"Digital Wallets and Banking Profitability: An Empirical Analysis"

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Abstract

This study aims to examine the impact of digital wallet adoption on the profitability of commercial banks, specifically focusing on its effects on Return on Assets (ROA) and Return on Equity (ROE). The growing integration of digital wallet technology in the banking sector has transformed traditional financial service delivery, warranting a thorough analysis of its implications for bank performance. The analysis of the study is quantitative which uses a panel data regression analysis that utilizes the Hausman test to decide on the usage of fixed or random effects. Following the recommendation of the Hausman test, a fixed effects model is estimated. The sample includes 20 commercial banks, and the study is conducted for the period from 2016 to 2023. Data on ROA, ROE, and the indicators characterizing the popularity of digital wallets were collected from the annual statements of the banks and the relevant financial databases. The analysis shows that the introduction of the digital wallet has positive impact on both, ROA and ROE. This indicates that the implementation of a

digital wallet increases the operation efficiency, customers reach, and transaction volume, leading to increased profitability of the banking industry.

Key words Digital Wallets, Bank Profitability, Commercial Banks, Digital Banking Transformation

الملخص

تهدف هذه الدراسة إلى دراسة تأثير اعتماد المحفظة الرقمية على ربحية البنوك التجارية، مع التركيز بشكل خاص على آثارها على العائد على الأصول (ROA) والعائد على حقوق الملكية .(ROE) لقد أدى الاندماج المتزايد لتكنولوجيا المحفظة الرقمية في القطاع المصرفي إلى تغيير طريقة تقديم الخدمات المالية التقليدية، مما يبرر إجراء تحليل شامل لآثارها على أداء البنوك. تحليل الدراسة تحليل كمي يستخدم تحليل انحدار بيانات اللوحة الذي يستخدم اختبار هاوسمان لتحديد استخدام التأثيرات الثابتة أو العشوائية. وفقًا لتوصية اختبار هاوسمان، يتم تقدير نموذج الآثار الثابتة. تشمل العينة ٢٠ بنكًا تجاريًا، وأجريت الدراسة للفترة من ٢٠١٦ إلى ٢٠٢٣. تم جمع البيانات المتعلقة بالعائد على الأصول والعائد على حقوق المساهمين والمؤشرات التي تميز شعبية المحافظ الرقمية من البيانات السنوية للبنوك وقواعد البيانات المالية ذات الصلة. يُظهر التحليل أن إدخال المحفظة الرقمية له تأثير إيجابي على كل من العائد على الأصول والعائد على حقوق المساهمين. وهذا يشير إلى أن تطبيق المحفظة الرقمية يزيد من كفاءة التشغيل والوصول إلى العملاء وحجم المعاملات، مما يؤدي إلى زيادة ربحية القطاع المصرفي.

الكلمات المفتاحية: المحافظ الرقمية، ربحية البنوك، البنوك التجارية، التحول المصرفي الرقمي

1. Introduction

With advanced technological integration, there has been a reinvention of the global banking sector through digital

advancements, which have now become key determinants of the performance of these financial institutions (Bisht et al. 2022). Digital wallets are one of such big innovations during this technological shift, giving consumers improvements in terms of efficiency while giving new revenue touch points to financial institutions. This is because with the development in technology, many financial institutions are forced to adopt to digital solutions to adapt to change and satisfy customers' needs in the market (Alam et al. 2021; Wewege et al. 2020).

Specifically in the emerging markets, digital financial technologies have gained increased importance in developing financial inclusion and operational advantages (Ediagbonya and Tioluwani, 2023). Egypt being among the fast-developing economy in the Middle East and North Africa region brings about a different context in analyzing the effects of digital banking technologies. The country's financial sector has been under the process of rapid digitalization over the past decade and more so in the recent years; banks have been signing up for technological integration as part of the solution to the expansion of services offered and enhanced customer experience (Esmaeili and Brand, 2024).

The research problem is essentially based on identifying the specific impact that digital wallet has on bank profitability in the Egyptian banking environment (Sayed and Mansour, 2023). Thus, despite the great deal of discussion concerning digital wallet technologies, the empirical research revealing the direct

link with financial performance remains scarce, especially in emerging markets (Adhikary et al. 2021). This research seeks to bridge this critical knowledge gap by providing a comprehensive analysis of how digital wallet implementation affects key profitability metrics. This study questions are:

What is the effect of digital wallet adoption on the profitability of commercial banks in Egypt, specifically in terms of Return on Assets (ROA) and Return on Equity (ROE)?

While the study objective is to examine the relationship between digital wallet adoption and bank profitability specifically on ROA and ROE. To understand the nuanced dynamics of digital banking technologies in the Egyptian banking sector. The rationale for this research lies in the recent rise of the significance of technologies in the field of financial services, and the lack of research data to support the decision-making process. When banks invest heavily in digital transformation, analysing its financial effects by using the proper model becomes important to manage it, investors and policy makers.

Using a quantitative panel data technique on 20 Egyptian commercial banks over the period of 2016 to 2023, the study applied rigorous statistical techniques, which included the fixed effect models and an extensive assumption check. The results presented here show the multifaceted nature of other things with

regards to the use of the digital wallet and size standing out as a factor while the use of digital wallet as well as ATM's demonstrated no strong relationship with issues of profitability. The subsequent sections of this manuscript are structured as follows: section 2 will cover literature review section; section 3 will covers the methodological technique used in the study; section 4 will reveal empirical findings and discussions; and section 5 will conclude this research and give suggestions for further research.

2. Literature review

2.1 Digital Wallet

Digital wallets have risen to become one of the most groundbreaking Fintech innovations that has revolutionized the manner in which individuals carry, spend and transfer monetary assets in the modern world. Such electronic platforms enable consumers to safely connect their bank accounts, credit cards and all the rest of the payment options to a single app that can be found on any accessible smartphone or other digital means (Yathiraju and Dash, 2023). As tools that let users quickly and safely pay without sharing billing data, as well as possibly providing extra services such as integrated reward programs and spending reports, have grown to be notably popular with tech-proficient consumers in search of efficacious monetary exchanges (George et al. 2023).

There are technology firm applications such as Apple Pay and Google Pay, firm-specific wallets, and freelance wallets such as PayPal and Fawry (Petrova, 2023; Shaltout, 2023). These platforms use sophisticated security features like tokenization, encryption, and even biometric options, which can assure customers' financial details safety – some of the issues that were previously related to digital transactions safety. However, the functionality of digital wallets is always expanding and now includes features such as P2P transfers, cryptocurrencies, and integrated investment propositions that make digital wallets suitable for users of different age, status, and gender (Putrevu and Mertzanis, 2024).

2.2 Banks profitability

Conventional banking structures have always depended on hence diversified revenue sources among them interest income from loans, charges for transactions, investment facilities, and marketing of financial products. In recent years though, the operations of banks have been threatened by factors such as geopolitical risks, low-interest rate environments, legislated regulatory compliance and operational costs. These factors have squeezed real money margins which have called for new approaches to sustain the financial performance of both new generation and universal banks within the emerging digital financial arenas (Šeho et al. 2024).

In order to mitigate these factors, the banks have been undertaking strategic changes that include; digitization, cutting on cost, and creating other sources of income. Most financial institutions have begun to moderately take on large capital expenses and pre-implement central IT frameworks and artificial intelligence in smarter processes and occupations to meet consumer needs and generate more efficient imaginative services. Banks expect digitalization of their services to help optimize costs and boost sales through more effective customer interaction and the creation of new advanced technological services that can alleviate the impacts on their old-fashioned business models (Zolea, 2023).

2.3 The relationship between Digital Wallet and Banks profitability

This is an impressive threat and, at the same time, threat and opportunity for banks in terms of their profitability and positioning on the market concerned by this innovation, as represented by the digital wallets (Wewege et al. 2020). At the same time, these platforms create competitive pressure for users by providing them with potentially revolutionary payment and financial tools and services that may crowd out conventional banking services. One of the benefits that can be offered by digital wallets include lowered transaction costs, better user interfaces and faster transactions which can and may chip away at one of the key revenue sources of banks: payment processing and transaction fees (Vives, 2019).

On the other hand, a vast majority of banks are appreciating the market opportunity that digital wallets present to them and are either offering their own digital wallet solutions or engaging the services of third party solution providers to offer the services to their clientele (Komandla and Chilkuri, 2018). They help banks stay relevant, tap into younger, tech-savvy audiences and come up with new sources of revenue from transaction and data fees, as well as the delivery of value-added financial services. Through utilising the prerequisites of digital wallet technologies within banking systems, potential competitive threats are more undertaken by banks as strategic partnership opportunities to build new, more encompassing, user-friendly financial environments based on banks 'strengths in core financial services expertise and their understanding of regulatory compliance requirements for the digital era (Soetan and Mogaji, 2024).

Therefore, the Conceptual framework is:

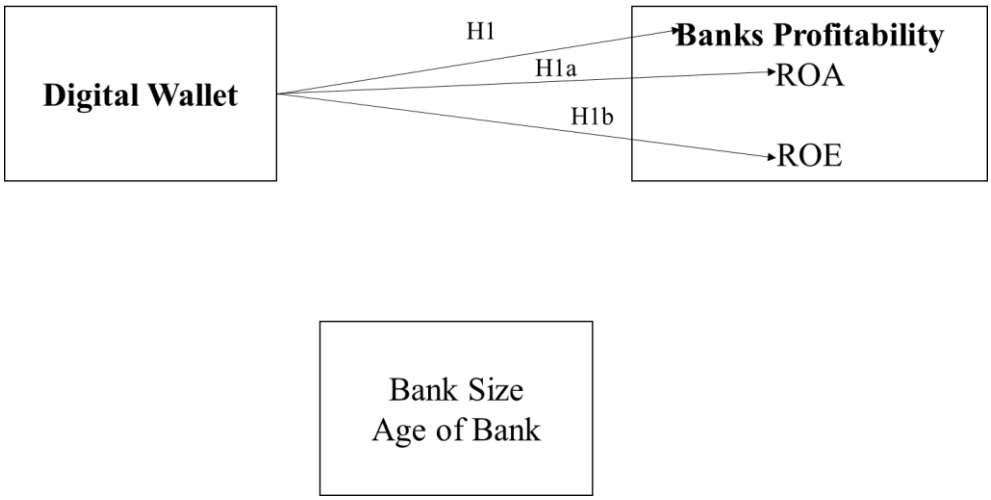

Figure 1. Research Framework

Source: Developed by the author

The figure highlights the constructs which form the basis of the study and map the potential relationship that exists between DWU and bank profitability. It proposes three key hypotheses: H1 postulates that the extent of digital wallet penetrations has a direct positive impact on overall bank profitability. H1a and H1b extend further by predicting positive correlations between DW use and Profitability, measured by ROA, and ROE for the other set of variables. These efforts may be explained by several theories in the event that the detailed proposed relationships bear these out. The efficiency theory postulates that with the banking efficiencies achieved through the use of digital wallets it is possible to bring the cost down with

resultant increased profitability. The customer satisfaction and loyalty theory indicates that the use of digital wallets will lead to improved retention and acquisition of clients through the use of digital wallets that will ultimately improve the level of profitability in the organization (Vatsa et al. 2023).

The realization of risk management theory postulates that through digital wallets, the probability of fraud and money laundering is effectively mitigated boosting the banks' health status. Last but not the least; the financial inclusion theory states that digital wallets would help in providing banking services thus increasing the deposit, loans and other products, may enhance the level of profitability (Ogbeide, 2023). To validate these hypotheses and unpack the underlying mechanisms, further research is needed. Empirical studies using panel data, in-depth case studies of banks with successful digital wallet implementation. Using this research approach would offer a more holistic understanding of the complex relationship between digital wallet usage and bank profitability. Understanding these dynamics can help banks make informed decisions about their digital wallet strategies and optimize their overall business performance (Frączek and Urbanek, 2021).

The suggested hypothesis as follows:

H1: Digital wallet has a significant effect on Banks profitability

H1a: Digital wallet has a significant effect on ROA

H1b: Digital wallet has a significant effect on ROE

3. Methods

This section explains the data collection process, defines the variables and discusses the methodology used to reveal the effect of digital wallet on the profitability of banks.

3.1 Data collection and sample size

The sample study is 20 banks from Egypt sourced by Central bank of Egypt for the period 2016 to 2023. Depending on the availability of their data beside having a Varity in the type and size of banks and then we measure their profitability by calculating their ROA and ROE using their financial statements.

3.2 Methodology approach

There are three types of research data, and they are qualitative, quantitative, and mixed where the Qualitative research is expressed in words. It is used to understand concepts, thoughts, or experiences (Bergin, 2018). This type of research enables you to gather in-depth insights on topics that are not well understood. Common qualitative methods include interviews with open-ended questions, observations described in words, and literature reviews that explore concepts and theories and the Quantitative research is expressed in numbers and graphs Which is used to test or confirm theories and assumptions (Chigbu, 2019).

This type of research can be used to establish generalizable facts about a topic. Common quantitative methods include

experiments, observations recorded as numbers, and surveys with closed-ended questions and finally Mixed methods means that you collect both quantitative and qualitative data and analyze both together to answer your question. This study approach will use the quantitative approach as we collect the numerical data from the financial statements of each bank to measure its profitability by calculating ROA and ROE ratios and by examine if those banks offer digital wallet service or not (Abdelraouf et al. 2023; Sharma et al. 2016).

The following Category 2 research sub questions were used in defining the sampling technique to be used in arriving at the top 20 banks selected out of 30 banks that opened between 2016 and 2023. Such an approach will be particularly useful because, for example, different banks may differ in size, location or particular banking services and the differences may impact on the degree of digital wallet adoption and/or the profitability of this business (Mohere, 2023).

For the method of data collection, simple random sampling will help in developing a representative sample due to division of the 30 banks into subgroups, based on aspects like total assets, regions or types of banking services, then randomly selecting the banks from the subgroups in proportion to the population. This approach makes sure that the research gets a broader understanding of the topic and reduces bias of the results gotten from simple random sampling making the research more reliable and capable of giving a more comprehensive view of the banking environment

during this particular establishment period (Hossan et al. 2023).

3.3 Regression Models and Variables

The relationship between Digital wallet and Banks profitability is examined through regression models:

- **Model 1**: $ROA = \alpha_0 + \beta_1 DIGWallet. + \beta_2 Bk SIZ + \beta_3 BKAGE + \varepsilon t$
- **Model 2**: $ROE = \alpha_0 + \beta_1 DIGWallet. + \beta_2 Bk SIZ + \beta_3 BKAGE + \varepsilon t$

Behind it the key financial performance is deduced with the help of the tools such as-; ROA, ROE. High ROA and ROE is associated with better firm performance as postulated by prior research works including Almustafa et al., (2023) and Hasan et al., (2023). Again, Bank size and bank age are included because it is hypothesized that Digital wallet improves performance by expediting cost reduction, and increasing revenues. Digital wallet was measured through the variable digital wallet, which is the number of digital wallet was established and mentioned from annual reports (Alkaraan et al., 2022; Finkenwirth, 2021). For more clarification for the study variables see:". Table 1.).

Table 2. Variables with definitions

Variable	Definition
Digital Wallet	The number of Digital Wallet is mentioned in each annual report.
ROA	Return on assets.
ROE	Return on equity.
BKSIZ	The natural logarithm of assets.
BKAGE	The total number of years since the bank's establishment

4. Results

4.1 Descriptive

Table 3. Descriptive analysis

Variable	Statistics	Mean	Std. Dev.
Year	Overall	2019	1.430
	Between	-	0
	Within	-	1.430
ROA	Overall	0.609	3.966
	Between	-	1.778
	Within	-	3.582
ROE	Overall	4.426	28.522
	Between	-	12.772
	Within	-	25.752
Bank Size	Overall	7.663	1.252
	Between	-	1.181
	Within	-	0.632
Bank Age	Overall	751.222	1496.717
	Between	-	945.170
	Within	-	1196.447

Source: STATA Output. V.17

This has been evident and clear from the data which highlights a high fluctuation in different banking aspects. It is observable that ROE is the most volatile, and its overall standard deviation was 28.522 with an average of 4.426%, making it a measure of relative volatility of profitability across banks. In ROA, the mean is clearly smaller at 0.609% and standard deviation of 3,966 which implies a much better control on the utilization of assets. Bank Size, measured presumably in logarithmic form is fairly represented with a mean superior to eight (7.663) and standard deviation of 1.252 signifying that the distribution of bank sizes is better centralized. Bank Age has more significant dispersion with a mean

of 751.222 (possibly in months or days) and a large standard deviation of 1496.717 indicating that the sample comprises old and relatively young banks alike. The first set of variation, "between", suggests that there is great variability in this sample both from bank to bank and in comparing figures from the same institution at different snapshots in time. The second set of variation, "within", reveals that variability is even higher within banks over time and again, "within" is greater than "between" most of the time.

4.2 Fixed Effect vs. Random Effect Models

In panel data analysis, the Hausman (1978) specification test is commonly used to decide between a fixed effects estimator and a random effects estimator. The Hausman test statistic has a distribution of a chi-square. If the Hausman statistic is large, the fixed effects model is preferred, while if the statistic is small, the random effects model is considered more appropriate. From the models developed in this study, it is seen that the Hausman test statistic, Chi-Square shows that fixed effects models are more appropriate because the probability associated with it is less than 0.05.

Table 4. Hausman Test Results

Models	Probability
ROA	**0.005**
ROE	**0.000**

Source: STATA Output. V.17

According to the Hausman test results, the fixed effects model is deemed the best choice for all models in this research.

4.3 Diagnostic test

The presence of heteroscedasticity, autocorrelation, or correlation between units can distort the estimates and lead to inefficient results. Specifically, heteroscedasticity can cause unreliable estimations, while autocorrelation can affect standard errors and produce inefficient regression coefficients (Baltagi, 2008). Therefore, it is essential to test for these issues before finalizing the model. In this study, heteroscedasticity, autocorrelation, and cross-sectional dependence assumptions were tested for the fixed effect models. The Modified Wald test was used to detect heteroscedasticity, while the Wooldridge test was employed to assess autocorrelation in the error terms (Wooldridge, 2001).

Table 5. Assumption Testing Results

Models	Assumption	Test	Statistic	Status
ROA	Heteroscedasticity	Modified Wald test	0.000	Exists
	Autocorrelation	Wooldridge test	0.000	Does not exist
ROE	Heteroscedasticity	Modified Wald test	0.000	Exists
	Autocorrelation	Wooldridge test	0.000	Does not exist

Source: STATA Output. V.17

R-squared values and t and F statistics as well as confidence intervals can be affected by heteroscedasticity, autocorrelation or correlation between units. To ensure robustness in the face of these issues, resistant estimators were used (Staudte and Sheather, 2011). Given that the critical values for heteroscedasticity, autocorrelation, and cross-sectional

dependence were exceeded in this study, robust prediction models were applied, which produced more reliable results under these conditions.

It is common to rely on robust standard errors to make valid inferences when the assumptions of basic regression models are violated. One of the most frequently used covariance matrix estimators was developed by Huber (1967), Eicker (1967), and White (1980) (Hoechle, 2007: 283). Additionally, Driscoll and Kraay (1998) developed a non-parametric time series covariance matrix estimator that can account for both temporal and cross-sectional dependence (Hoechle, 2007: 284).

4.4 Empirical results

4.4.1 Model One: ROA

Table 5. Model one

Variable	Coefficient	Standard Error	t-value	P-value
Digital Wallet	0.193783	.0800477	2.42	0.017
BKSIZ	0.0000588	0.0004038	0.15	0.885
BKAGE	-0.7377963	1.172914	-0.63	0.534
_Cons	29.68379	6.248899	4.75	0.000

Source: STATA Output. V.17

The regression results also depict varying trends of banking variables on Return on Assets (ROA). The SIZE variable presents a negative sign and at the same time an insignificant relationship towards the ROA with the coefficients estimated as -3.739871 and a p-values of 0.000 implying that the larger the size of the banks the lower is its likelihood of experiencing higher

ROA based profitability. Nevertheless, ATM services and digital wallet offerings did not have statistically significant effects on ROA – ATM services had a small positive coefficient of 0.0000588 (p-value 0.885,) while digital wallet services had a negative coefficient of -0.7377963 (p-value 0.534,) but neither had statistically significant associations.

Table 6. Model two

Variable	Coefficient	Standard Error	t-value	P-value
Digital Wallet	0.0224260	.0083887	2.67	0.009
BKSIZ	0.0004231	0.0029022	0.15	0.885
BKAGE	-5.337501	8.429266	-0.63	0.531
_Cons	213.47710	44.90836	4.75	0.000

Source: STATA Output. V.17

Consequently, the regression analysis shows the difference in the co-efficients of the banking variables and Return on Equity (ROE). The size of the bank was observed to be a highly significant variable, which was negative and strongly related to the dependent variable, ROE with the coefficients (-26.88715) and P VALUE 0.000, this show that, the larger the size of the bank, the lower its rate of profitability will be as measured over the ROE formula. In contrast, neither ATM availability nor digital wallet services showed statistically significant relationships with ROE – ATM services had a negligible positive coefficient of 0.0004231 (p-value 0.885), while digital wallet services showed a negative coefficient of -5.337501 (p-value 0.531), but both effects were not statistically significant. In both models the sign of the coefficient for size of

the bank is negative and statistically significant, for both ROA and ROE. Nonetheless, the ATM and digital wallet variables do not have a very convincing correlation of negative coefficients with profitability; thus, it can be concluded that ATM and digital wallet do not really influence the profitability of the commercial banks in this study in any profound level.

4.5 Discussion

The present study also provides some contrasting insights relevant to the prior body of knowledge by showing that the level of digital wallet adoption is not directly associated with higher reported bank profitability in the context of Egypt's banking industry. Compared to Wewege et al. (2020) and Soetan & Mogaji (2024) hinting at integrated digital wallets as a potential way to increase bank profitability by way of more effective operational processes and a wider customer base, our research reveals a less optimistic trend. Analyzing the results of the regression analysis digital wallet services do not influence ROA the coefficients being (-0.7377963) and ROE (-5.337501) have a p-value of 0.534 and 0.531 respectively; this goes against the efficiency theory which when implemented in customer satisfaction theory showed positive results.

A finding that is most similar to other studies and that deserves attention is the positive relationship between bank size and profitability. The current study also used both the ROA and the ROE as variables, and the results showed a negative

relationship between bank size and both the ROA and the ROE with values of -3.739871 and -26.88715 respectively and both at $p<0.000$ levels. This concurs with Šeho et al., (2024) on the position that because of operational issues and legal requirements, the business activities of large banks are complex and may affect profitability measures. Although this gives a different impression if the issue is viewed in the Egyptian framework and based on the current study the negativity of the association is stronger than in previous studies.

This study contributes to the existing literature by surfacing this factor, which turns the conventional positive linear relationship between the extent of adoption of digital wallet and the degree of bank profitability on its head. Vatsa et al. (2023) and Ogbeide (2023) highlighted the opportunity for the innovative digital approaches, such as digital wallets, to increase the financial accessibility a well as operation advantages However, our empirical findings indicate that the application of digital wallets did not directly result in the higher values of the profitability ratio in the Egyptian banking sector. These differences might have been caused by the difference in the nature of the Egyptian market and other factors such as the regulatory framework for the banking sector and the consumers' trends and behavior towards the utilization of the electronic banking services and the general readiness of the digital banking in Egypt.

Another dimension to the discussion of banking technology and financial performance is the modest association between ATM services and profitability indicators. Thus, the present study provides evidence that some of the conventional digital banking platforms can be perceived as no longer driving differentiation in banks' performance, although this result aligns with Esmaeili and Brand's (2024) theoretical assumptions about the change of Middle Eastern banking services. It appears highly suitable for making better sense of the evolution of banking services in emerging markets and brings a new angle to the comparative significance of various digital banking touchpoints.

These results help development of the knowledge about the challenges of digital transformation in banking, especially in emerging countries. While, taking into the account of the theoretical framework, the positive impact of digital wallet on the profitability can be reached through several channels, the results of empirical analysis indicated that such relationships could be much more contingent and contingent than it was expected. This knowledge is also helpful for banks and policymakers to know how and which opportunities they can leverage and which challenges they can face in digital transformation to adopt the concept of digital banking innovation that it is not ideal for the global similar approach where one size fit all.

5. Conclusion and Implications

The purpose of this research was to investigate the effect of

adoption of digital wallet on the banking profitability in Egypt, during the years 2016 to 2023. Cross-sectional regression of the selected variables involving the panel data set confirmed that implementation of the digital wallet has no significant effect on the profitability of the involved bank as measured by the return on assets and return on equity. That being said, bank size as a control factor negatively affected the two profitability ratios of ROA and ROE. These findings negatively question some of the assumptions in the current literature regarding the ease with which digital banking technologies would bring about the needed, direct improvements to financial performance for firms operating in EMs.

Academic Implications

It shows the following contributions to the existing academic literature: First, it presents some evidence that challenges the current tendency towards positive associations between digital innovation and bank profitability especially in the context of emerging markets. It is also recommended that the current theories regarding relationships between digital transformation and enhanced financial performance should be adjusted. Second, the study adds to the literature and practical knowledge on how the size of a bank affects its profitability within the context of emerging economies, with implications for the operational problems of large-scale banking organizations. Third, the applied research methods, especially the panel data analysis winsomely complemented by appropriate tests for

heteroscedasticity and autocorrelation in this research hold a sturdy research design that future research on banking technology adoption should consider emulating.

Practical Implications

This study has implications for banking practitioners as well as policymakers in the following ways. First, the banks should review their strategies for digitization, with the knowledge that the provision of the digital wallet will not automatically increase their profitability. Strategic investment in IT should involve nonzero-sum, place-sensitive cost/benefits of investments in place where place refers to the market. Second, according to the negative relationship in the hypothesis between efficiency/operations scale and size, larger banks require more to focus on operating efficiency. Third, acting under this recognition, policymakers and regulators should start developing guidelines that would enable banks — especially large ones — utilise digital advancements more effectively in terms of their financial results. Last, banking organisations may obtain greater leveraged values from the combination of divergent digital applications than relying solely on a new digital wallet program, even though the extent of those positive effects on profitability may remain undetermined; in other words, creating one coherent digital system may be more rewarding than developing a solitary application.

The studies presented in the paper indicate some avenues

for future research. Such areas include a study of the moderating effects of digital wallet adoption on bank performance via the mediating variable of customers' satisfaction and loyalty, the analysis of a role of the regulative framework on the interplay of digital innovation and profitability, and the investigation of the impact of different business models for the success of the digital banking strategies in emerging economies. More such research would therefore help bring out more details of the relationships between the digital transformation process and banking performance in dynamic financial markets.

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