. (2018), and Shihadeh and Liu (2019), suggesting a substantial growth in branch network will directs towards enhance customer count and which consequently enhance deposits, finance portfolios, and insurances. Boot and Schmeits (2000) further suggests the improved financial inclusion permits financial institutions to diversify their portfolio and mitigate risk. This enhanced branch networks helps the banks to maximize their revenue as observed by Bernini and Brighi (2018). Nguyen (2014) underscores essential role of banks branches in supporting underserved segments of society, emphasizing that branch closures result in reduced lending to small enterprises.

Moreover the research findings revealed that ATMs per 1,000 km (APT) have insignificant association with firm performance in all three regression models. Our results regarding ATMs verify the findings made by Kumar et al. (2022) and Kondo (2010). Their studies confirmed the insignificant association between the ATMs network and financial performance of Japanese banking firms. They suggested that ATMs delivers a variety of financial products and helps to reduce clients delay times.

ATMs density per 100,000 adults (APP) have a negative significant connection with financial performance in all three regression models. While outstanding credit percent GDP (OCGDP) has a direct and significant impact on EPS in pooled OLS and fixed effect model in a 10% confidence interval.

**Table 3. Estimation regression results**

	Pooled OLS	Fixed Effects	Random Effects
<b>C</b>	-39.599** (15.941)	-26.306 (30.842)	-10.377 (20.714)
<b>BBPT<sub>it</sub></b>	-0.843 (0.663)	-21.067*** (2.766)	-2.451** (0.992)
<b>BBPP<sub>it</sub></b>	14.358*** (3.011)	19.994*** (4.894)	11.244*** (3.753)
<b>APT<sub>it</sub></b>	0.297 (3.011)	0.177 (0.675)	-0.290 (0.451)
<b>APP<sub>it</sub></b>	-6.366*** (1.807)	-7.104*** (2.546)	-6.599*** (2.097)
<b>ODGDP<sub>it</sub></b>	0.286* (0.904)	2.109* (1.118)	0.563 (0.995)
<b>OCGDP<sub>it</sub></b>	3.320*** (1.030)	4.951*** (1.539)	6.016*** (1.231)
<b>Size<sub>it</sub></b>	0.961 (0.584)	1.266 (1.170)	-0.126 (0.762)
<b>Leve<sub>it</sub></b>	0.019*** (0.003)	-0.007 (0.006)	0.012*** (0.004)
<b>BS<sub>it</sub></b>	0.257 (0.214)	0.714** (0.348)	0.371 (0.281)
<b>R<sup>2</sup></b>	0.253	0.030	0.223
<b>Root MSE</b>	19.499	-	-
<b>FStatistics</b>	36.580***	15.030***	-

Wald chi2 - - 146.700\*\*\*

Level of significance 1%,5% and 10% are represented by \*,\*\* and \*\*\*, respectively

#### 4.6. Moderation Analysis

Results discussed in table 5 depicts that relationship between  $BBPT_{it}$ ,  $APP_{it}$ ,  $ODGDP_{it}$  with firm performance is significantly conversely moderated by ownership concentration for the data gathered from the sample SAARC countries. However the association between  $APT_{it}$  and  $EPS_{it}$  is significantly positively moderated by the inception of ownership concentration. Meanwhile ownership concentration puts insignificant impact on the association among  $BBPP_{it}$  and  $EPS_{it}$ . For another moderation variable board independence, the association among  $BBPP_{it}$ ,  $APP_{it}$ ,  $ODGDP_{it}$  with  $EPS_{it}$  is positively significantly moderated by board independence. However, association between  $BBPT_{it}$  and  $EPS_{it}$  is significantly negatively moderated by board independence. In the meantime board independence generate negative significant effect on the association between  $APT_{it}$  and  $EPS_{it}$ . However, board independence generate insignificant moderation impact on association of  $OCGDP_{it}$  with  $EPS_{it}$ .

**Table 5: Moderation Findings**

	<b>OC<sub>it</sub></b>		<b>BI<sub>it</sub></b>
<b>C</b>	7.600*** (2.621)	<b>C</b>	7.047*** (1.163)
<b>BBPT<sub>it</sub></b>	6.680* (3.605)	<b>BBPT<sub>it</sub></b>	-0.586 (0.662)
<b>BBPP<sub>it</sub></b>	-22.699 (18.918)	<b>BBPP<sub>it</sub></b>	-3.078 (2.839)
<b>APT<sub>it</sub></b>	-13.319*** (6.011)	<b>APT<sub>it</sub></b>	3.385*** (0.764)
<b>APP<sub>it</sub></b>	42.996** (22.756)	<b>APP<sub>it</sub></b>	-11.429*** (3.692)
<b>ODGDP<sub>it</sub></b>	9.190** (4.122)	<b>ODGDP<sub>it</sub></b>	-0.032 (1.272)
<b>OCGDP<sub>it</sub></b>	-8.772** (4.361)	<b>OCGDP<sub>it</sub></b>	2.372 (1.485)
<b>OC<sub>it</sub></b>	-0.008 (0.027)	<b>OC<sub>it</sub></b>	-1.960 (1.656)
<b>BBPT<sub>it</sub> × OC<sub>it</sub></b>	-0.081** (0.037)	<b>BBPT<sub>it</sub> × BI<sub>it</sub></b>	-7.366*** (2.535)
<b>BBPP<sub>it</sub> × OC<sub>it</sub></b>	0.243 (0.195)	<b>BBPP<sub>it</sub> × BI<sub>it</sub></b>	25.530*** (7.750)
<b>APT<sub>it</sub> × OC<sub>it</sub></b>	0.139** (0.061)	<b>APT<sub>it</sub> × BI<sub>it</sub></b>	-6.436*** (1.625)
<b>APP<sub>it</sub> × OC<sub>it</sub></b>	-0.457** (0.234)	<b>APP<sub>it</sub> × BI<sub>it</sub></b>	18.455*** (5.961)
<b>ODGDP<sub>it</sub> × OC<sub>it</sub></b>	-0.073* (0.043)	<b>ODGDP<sub>it</sub> × BI<sub>it</sub></b>	3.955** (1.832)
<b>OCGDP<sub>it</sub> × OC<sub>it</sub></b>	0.086** (0.045)	<b>OCGDP<sub>it</sub> × BI<sub>it</sub></b>	-2.393 (2.038)
<b>R<sup>2</sup></b>	0.083	<b>R<sup>2</sup></b>	0.093
<b>Root MSE</b>	12.178	<b>Root MSE</b>	12.111
<b>FStatistics</b>	7.500***	<b>FStatistics</b>	8.51***

Level of significance 1%,5% and 10% are represented by \*,\*\* and \*\*\*, respectively

## 5. Conclusion, Recommendations, And Future Research Suggestions

Empirical results delivers new contribution of the association between financial inclusion and bank performance (91 banking firms) from Pakistan, India, Bangladesh, and Sri Lanka. Moreover also finds that ownership concentration and board independence moderates the association within financial inclusion, and firm performance. These results confirm that the components of financial inclusion shows a diverse association with the firm performance. Meanwhile, the study provides evidence that ownership concentration and board independence provides mix results to moderate the connection among financial inclusion, and financial performance in these developing nations.

We test robustness of our findings by conducting several additional analyses. Such as, for bank performance, the present study employ varied accounting measures to gauge financial performance.

### 5.1. Contribution And Policy Implications of The Study

Major contribution of this study is that it provide clear evidences on the relationship between financial inclusions with accounting-based bank performance. our results offer meaningful perspectives for national regulators and diverse international organizations (including IMF and World Bank) to focus on advocating for financial inclusion initiatives, shedding light on various advantages linked with firm-level financial inclusion activities. In this regard, the government ought to commence a variety of programs in a wide range of domains to promote the financial inclusion practices (Anbu, 2020). The conclusions drawn from this research will also be helpful for auditors and accountants who have the responsibility to evaluate the adequacy of bank's financial performance (Association of Chartered Certified Accountants, 2008). Thus as we consider the implications of these findings, it becomes evident that policymakers, regulators, financial institutions, and businesses alike play integral roles in advancing financial inclusion

Furthermore, the results of present research can help as a benchmark for business firms. Banks can execute initiatives to boost access to financial products and services by encouraging the technological innovations to reach underserved populations, and by creating supportive ecosystems. And thus financial inclusion can helps to improve the firm performance. Furthermore, financial inclusion activities could help to reduce income inequality by offering financial services to economically disadvantaged people. This can promote greater social equity and cohesion. Policies for financial growth need to implement clear approaches to promote financial inclusion, in line with growth of financial market and loan expansion initiatives. Such operational strategies should tackle problems such as minimizing information gaps that can cause credit rationing, improving stakeholder's rights protection, and fostering a better corporate environment of banks.

Finally, it advances our knowledge regarding the moderating influence of ownership concentration and board independence on the connection of financial inclusion with firm performance. Notably, the inclusion of independent directors may not significantly impact the advancement of financial inclusion practices to enhance performance of banking firms operating within emerging economies. Given these findings, there is a call for regulators and policymakers to reevaluate the necessity and criteria for appointing independent directors to corporate boards in such contexts.

### 5.2. Limitations And Future Recommendations

Nevertheless, it is crucial to acknowledge that our research have certain limitations. Firstly, present research is limited to the banking industry of Pakistan, India, Bangladesh, and Sri Lanka. Consequently, it is important to recognize that current results may not be applicable to the manufacturing industry in various areas of countries, due to the dissimilar functional characteristics of financial versus manufacturing organizations.

In summary, present exploration provides meaningful conclusions and lays the foundation for future research directions. We recommend that future research investigate the present relationship among various sectors, for instance the production, trading or manufacturing sectors. Additionally, it would be beneficial to examine previously overlooked variables, including aspects of corporate governance

like CEO power, board interlocking, board gender diversity, and organizational-specific features for instance institutional ownership, and FinTech developments. Moreover, we recommend incorporating qualitative exploration techniques for instance case study, professional interviews or group discussions to gain a deeper understanding of how these concepts are applied by industry professionals.

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## Appendices

**Table A:** Unit root test

	Fisher augmented Dickey-Fuller tests Test statistics	Levin-Lin Chu Test statistics (p-value)
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	(p-value)	
$EPS_{it}$	428.758 (0.000)	-6.005 (0.000)
$BBPT_{it}$	418.307 (0.000)	-15.072 (0.000)
$BBPP_{it}$	375.500 (0.000)	-8.491 (0.000)
$APT_{it}$	384.502 (0.000)	-18.023 (0.000)
$APP_{it}$	421.343 (0.000)	-10.731 (0.000)
$ODGDP_{it}$	237.648 (1 <sup>st</sup> diff) (0.003)	-2.428 (1 <sup>st</sup> Diff) (0.007)
$OCGDP_{it}$	284.720 (0.000)	-10.864 (0.000)
$Size_{it}$	336.689 (0.000)	-10.043 (0.000)
$Lev_{it}$	284.613 (0.000)	-2.878 (0.002)
$BS_{it}$	482.058 (0.000)	-21.579 (0.000)

**Table B:** Multicollinearity Test

	VIF	1/VIF
odgdp	9.914	.094
ocgdp	9.551	.105
app	7.006	.143
bbpp	6.065	.165
bbpt	4.545	.22
apt	4.237	.236
size	2.159	.463
lev	1.473	.679
bs	1.066	.939
Mean VIF	4.373	.

**Table C:** Normality and Heteroskedasticity Test

Jarque-Bera normality test Chi(2)	1857.000 (0.000)
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	692.040 (0.000)
Cameron & Trivedi's decomposition of IM-test for heteroskedasticity (P-value)	318.160 (0.000)