

# The Role of FinTech in Determining the Performance of Banks: The Case of Middle East & North Africa (MENA) Region

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**Abstracts:** The purpose of this study is to investigate the relationship between these technologies and banking profitability, specific to the MENA region. This paper applied the mixed methodology in order to check if we can confirm the results achieved in running the regression by the managers and employee's opinion which were gathered by interviews. We gathered data using Refinitiv Eikon platform for all banks included in Qatar, Turkey, Jordan, UAE, Egypt, Morocco and Saudi Arabia. The final sample included 45 banks for the period of 2010-2022, interviewing 37 managers and 63 employees. The two specific technologies that has been examined are internet and mobile banking services. In addition, other control variables included in the model representing bank characteristics are Size and Leverage. Through mixed methodology it was determined that all variables are positively correlated, however, the degree of significance varies with mobile banking, size, internet banking and leverage being ordered from most to least. This suggests that the performance of banks in the MENA region increase when they adopt more FinTech such as making their internet services and mobile banking application available to customers. Also, the interesting result is that the interview results confirmed the regression results and the managers/employee's opinions stated that they believe that customers increased when the financial technology has been adopted and the perceived uselessness is great and this affected the profitability of banks significantly.

**Keywords:** FinTech, Mixed Methodology, Panel Regression, Internet Banking, Mobile Banking, Financial Sector, Fixed effect, Interviews.

## 1. INTRODUCTION

The early emergence of banks in history can be traced back to year 2000 BC during the Roman Empire. Back then, coins were introduced as means of exchange and noble people wanted a safe haven to store them. Roman temples were chosen to be the safest place that actually played the role of financial intermediaries by lending those coins to borrowers (Labate, 2016). Banks developed even further until they became well-established in the 18th century in the British empire as influenced by the great economist Adam Smith and the invisible hand theory that he developed in 1776. The theory empowered a self-regulating financial environment that shifted banking from the public sector to the private one and gave birth to a competitive financial market spreading worldwide, especially in the USA that was about to develop (Gershon, 2021).

Technology did not play a significant role, as banking was mainly labor-intensive until the industrial revolution in the early years of the 20th century. Technology in the form of electronic computing has largely affected the banking sector and the word "FinTech" has been first used in 1972 when Abraham Bettinger, Vice President of the Bank Manufacturers Hannover Trust, derived a model for solving daily banking problems. At that time, he defined "FinTech" as an acronym for financial technology that merges banking expertise with management science using computers (Bettinger, 1972). Then, that term appeared again in the early 1990's while referring to a project conducted by Citigroup aiming to facilitate technological cooperation in the financial sector. FinTech developed even further and in year 2021, there were over 10,000 startups registered in the United States alone, and over 26,000 globally (Statista research Department, 2023).

FinTech has revolutionized the way banks operate; these new technologies apply not only to the banks themselves but also to the end-users, being individual or business clients. Self-service technologies such as ATM's (Automated Teller Machines), Internet Banking, Mobile Applications and other disruptive technologies erected new

competitive challenges. As such, banks have gradually become virtual; a factor that hopefully has helped them become more cost-competitive while being able to reach new markets such as the technology savvy clients. However, additional values do not come without an extra cost; the additional investments needed for technological advances and the agility of banks in integrating the required changes in their processes is a cost driver that cannot be overlooked (Zhao et al, 2022). This nuanced relationship between FinTech adoption and profitability is going to be addressed in this paper.

In the introductory FinTech phase accelerating in the 60's and 70's of the 20th century, Automated Teller Machines (ATM's) have become the primary service option for the users/consumers of modern banks; these machines revolutionized day-to-day basic banking (Konheim, 2015). Users were soon able to deposit, withdraw and check balances without even having step foot inside the bank. After a few decades of use, banks were able to devise ways that these machines may even be profitable by adding fees for international and foreign exchange transactions (Jegede, 2014). Then, Internet Banking which is commonly referred to as online banking or e-banking was another technological leap in the 1990's that completely changed the banking landscape when it was first introduced by Stanford Federal Credit Union in 1994 in North America (England, 2022). Since its inception, Internet banking has provided customers additional value-driven services in terms of time and place convenience in addition to new banking products. Financial services such as stock trading, investing and many others that were previously virtually inaccessible have become at the fingerprint of the customers via online banking (Furst et al. 2002).

Similarly, mobile banking is an evolution of the internet banking line. The shift to smart-phones has led to the development of mobile applications. As these technologies became more accessible and spread in banking, additional values have also emerged. Space and time are not barriers anymore; banking is now available 24/7 and what you only need is a hand-held device with internet connectivity. Banks' resources and service processes are better deployed due to digital transformation enabling-technologies. People can perform all types of banking transactions such as cash transfer, payments, currency exchange, even applying for loans without having to visit a branch or reach a customer service clerk via physical channels if they desire to do so (Rahmani et al. 2012).

This study aims to examine the profitability of banks in relation to the rise of financial technologies. FinTech is still on the rise; however, the authors in this paper shall consider internet banking and mobile banking, as the sole measures of technology adoption. Banks' profitability shall be measured using return on assets (ROA) which is the amount of net income divided by total assets. This paper shall investigate as well the possible variation in ROA as explained by other independent variables such as financial leverage and bank size in addition to Fintech to be in line with previous research gaps and findings as it will be illustrated in the literature review section.

The subsequent sections of this paper are structured as follows. Section 2 shows the literature review. Section 3 explains the research methodology, model development, and hypotheses. Section 4 reveals the paper's results and findings along with the discussions. Lastly, Section 5 highlights the conclusion, recommendations and limitations.

## **2. LITERATURE REVIEW**

Zhao et al. (2022) studied the impact of financial technology and innovation of the performance of banks in China. The study developed a FinTech index and utilized patent data via the Generalized Method of Moments (GMM) to account for the potential endogeneity. Through their research, the authors discovered a negative relationship between FinTech innovation and the bank's profitability and asset quality. The results also showed that FinTech innovation influences positively the bank's management efficiency and capital adequacy.

Bashayreh & Wadi (2021) studied the effects of Financial Technologies on banking performance specifically in Jordan. The study utilized a panel dataset collected from 13 banks for the period 2012-2018. The results of the study revealed that there is a positive association between the use of financial technologies (automated ATMs, Internet Banking Services, and Phone Banking Services) and the performance of Jordanian banks. It was also found that both bank size and the country's Gross Domestic Product (GDP) impacted positively the bank's profitability while the leverage did not show any statistical significance.

Another study for Al-Dmour et al. (2021) investigated the role of FinTech innovation as a mediating variable when studying the impact of big data in the performance of banks. The scholars used the survey approach and collected data from 236 respondents of senior bank managers in the United Arab Emirates (UAE). Using the Structural Equation Modeling (SEM), they proved that big data has a positive impact on bank performance with FinTech innovation being a partial mediator.

A similar study for Al-Dmour et al. (2020) covering Jordanian commercial banks studied the association between Marketing Knowledge Management (MKM) and bank performance through the mediation of FinTech innovation. The authors collected data via a survey distributed to 336 marketing managers and bank branch managers and used SEM to prove that MKM is positively associated with bank performance in Jordan. Similar to their study in the UAE, the FinTech innovation appeared also as a partial mediator between the two variables.

Medyawati et al. (2021) investigated the determinants of bank profitability and particularly financial technology. The study encompassed a final sample of 6 banks listed on the Indonesia Stock Exchange and developed a panel dataset for the period 2014-2020. The authors used return on assets (ROA) as a proxy for profitability with three independent variables measuring the implementation of financial technology which are: Automated Teller Machines (ATMs), Internet Banking, and Mobile Banking. The panel regression results showed that ATMs are positively influencing bank profitability while Internet Banking has a significant negative influence. Besides, Mobile Banking appeared to be insignificant in the model.

Another study for Phan et al. (2020) aimed to investigate whether the growth in financial technology has an influence on bank performance in the Indonesian market. This study used a sample of 41 banks and a number of FinTech companies registered in the FinTech Indonesia Association. A dataset was developed using the Global Financial Database for the period 1998-2017. Using a two-step GMM system, the research proved empirically that FinTech has a negative influence on Indonesian bank performance. The study also proved that the bank's capital ratio, size, and country's inflation rate impact positively its performance. Conversely, the cost-to-income ratio, loan loss provisions, annual growth in deposits, and the country's annual GDP growth rate have a negative impact of bank financial performance. Despite the positive and negative relationships, this study pinpointed that the bank's funding cost does not have any relation with the bank's profitability.

Other scholars such as Ky et al. (2019) examined the impact of mobile banking on the bank performance in the Sub-Saharan Africa. The final sample consisted of 170 financial institutions spread between Burundi, Kenya, Rwanda, Tanzania, and Uganda. An unbalanced dataset was created by extracting data from Bankscope database and the financial statements of the respective firms for the period 2009-2015. Similarly, the scholars determined a positive association between the adoption of mobile money and the performance of the financial institutions.

Other scholars such as Baker et al. (2023) examined the impact of FinTech on the financial performance of banks in Amman Stock Exchange and Abu Dhabi Securities Exchange for the period 2012-2020. A sample of 104 valid questionnaires (41 for Jordan and 45 for UAE) distributed to managers and key employees of 13 Jordanian and 10 Emirati banks. This research utilized multiple linear regression analysis and net profits as a proxy for financial performance. Besides, financial technology was measured by three independent variables which are: the financial inclusion, alternative payment methods, and automation. The results reveal that latter three variables were positively impacting the banks' net profits in both countries Jordan and UAE.

Furthermore, a study for Nguyen et al. (2022) aimed to examine if FinTech credit is associated with the bank financial performance. The study used a sample consisting of 73 countries and a dataset extracted from the Financial Development and Structure Dataset (FDSD) and World Development Indicator Dataset (World Bank, 2019) for the period 2013-2018. The empirical findings prove that FinTech credit has a negative influence on bank performance. Furthermore, the country's inflation and annual real GDP growth rates are positively associated with bank performance. No statistical significance is observed between the bank's non-performing loans and liquid reserves with respect to financial performance.

### **3. RESEARCH METHODOLOGY**

#### **3.1 Research Design and Data Collection**

This study aims to examine the role of financial technology in determining the bank performance using a mixed methodology of qualitative and quantitative research. A structured interview is conducted with bank managers and key employees in banks in the MENA region. More specifically, the final sample included 45 banks from seven countries (Qatar 5 Banks, Turkey 7 Banks, Jordan 10 Banks, UAE 8 Banks, Egypt 6 Banks, Morocco 3 Banks and Saudi Arabia 6 Banks). All banks from all markets were included but any bank with more than 4 years of missing data was excluded from the sample and all nonfinancial firms were also excluded due to different financial statement structure. Refinitiv Eikon platform was used to collect the data, the relevant stock market exchange and the bank's annual report provided on their websites for the period 2010-2022. The structured interviews were done either face to face or over the internet and if not possible then phone calls were planned with managers and employees in different banks of the relevant markets. The final number of interviews that managed to be performed is interviewing 37 managers and 63 employees. In addition to an econometric model constructed using panel regression (Fixed and Random Effects) similar to other studies of Khalaf et. al. (2023), Khalaf (2022), and Anas et al. (2022).

#### **3.2 Model Development**

##### **3.2.1. Dependent Variable: Return on Assets (Profitability)**

Return on Assets (ROA) is considered as a profitability indicator as stated in Punagi et al. (2022), Medyawati et al. (2021), Sutrisno (2020), and Seissian et al. (2018) where they used ROA as their profitability determinant for the purposes of their research paper. ROA is a common ratio to be used by an organization as it allows businesses to essentially see what the return that they will get out of their investment in their assets. Other scholars such as Jigeer & Koroleva, (2023) and Dogan & Yildiz, (2023) pinpointed that the ROA signifies the efficiency level of a firm when generating income out of its asset investments. In this study, ROA will be measured by Net Income over Total Assets (Khalaf, 2022 and Koroleva et.al. 2021).

##### **3.2.2. Independent Variables**

###### **3.2.2.1. FinTech Presence (IBANK and MBANK)**

Based on Phan et al. (2020), FinTech institutions do not always produce more profitability for banks. Looking at an example drawn from Indonesia, at a certain point banking profitability peaked and eventually fell, even as more firms were emerging year after year. The evolution of the technology and automation, however, has proven that it is capable of assisting banks in their day-to-day operations. It is important to acknowledge that FinTech can take many forms. As discussed in Singh et al. (2021), another form of technology such as artificial intelligence and cloud computing may also lead to a change in profitability. Several studies have examined also the importance of financial technology on the bank's financial performance. For instance, Bashayreh and Abu Wadi (2021) have tested the impact of automated ATMs, internet banking, and phone banking on financial performance and found out that the latter three versions of technology are positively influencing bank performance.

Similarly, Baker et al. (2023) considered three other measurements for FinTech which are: financial inclusion, alternative payment methods, and automation. Their findings proved that the three variables were positively and statistically significant with bank profitability among both Jordanian and Emirati banks. Despite the positive influence of FinTech, Medyawati et al. (2021) confirmed based on Indonesian banks that ATMs have a positive impact on bank profitability. Internet Banking showed a significant negative impact with no statistical significance for Mobile Banking. This paper will use IBANK and MBANK as dummy variables for the representation of Internet Banking and Mobile Banking respectively. A dichotomous approach is used and a score of 1 is given if the bank offers such a technology to its clients and a 0 otherwise (Awad et al., 2022).

Following the existing literature, we can conclude that such technologies enable MENA's region to develop at an accelerated rate, therefore making banks more profitable.

H1: There is a positive relationship between the presence of Mobile Banking and the bank's financial performance.

H2: There is a positive relationship between the presence of Internet Banking and the bank's financial performance.

### 3.2.2.2. Size (SIZE)

Several studies in the literature have identified that the bank size impacts its financial performance. As suggested by Bashayreh & Wadi (2021) they stated that size had a strong positive influence on the profitability of banks including other factors such as FinTech. In addition, they argued that the larger pool of assets an institution can pull from its customers, more money-making opportunities will be present. Phan et al. (2019) consider that large banks are expected to enjoy better financial performance thanks to their greater operational efficiency and diversification as identified by their economies of scale and scope respectively. Similarly, other scholars (Pasiouras and Kosmidou, 2007; Smirlock, 1985) proved that the bank size has a positive impact on bank profits. This paper will consider Size as a control variable and will be measured using the natural logarithm of total assets at fiscal year-end similar to previous studies such as Khalaf et al. (2023).

H3: There is a positive relationship between the bank size and its financial performance.

### 3.2.2.3. Leverage (LEV)

Leverage indicates the level of debt a business holds in an attempt to identify rewarding investment opportunities to invest in. Banks and many other financial institutions use leverage to create assets and reinvest in themselves in the hope that they can convert these undertakings into profitable endeavors. Previous literature had shown various investigations between leverage and financial performance. Iqbal & Usman (2018) concluded in their findings that higher leverage leads to a better profitability as long as the debt does not exceed equity. Another study for Amedi and Mustafa (2020) proved that leverage has a positive influence over firm performance in the manufacturing sector in Jordan. Nevertheless, other scholars obtained opposite results. For instance, Assenga et al. (2018) and Johl et al. (2015) indicated a significant negative association between leverage and the firm's return on assets. Besides, Bashayreh and Wadi (2021) failed to confirm any significant relation between leverage and financial performance. This paper aims to consider Leverage as a control variable which is measured using the firm's Debt-to-Equity ratio similar to Seissian et al. (2018).

H4: There is a positive relationship between leverage and the bank's financial performance.

## 3.3. Model

Based on the previous section, the following model has been used to investigate the impact of FinTech on banks performance in the MENA region.

$$ROA_{t,i} = \beta_0 + \beta_1 IBANK_{t,i} + \beta_2 MBANK_{t,i} + \beta_3 SIZE_{t,i} + \beta_4 LEV_{t,i} + \varepsilon_{t,i}$$

Where:

t: The year of study

i: The ith firm selected

$\varepsilon$ : The error term

IBANK: Internet Banking

MBANK: Mobile Banking

Size: Natural Logarithm of Total Assets

LEV: Debt-to-Equity Ratio

## 4. RESULTS AND ANALYSIS

### 4.1- Structured Interview Summary

The researchers conducted a structured interview with 37 bank managers and 63 key employees in banks of the MENA region, a total of 100 interviews. The questions revolved around the role of financial technology in determining the bank financial performance. 83% of the interviewees considered that mobile banking and internet banking are the most common FinTech products currently in the MENA market. Moreover, bank size and leverage are seen as main drivers of bank profitability by approximately 92% and 87% of the managers and employees' interviewees respectively. Lastly, a consensus among all bank managers and employees indicate that customers are continuously asking banks in the MENA region to invest further in financial technology. Table1 summarizes the results of the interviews.

**Table 1: Interviews Results Summary**

Interview Questions	AoM*	%AoM	AoE**	%AoE	Full Sample
What are the most common FinTech products used nowadays?	<ul style="list-style-type: none"> <li>• ATM</li> <li>• Mobile Banking</li> <li>• Internet Banking</li> </ul>	31/37= 83.8%	<ul style="list-style-type: none"> <li>• ATM</li> <li>• Mobile Banking</li> <li>• Internet Banking</li> </ul>	52/63 = 82.5%	83/100=83%
Based on your experience, do you believe that the bank size does affect the application of FinTech and consequently affect the profitability?	Yes, Yes	34/37=91.9%	Yes, Yes	55/63 = 87.3%	89/100= 89%
Do customers ask for increasing the investment in FinTech in the MENA region?	Yes	37/37=100%	Yes	63/63 = 100%	100/100=100%
If your bank increased their liabilities (leverage), do you think that this might affect the banks' profitability?	Yes	31/37=83.8%	Yes	50/63 = 79.4%	81/100=81%

\*AoM stands for Answers of Managers; \*\*AoE stands for Answers of Employees

### 4.2 Empirical Analysis

#### 4.2.1 Descriptive Analysis

Table 2 provides insights about the data collected for the MENA Banks. The first two variables represent the presence of FinTech in banks especially mobile and internet banking. Two dummy variables are used to represent the availability of each of these two technologies at a given time. A score of 1 or 0 is given for the presence or absence of either technology respectively. The results of mobile and internet banking show that the majority of

banks in the MENA region have already offered the technology service to their customers. Besides, the leverage ratio of the MENA banks range between 53% and 124% with an average of 91% and a standard deviation of 7.3%, this shows the variability in the banks' leverage positions. Consequently, the average size of banks is 13.35 (natural logarithm of end-of-year total assets) with a minimum and maximum size of 6.31 and 18.76 respectively. An interesting result is that the size variable shows a high standard deviation (1.947) and this suggests that the MENA banks differ in size and this shall enlighten our research to check if the bank size can significantly impact its performance. Lastly, the average ROA for banks is 9.2% with 1% being the minimum and 74% the maximum.

**Table 2: Descriptive Statistics**

Statistics	Min	Max	Mean	Std. Deviation
MBANK	0	1	0.55	0.285
IBANK	0	1	0.53	0.175
LEV	0.53	1.24	0.91	0.073
SIZE	6.31	18.76	13.35	1.947
ROA	0.01	0.74	0.92	0.382

#### 4.2.2 Correlation Analysis

This paper examined the correlation between the variables and Table 3 shows that both mobile banking (0.182; p-value < 0.05) and internet banking (0.088; p-value < 0.10) are positively correlated with the bank's ROA. This is inconsistent with the findings of Medyawati et al. (2021) for both variables. Moreover, the results also show that the bank's leverage position is negatively correlated (-0.173; p-value < 0.01) with its performance. This relationship contradicted the findings of another study of Bashayreh and Abu Wadi (2021) who found out that leverage does not impact the performance of banks. Additional results proved that the bank size is positively correlated (0.037; p-value < 0.05) with its ROA. A similar study for Phan et al. (2020) obtained a similar relationship between the two variables.

**Table 3: Correlation Matrix**

Variables	ROA	MBANK	IBANK	LEV	SIZE
ROA	1				
MBANK	0.182**	1			
IBANK	0.088*	0.121**	1		
LEV	-0.173***	0.204*	0.175*	1	
SIZE	0.037**	0.139**	0.286**	-0.126**	1

**Note: \*\*\*, \*\*, and \* show statistical significance at 1%, 5%, and 10% respectively.**

Further analysis has been done in order to check for multicollinearity problems. Table 4 reveals the Variance Inflation Factors (VIF) of all the explanatory variables. The highest VIF is 1.68 while the lowest VIF score is 1.34. This indicates that there is no multicollinearity problem according to Hair et al. (2019) and Kennedy (2008) who considered a VIF threshold of 10 for the model to be flawed.

#### 4.2.3 Panel Regression Analysis

The study has implemented OLS and panel regression to determine the role of FinTech in determining the performance of MENA banks. The results of the panel regression and Hausman test favor the fixed effect model over the random effect model. The F-Stat of the fixed effect model shows strong statistical significance ( $p$ -value < 0.01) and an adjusted R<sup>2</sup> of 24.7% similar to Phan et al. (2020). Similarly, the results highlight that mobile banking is statistically and positively impact the bank's ROA ( $p$ -value < 0.01). This supports the first hypothesis and suggests that there is a strong connection between the presence of mobile banking and the performance of banks in the MENA region. Our results confirm the findings of Bashayreh and Abu Wadi (2021) who found out that phone banking services have a positive influence over the bank performance in Jordan.

However, the results contradict the findings of Medyawati et al. (2021) and Sudaryanti et al. (2019) when they failed to prove a significant association between mobile banking and bank profitability. The second hypothesis (H2) is also supported in the fixed effect model proving that there is a significant positive relation between the presence of internet banking and the bank's ROA ( $p$ -value < 0.01). This indicates that the presence of internet banking contributes to the bank's profitability in MENA region by improving the customer service and reducing operational costs for the bank branches. Similar studies have produced mixed results. Our finding is in line with Bashayreh and Abu Wadi (2021), Ogutu and Fatoki (2019), and Rauf et al. (2014) who proved the positive association between internet banking and bank's financial performance. Nevertheless, Medyawati et al. (2021) proved that internet banking has a significant negative impact on bank profitability in Indonesia.

**Table 4: Regression Results**

Variable	OLS	Random Effect	Fixed Effect	VIF	1/VIF
MBANK	0.052***	0.264***	0.382***	1.68	0.595
IBANK	0.016***	0.185***	0.296***	1.49	0.671
Leverage	-0.019**	0.064***	0.048***	1.34	0.746
Bank Size	-0.012	0.385**	0.439**	1.38	0.725
Constant	0.052***	0.659*	0.842*		
F-statistic	14.72***		25.35***		
Wald $\chi^2$		18.32***			
Adjusted R-squared	0.174	0.196	0.247		
Hausman Test ( $\chi^2$ )		13.58***			
$p$ -value ( $\chi^2$ )		0.000			

**Note: \*\*\*, \*\*, and \* show statistical significance at 1%, 5%, and 10% respectively.**

Table 4 indicates that the bank size has a significant positive relationship with its financial performance ( $p$ -value < 0.05); thus, supporting the third hypothesis (H3). This suggests that larger banks have more assets to invest in loans and other investments in an attempt to maximize their profits. Besides, larger banks are able to acquire capital at lower costs; therefore, leading to better profitability (Short, 1979). Our results are similar to the findings of Yuen et al. (2022), Bashayreh and Abu Wadi (2021), Phan et al. (2019), and Johl et al. (2015) who proved the direct relationship between bank size and performance. Yet, Anas et al. (2022) verified that size has a negative impact on the firm's ROA.

Moreover, the bank's leverage was determined statistically to have a positive impact of performance ( $p$ -value < 0.05). This supports our fourth hypothesis (H4) and indicates that banks with higher leverage possess more customer deposits to invest and generate profits. Additionally, high leveraged banks tend to invest in positive net present value projects and possibly invest more in financial technology and this in return provides the MENA banks with high return on assets. This confirms the findings of Amedi and Mustafa (2020) when they proved that leverage has a significant positive impact on firm performance. Consequently, it refuted the findings of other studies for Koji



et al. (2020), Johl et al. (2015), and Anas et al. (2022) who proved empirically that leverage impacts negatively firm performance.

## 5. CONCLUSION

This paper investigated the impact of FinTech on the performance of MENA banks during the period of 2010-2022. The data collected from several sources; Refinitiv Eikon platform, the relevant stock market exchanges and the annual reports of the relevant banks in different countries.

Several countries in the MENA region were included in this empirical study such as Qatar, Turkey, Jordan, Saudi Arabia, Morocco, Egypt and UAE. A total number of 45 banks included in our final sample after excluding any bank who had missing data for more than four years out of the 13 years and all nonfinancial companies were excluded due to the different structure of financial statements.

This paper applied the mixed methodology approach to investigate the impact of mobile application availability and internet banking availability as proxies of FinTech in the MENA region on the performance of banks. The main aim of using the mixed methodology was to check if the interview answers by managers and employees of the relevant banks in the sample selected would confirm the results of the regression applied. A total number of 100 interviews were performed (37 managers and 63 employees) that confirmed the results got from the panel regression results. The researchers managed to apply the OLS and panel regression (fixed and random effect) estimation techniques to investigate the relationship between FinTech and return on assets. The fixed effect technique results were favored based on the significant results of Hausman test. Several interesting points were suggested by the regression results such as FinTech availability affect the performance of MENA banks positively and this implies that the higher the financial technology availability the higher the performance expected in the MENA banks. In addition, the larger the bank the higher the profitability expected since large banks have easy access to the markets and this helps in investing in positive net present value projects. Furthermore, the higher the leverage of banks in the MENA region the higher is the profitability and this suggests that banks who managed to get more deposits managed to invest and lend more money and this in turn affect the profitability positively. In conclusion, this empirical paper confirmed the quantitative results by the qualitative results by applying the mixed methodology for the MENA banks. In addition, the main recommendation that MENA banks should take into consideration to invest more in the financial technology as this will affect the profitability positively. Also, banks should use creative financing to attract more deposits and provide more loans.

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