



## PROFITABILITY IN ECUADORIAN PRIVATE BANKING AND FINANCIAL INCLUSION

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**Abstract:** In recent years, financial inclusion has taken importance worldwide, in this sense this research aimed to analyze the relationship between the profitability of Ecuadorian private banking and financial inclusion. The type of research used was quantitative due to it involves data from 15 banking entities between 2002 - 2019, in addition, some linear regression models were applied the same that allowed establishing the relationship among the variables, which showed a positive relationship between bank profitability and inclusion. Financial. The results obtained show that financial inclusion positively affects the profitability of banks in Ecuador. It is concluded that an increase in financial inclusion can generate an improvement in bank profitability, showing a direct and positive relationship between Loans / GDP, Financial Intermediation, Return on assets, Return on equity, Financial Net Margin, it is worth mentioning that financial inclusion allows improving the profitability of banks

**Keywords:** Banks, financial inclusion, profitability, financial margin, deposits, loans

### 1 INTRODUCTION

Financial inclusion has gone beyond the rhetoric around social development and financial stability, it has been considered as the pathos of the benefits of arbitrage from retail deposits of banks, representing in this context a fundamental pillar of the banking process.

Financial inclusion is an important aspect of economic development (Dar & Sahu, 2022), according to World Bank data, financial inclusion implies that all people and businesses have access to a range of financial products and services, such as transactions, payments, savings, credit and insurance, to meet their needs in an affordable way, convenient and safe. responsible and sustainable way (World Bank, 2019)).

Financial inclusion is a method of offering banking and financial services to people, its objective is to include everyone in society by providing basic financial services regardless of their income or savings; It is focused on providing financial solutions to the economically disadvantaged, this term is widely used to describe the provision of savings and loan services to the poor in an economical and user-friendly way, in conclusion financial inclusion ensures that the poor and marginalized make the best use of their money and obtain financial education.

With advances in financial technology and digital transactions, more and more startups are simplifying the achievement of financial inclusion.



As background, financial inclusion based on fintech and banking risk-taking can be mentioned, evidence that there is a greater degree of financial inclusion based on fintech that controls the behavior of banking risk-taking (Banna et al., 2021).

In 2005 the United Nations introduced for the first time the concept of an inclusive financial system, which was designed to encompass the challenges of financial support faced by vulnerable sectors, as well as small and medium-sized enterprises, in this context financial inclusion represents the accessibility and availability of formal financial services for all (Léon & Zins, 2020; Wang & Luo, 2021); which is why it has become a major concern both academically and practically.

Since the recent global financial crisis, numerous organizations such as the International Monetary Fund (IMF), World Bank (WB) and the Alliance for Financial Inclusion have implemented initiatives to improve financial inclusion in emerging economies.

Financial inclusion has recently been recognized globally as key to sustainable development, because access to formal financial services enables efficient and secure financial transactions. In addition, it helps the poor overcome poverty by providing them with the opportunity to invest in education and business and to better manage financial risks in situations of uncertainty (Gutiérrez-Romero & Ahamed, 2021; Roa & Carvallo, 2018).

The efforts made by most adults to access such financial services have contributed to the overall efficiency of the financial system in particular and the economy in general. However, only developed economies seem to have such privileges, as much of the population in developing countries does not have access to the formal financial system. The Global Findex database (2017) shows that 37% of the adult population in developing countries still does not have accounts with financial institutions. Promoting financial inclusion therefore poses enormous and demanding policy challenges for developing economies.

Some actions to improve financial inclusion mean the search for new methods and means to include the largest number of people in the banking system (Swaminathan & Kesavan, 2016)), therefore, financial institutions acquire the commitment to expand the scope of the portfolio of financial products and services to the entire population.

Several studies show that financial inclusion has a large number of important benefits that contribute to reducing poverty and inequality.

In the last decade financial inclusion has gained much relevance in the development of any country, which causes especially those who are developing, apply strategies that allow them to include the excluded population in the financial system, Ecuador is no exception, today it reaches a score of 46.9 in the financial inclusion index.

With the above, it can be said that financial inclusion strengthens the availability of economic resources and builds the concept of savings among the poor. Financial inclusion is an important step towards inclusive growth. Assistance in the general economic development of the disadvantaged population.

#### **FINANCIAL INCLUSION AND ITS EFFECT ON BANK PROFITABILITY**

Despite evidence on the social and economic importance of financial inclusion, knowledge about its impact on financial stability, particularly bank sustainability, is limited (Lee et al., 2020; Orazalin & Akhmetzhanov, 2019; Wang & Luo, 2021; Zuleta J., 2018).



As an indispensable part of financial institutions, banks play an essential role in allocating scarce financial resources between borrowers and lenders, thereby promoting economic growth (Rose & Hudgins, 2018). However, the subprime mortgage crisis and subsequent financial turbulence drew scholars' attention to the determinants of banking stability or risk-taking behaviors.

Financial institutions through financial penetration, try to capture deposits, attract more customers, offer credits directly or indirectly; The creation of new bank branches, allow banks to invest in equipment, technology, capital, in addition all profits return to the local economy, allowing excluded people to access official financial services and products. It is vital to consider the interconnection between financial inclusion and financial soundness because ignoring the interaction between the two could cause systemic crises (Cihak et al., 2016; Mollaahmetoğlu & Akçalı, 2019).

Many studies related to financial inclusion have focused on defining and measuring it; Only a few studies have investigated the impact on bank profitability, however; The banking sector is a pillar of economic development and financial stability, this sector fosters economic growth through the financing of productive projects, the main research in these areas has been executed in Japan.

In the case of Ecuador, the study carried out by Tobar 2017, where deposits and placements have been used as a measurement method for financial inclusion, established the levels of coverage of banking, based on the figures published by the Superintendency of Banks (Tobar, 2017), in order to know the banking coverage as well as the financial services and product, establishing a first scenario of financial inclusion of 57.38% of the economically active employed population (EAP).

Financial inclusion, being considered a multifaceted concept that translates into access to financial services for a population, sector or region, today this concept has become a main task for authorities and global development organizations, including Ecuador, which presents a level of financial inclusion through banking in recent years represented 24% below the regional indicator, In this virtue, the importance of Financial Institutions in the Ecuadorian economy is highlighted, because by allowing the population's access to financial services, measured through deposits and placements in relation to gross domestic product (GDP) and the growth of a country (Puente et al., 2021).

In this context, this research aims to analyze the relationship between financial inclusion and the profitability of Ecuadorian private banking, measured through financial intermediation, deposits/GDP and placements/GDP and economic profitability (ROA) and financial profitability (ROE).

## 2. METHODOLOGY

The present research is quantitative, because the results obtained are quantifiable, the research scope is explanatory, since it is intended to establish the relationship between financial inclusion and the profitability of Ecuadorian banks.

In the context of the study, it covers a correlation between the study variables, the immersed population is represented by the 24 private banks of Ecuador, for the study 15 banks are considered between the period 2002 - 2019, unbalanced panel data was used.

Data collection was based on secondary data on the target population including bank profitability through return on equity (ROE), return on assets (ROA), net financial margin and financial inclusion measured through financial intermediation and financial deepening.



According to the literature review, it has been established that to evaluate the relationship between financial inclusion and bank profitability is linear regression, as established in research proposed by (Shihadeh & Liu, 2019). With the information obtained, a database was built, with which the linear regression model was analyzed, the study uses some indicators of financial inclusion at the country level and uses these indicators as a national index of financial inclusion.

#### ROA Model - Financial Inclusion

In the ROA - Financial inclusion model (financial intermediation, deposits/GDP, bank size and bank type), ordinary least squares were used considering robust deviations to overcome the problems of heteroskedasticity.

Where:

X1 = Bank size

X2 = Bank rate

X3 = Financial intermediation

X4 = Deposits/GDP

X5 = Placements/GDP

, represent of the independent variables and represent the residual error that was not captured in the econometric model.

Table 1 ROA Model - Financial Inclusion

Variable	Coefficiente	Error
	Standard	RobustotP value
Bank size	-.0041994	.0011201-3.750.000
Bank Type	-.002637	.0012288-2.150.033
Financial Intermediation	.0012962	.00372310.350.728
Deposits/GDP	.2831311	.0904897-3.130.002
Placements/GDP	.2586611	.12542962.060.040
Constant	.025350	.00313588.080.000
F(5,264)	10.92	
Probability (F)	0.0000	
R cuadrado	0.1066	
Note:	**p value = 0.05	

As evidenced in Table 1, with a significance level of 95% the financial intermediation variable is not significant compared to the Return on assets (ROA), the variables bank size, bank type are not very representative in this context, however as evidenced in the model there is an inverse relationship between the variables mentioned and the ROA, in relation to the captures if the ROA were increased by one unit, these would increase by 28.31% and the placements by 25.86%.

Probability F is 0.000 and less than the p-value, so the hypothesis that there is an incidence of financial inclusion on ROA bank profitability is accepted.

#### ROE Model - Financial Inclusion

In the ROE - Financial inclusion model (financial intermediation, deposits/GDP, bank size and bank type), ordinary least squares were used considering robust deviations to overcome the problems of heteroskedasticity.

Where:

X1 = Bank size

X2 = Bank rate

X3 = Financial intermediation

X4 = Deposits/GDP

X5 = Placements/GDP



, represent of the independent variables and represent the residual error that was not captured in the econometric model.

Table 2 ROE Model - Financial Inclusion

Variable	Coefficiente	Error
Standard RobustotP value		
Bank size	-.06979670	0.0080644-8.650.000
Bank Type	-.0149130	1.05081-1.420.157
Financial Intermediation	.05360090	0.0326695-1.640.102
Catchments/GDP	-3.1096561	0.026161-3.030.0003
Placements/GDP	2.7933921	0.4203921.970.050
Constant	.3534760	0.27169813.010.0000
F(5,264)	20.44	
Probability (F)	0.0000	
R cuadrado	0.2290	

Note: \*\*p value = 0.05

The variable type of bank, and financial intermediation is not significant in the ROE - Financial Inclusion model, the proposed model explains 22.90% of the behavior of the variables. The size of the bank is inversely proportional to the ROE, as well as the deposits/GDP, only the variable placements/GDP is directly proportional to the ROE as evidenced in Table 2.

#### Net Margin Model - Financial Inclusion

In the Net Margin - Financial Inclusion model (financial intermediation, deposits/GDP, bank size and bank type), ordinary least squares were used considering robust deviations to overcome the problems of heteroskedasticity.

Where:

X1 = Bank size

X2 = Bank rate

X3 = Financial intermediation

X4 = Deposits/GDP

X5 = Placements/GDP

, represent of the independent variables and represent the residual error that was not captured in the econometric model.

Table 3 Net margin model - Financial Inclusion

Variable	Coefficiente	Error
Standard RobustotP value		
Bank size	7139.0483373	0.3942.120.035
Bank Type	-757.40372162	0.243-0.350.726
Financial Intermediation	23410.5410302	0.35-2.270.024
Catchments/GDP	1163801972390	0.11.00.232
Placements/PIB	568486713905134	0.090.000
Constant	-34797.612417	0.59-2.800.005
F(5,264)	508.67	
Probability (F)	0.0000	
R cuadrado	0.9731	

Note: \*\*p value = 0.05

As shown in Table 3, the net financial margin, with the proposed model, explains 97.31% of the behavior of the variables, type of bank, and deposits are non-significant variables in the model.

Probability F is 0.000 and lower than the p-value, so it is accepted that there is an incidence of financial inclusion on bank profitability measured from the net financial margin.



According to the literature review, authors such as Stein (2014), Shihadeh and Liu (2019) in their research on financial inclusion and bank profitability have indicated that this level of financial inclusion is influenced by the provision of services such as deposits and placements that promote inclusion.

In the study entitled How does financial inclusion affect bank stability in emerging economies? The effect of financial inclusion on the soundness of banks is demonstrated, where strong evidence shows that bank stability is strengthened when financial inclusion is improved, but this nexus tends to change under several conditions (Wang & Luo, 2021). Specifically, a flourishing economy and well-developed policy environments are beneficial in strengthening the effect of financial inclusion on banking stability. Conversely, a flexible monetary environment and strong government power can promote greater risk-taking or reduced banking stability during the financial inclusion process.

The results generated in the present research show that Ecuadorian private banks in relation to financial inclusion show low incidence in return on assets (ROA) and return on equity (ROE), however; a high incidence of financial inclusion in the Financial Net Margin is shown, and when contrasted with the study by Shihadeh and Liu (2019) whose results when analyzing 701 banks from 189 countries, show that financial inclusion improves through bank penetration and therefore bank profitability increases; In this sense, banking entities infer that banks should invest more in their financial services delivery channels, in addition, enhance financial inclusion indicators such as; branches; formal account; formal savings; formal loans; credit cards; and debit cards with respect to decreasing your risk and improving your performance.

#### 4 CONCLUSIONS


With the results obtained from the research, it is concluded that an increase in financial inclusion can generate an improvement in bank profitability, showing a direct and positive relationship between Placements/GDP, Financial Intermediation, ROA, ROE, Financial Net Margin, in addition the control variable type of bank is not significant, that is; does not influence bank profitability, in the period analyzed an increase in financial inclusion indicators can be observed, leaving an open space to carry out a new study of financial inclusion measured through financial services generated through financial innovation such as ATMs, debit and credit cards, virtual channels of financial institutions.

#### CONFLICT OF INTEREST

The authors declare that there is no conflict of interest of any nature with the present research.

#### REFERENCES

- [1] Banna, H., Kabir Hassan, M., & Rashid, M. (2021). Fintech-based financial inclusion and bank risk-taking: Evidence from OIC countries. *Journal of International Financial Markets, Institutions and Money*, 75(October), 101447. <https://doi.org/10.1016/j.intfin.2021.101447>
- [2] Cihak, M., Mare, D. S., & Melecky, M. (2016). The Nexus of Financial Inclusion and Financial Stability: A Study of Trade-Offs and Synergies. *The Nexus of Financial Inclusion and Financial Stability: A Study of Trade-Offs and Synergies*, June. <https://doi.org/10.1596/1813-9450-7722>
- [3] Dar, S. S., & Sahu, S. (2022). The effect of language on financial inclusion. *Economic Modelling*, 106(October 2021), 1-14. <https://doi.org/10.1016/j.econmod.2021.105693>
- [4] Gutiérrez-Romero, R., & Ahamed, M. (2021). COVID-19 response needs to broaden financial inclusion to curb the rise in poverty. *World Development*, 138. <https://doi.org/10.1016/j.worlddev.2020.105229>
- [5] Lee, C.-C., Wang, C.-W., & Ho, S.-J. (2020). Financial Innovation and Bank Performance: The Role of Institutional Environments. *The North American Journal of Economics and Finance*, 53(March), 101195. <https://doi.org/10.1016/j.najef.2020.101195>

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- [6] Léon, F., & Zins, A. (2020). Regional foreign banks and financial inclusion: Evidence from Africa. *Economic Modelling*, 84(September 2018), 102-116. <https://doi.org/10.1016/j.econmod.2019.03.012>
- [7] Mollaahmetoğlu, E., & Akçali, B. Y. (2019). The Missing-Link between Financial Development and Economic Growth: Financial Innovation. *Procedia Computer Science*, 158, 696-704. <https://doi.org/10.1016/j.procs.2019.09.105>
- [8] Orazalin, N., & Akhmetzhanov, R. (2019). Earnings management, audit quality, and cost of debt: evidence from a Central Asian economy. *Managerial Auditing Journal*, 34(6), 696-721. <https://doi.org/10.1108/MAJ-12-2017-1730>
- [9] Puente, M., Gavilánez, O., & Arias, I. (2021). Analysis of Bancarization Through Software as a Process of Financial Inclusion in Chimborazo. *ESPOCH Congresses: The Ecuadorian Journal of S.T.E.A.M.*, 1(1), 102-118. <https://doi.org/10.18502/epoch.v1i1.9552>
- [10] Roa, M. J., & Carvallo, O. (2018). Financial inclusion and the cost of using formal financial instruments: The experiences of Latin America and the Caribbean. In *Financial inclusion and the cost of using formal financial instruments: The experiences of Latin America and the Caribbean* (Issue July). <https://doi.org/10.18235/0001216>
- [11] Rose, P., & Hudgins, S. (2018). *Bank Management and Financial Services* (M.-H. Education-Europe (ed.); 10th ed.).
- [12] Swaminathan, M. S., & Kesavan, P. C. (2016). Achieving the sustainable development goals. *Current Science*, 110(2), 127-128. [https://doi.org/10.47535/1991auoes30\(2\)016](https://doi.org/10.47535/1991auoes30(2)016)
- [13] Tobar, P. (2017). Financial Inclusion Mechanisms "FI" in Ecuador December 2017. *Superintendency of Banks and Insurance*, 1-66. [http://estadisticas.superbancos.gob.ec/portalestadistico/portalestudios/wp-content/uploads/sites/4/downloads/2018/05/Inclusion\\_financiera\\_dic\\_17.pdf](http://estadisticas.superbancos.gob.ec/portalestadistico/portalestudios/wp-content/uploads/sites/4/downloads/2018/05/Inclusion_financiera_dic_17.pdf)
- [14] Wang, R., & Luo, H. (Robin). (2021). How does financial inclusion affect bank stability in emerging economies? *Emerging Markets Review*, 51(PA), 100876. <https://doi.org/10.1016/j.ememar.2021.100876>
- [15] World Bank. (2019). *Financial inclusion is a key enabler to reducing poverty and boosting prosperity*. <https://www.worldbank.org/en/topic/financialinclusion/overview>
- [16] Zuleta J., L. A. (2018). *Financial inclusion of small and medium-sized enterprises in Colombia*. <https://repositorio.cepal.org/handle/11362/44232>