

DETERMINANTS OF FINANCIAL PERFORMANCE OF FINTECHS IN ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT COUNTRIES

Yousef AlBaker *

* College of Business Management, University of Doha for Science and Technology, Doha, Qatar
Contact details: College of Business Management, University of Doha for Science and Technology, 24449 Arab League St., Doha, Qatar



Abstract

How to cite this paper: AlBaker, Y. (2024). Determinants of financial performance of FinTechs in Organisation for Economic Co-operation and Development countries. *Corporate & Business Strategy Review*, 5(4), 8–19.
<https://doi.org/10.22495/cbsrv5i3siart1>

Copyright © 2024 The Author

This work is licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0).
<https://creativecommons.org/licenses/by/4.0/>

ISSN Online: 2708-4965
ISSN Print: 2708-9924

Received: 02.11.2023
Accepted: 06.08.2024

JEL Classification: E44, G21, O33
DOI: 10.22495/cbsrv5i3siart1

The study determined the effect of size, equity, labour, loans, and deposits on the performance of the financial technology (FinTechs; return on assets — ROA and return on equity — ROE). Data on FinTech performance was collected from the Refinitive Eikon platform. As prior studies have found, variables such as size, equity, labour, loans, and deposits can impact the ROA and ROE (Abbasi et al., 2021; Akbar, 2021). Drawing upon prior work examining similar relationships at the firm level one, the research analyzes a sample of 148 FinTech from 10 Organisation for Economic Co-operation and Development (OECD) countries from 2000–2022. Consistent with Abbasi et al.'s (2021) findings regarding FinTech adoption and efficiency, the impact of variables, including size, equity, loans, and deposits on returns, are evaluated. According to the study, it was clear that a rise in the company's size led to a decline in its financial performance. The findings revealed that assets positively affected the performance of FinTechs across the different financial periods. Labour had a negative effect on the ROA across the OECD countries' FinTechs, while loans positively affected the performance of the different FinTechs. From the study, there is a need for more collaborative research across academics, policymakers, and industry experts to better the outcomes.

Keywords: OECD, Performance, Equity, Loans, FinTechs, Returns

Authors' individual contribution: The Author is responsible for all the contributions to the paper according to CRediT (Contributor Roles Taxonomy) standards.

Declaration of conflicting interests: The Author declares that there is no conflict of interest.

1. INTRODUCTION

In the Organisation for Economic Co-operation and Development (OECD), similar to other countries around the world, the financial technology (FinTech) industries have been on the rise and considered disruptive within the OECD countries' financial landscape over different financial years, with the increase in new developments in digital payments, insurance, lending, and management

of wealth over time. FinTech firms have often transformed how various OECD countries access and interact with different financial services over the years (Goswami et al., 2022). The expansion of this sector aids in understanding the various factors responsible for informing the financial performance of such firms over time. The current study examines how different factors influence FinTech companies' financial performance within the OECD. In some studies, it has been noted that competition,

operational efficiency of the firms, access to funding for expansion, regulatory environment, financial inclusion approaches, and risk management are some of the factors responsible for changes in the financial performance of various OECD country's tech firms (Kachumbo, 2020). In the era where financial inclusion, regulatory compliance, advancements in technology, and compliance with regulations, among others, across the changing performance of the FinTechs are essential for policymakers, investors, and stakeholders, it is vital to involve the different agencies in ensuring the needs of the various organizations are met over time. This study offered relevant insights to provide sustainable growth and some levels of success for FinTechs operating within OECD countries' financial landscape over time (Gupta & Verma, 2022). OECD's financing ecosystem has evolved due to the incredible expansion of the FinTech industry. The financial performance of FinTech companies has been negatively affected by an array of hurdles and concerns that have arisen amid this explosive growth (Gupta & Agrawal, 2021). It is crucial to comprehend the variables influencing this sector's financial performance for the continued development and security of the industry.

The FinTech industry in the OECD has expanded significantly, but it continues to encounter many issues that may affect the reliability of its finances. These challenges include changing macroeconomic conditions, technological advancements, market competition, client preferences, and regulatory settings (Hermuningsih et al., 2023). Due to the intricacy of these difficulties, it is necessary to conduct a thorough analysis to pinpoint their precise effects and relationships.

One of the critical issues facing OECD country's financial firms is regulatory compliance. The legal environment for FinTech is continually evolving to safeguard consumer interests and keep up with technological advancements (Nenavath & Mishra, 2023). The financial performance of FinTech enterprises may be considerably impacted by the highly resource-intensive fulfilment of these rules and regulations. Innovations that are fast emerging and posing possibilities and hazards to FinTech organizations include blockchain, artificial intelligence (AI), and mobile app development (Mikhaylov et al., 2023). The capacity to effectively adjust to and use these technological advances might determine one's financial achievement or failure. Therefore, it is essential to comprehend how technology affects economic performance.

Market competition is another pressing concern. The FinTech sector in the OECD is witnessing increased entry of new players, including startups and traditional financial institutions (Gupta & Verma, 2022). This intensified competition impacts market share, pricing strategies, and profitability. Analyzing how competition affects financial performance is essential for FinTech firms to formulate effective strategies (Aggarwal et al., 2023). Consumer preferences and behavior in the digital financial space are continually evolving. Trust, user experience, and data privacy can influence customer acquisition and retention rates. To thrive, FinTech companies must comprehend these factors and align their offerings accordingly to improve their financial performance over time.

Furthermore, the financial health of FinTech firms is frequently significantly affected by macroeconomic variables like inflation, rates of interest, and growth in the economy. Recognizing the associations between these macroeconomic factors and financial results is necessary to make strategic decisions (Aduba et al., 2023). In light of these difficulties and complexity, this study intends to look into the factors that affect the financial success of OECD country's FinTech firms. This study aims to provide useful knowledge and suggestions that will assist finance technology companies in enhancing their financial health, getting around difficulties, and making a contribution to the ongoing development of OECD's digital financial environment by thoroughly analyzing regulatory, technological, competitive, consumer-related, and macroeconomic factors over time.

The study objectives were to determine the effect of company size on FinTech performance, the effect of equity on FinTech performance, the effect of labour on FinTech performance, the effect of loans on FinTech performance, and the effect of deposits on FinTech performance.

The study offered insights into the relationship between critical financial metrics and performance variables for many FinTech firms. In particular, it studies the effects of variables like equity, deposits, and loans on returns to assets and equity.

The structure of this study is as follows. Section 2 reviews the relevant literature on theories of firm growth and technology adoption. Section 3 describes the methodology, including data sources, variables, and statistical tools. Section 4 reports the results of the descriptive analysis, correlation analysis, and regression models. Section 5 discusses the major findings. Section 6 shows the conclusions, and recommendations drawn from the analysis.

2. LITERATURE REVIEW

The efficiency-stage model was developed by Larry E. Greiner in 1972 (Aggarwal et al., 2023). The theory was built to help organizations understand their growth and various stages of development that had affected their organizational and management theories. The theory is instrumental in analyzing the different startups' development stages as they evolve into maturity (Kumar & Kar, 2023). This was considered instrumental in fathoming the setbacks, goals, and other attributes linked to the lifecycle of each company. The model is a conceptual framework aimed at showing the categorization of the various stages of companies in terms of their developments in line with their objectives and key goals across the different industries they operate (Kweh et al., 2023). Moreover, it also explains how companies progress from innovation-based to efficiency-focused stages with intrinsic attributes and other priorities at each phase.

The theory is relevant since it aids in understanding FinTech organizational developments by offering relevant frameworks to understand how startups and other firms change with time (Zuo et al., 2021). Moreover, it also aids entrepreneurs and other managers in expecting various setbacks and challenges across each stage. Furthermore, the theory is also key in strategic decision-making

across various agencies. In cognizance of the specific stage in which the FinTech firm is, leaders can always make various informed strategic decisions to better firm performance. For instance, startups within the innovation stage can prioritize undertaking periodic research and development, as mature firms may always focus on process optimization and cost reduction to better their operations (Shekhar et al., 2023). Furthermore, resource allocation is also an area of interest in the model. In this case, the model is instrumental in offering relevant resource allocation guides across the different innovation stages that often require extra investment in research and development acquisition of talent, among others.

Efficiency firms allocate resources to improve their profitability and operational efficiency across different industries. The theory is also relevant to industries with rapid technological dynamics, such as the tech sector, where startups often move from one innovation to another under various efficient stages (Chen et al., 2020). The model is considered a valuable tool used for understanding and managing different aspects of growth and development across organizations. It also offers room for making relevant strategic decisions, navigating challenges across each stage, and offering relevant recommendations to better their success.

The technology acceptance model (TAM) was developed by Fred Davis in 1986 (Alfadda & Mahdi, 2021). It explains and predicts how users accept and use technology for various purposes. The theory explains that perceived usefulness and ease of use are the key measures that affect the adoption and acceptance of technology among various users (Alfadda & Mahdi, 2021). More precisely, users are likely to accept and adopt technology use if they perceive it as easy to use and believe that it will improve their performance and productivity over time (Wiryawan & Nugroho, 2023). For instance, the uptake of FinTech is built on their perceived usefulness and adoption by users, hence changes in the number of customers using their platforms over time.

The TAM theory has been highly important in terms of the adoption of technology and information systems. The approach has aided in understanding various technologies ranging from hardware to online applications. In most cases, organizations can always employ TAMs to assess the attitudes and behavior of users in line with the implementation of various technologies over time (Mustafa & Garcia, 2021). These patterns tend to affect decision-making and improve user adoption rates (Prawitasari & Lazuardi, 2023). The theory has become instrumental in assessing how technological applications, especially in FinTech, affect their outcomes over time. Ndungu and Moturi (2020) studied the determinants of mobile FinTech uptake in the Kenyan microfinance sector. The study revealed that microfinance sectors have been undergoing challenges ranging from a rise in credit risks, increased overheads, reduced visibility, and poor uptake of emerging technologies. These challenges have been linked to low innovation levels and limited uptake of existing digital FinTechs over the years. The study is formed of a descriptive study design with 30 microfinance institutions already registered with the Kenyan Association of Microfinance Institutions (AMFI) in 2018. Data was

obtained from 120 respondents and analyzed using correlation analysis. The findings reported that technological factors had a positive relationship with the efficiency of operations of the different companies. The study revealed that the success of the technologies adopted by microfinance institutions was dependent on the size of the business and the capital invested. Ciukaj and Kil (2020) undertook a study to investigate the determinants of the non-performing loan ratio in the European Union banking sectors with a high level of impaired loans built around FinTechs. The study done on OECD countries across the European Union (EU) revealed that the loans' size hurt the FinTechs' performance. Furthermore, the company's size was also significant in influencing the financial performance of the various companies over time.

Pambudianti et al. (2020) conducted a study to examine the efficiency of micro-, small and medium-sized enterprises (MSMEs) loan distribution and users' financial inclusion index. The study was tailored to understand whether FinTechs improved customer uptake of loans and other financial instruments offered. The findings revealed that companies with higher loans to customers through FinTechs experienced negative performance from loan defaults. This informed that the higher the size of the loans, the more risks the company faced, hence the need to limit the size of the loans issued to customers (Sampat et al., 2023). Abbasi et al. (2021) investigated FinTech, SME efficiency, and national culture: evidence from OECD countries. According to the study, it was noted that the generation of technology adopted was key in influencing the performance of the different firms.

Moreover, Daragmeh (2021) also echoed similar sentiments from investigating FinTech payments in the era of COVID-19. In this case, it was witnessed that the behavioral intentions of Generation X customers were instrumental in influencing the use of mobile payments across different users. It was noted that the attitudes regarding technological acceptance among the users were key in the performance of FinTechs from the Hungarian context. Aduba et al. (2022) investigated the causality between financial performance, FinTech, financial inclusion, and financial development in emerging and developing economies. The study was developed across the OECD countries to examine the determinants of FinTechs' success over the years. The study adopted a correlational design to examine the various factors associated with the financial performance of various FinTechs. In its adoption, the study used profitability as a key measure of the success of the FinTechs for the past years. Linear regression models were used to examine how the financial performance of FinTechs changed with other financial indicators. The analysis pointed to the size of the company (FinTech) as key in influencing the outcome of the investments — inconsistent findings with Mwasi and Aluoch. (2023), bigger companies in terms of asset size were better placed to adopt relevant technologies to better their performance, unlike the startups with limited resources to meet their financial obligations and adopt relevant FinTech technologies.

Alkhalwaldeh et al. (2023) did a study to determine the effect of FinTech on financial performance in Jordanian SMEs. This study was built

around financial satisfaction across the different FinTechs. The findings informed that the adoption of FinTech had a positive effect on financial performance. Financial satisfaction mediates the relationship between the adoption of FinTech and financial performance. Moreover, the results also informed that financial satisfaction had a significant effect on the financial performance of the companies. This informed that satisfaction of the customers with their different financial situations was likely to impact financial performance positively. However, the study needed to incorporate success measures such as return on equity (ROE) and return on assets (ROA) to ascertain how the FinTechs performed, hence the need for the study.

Arora et al. (2023) undertook a study to examine the effect of customer experiences on the growth of FinTech in the era of AI in the context of FinTech. The study examined how AI would influence FinTech services' outcomes among companies around the OECD and the rest of the world. In its design, the study used 970 respondents from India. The fuzzy analytic hierarchy process (AHP) technique was used to identify the primary and sub-factors affecting the performance of FinTechs used by different small and medium-sized enterprises (SMEs). The findings indicated that FinTech was key in increasing the efficiency of the SMEs. Moreover, the size of the SME was considered key in adopting relevant FinTech to suit customer needs across the market.

According to Saputra (2022), the financial performance of companies is always pegged on their profitability measures such as ROA, ROE, and other profitability ratios. This was also explained by Akbar (2021), hence the need to include ROA and equity as the dependent variables for this study. Al-Dmour et al. (2020) reported that competition across FinTechs across various sectors, such as banking, positively affected performance. Nonetheless, Dwivedi et al. (2021) reported that despite competition expected to spur FinTech performance, it was limited in some instances, negatively affecting company performance hence the hypothesis set to check for a negative relationship between the variables.

H1: The study expects that there is a negative relationship between competition of the FinTech and performance.

The dependent variable was performance (ROA and ROE), and the independent variable was *competition*. Both the variables were measured on a continuous scale.

Al-Matari et al. (2022) revealed that total assets positively affected the performance of FinTechs and other financial institutions. The outcomes were also backed by Atayah et al. (2023), who stated that the size of the firms was crucial in influencing the annual financial performance of the various companies. This indicated the need for this hypothesis to confirm the claim.

H2: The study expects that there is a positive relationship between the size of the FinTech (total assets) and performance.

The dependent variable was performance (ROA and ROE), and the independent variable was *total assets*. Both the variables were measured on a continuous scale.

Wang et al. (2021) revealed that deposits had a positive effect on the performance of banks and other FinTechs, pegged on big data. The findings were also supported by Chen et al. (2021), in which

banks with higher deposits tend to have a high pool of resources to fund loans and other liquidity requirements, hence improving FinTech performance. This informed the need to check whether FinTechs in the OECD also had the same trend.

H3: The study expects that there is a positive relationship between deposit and performance.

The dependent variable was performance (ROA and ROE), and the independent variable was the *deposit*. Both the variables were measured on a continuous scale.

Liu et al. (2021) stated that equity positively affected the performance of FinTechs, emphasizing the need for enhanced corporate social responsibility to attract investors. The outcomes were also echoed by Arena et al. (2023), in which the role of corporate governance on the performance of FinTechs. This revealed that there was a high likelihood of equity having a positive effect on the performance of the firms.

H4: The study expects that there is a positive relationship between the equity of the FinTech and performance.

The dependent variable was performance (ROA and ROE), and the independent variable was *equity*. Both the variables were measured on a continuous scale.

Zhao et al. (2020) noted that loans positively affected FinTechs' financial performance. This was also supported by Najib et al. (2021). This informed the need for the hypothesis to test whether the findings corroborate with the findings or not.

H5: The study expects that there is a positive relationship between loans of the FinTech and performance.

The dependent variable was performance (ROA and ROE), and the independent variable was *loans*. Both the variables were measured on a continuous scale.

3. RESEARCH METHODOLOGY

3.1. Research method

The study used data about FinTechs from the OECD repository from 2000–2022, with an annual frequency being used. The data comprised data being on a continuous scale of measurement to ensure that the expected needs of the study are met. The research was based on 148 FinTechs operating in OECD to examine the factors responsible for the changes in their performance over time. The collected data was connected to the recoil platform using the Scion definitive platform from 2000–2022.

Table 1. Number of FinTechs from the OECD countries

<i>Countries in the OECD</i>	<i>Number of FinTechs</i>
Australia	12
Canada	14
United States	14
Denmark	14
Finland	16
France	18
United Kingdom	15
Spain	25
Portugal	20
Total	148

Source: Author's elaboration.

The study was done based on ordinary least square regression of the different model parameters. The models assumed that a linear relationship

existed between ROA and the log of total assets, equity, labour, deposit, capital, and concentration. Furthermore, the second model assumed a linear relationship existed between ROE and the total assets, equity, labour, deposit, capital, and competition log. In this case, correlation analysis was proposed to aid in determining the relationship between the different factors to ensure that the expected outcomes in terms of the relationship between ROA and ROE on the log of total assets, equity, labour, deposit, capital and competition among other key factors were properly examined over time. Additionally, the model also assumed that the independent variables (log of total assets, equity, labour, deposit, capital, and competition) had no evidence of multicollinearity with each other. This indicated that no relationship existed between the independent variables selected for model building.

The research is based on two linear regression models to investigate the determinants of the performance of FinTechs within the OECD. The models adopt ROE and ROA as the key dependent variables. The equation defines the first model.

$$y = \beta_0 + \beta_1 * x_1 + \beta_2 * x_2 + \beta_3 * x_3 + \beta_4 * x_4 + \beta_5 * x_5 + \beta_6 * x_6 + \varepsilon_i \dots (i) \quad (1)$$

where,

- y is the ROE of the OECD country's FinTechs;
- β_0 is the model intercept of the OECD country's FinTech model;
- β_1 - β_6 considered as the slopes associated with the different model parameters (log of total assets, equity, labour, deposit, capital, and concentration) from the OECD country's FinTech model;
- x_1 is the log of total assets of the OECD country's FinTechs;
- x_2 is equity of the OECD country's FinTechs;
- x_3 is the log of labour of the OECD country's FinTechs;
- x_4 is the log of deposits of the OECD country's FinTechs;
- x_5 is the log of the capital of the OECD country's FinTechs;
- x_6 is the log of the OECD country's FinTechs;
- ε_i is the error term associated with the model-developed models.

3.2. Alternative method

A possible alternative methodology that may work for this study is mixed methods research. If the data

is available, the quantitative element would apply to structural equation modeling (SEM) to determine associations among the variables. Financial performance measures may be regressed on factors such as total assets, equity, and deposit loans while accounting for measurement errors. Also, competition level is an essential factor to consider. This would give a more complex analysis than the multiple regression, given that sufficient secondary data can be obtained.

Qualitative research would include semi-structured interviews with randomly selected high and low-performing FinTech leaders. With consent, it could be implemented through a semi-structured interview guide to identify the possible success or failure factors according to their opinion. Contextual influences on the outcomes may also be gleaned from case studies of successful and struggling FinTechs if the institutions choose to provide information. Combining SEM quantitative analysis with the qualitative interview data and case study findings would yield another robust assessment, compared to the available methods, if all procedures are implementable and sanctioned.

4. RESEARCH RESULTS

The first analysis comprised the measures of central tendency and dispersion. In this case, the means, standard deviations, and minimum and maximum values of the different variables were done. Later, correlation analysis was employed on the variables. The approach was used to test for the relationship between ROA and the log of total assets, equity, labour, deposit, capital, and competition. The approach also aided in explaining the relationship between ROE and the log of total assets, equity, labour, deposit, capital, and competition. The approach also tested whether the correlations were statistically significant or not at 1%, 5%, and 10% levels of significance. Multiple regression analysis was the last approach employed to determine the effect of the log of total assets, equity, labour, deposit, capital, and competition on ROA and ROE. The approach comprised of R-squared used in measuring the predictive power of the two models, Regression analysis of variance (ANOVA) used to test whether the developed models were statistically adequate, and t-tests used to test whether the model parameters were statistically significant. Statistical inferences from the two models were made at 1%, 5%, and 10% levels of significance.

Table 2. Descriptive statistics of the dependent and independent variables

Variable	Obs.	Mean	Std. dev.	Min	Max
Equity	1383	17.087	18.705	-29.87	99.960
Deposit	663	6.686	3.861	0.71	88.970
Loans	1368	58.872	23.004	0.000	99.890
Roe	1221	5	78.855	-2029.290	120.890
Roa	1237	0.784	8.661	-160.930	120.070
Capital	1348	109.659	3150.153	-19.816	114643.88
Ln _{ta}	1395	14.824	2.554	2.094	20.381
Ln _{equity}	1374	2.541	0.706	-0.117	4.605
Ln _{labour}	1340	10.245	2.447	1.946	15.907
Ln _{deposit}	663	1.834	0.343	-0.342	4.488
Ln _{competition}	1301	11.558	2.433	1.681	16.706
Ln _{loans}	1365	3.804	1.241	-4.605	4.604
Ln _{roe}	1092	2.131	1.033	-4.605	4.795
Ln _{roa}	1093	0.086	1.051	-4.605	4.788
Ln _{capital}	1347	0.645	1.506	-3.102	11.650

Source: Author's elaboration.

On the analysis, the equity of the FinTechs revealed an average equity of 17.087 with a standard deviation of 18.705. The maximum value for the equity was 99.96, with a minimum of -29.87. Deposits had an average of 6.686, with a standard deviation of 3.861, a maximum of 88.97, and a minimum of 0.71. Loans had an average of 58.872 with a standard deviation of 23.004, a maximum of 99.89, and a minimum of 0.00. ROE had an average of 5.00 with a standard deviation of 78.855, a maximum of 120.89, and a minimum of -2029.29. ROA had an average of 0.784 with a standard deviation of 8.661, a maximum of 120.07, and a minimum of -160.93.

Capital had an average of 109.659 with a standard deviation of 3150.153, a maximum of 114643.88, and a minimum of -19.816. Log of total assets had an average of 14.824 with a standard deviation of 2.554, a maximum of 20.381, and a minimum of 2.094. Log of equity had an average of 2.541 with a standard deviation of 0.706, a maximum of 4.605, and a minimum of -0.117. Log of labour had an average of 10.245 with a standard deviation of 2.447, a maximum of 15.907, and a minimum of 1.946. Log of deposits had an average of 1.834 with a standard deviation of 0.343, a maximum of 4.488, and a minimum of -0.342.

Log of competition had an average of 11.558 with a standard deviation of 2.433, a maximum of 16.706, and a minimum of 1.681. Log of loans had an average of 3.804 with a standard deviation of 1.241, a maximum of 4.064, and a minimum of -4.605. Log of ROE had an average of 2.131 with a standard deviation of 1.033, a maximum of 4.795, and a minimum of -4.605. The log of ROA had an average of 0.086 with a standard deviation of 1.051, a maximum of 4.788, and a minimum of -4.605. Log of capital had an average of 0.645 with a standard deviation of 1.506, a maximum of 11.65, and a minimum of -3.102. The findings reported that the ROE from the FinTechs was higher than the ROA for the specified periods.

5. DISCUSSION

The findings were similar to Akbar (2021) in that the ROE was higher than the ROA on average. Furthermore, it was also witnessed that a rise in the values of ROE was expected to stay within certain levels owing to the debt ratios across different FinTechs or financial institutions across global corporations. Moreover, Saputra (2022) also found similar outcomes to Akbar (2021), noting that a rise in the value ROE was higher than the ROA trends. This pointed to the differences in capital allocations across companies, with investments being higher in terms of values and repeated over time, unlike assets that experience limited changes over the years. Mudzakar and Wardanny (2021) also echoed similar sentiments, revealing that ROA is always lower, especially in the later years of companies, compared to their initial years after inception into the different markets.

According to the findings in Table A.1 in Appendix, it was reported that ROA had a weak positive relationship with ROE ($r = 0.345$). The findings reported a significant relationship between ROA and equity. The findings reported that

a weak positive relationship existed between total assets and ROE ($r = 0.013$). This informed that a rise in the value of total assets presented a possibility for a rise in the ROE. The results also indicated a significant relationship between ROE and total assets. Equity had a weak positive relationship with ROE ($r = 0.058$). The outcomes also indicated a significant association between ROE and equity for the different FinTechs. Labour had a weak positive relationship with the ROE for the different periods ($r = 0.013$). The results reported an insignificant association between labour and ROE. Competition had a weak positive relationship with ROE, as reported from the findings ($r = 0.024$).

The outcomes presented an insignificant relationship between ROE and competition from the results. This indicated a low chance for the ROE to rise owing to the changes in the levels of competition across the FinTechs. The deposit had a weak positive relationship with the ROE ($r = 0.066$). Loans had a weak negative relationship with the ROE explained by the findings ($r = -0.032$). The findings reported an insignificant association between loans and ROE, as reported from the analysis. The findings explained that capital had a weak negative relationship with the ROE ($r = -0.013$). The findings reported an insignificant association between capital and ROE, as reported from the analysis. Log of loans had a weak negative relationship with the ROE explained by the findings ($r = -0.029$). The findings reported the existence of an insignificant association between the log of loans and ROE, as reported from the analysis. Log of capital had a weak positive relationship with the ROE explained by the findings ($r = 0.042$). The findings reported the existence of an insignificant association between the log of loans and ROE as reported from the analysis.

The log of labour had a weak positive relationship with the ROE explained by the findings ($r = 0.020$). The findings reported the existence of an insignificant association between the log of labour and ROE as reported from the analysis. Log of deposit had a weak positive relationship with the ROE explained by the findings ($r = 0.112$). The findings reported the existence of an insignificant association between the log of deposit and ROE as reported from the analysis. Log of total assets had a weak positive relationship with the ROE explained by the findings ($r = 0.016$). The findings reported the existence of an insignificant association between the log of total assets and ROE, as reported from the analysis.

The findings reported a weak negative relationship between ROA and total assets ($r = -0.002$). This reported that the decline in total assets weakly explained a decline in the ROA. The outcome also reported an insignificant association between total assets and ROA. The findings explained that competition had a weak positive relationship with the ROA ($r = 0.010$). The findings reported an insignificant association between competition and ROE, as reported from the analysis. The log of capital had a weak negative relationship with the ROA explained by the findings ($r = -0.016$). The findings reported an insignificant association between competition and ROE, as reported from the analysis. Log of loans had a weak negative relationship with the ROA explained by the findings ($r = -0.011$). The findings reported

the existence of an insignificant association between the log of loans and ROE as reported from the analysis.

The log of deposit had a weak negative relationship with the ROA explained by the findings ($r = -0.012$). The findings reported the existence of an insignificant association between the log of deposit and ROE as reported from the analysis. The log of labour had a weak positive relationship with the ROA explained by the findings ($r = 0.018$). The findings reported the existence of an insignificant association between the log of labour and ROE as reported from the analysis. Log of equity had a weak positive relationship with the ROA explained by the findings ($r = 0.219$). The findings reported the existence of an insignificant association between the log of equity and the ROA reported from the analysis.

Log of total assets had a weak positive relationship with the ROA explained by the findings ($r = 0.018$). The findings reported the existence of an insignificant association between the log of total assets and ROE as reported from the analysis. Labour had a weak negative relationship with the ROA, explained by the findings ($r = -0.002$). The findings reported the existence of an insignificant association between labour and ROE as reported from the analysis. The findings explained that

competition had a weak positive relationship with the ROA ($r = 0.010$). The findings reported the existence of an insignificant association between competition and ROE, as reported from the analysis.

The findings explained that equity had a weak positive relationship with the ROA ($r = 0.266$). The findings reported an insignificant association between equity and ROE, as reported from the analysis. The deposit had a weak negative relationship with the ROA explained by the findings ($r = -0.017$). The findings reported an insignificant association between deposit and ROE, as reported from the analysis. Loans had a weak positive relationship with the ROA explained by the findings ($r = 0.020$). The findings reported an insignificant association between loans and ROE, as reported from the analysis.

The results from this case were similar to those of Asikin et al. (2020), who argued that equity had a positive relationship with ROA and ROE. Nonetheless, the current analysis informed that equity had a weak relationship, unlike the existing strong positive relationship between equity and ROA and ROE. Daniswara and Daryanto (2019) differed from the current study in which deposits positively correlated with ROA. However, it was similar to loans that demonstrated a positive relationship with both ROA and equity.

Table 3. Linear regression analysis

ROA	Coef.	Std. error	t-value	p-value	[95% Conf. interval]		Sig.
Total assets	-2.89e-09	1.77e-09	-1.63	0.103	-6.37e-09	5.64e-10	
Equity	0.003	0.005	0.65	0.514	-0.006	0.013	
Labour	-4.60e-08	1.13e-07	-0.41	0.685	-2.68e-07	1.77e-07	
Competition	9.87e-08	4.62e-08	2.13	0.033	8.20e-09	1.90e-07	**
Deposit	-0.003	0.005	-0.53	0.594	-0.014	0.008	
Loans	0.028	0.006	5.12	0.000	0.018	0.039	***
Capital	0.002	0.005	0.33	0.745	-0.008	0.011	
Lnta	-0.222	0.059	-3.78	0.000	-0.337	-0.106	***
Lnequity	-0.065	0.237	-0.27	0.785	-0.530	0.401	
Lnlabour	0.016	0.026	0.63	0.528	-0.034	0.067	
Lndeposit	0.107	0.077	1.39	0.166	-0.045	0.259	
Lncompetition	0.263	0.062	4.21	0.000	0.140	0.385	***
Lnloans	-1.525	0.296	-5.16	0.000	-2.106	-0.945	***
Lncapital	0.028	0.026	1.08	0.282	-0.023	0.078	
Constant	6.456	1.391	4.64	0.000	3.723	9.189	***
Mean dependent var. = 1.118				SD dependent var. = 0.741			
R-squared = 0.802				Number of obs. = 569			
F-test = 139.521				Prob > F = 0.000			
Akaike information criterion (AIC) = 384.075				Bayesian information criterion (BIC) = 453.577			

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Author's elaboration.

The model revealed that the R-squared was 0.802, indicating that the model explained 80.2% of the regression. This reported a higher predictive power on the ROA over the different periods. The findings further reported that the model was statistically viable at a 5% level of significance ($F = 139.521$, $p = 0.000$). On the parametric tests, it was revealed that total assets hurt the ROA ($\beta = -2.89e-09$). This informed that a rise in the total assets reduced the ROA. Nonetheless, the parameter proved statistically insignificant at a 5% level of significance ($p > .05$). Equity had a positive effect on the ROA ($\beta = 0.003$). This informed that a rise in equity led to a rise in the ROA. The parameter proved statistically insignificant at a 5% significance level ($p > 0.05$).

Labour had a negative effect on the ROA ($\beta = -4.60e-08$). This explained that a rise in labour reduced the ROA over time. The parameter proved

statistically insignificant at a 5% significance level ($p > 0.05$). Competition had a positive effect on the ROA ($\beta = 9.87e-08$). This explains that a rise in competition increased the ROA over time. The parameter proved statistically significant at a 5% significance level ($p < 0.05$). The deposit had a negative effect on the ROA ($\beta = -0.003$). This explained that a rise in deposits reduced the ROA over time. The parameter proved statistically insignificant at a 5% significance level ($p > 0.05$). Loans had a positive effect on the ROA ($\beta = 0.028$). This explains that a rise in loans increased the ROA. The parameter proved statistically significant at a 5% significance level ($p < 0.05$). Capital had a positive effect on the ROA ($\beta = 0.002$). This explains that a rise in capital increases the ROA. The parameter proved statistically insignificant at a 5% significance level ($p > 0.05$).

Robustness checks were done by remodeling using ROE as the dependent variable, and findings were compared with the ROA model. The study revealed that total assets hurt the ROA. The pattern was also similar to the ROE. The findings were similar to those from Grandhi et al. (2022), in which the size of the FinTechs reduced their financial performance across different periods. More specifically, companies with high value of total assets tend to realize diminished returns, unlike those with smaller sizes. Tripathi (2022) added to the outcomes by examining how company size based on market capitalization was responsible for the growth of FinTechs. It has always been argued that large market-capped firms had higher returns associated with their investments.

Nonetheless, the results informed a different case, in which it was revealed that there existed a negative relationship between market capitalization and the return on investment realized by the investors over different investment periods. The results were similar to those of Akbar (2021), in which capital positively affected the ROA across different firms. This was also similar to Saputra (2022), in which a rise in the value of capital led to a rise in both ROE and ROA, as presented in the current study.

The findings revealed that equity positively affected the financial performance of FinTechs across different periods. The findings revealed that a rise in either ROE or ROA pointed to a possible rise in equity value. The findings were similar to that of Desai et al. (2022). In this context, it was reported that the rise in the amount of equity injected into FinTechs reflected their performance, especially regarding the ROE. This pattern is often enhanced to ensure investors get value for their investments within the different investment horizons or periods. Nonetheless, Werth et al. (2023) informed the existence of other factors responsible for the growth in the financial performance of FinTechs (ROA and ROE). The findings based the success of FinTechs on the levels of adoption or uptake by customers and the technological obsolescence rates compared to the existing FinTechs within the same space.

The findings reported that labour had a negative effect on the financial performance of the OECD countries' FinTechs. This informed that a decline in the cost of labour led to the profitability of the performance of various FinTechs. The results were similar to those from Babu et al. (2023), in which the quality and cost of labour significantly impacted the financial performance of different organizations. The results reported that loans positively affected the performance of the various FinTechs concerning the changes in the ROE and ROA across the various periods. The outcomes were directly related to Pambudianti et al. (2020), in which the loans taken were considered motivators to increase production. Both ROA and equity are expected to rise regarding the financial outcomes over the various periods. Nonetheless, Croutzet and Dabbous (2021) differed from the findings by noting the existence of outliers in some loans that failed to yield the expected investment returns from FinTechs across the OECD.

The findings reported that deposits negatively affected the performance of the FinTechs in terms of ROA and equity. The results were similar to Abbasi

et al. (2021) owing to the direction of the deposits concerning the performance of the FinTechs within the OECD countries, as explained by the reported results. In this spirit, it was clear that increased deposits may not balance with the needs of the FinTechs to fund their operations over the different periods.

6. CONCLUSION

According to the study, it was clear that a rise in the company's size led to a decline in its financial performance. This reported that for the different FinTechs, a size drop led to a rise in their performance based on the ROA and ROE across the different trading periods. The company's size in terms of its assets should be keenly considered concerning the changes in various types of assets. Both fixed and variable assets should be observed to ensure their effect on financial performance instead of the various patterns witnessed in total assets. The findings revealed that equity positively affected the performance of FinTechs across the different financial periods.

The findings reported a rise in the equity value, similarly, affecting the ROE and assets. Moreover, a decline in the value of equity resulted in a drop in the financial health of the FinTechs into the future. The positive effect of equity informed the need to ensure stable equity levels to balance equity and debt to reduce the imbalance between the two measures.

The findings further reported that labour increments need to be monitored to ensure that they remain in tandem with the performance trajectory of the various firms. Loans positively affected the performance of the different FinTechs engaged in the study. In this case, it was witnessed that a rise in the value of loans translated to the value of the investment returns measured based on the ROA and the ROE over the different periods. The pattern witnessed from the analysis informed that loans are crucial in ensuring the success of various FinTechs, improving the ROA and equity over the future and based on the past years. This points to the need to identify various loan instruments and examine the impacts of each loan sub-category on the performance of the firms.

As noted in the abstract, total assets positively affected returns, while labour showed a negative effect. Loans demonstrated a positive impact on performance as well. However, the results revealed many weak and insignificant relationships between the explanatory variables and returns. The findings reported that deposits negatively affected the financial performance of the different FinTechs over different periods. In this case, it was informed that a rise in the deposits resulted in a decline in both the ROA and ROE, as witnessed from the study. The results showed that there is a need to undertake more studies to assess the impact of deposits on other different areas of financial performance. This is geared at improving the ROA and equity across the various financial periods, as witnessed from various studies reported with time.

The findings of this study provide an important first analysis of factors influencing FinTech firm performance that future researchers can build on. The study was limited, mainly focusing on only

10 OECD countries and periods from 2000–2022. It implies that non-OECD markets and times outside this window may show different relationships between variables. Therefore, more research with expanded geographic and time coverage is essential to broaden future research. In addition, the study adopted quantitative analysis and thus did not qualitatively examine how managerial decisions or other soft factors impact FinTech returns. Thus, future work incorporating interviews and case studies could address much deeper insights. Addressing these limitations will help policymakers and industry strategize more effectively about promoting optimal conditions for FinTech success in

other regions and eras. Also, the poor relationships indicate that the returns are driven by various internal and external factors not covered here. Multivariate regression might be a good way for future research to overcome these limitations and better identify many drivers of returns. It can also be very beneficial to add further explanatory variables such as the company's age, size, geographic regions, or levels of innovation. Providing a larger sample of the FinTechs for an extended period would also support the findings. Overall, the study provides a reasonable basis for continued investigation into which factors have the most practical influence on profitability in the FinTech industry.

REFERENCES

- Abbasi, K., Alam, A., Du, M. A., & Huynh, T. L. D. (2021). FinTech, SME efficiency and national culture: Evidence from OECD countries. *Technological Forecasting and Social Change*, 163, Article 120454. <https://doi.org/10.1016/j.techfore.2020.120454>
- Aduba Jr, J., Asgari, B., & Izawa, H. (2022). *Causality between financial performance, fintech, financial inclusion, and financial development in emerging and developing economies: A cross-country analysis*. <https://doi.org/10.2139/ssrn.4113175>
- Aduba, J. J., Asgari, B., & Izawa, H. (2023). Does FinTech penetration drive financial development? Evidence from panel analysis of emerging and developing economies. *Borsa Istanbul Review*, 23(5), 1078–1097. <https://www.sciencedirect.com/science/article/pii/S2214845023000698>
- Aggarwal, M., Nayak, K. M., & Bhatt, V. (2023). Examining the factors influencing fintech adoption behaviour of Gen Y in India. *Cogent Economics & Finance*, 11(1), Article 2197699. <https://doi.org/10.1080/23322039.2023.2197699>
- Akbar, J. S. (2021). The effect of return on assets and return on equity on price to book value on banking companies listed on the Indonesia stock exchange. *International Journal of Economics, Business and Accounting Research (IJEBAR)*, 5(3), 9–20. <https://jurnal.stie-aas.ac.id/index.php/IJEBAR/article/view/2814>
- Al-Dmour, H. H., Asfour, F., Al-Dmour, R., & Al-Dmour, A. (2020). The effect of marketing knowledge management on bank performance through fintech innovations: A survey study of Jordanian commercial banks. *Interdisciplinary Journal of Information, Knowledge, and Management*, 15, 203–225. <https://doi.org/10.28945/4619>
- Alfadda, H. A., & Mahdi, H. S. (2021). Measuring students' use of Zoom application in language course based on the technology acceptance model (TAM). *Journal of Psycholinguistic Research*, 50(4), 883–900. <https://doi.org/10.1007/s10936-020-09752-1>
- Alkhalwaldeh, B. Y., Alhawamdeh, H., Al-Afeef, M. A. M., Al-Smadi, A. W., Almarshad, M., Fraihat, B. A. M., Soumadi, M. M., Nawasra, M., & Alaa, A. A. (2023). The effect of financial technology on financial performance in Jordanian SMEs: The role of financial satisfaction. *Uncertain Supply Chain Management*, 11, 1019–1030. <https://doi.org/10.5267/j.uscm.2023.4.020>
- Al-Matari, E. M., Mgamal, M. H., Alosaimi, M. H., Alruwaili, T. F., & Al-Bogami, S. (2022). Fintech, board of directors and corporate performance in Saudi Arabia financial sector: Empirical study. *Sustainability*, 14(17), Article 10750. <https://doi.org/10.3390/su141710750>
- Arena, C., Catuogno, S., & Naciti, V. (2023). Governing FinTech for performance: The monitoring role of female independent directors. *European Journal of Innovation Management*, 26(7), 591–610. <https://doi.org/10.1108/EJIM-11-2022-0621>
- Arora, A., Gupta, S., Devi, C., & Walia, N. (2023). Customer experiences in the era of artificial intelligence (AI) in context to FinTech: A fuzzy AHP approach. *Benchmarking: An International Journal*, 30(10), 4342–4369. <https://doi.org/10.1108/BIJ-10-2021-0621>
- Asif, M., Khan, M. N., Tiwari, S., Wani, S. K., & Alam, F. (2023). The impact of fintech and digital financial services on financial inclusion in India. *Journal of Risk and Financial Management*, 16(2), Article 122. <https://doi.org/10.3390/jrfm16020122>
- Asikin, B., Saudi, M. H., & Roespinoedji, R. (2020). Influence of return on assets (ROA), return on equity (ROE), and earning per share (EPS) of stock price (Survey on Corporate Advertising, Printing, and the Media listed on the Indonesia Stock Exchange period 2015–2019). *Solid State Technology*, 63(3), 3941–3955. <https://solidstatetechnology.us/index.php/JSST/article/view/2985>
- Atayah, O. F., Najaf, K., Ali, M. H., & Marashdeh, H. (2023). Sustainability, market performance and FinTech firms. *Meditari Accountancy Research*, 32(2), 317–345. <https://doi.org/10.1108/MEDAR-08-2021-1405>
- Babu, P. M., Padma, S. N., Swathi, C., & Jagathi, P. H. (2023). Framework for developing countries adoption of fintech from the perspective of stakeholders. *Acta Biomed*, 94(2), Article e2023132. <http://mattioli1885journals.com/issuearchive/download/Framework%20for%20Developing%20Countries%20Adoption.pdf>
- Chen, W., Wang, X., Peng, N., Wei, X., & Lin, C. (2020). Evaluation of the green innovation efficiency of Chinese industrial enterprises: research based on the three-stage chain network SBM model. *Mathematical Problems in Engineering*, Article 143651. <https://doi.org/10.1155/2020/3143651>
- Chen, X., You, X., & Chang, V. (2021). FinTech and commercial banks' performance in China: A leap forward or survival of the fittest? *Technological Forecasting and Social Change*, 166, Article 120645. <https://doi.org/10.1016/j.techfore.2021.120645>
- Choiriyah, C., Fatimah, F., Agustina, S., & Ulfa, U. (2021). The effect of return on assets, return on equity, net profit margin, earning per share, and operating profit margin on stock prices of banking companies in Indonesia stock exchange. *International Journal of Finance Research*, 1(2), 103–123. <https://doi.org/10.47747/ijfr.v1i2.280>

- Ciukaj, R., & Kil, K. (2020). Determinants of the non-performing loan ratio in the European Union banking sectors with a high level of impaired loans. *Economics and Business Review*, 6(1), 22–45. <https://doi.org/10.18559/eb.2020.1.2>
- Crouzet, A., & Dabbous, A. (2021). Do FinTech trigger renewable energy use? Evidence from OECD countries. *Renewable Energy*, 179, 1608–1617. <https://doi.org/10.1016/j.renene.2021.07.144>
- Daniswara, H. P., & Daryanto, W. M. (2019). Earning per share (EPS), price book value (PBV), return on asset (ROA), return on equity (ROE), and Indeks Harga Saham Gabungan (IHSG) effect on stock return. *South East Asia Journal of Contemporary Business, Economics and Law*, 20(1), 11–27. https://seajbel.com/wp-content/uploads/2020/01/SEAJBEL-20_18.pdf
- Daragmeh, A., Lentner, C., & Sági, J. (2021). FinTech payments in the era of COVID-19: Factors influencing behavioral intentions of “Generation X” in Hungary to use mobile payment. *Journal of Behavioral and Experimental Finance*, 32, Article 100574. <https://doi.org/10.1016/j.jbef.2021.100574>
- Desai, K., Umasankar, M., & Padmavathy, S. (2022). FinTech: Answer for financial literacy and financial inclusion in India. *ECS Transactions*, 107(1), Article 15317. <https://doi.org/10.1149/10701.15317ecst>
- Dwivedi, P., Alabdooli, J. I., & Dwivedi, R. (2021). Role of FinTech adoption for competitiveness and performance of the bank: A study of the banking industry in UAE. *International Journal of Global Business and Competitiveness*, 16(2), 130–138. <https://doi.org/10.1007/s42943-021-00033-9>
- Goswami, S., Sharma, R. B., & Chouhan, V. (2022). Impact of financial technology (fintech) on financial inclusion (FI) in rural India. *Universal Journal of Accounting and Finance*, 10(2), 483–497. <https://doi.org/10.13189/ujaf.2022.100213>
- Grandhi, L. S., Wibowo, S., Wells, M., & Grandhi, S. (2022). The role of organizational factors and trust on FinTech adoption in Indian financial organizations. In *2022 IEEE/ACIS 23rd International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (SNPD)* (pp. 183–188). Institute of Electrical and Electronics Engineers (IEEE). <https://doi.org/10.1109/SNPD54884.2022.10051816>
- Gupta, M., & Verma, S. (2022). Impact of COVID-19 pandemic on fintech and financial inclusion in India. *Indian Journal of Finance and Banking*, 11(1), 1–14. <https://doi.org/10.46281/ijfb.v11i1.1815>
- Gupta, S., & Agrawal, A. (2021). Analytical study of fintech in India: Pre & post-pandemic COVID-19. *Indian Journal of Economics and Business*, 20(3), 33–71. <https://www.ashwinanokha.com/resources/v20-3-3-%20%20Sumeet%20gupta.pdf>
- Hermuningsih, S., Sari, P. P., & Rahmawati, A. D. (2023). The moderating role of bank size: Influence of fintech, liquidity on financial performance. *Jurnal Siasat Bisnis*, 27(1) 106–117. <https://doi.org/10.20885/jsb.vol27.iss1.art8>
- Kachumbo, E. (2020). *Determinants of financial performance of commercial bank Fintechs in Kenya* [Master's thesis, Strathmore University]. <https://su-plus.strathmore.edu/items/0b30653d-e8e4-450b-b5b3-8770c7e3add2>
- Kumar, V. P., & Kar, S. (2023). Measuring the efficiency of Indian public and private banks using the two-stage network DEA model. *Benchmarking: An International Journal*, 30(2), 382–406. <https://doi.org/10.1108/BIJ-07-2021-0375>
- Kweh, Q. L., Ting, I. W. K., Ren, C., & Lu, W.-M. (2023). Environmental, social, and governance and corporate efficiency: mediating role of R&D in achieving sustainable development goals. *Applied Economics*, 1–13. <https://doi.org/10.1080/00036846.2023.2273239>
- Liu, Y., Saleem, S., Shabbir, R., Shabbir, M. S., Irshad, A., & Khan, S. (2021). The relationship between corporate social responsibility and financial performance: A moderate role of fintech technology. *Environmental Science and Pollution Research*, 28, 20174–20187. <https://doi.org/10.1007/s11356-020-11822-9>
- Mikhaylov, A., Dinçer, H., & Yüksel, S. (2023). Analysis of financial development and open innovation-oriented fintech potential for emerging economies using an integrated decision-making approach of MF-X-DMA and golden cut bipolar q-ROFSs. *Financial Innovation*, 9(4), 1–34. <https://doi.org/10.1186/s40854-022-00399-6>
- Mudzakar, M. K., & Wardanny, I. P. (2021). The effect of return on asset, return on equity, earning per share, and price earning ratio toward stock return (Empirical study of transportation). *Turkish Journal of Computer and Mathematics Education*, 12(8), 387–392. <https://www.proquest.com/docview/2623463540?pq-origsite=primo&sourcetype=Scholarly%20Journals>
- Mustafa, A. S., & Garcia, M. B. (2021). Theories integrated with technology acceptance model (TAM) in online learning acceptance and continuance intention: A systematic review. In *2021 1st Conference on Online Teaching for mobile education (OT4ME)* (pp. 68–72). Institute of Electrical and Electronics Engineers (IEEE). <https://doi.org/10.1109/OT4ME53559.2021.9638934>
- Mwasi, L. L., & Aluoch, M. O. (2023). Venture capital financing and financial performance of technology start-up firms in Kenya. *International Academic Journal of Economics and Finance*, 3(10), 1–25. https://www.iajournals.org/articles/iajef_v3_i10_1_25.pdf
- Najib, M., Ermawati, W. J., Fahma, F., Endri, E., & Suhartanto, D. (2021). Fintech in the small food business and its relation with open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), 88. <https://doi.org/10.3390/joitmc7010088>
- Ndungu, J. M., & Moturi, C. A. (2020). Determinants of mobile Fintech uptake in Kenyan microfinance sector. *Current Journal of Applied Science and Technology*, 39(28), 102–114. <https://doi.org/10.9734/cjast/2020/v39i2830943>
- Nenavath, S., & Mishra, S. (2023). Impact of green finance and fintech on sustainable economic growth: Empirical evidence from India. *Heliyon*, 9(5), Article e16301. <https://doi.org/10.1016/j.heliyon.2023.e16301>
- Pambudianti, F. F. R., Purwanto, B., & Maulana, T. N. A. (2020). The implementation of fintech: Efficiency of MSMEs loans distribution and users' financial inclusion index. *Jurnal Keuangan Dan Perbankan*, 24(1), 68–82. <https://doi.org/10.26905/jkdp.v24i1.3218>
- Panigrahi, A. K., & Vachhani, K. (2021). Financial analysis by return on equity (ROE) and return on asset (ROA) — A comparative study of HUL and ITC. *Journal of Management Research and Analysis*, 8(3), 131–138. <https://doi.org/10.18231/j.jmra.2021.027>
- Prawitasari, S., & Lazuardi, L. (2023). Acceptance analysis of the electronic kohort information system for maternal and child health using the technology acceptance model at the bima city health center. *Jurnal Sistem Informasi*, 19(1), 62–78. <https://doi.org/10.21609/jsi.v19i1.1207>

- Sampat, B., Mogaji, E., & Nguyen, N. P. (2023). The dark side of FinTech in financial services: A qualitative enquiry into FinTech developers' perspective. *International Journal of Bank Marketing*, 42(1), 38-65. <https://doi.org/10.1108/IJBM-07-2022-0328>
- Saputra, F. (2022). Analysis effect return on assets (ROA), return on equity (ROE) and price earning ratio (PER) on stock prices of coal companies in the Indonesia Stock Exchange (IDX) period 2018-2021. *Dinasti International Journal of Economics, Finance and Accounting*, 3(1), 82-94. https://www.researchgate.net/publication/361115446_Analysis_Effect_Return_on_Assets_ROA_Return_on_Equity_ROE_and_Price_Earning_Ratio_PER_on_Stock_Prices_of_Coal_Companies_in_the_Indonesia_Stock_Exchange_IDX_Period_2018-2021
- Shekhar, S., Dhir, S., Gomes, J., & Jayaram, B. (2023). Academic bioinformatics activities joining hands with entrepreneurial ventures: a way to go in life science research (case studies from Indian academia, start-ups and the life science sector). *International Journal of Research, Innovation and Commercialisation*, 5(1), 70-105. <https://doi.org/10.1504/IJRIC.2023.132943>
- Tripathi, S. (2022). Determinants of adoption of FinTech: A study in selected rural areas of Uttarakhand, Uttar Pradesh, and Punjab. *NICE Journal of Business*, 27(1-2). <https://openurl.ebsco.com/EPDB%3Agcd%3A1%3A10837537/detailv2?sid=ebsco%3Aplink%3Ascholar&id=ebsco%3Agcd%3A159516205&crl=f>
- Wang, Y., Xiuping, S., & Zhang, Q. (2021). Can fintech improve the efficiency of commercial banks? — Analysis based on big data. *Research in International Business and Finance*, 55, Article 101338. <https://doi.org/10.1016/j.ribaf.2020.101338>
- Werth, O., Cardona, D. R., Torno, A., Breitner, M. H., & Muntermann, J. (2023). What determines FinTech success? — A taxonomy-based analysis of FinTech success factors. *Electronic Markets*, 33(21). <https://doi.org/10.1007/s12525-023-00626-7>
- Wirawan, A., & Nugroho, W. N. (2023). TAM application rate of application tracking interests in using the technology acceptance model in high schools in Tangerang District. *Dinasti International Journal of Education Management and Social Science*, 4(6), 923-933. <https://dinastipub.org/DIJEMSS/article/view/2014>
- Zhao, J., Li, X., Yu, C.-H., Chen, S., & Lee, C.-C. (2022). Riding the FinTech innovation wave: FinTech, patents and bank performance. *Journal of International Money and Finance*, 122, Article 102552. <https://doi.org/10.1016/j.jimonfin.2021.102552>
- Zuo, L., Strauss, J., & Zuo, L. (2021). The digitalization transformation of commercial banks and its impact on sustainable efficiency improvements through investment in science and technology. *Sustainability*, 13(19), Article 11028. <https://doi.org/10.3390/su131911028>

APPENDIX

Table A.1. Pairwise correlation analysis of the dependent and independent variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
(1) Roe	1.000																		
(2) Roa	0.345 (0.000)	1.000																	
(3) Total assets	0.013 (0.655)	-0.002 (0.941)	1.000																
(4) Equity	0.058 (0.043)	0.266 (0.000)	-0.173 (0.000)	1.000															
(5) Size	0.013 (0.664)	-0.002 (0.951)	0.976 (0.000)	-0.157 (0.000)	1.000														
(6) Competition	0.024 (0.402)	0.010 (0.725)	0.978 (0.000)	-0.163 (0.000)	0.959 (0.000)	1.000													
(7) Deposit	0.066 (0.089)	-0.017 (0.664)	-0.097 (0.012)	0.050 (0.199)	-0.094 (0.017)	-0.104 (0.007)	1.000												
(8) Loans	-0.032 (0.274)	0.020 (0.494)	-0.017 (0.531)	-0.101 (0.000)	-0.040 (0.145)	0.010 (0.708)	0.388 (0.000)	1.000											
(9) Capital	-0.013 (0.648)	-0.041 (0.158)	-0.013 (0.641)	0.031 (0.251)	-0.011 (0.676)	-0.012 (0.661)	0.013 (0.747)	0.012 (0.650)	1.000										
(10) Ln of total asset	0.016 (0.585)	0.018 (0.523)	0.495 (0.000)	-0.658 (0.000)	0.445 (0.000)	0.509 (0.000)	-0.158 (0.000)	0.037 (0.170)	-0.084 (0.002)	1.000									
(11) Lnequity	0.028 (0.321)	0.219 (0.000)	-0.259 (0.000)	0.899 (0.000)	-0.241 (0.000)	-0.228 (0.000)	0.065 (0.094)	-0.045 (0.095)	0.045 (0.098)	-0.668 (0.000)	1.000								
(12) Labour	0.020 (0.497)	0.018 (0.541)	0.483 (0.000)	-0.632 (0.000)	0.470 (0.000)	0.504 (0.000)	-0.182 (0.000)	0.022 (0.418)	-0.103 (0.000)	0.904 (0.000)	-0.623 (0.000)	1.000							
(13) Lndeposit	0.112 (0.004)	-0.012 (0.762)	-0.131 (0.001)	-0.086 (0.028)	-0.125 (0.001)	-0.146 (0.000)	0.750 (0.000)	0.547 (0.000)	-0.009 (0.813)	-0.169 (0.000)	-0.066 (0.092)	-0.184 (0.000)	1.000						
(14) Long term loans	0.079 (0.008)	-0.121 (0.000)	0.484 (0.000)	-0.667 (0.000)	0.440 (0.000)	0.510 (0.000)	-0.136 (0.000)	0.117 (0.000)	-0.138 (0.000)	0.959 (0.000)	-0.614 (0.000)	0.912 (0.000)	-0.153 (0.000)	1.000					
(15) Lnloans	-0.029 (0.323)	-0.011 (0.694)	0.069 (0.011)	-0.209 (0.000)	0.046 (0.093)	0.081 (0.003)	0.350 (0.000)	0.779 (0.000)	0.009 (0.747)	0.216 (0.000)	-0.184 (0.000)	0.223 (0.000)	0.534 (0.000)	0.269 (0.000)	1.000				
(16) Lnroe	0.731 (0.000)	0.280 (0.000)	0.050 (0.096)	-0.319 (0.000)	0.046 (0.137)	0.076 (0.012)	0.052 (0.205)	0.041 (0.183)	-0.106 (0.001)	0.260 (0.000)	-0.246 (0.000)	0.273 (0.000)	0.092 (0.026)	0.289 (0.000)	0.028 (0.359)	1.000			
(17) Lnroa	0.649 (0.000)	0.471 (0.000)	-0.122 (0.000)	0.254 (0.000)	-0.113 (0.000)	-0.073 (0.016)	0.082 (0.048)	0.002 (0.943)	-0.044 (0.155)	-0.183 (0.000)	0.391 (0.000)	-0.145 (0.000)	0.066 (0.111)	-0.113 (0.000)	-0.116 (0.000)	0.785 (0.000)	1.000		
(18) Lncapital	0.042 (0.151)	-0.016 (0.576)	-0.073 (0.007)	0.267 (0.000)	-0.060 (0.030)	-0.016 (0.557)	0.012 (0.763)	0.159 (0.000)	0.232 (0.000)	-0.344 (0.000)	0.352 (0.000)	-0.327 (0.000)	-0.041 (0.289)	-0.209 (0.000)	-0.083 (0.003)	0.016 (0.613)	0.271 (0.000)	1.000	

Source: Author's elaboration.