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THE INFLUENCE OF FINTECH ON FINANCIAL PERFORMANCE IN BANKING SECTOR OF JORDAN

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Abstract

Purpose – The purpose of this paper is to analyze the influence of FinTech adoption on financial performance of Jordanian banks **Methodology** – This study examines a sample of 20 Jordanian banks over the period from 2020 to 2024, covering a total of five years. Financial data were sourced from the Bankscope database, the Amman Stock Exchange, the Association of Banks in Jordan, the Central Bank of Jordan, and the World Bank. **Design/methodology/approach** – This paper was predicated on the technological adoption model of Jordanian banks performance based on two different estimation approaches for comparison. The data on Jordanian banks on FinTech and financial performance reveal. **Findings** – Conducting empirical research this study finds robust evidence that Jordanian banks' FinTech is positively associated with financial performance and has a weak negative relationship. The findings of the study indicate that the financial technology aspects entailing mobile banking, nternet banking, and agency banking did not have a significant effect on the banks' financial performance while adoption of ATMs had a significant negative impact of the banks' financial performance. Furthermore, the OLS results, FinTech is significantly correlated with bank performance, and provide insight into banks for using FinTech to increase profits, improve operational efficiency, enhance customer experience, and support innovation in financial services. The findings also highlight how the adoption of financial technologies can help banks reduce operational costs, accelerate transaction processes, and strengthen their competitive advantage in the rapidly evolving financial sector. **Originality/value**– This paper contributes to the existing literature by presenting findings that provide insight into banks' efficiency in adopting financial technology (FinTech) and can help banks improve operational costs, accelerate transaction processes, and strengthen their competitive advantage in the rapidly evolving financial sector. The study highlights the relevance of major external events, which influence banks' adoption of FinTech and shape their responses to technological innovation in the financial sector. The study also provides Jordanian bankers and regulators with a clearer understanding of the role of financial technology and its impact on banks' ability to improve competitiveness while maintaining financial stability.

Keywords: Financial Technology, Financial Performance, ATM, Mobile banking, Internet banking, Agency Banking.

1. BACKGROUND OF THE STUDY

During the last ten years, the banking sector witnessed a huge expanding in banking technology which is considered as a new trend that differs from traditional banks (Bashayreh et al., 2019; Bashayreh & Wadi, 2020). The banking industry is a critical component of any economy it substantially affects a country's growth and advancement (Nguyen, 2022). As a result, the level of competition among Jordanian banks is unmanageable, making it impossible to obtain economies of scale and hence retain and create long-term relationships (El Moussawi & Mansour, 2021; Albaity et al., 2019). This is because these factors are expected to have a role in the future expansion of the banks environment and increase ability to remain stable (Probojakti, et al., 2025). Therefore,

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banking are realizing that they need to develop strategies in order to continue maintaining their competitive capacity and continue being successful in an environment that is undergoing such significant transformation (Zahra, 1996; Al-Ajlouni, 2018).

By bridging historical developments with modern trends, (Challoumis & Eriotis, 2025). Since a number of years ago, financial technology has been one of the most important aspects of economic activity (Shkodina, Timoshenkov & Nashchekina, 2018). Furthermore, the distinct characteristics that brought up limited liability companies in jordan into practice shall be also respected and left intact (Alawamleh, Al-Qaisi & Alfaouri, 2021). In jordan Stocks sold openly on an exchange, and businesses were legally distinct from their shareholders, and there are many different routes by which company information is communicated (e.g.newspapers, magazines, interviews, letters to shareholders and debt holders, personal visits to the company, telephone conversations (Haddad, Sbeiti & Qasim, 2017). The availability of financial services to consumers has been profoundly altered by the proliferation of information and communication technologies (Al-Adamat, 2015).

Fintech services in jordan, became a big competitor for traditional financial services in the delivery of financial services (AlMomani & Alomari, 2021; Al-Afeef & Al-Tahat et al,. 2023). Fintech is used to describe the new technology that improve and automate the provision and the use of financial services to help companies, business owners and consumers to manage their financial operations and lives through the implementation of specialized software and algorithms that are increasingly used on computers and smartphones (Al-khawaja, AbuBaker & AlZu'bi, 2025). Fintech services refer to smartphones or mobile banking that may reduce the costs, enhance the performance, and expand the accessibility to the general public (Alqirem & Al-Smadi, 2025).

In jordanian banking industry, technological advancements in the financial sphere are continuing to drive development and impact the industry to better ways of business in the modern (Ali Alqararah, Shehadeh & Yaseen, 2025).The jordanian banking industry has placed an increased emphasis on financial technology as a strategic weapon to attain the organization aim of lowering costs while simultaneously growing revenues and directed to revolutions in the mode of banking industry (Shehadeh, 2025). It is important to mention that the effect of implementation of the technology needs time to be achieved (Al-Adwan & Smedley, 2012). This postponement in jordan the implementation of the predicted performance earns should be predictable because benefits rising from a new technology are seldom fully accomplished at the moment of adoption (Al Nagi & Hamdan, 2009).

The Jordanian Banking industry is the most competitive in the Middle East region, according to a survey by the International Monetary Fund, both the Bank and the Fund had, been pressuring the Jordanian government to liberalize the financial sector, capital account and exchange rate regime (Hausmann, et al., 2025; Harrigan, El-Said & Wang, 2006). Therefore, in order to react to competition, Jordanian banks need to create tactics such as financial technology. This would allow them to both protect their existing niches and grow their overall market share (Al-Ajlouni, 2018). It is worth to mention that investing in new fintech may boost the banks performance, but it may increase the costs at the

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same time. Thus, the research problem stems as the impact of adopting fintech services is not clear or definitive and need to be examined. For this purpose, this paper aims mainly at examining the influence of fintech on financial performance measured by ROE in fourteen Jordanian banks for the period (2020-2024) using panel data.

For the last five years, Jordan's banks' financial results have been erratic. The market value of Jordanian banks constitutes the largest share in the Amman Stock Exchange (ASE). Based on the annual financial stability report issued by the Central Bank of Jordan. In 2019, Jordanian banks saw varied Return on Assets (ROA), with the overall sector around 1.2%, a drop from 2018 but recovering in 2021, while specific banks like Bank of Jordan achieved higher individual ROAs (e.g., 1.52%), reflecting conservative lending and strong capital buffers. The Central Bank of Jordan noted higher liquidity but lower ROE compared to other Arab nations due to risk aversion and taxes, with NPLs slightly increasing to 5% (Central Bank of Jordan, 2019 and Kharabsheh & Gharaibeh, 2022). However, despite all of this increased digitization, certain banks have shown a drop in financial performance. These banks' goals were to improve their financial performance, compete favorably with their peers, reduce personnel costs, and improve their network base. In addition to the rivalry for clients that exists amongst banks in Jordan, these banks are now experiencing competition for the same consumers from a rise in the number of digital lenders operating in the Jordanian market (Al Abbadi, 2025 and Kaddumi et al., 2023).

There have been many previous studies in this field, but there are still gaps in the research. This investigation was conducted to address the resulting conceptual gaps. In the course of this investigation, a time range of five years will be used. Moreover, the majority of prior studies concentrated on primary data to elucidate the relationship between financial technology and the financial performance of banks. Conversely, the current study will use secondary data, which is widely recognized for its objectivity.

2. LITERATURE REVIEW

Fannoush, (2022) stuadied the Impact of Mobile Banking Application on financial Performance of Jordanian Banks. The result shows that the Jordanian banks implement both mobile applications and a significant and positive impact. Conversely Al-Nsour et al., (2025) investigated the effect of FinTech on the performance of the banks in Jordan. The result concludes that the Jordanian banks implement both mobile applications and a significant and positive impact. Alwan & Al-Zubi (2016) studied the relationship between Internet Banking and Financial Performance of Banks in Jordan. The results have a significant impact on Internet banking adoption. On the other hand, Ali & Omar (2016) examined the relationship between Internet Banking service qualities on customer satisfaction in the banking industry in Jordan. The results indicated that the efficiency of online services has a significant and positive influence.

According to Bashayreh & Wadi (2020); Alkhawaldeh et al,. (2023) and Kemboi (2018), mobile banking, internet banking, and agency banking all have a favorable impact on the performance of commercial banks. Njoroge (2021) concluded that agency banking had a

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substantial impact on the growth of the financial sector. Mugableh, (2022). studied the relationship between financial technology and financial performance in the banking sector. The results of the study showed that mobile banking, internet banking, and agency banking had a positive impact on the financial performance that was measured using the total return on assets of the commercial banks in the sample.

The financial actions in modern world cannot be achieved without an advanced information system and improved technology because they are at the heart of the global change curve (Fraihat et al., 2023; Al-Afeef, et al,. 2023). By reviewing the related studies, the paper found that they divided into studies that confirms the positive link between fintech and banks' performance and others that denies (Kayed, et al., 2025). The current study will present the studies that confirm the significant relationship followed by the studies that do not. For example, Raval & Desai, (2024) found a significant effect of Fintech innovations on the profitability of banking sector. Al-Chahadah et al., (2020) also concluded that digital financial services have a positive effect on the performance of large banks but have a negative impact on small sized banks due to the gap between technology and people. Thankgod et al (2019) examined the influence of electronic money on the demand for money and found appositive effect which enhances the performance. Bashayreh & Wadi (2020) found that financial technology influences the performance of banks positively in jordan.

Besides, Gyau et al (2024) found that utilizing the technology promotes the performance of the banks. Kemboi (2018) and Muttai, Njoka, & Muchira (2023) examined the effectiveness of financial technology on the interpretation of commercial banks in Kenya and found a positive effect of mobile banking, internet banking and agency banking on the performance of banks of Kenya. Gichungu & Oloko (2015) and Khraim et al., (2011) confirmed the positive effect of financial innovations like agency banking, mobile banking, internet banking as well as ATM banking on the performance of commercial through various channels. El Chaarani and El Abiad (2018) tested the effect technological innovation factors on the Lebanese banks' performance and found a significant positive effect. Also, Zarrouk et al., (2021) examined the effect of Fintech start-ups on the stock returns of United Arab Emirates banks and found a positive relationship among them. According to Alsmadi et al., (2023) and Omarini (2022) the services digital banking startups offer would improve the traditional retail banks and impact the incumbents' performance positively.

Moreover, Zhao & Han, (2024) found that financial technological innovation is a strong factor to promote the performance level. Akhisar et al., (2015) examined the impacts of electronic banking services on the bank's performance. They found that the ratio of the number of branches to the number of ATMs and electronic banking services are significant. Alt & Puschmann (2012) and Goddard et al (2007) highlighted the transition process towards the Union European Banking Market, besides the importance of technological innovations especially ATMs, EFTs and internet banking on the banks' performance. Adhiambo (2014) and Samara (2025) revealed that financial innovation

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enhances banking performance, wide range of products, market share, and better customer response which contributes greatly to profitability.

On the other hand, Alshehadeh et al., (2022) and Khrawish & Al-Sa'di (2011) tested the effect of technological banking services on the profitability of banks in Jordan over the period 2000 to 2009. They found insignificant impact of technological banking services on the profitability measured by ROA, and ROE. In fact, they noticed that expenditures and expense connected with applying these services are elevated which may decrease the profits (Alshehadeh et al., 2022). Also, Al Abbadi, (2025); Allataifeh & Al-Shaikh, (2020) and Kaddumi et al., (2023) didn't find any effect of new technology on financial performance measured by ROA and ROE. But the effect was significant on net profit when new technology is performed in combination with vertical degradation and variation.

One can notice from previous studies that its results came in a variety and using different methodologies, therefore this study comes to contribute to the current literature in this field, by providing empirical evidence on the impact of financial technology on the performance of Jordanian commercial banks. It is thus considered one of the attempts to pave the way for further studies by both workers in the Jordanian banking sector and academia, and the results of this study will enable researchers, investors and financial technology managers to justify spending financial resources on this technology, as well as planning and drawing the implementation of strategies for this technology in the banking sector.

2.1 Mobile Banking and Financial Performance

The implementation of mobile banking services has enabled financial institutions in Jordan to provide expedited, cost-effective, and convenient services to their clientele, resulting in enhanced financial efficacy and customer loyalty (AlNsour et al., 2025; Alsmadi et al., 2023). Studies indicate that the widespread adoption of mobile applications significantly reduces labor costs and operational overhead, thereby allowing banks to optimize their cost structures and improve profitability margins (Zalloum et al., 2019). However, the relationship between mobile banking adoption and financial performance remains complex, as some empirical findings suggest that the significant investments required for banking technology can erode profits if customer education and service optimization are not effectively managed (Jikrillah & Fadah, 2023).

Consequently, while mobile banking offers substantial potential for cost reduction and revenue generation, the realization of these benefits is contingent upon the strategic alignment of technological investments with market readiness and user support systems (Rahmalia et al., 2024).

2.2 Online Banking and Financial Performance

Online banking services have transformed the delivery of financial products by enabling customers to conduct transactions such as bill payments, fund transfers, and account inquiries via internet-connected devices without the constraints of physical branch visits (Khalaf et al., 2023). This digital accessibility has been identified as a fundamental

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competitive advantage for institutions, particularly during the COVID-19 pandemic when such services transitioned from being optional enhancements to operational necessities (Al-Zatari & Reehan, 2021).

Research indicates that the adoption of internet banking features, including bill payments, transfer options, and real-time exchange rate data, significantly enhances operational efficiency and customer satisfaction, which are critical drivers of improved financial performance (Alghadi, 2023). Despite the clear operational benefits, empirical evidence regarding the direct impact of online banking on profitability metrics such as return on assets remains mixed, with some studies suggesting that the high costs associated with technological infrastructure and cybersecurity maintenance can initially offset the revenue gains derived from digital service adoption (Alqudah et al., 2023).

Conversely, other studies have demonstrated a positive influence of internet banking on operational performance, suggesting that the efficiency gains from reduced transaction costs and expanded market reach eventually outweigh the initial capital expenditures (Medyawati et al., 2021; Samara, et al., 2025). This positive relationship is attributed to the ability of online platforms to lower transaction costs and increase transaction speed, thereby improving the bank's overall efficiency and asset turnover (Kumar & Chandra, 2023). The reduction in physical infrastructure costs allows banks to reallocate capital toward income-generating assets, thereby enhancing the asset utilization ratio that underpins return on assets (Islam et al., 2019). The strategic necessity of investing in internet banking technologies has become increasingly critical for maintaining competitive advantage, as banks that fail to adopt these digital interfaces risk losing market share to more agile competitors (Kahveci & Wolfs, 2018). Not only does internet banking provide convenience to customers, but banks also benefit through lower employee requirements and reduced costs associated with maintaining fewer physical branches, translating into an overall reduced cost of operation (Islam et al., 2019).

According to Chedrawi, Harb & Saleh, the effectiveness of online banking has a beneficial influence on banks' profitability because it can lower transaction costs by 40 to 80% compared to traditional branch banking (Atukunda et al., 2024). This substantial cost reduction is achieved by minimizing the need for physical infrastructure and personnel, allowing banks to process a higher volume of transactions at a lower marginal cost, which directly contributes to improved net margins and asset utilization (Islam et al., 2019; Sintha et al., 2024).

2.3 Agent Banking and Financial Performance

Agent banking serves as a strategic extension point for financial institutions, enabling them to reach unbanked or underbanked populations through third-party retail outlets rather than investing in expensive physical branch infrastructure. This model allows banks to expand their geographic footprint and customer base at a lower marginal cost, yet the financial impact is often characterized by an initial negative effect on return on assets due to the high upfront investments required to establish the agent network and associated technological infrastructure (Dzombo et al., 2017). Over time, however, the operational

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efficiencies gained from reduced overhead costs and the ability to generate fee-based income from high-volume, low-value transactions are expected to improve profitability and asset utilization (Henry et al., 2020; Khalaf et al., 2023).

2.4 ATM Banking and Financial Performance

Automated Teller Machines function as a critical self-service delivery channel that allows banks to extend their service hours and geographic reach while reducing the dependency on physical branch staffing and infrastructure. By providing 24-hour access to cash withdrawals and basic account inquiries, ATMs significantly reduce transaction costs associated with over-the-counter services, thereby enhancing operational efficiency and allowing banks to reallocate resources toward more profitable activities (Sari & ERDAL, 2025).

The reduction in operational expenses is further supported by empirical evidence indicating that ATMs and mobile money services greatly reduce transaction costs and facilitate customer management, thereby increasing efficiency and profits (Oscar et al., 2024). Furthermore, the integration of ATM networks with other digital channels has been shown to boost return on assets and return on equity by lowering operating expenses and increasing income streams through service fees (Bousrih, 2023). However, the impact of ATM banking on financial performance is not uniformly positive across all contexts, as some studies indicate that while ATMs and point-of-sale terminals contribute to deposit growth, their direct effect on profitability metrics like return on assets can vary depending on the market maturity and competitive landscape (Marshal, 2024).

2.5 Banking Sector in Jordan

The banking sector in Jordan witnessed remarkable progress over the last few decades. This sector is considered one of the supports of the Jordanian services sector with a large contribution to the GDP (Alsarayreh, 2025). The Jordanian banking system is constantly evolving, and this development has not been limited to the rise in the number of banks, their branches and the size of their business, but it has been accompanied by a qualitative shift in the multiplicity and diversity of banks, depending on the diversity of their activities (Alshunnaq, 2025). In addition to the commercial banks, investment banks and specialized banks were established, and a significant qualitative development occurred in the methods of banking work on the one hand, and the types of services supplied by banks to their customers on the other hand. In addition, the qualitative development in the level of service provided to clients, as a result of the implementation of Jordanian banks banking technology, as a main focal point in the development process, entering a new world of the complicated banking industry. Indeed, the number of branches of banks working in Jordan increased from 22 branches in 1964 to 869 branches in 2018, which reveals a continuous increase for the demand for banking services. The rise in the demand for banking services can be considered as one of the main reasons for the expansion of the existing banks and the entry of new banks into the market (Bashayreh & Wadi, 2020).

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The Jordanian banking system consists of 20 banks, of which 4 are Islamic banks, all of which are listed on the Amman Stock Exchange. In view of the difference in the criteria governing the operation of Islamic banks from commercial banks, Islamic banks were excluded from this study. The following table shows the names of these banks.

Table 1: Jordanian Banks Operating in Jordan as at the end of 2025

#	Name of the Bank	type
1	Arab Bank PLC	Commercial banks
2	Arab Banking Corporation (Jordan)	Commercial banks
3	Bank of Jordan PLC	Commercial banks
4	Cairo Amman Bank	Commercial banks
5	Capital Bank of Jordan	Commercial banks
6	Jordan Commercial Bank	Commercial banks
7	Jordan Kuwait Bank	Commercial banks
8	Jordan Ahli Bank PLC	Commercial banks
9	The Housing Bank for Trade & Finance	Commercial banks
10	Arab Jordan Investment Bank	Commercial banks
11	Investbank	Commercial banks
12	Bank al Etihad	Commercial banks
13	Egyptian Arab Land Bank	Foreign banks
14	Citibank , N.A.	Foreign banks
15	Rafidain Bank	Foreign banks
16	BLOM Bank	Foreign banks
17	Islamic International Arab Bank PLC	Jordanian Islamic banks
18	Jordan Islamic Bank	Jordanian Islamic banks
19	Safwa Islamic Bank	Jordanian Islamic banks
20	AL - Rajhi Bank	Foreign Islamic banks

Jordan has witnessed a major evolution in the field of financial technology and innovation, as a result of having an investment environment that supports innovation and the high demand for financial technology in the Jordanian market. Digital financial services readily, efficiently, and safely, bearing in mind the need to promote cyber security of financial services in general. It is worth noting that the Central Bank of Jordan launched the regulatory laboratory for financial technology and innovation (JoRegBox) at the beginning of 2022, in order to find an incubator for entrepreneurs to support and encourage innovation and development in the field of financial technology in a way that enhances competitiveness in the field of digital financial services. This comes within a broader vision for Jordanian economic modernization (2023-2025) to make Jordan a regional center for financial technology (Central bank in Jordan, 2022).

The Jordanian banking sector has been able to achieve a balanced performance, and to maintain its durability and stability throughout the past years, but the rapid developments in financial technology, despite the opportunities it carries, impose on the banks additional challenges, because the nature and the scope of traditional banking risks may change significantly with the passage of time in light of the increasing dependence on financial technology, especially strategic, operational, and electronic risks and compliance risks.

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3. RESEARCH METHODOLOGY

3.1 Data and Sample

This study examines a sample of 20 Jordanian banks over the period from 2020 to 2024, covering a total of five years. Financial data were sourced from the Bankscope database and the Amman Stock Exchange, the Association of Banks in Jordan, Central Bank of Jordan, and World Bank.

3.2 Variable Measurements

The measurements of the variables used in this study, Return on Assets serves as the dependent variable, calculated as the net income after taxes divided by total assets, thereby indicating the efficiency with which banks convert their assets into profits (Al-Amarneh et al., 2023; Bousrih, 2023). This metric is a widely accepted indicator of a bank's overall profitability and operational efficiency in leveraging its asset base (Khalaf et al., 2023). The independent variables encompass mobile banking, online banking, agent banking, and ATM banking. Mobile banking is quantified by the availability of mobile application rollout in banks, reflecting the bank's digital penetration and customer reach through mobile platforms (Khalaf & Shaer, 2023). Online banking is similarly measured by the provision of internet banking services, indicating the extent of digital service accessibility (Kayed et al., 2025). Agent banking is operationalized as the number of active agents facilitating banking transactions, while ATM banking is measured by the total count of automated teller machines deployed (Usman, 2016). This comprehensive approach to measuring digital banking channels allows for an in-depth analysis of their individual contributions to financial performance (Dzombo et al., 2018). Specifically, ROA is derived by dividing the bank's net profit after tax by its total assets, with a higher ROA indicating greater efficiency in resource utilization (Coryanata et al., 2023).

3.3 Conceptual Framework

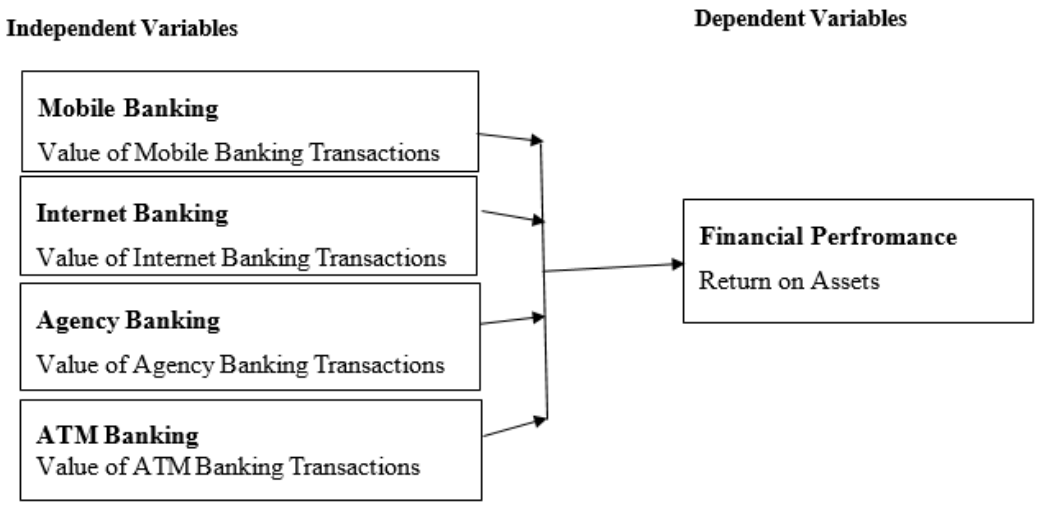

Figure 2.1: Conceptual Model

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4. RESULTS AND DISCUSSION

4.1 Descriptive Analysis

A descriptive study attempts to explain or characterize a subject by outlining a number of issues, people, or events, gathering data, and tabulating the frequency of research variables or their relationship. The descriptive research strategy was chosen for the current research since it will allow for the generalization of population findings as well as the analysis and correlation of variables. Measures of central tendency were included in the descriptive analysis, including the mean, standard deviation, the median, and the mode. Dispersion measures like the lowest and maximum statistic and range were used. Additionally, symmetry metrics like Kurtosis and Skewness were used. Table 4.1 provides descriptive statistics for the variables, including their means, minimum and maximum values, and standard deviations. For instance, the average Return on Assets (ROA) is 1.65, with a minimum of .23 and a maximum of 2.84. Results also indicate a standard deviation of .631 for ROA. On the other hand, among the independent variables. The results indicate mean ATM is 153.12, with a minimum of 27, a maximum of 268, and a standard deviation of 65.829. The results further indicate that the mean value of Mobile Banking is 158660.18, with a minimum of 39405 and a maximum of 263286. The Mobile Banking has standard deviation of 67078.668. 65.829. Meanwhile, the results indicate mean Online Banking is 143197.06, with a minimum of 40931, a maximum of 217979, and a standard deviation of 56961.669. Moreover, the results indicate mean Agent Banking is 48.05, with a minimum of 12, a maximum of 90, and a standard deviation of 20.588.

Table 4.1: Descriptive statistics

	Mean	Sd	Min	Max
variables				
Dependent Variable				
ROA	1.65	.631	.23	2.84
Independent Variable				
ATM	153.12	65.829	27	268
Mobile Banking	158660.18	67078.668	39405	263286
Online Banking	143197.06	56961.669	40931	217979
Agent Banking	48.05	20.588	12	90

4.2 Correlation Analysis

Table 4.2 presents the correlation matrix of all variables. The current research employed the Pearson correlation analysis in establishing the link of the independent and control variables utilized in the research with the financial performance of the Jordanian banks. The research applied a 95% confidence interval level and a two-tailed test was utilized, there is a significant correlation amongst all the study's independent and control variables with the banks' financial performance at the 5% significance level. The results of the Matrix of correlations that financial performance were high correlations between ROA with ATM were (0.142). Mobile Banking were (-0.360), Online Banking (0.033) and Agent Banking (-0.120). Multi-collinear problem may arise if the correlation coefficient between

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two explanatory variables is 0.80 or larger. None of the pairwise correlation coefficients of explanatory variables exceed 0.8 suggesting no multi-collinearity among the explanatory variables (Lewis-Beck, 1993; Gujarati, 2004 and Dawson, 2014).

Table 4.2: Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)
(1) ROA	1				
(2) ATM	0.142	1			
(3) Mobile Banking	-0.36	0.42	1		
(4) Online Banking	0.033	0.054	-0.154	1	
(5) Agent Banking	-0.12	0.09	0.078	0.122	1

4.3 Multivariate Regression Analysis

Table 4.3 presents the main effect of FinTech on Financial performance based on two different estimation approaches for comparison. We used the pooled OLS model for ROA were regressed on ATM, mobile banking, online banking, and agent banking. The initial analysis failed to provide evidence of the relationship between FinTech and bank's performance. To address the issue of heteroscedasticity and autocorrelation, we applied robust standard error, as suggested by Hoechle (2007), to handle the problem of heteroscedastic and autocorrelation. From the robust estimations, there was evidence that FinTech positively impacted both Financial performance measures. The results implied that banks exposed to higher FinTech have higher performance. However, as our data failed to meet the linearity assumptions, our results might be biased.

The more appropriate model was the random effects model, as indicated by the findings of Breusch-Pagan LM test (7.40, 0.1163) and Hausman test (2.78, 0.5951). At 5% level of significance, the findings show that FinTech positively impacted the banks' ROA as shown in the findings for the random effect model. These results indicate similar relations, thus proving that random effects produced consistent findings regarding how FinTech influenced the financial performance. In comparison with fixed effects, the random effect model was again found to be more appropriate.

Table 4.3: Panel Data Analysis using OLS and Fixed Effects Model

	ROA		
	OLS	**FE**	**RE**
ATM	.002	.003	.002
	(.128)	(.378)	(.089)
Mobile Banking	0	0	0
	(.043)	(.672)	(.028)
Online Banking	0	0	0
	(.822)	(.473)	(.507)
Agent Banking	.007	.005	.004
	(.574)	(.205)	(.453)
Constant	.578	1.109	.504
	(.002)	(.15)	(0)
Breusch-Pagan LM test			7.40
			(0.1163)

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Hausman test			2.78
			(0.5951)
R-squared	0.282	0.041	0.196
F-test	1.470	0.803	0.631
Notes: Standard errors in parentheses; *** *p<.01, ** p<.05, * p<.1*			

5. CONCLUSIONS AND RECOMMENDATIONS

The study concluded that advancements in FinTech have an impact on the financial performance of Jordanian banks. Therefore, banks should implement FinTech in their operations s as to augment their financial performance. Although a long list of studies has been conducted to examine the relationship between FinTech and financial performance, the inconclusive findings obtained have motivated us to conduct this study. We focused on banks in Jordan because their financial market has unique characteristics and is less liquid and volatile. We conducted robust pooled estimations to examine the effect of FinTech on banks' financial performance. The results provided evidence that Jordanian banks FinTech is positively relationship with financial performance. Nevertheless, as the data structure violates normality assumptions, our result might be biased; thus, we applied a non-linear regression approach using quantile regression.

The findings of the study that the financial technology aspects entailing; mobile banking, nternet banking, and agency banking did not have a significant effect on the banks' financial performance while adoption of ATMs had a significant negative impact of the banks' financial performance. Future studies generate recommendations to the bank management and consultants not to mainly consider financial technology will significantly boost the banks' financial performance. They should employ other strategies, to shore up the banks' financial performance. A long-term period, such of observation, should be conducted, as some major events might have occurred, such as pandemics, economic crises, banking policy, and other macroeconomic events.

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