

Assessing the influence of financial technology adoption on the performance of commercial bank in the UAE

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Abstract

Purpose – This paper examines the association between Financial Technology (FinTech) adoption and the financial performance of commercial banks operating in the UAE over the period 2012–2021. It focuses on three FinTech dimensions – financial inclusion, alternative payment methods, and automation – and relates them to three performance indicators – total deposits, total loans, and net profit margin. The study is framed by the Technology–Organization–Environment (TOE) and Diffusion of Innovation (DOI) perspectives to explain why different FinTech dimensions may influence performance through distinct channels.

Design/methodology/approach – The study adopts a quantitative approach combining survey-based measures of bank FinTech adoption (financial managers, IT professionals, and senior officers; 205 valid responses) with archival financial statements. Descriptive statistics and multiple regression are used to estimate the relationships between FinTech dimensions and performance indicators. Because FinTech adoption is self-reported and performance outcomes are averaged over a long horizon, the empirical results are interpreted as correlational rather than causal.

Findings – The results indicate positive associations between all three FinTech dimensions and the performance indicators. Alternative payment methods show the strongest association with deposits and profitability, while automation is most closely linked to operational efficiency and profit margins. The models report high explanatory power (adjusted $R^2 \sim 0.88\text{--}0.90$); however, this should be treated cautiously because omitted bank-level controls and common-method bias can inflate model fit.

Social implications – The findings support the view that digital innovation can complement traditional banking by expanding access, improving transaction convenience, and reducing operational frictions. They also highlight the need for future research using matched time periods, bank-level control variables, and stronger validity tests to confirm the mechanisms proposed by TOE and DOI and to assess potential negative effects such as cybersecurity risk and competitive margin pressure.

Originality/value – The paper contributes UAE-focused evidence by separating FinTech into inclusion, payments, and automation dimensions and linking them to core banking outcomes. It offers policy-relevant insights for regulators and bank managers, while clearly acknowledging design limitations and avenues for more rigorous follow-up work.

Keywords Financial technology, Financial performance, Financial inclusion, Automation

Paper type Research article

1. Introduction

Financial Technology (FinTech) is an innovation that is the combination of finances with technology to create new financial services. According to Schueffel (2016), the term itself was first coined by the Financial Services Technology Consortium, which was initially created by

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Citigroup at the beginning of the nineties. FinTech implies the sign of a modern financial form, which is an integration of a technological breakthrough with the profitability of the traditional banking industry. It offers a range of services, the service of which through the assistance of new technologies involve mobile payments, online payment settlements, and cloud computing and provides them in the form of account management and assistance in making investments, as well as credit and lending (Hafez, Kaddumi, Nassar, & Muqattash, 2023; Schueffel, 2016).

As reported by Hafez *et al.* (2023), Global FinTech investment reached USD 111.8 billion in 2018, a 120% increase from the previous year. The region hosts over 310 FinTech firms, with about 36% based in the UAE, indicating regional dominance. The CBUAE has played a leading role in FinTech development, emphasizing the importance of banks in the future financial system (AB Accelerator, 2020).

The UAE banking industry has undergone major transformation over the past decade, becoming one of the most technologically advanced financial markets in the Arab region. This shift has been driven by national strategies such as UAE Vision 2031, the Digital Economy Strategy, and the Artificial Intelligence Strategy 2031. These initiatives promote digitalization and reshape how financial institutions interact with customers, manage data, and compete in the global digital economy.

FinTech adoption in the UAE banking sector has grown rapidly between 2012 and 2021. The CBUAE introduced initiatives such as the FinTech Office, Regulatory Sandbox, and the National Payment Systems Strategy (NPSS) to improve digital payment interoperability. Financial hubs like DIFC and ADGM now support FinTech innovation by encouraging collaboration between banks and tech startups. These developments reflect the UAE's commitment to building a strong digital financial ecosystem aligned with its economic vision.

Even with this progress, empirical studies that directly evaluate the relationship between FinTech adoption and the financial performance of UAE banks remain limited. Much of the available evidence is based on industry reports rather than systematic testing. This study addresses the gap by examining three FinTech dimensions – Financial Inclusion (FI), Alternative Payment Methods (APMs), and Automation (Auto) – in relation to Total Deposits (TD), Total Loans (TL), and Net Profit Margin (NPM) (De Roure, Pelizzon, & Thakor, 2021; Dwivedi, Alabdooli, & Dwivedi, 2021; Feyen, Frost, Gambacorta, Natarajan, & Saal, 2021; Hamadeh, 2022; Nguyen, Tran, & Ho, 2021).

Conceptually, the TOE framework explains FinTech adoption through three factors: technological context (availability and maturity of digital tools like payments and automation), organizational context (skills, governance, and resources), and environmental context (regulation and competitive pressure).

DOI theory states that adoption depends on relative advantage, compatibility, and complexity, which influence diffusion and use. Accordingly, APMs are expected to drive deposits and transaction income through speed and convenience, FI to expand deposits and lending via wider access, and automation to improve profitability by reducing costs and inefficiencies.

Due to competition, FinTech has become essential for operational success. Technological innovation is now crucial for financial institutions to remain efficient, attract customers, and stay profitable. Therefore, this study examines the impact of FinI, FinO, and APMs on the financial performance of commercial banks in the UAE. *To answer the question of the study: Does adoption of FinTech have any meaningful impact on the major financial performance indicators of banks?*

Although the conventional ratios like Earnings Per Share (EPS), Return on Assets (ROA), Cash Flow Statement (CFS) and Return on Equity (ROE) tend to be used to analyze the performance, the researchers involved in this study are interested in Total Deposits (TD), Total Loans (TL) and Net Profit Margin (NPM). These factors show the capability of a bank to draw deposits, use the money effectively, and stay profitable, which are the key elements of management performance and sustainability.

The paper is organized as follows: [Section 2](#)- literature and theoretical foundations on FinTech and bank performance. [Section 3](#)- methodology, including data, measures, and analysis. [Section 4](#)- descriptive statistics and hypothesis results. [Section 5](#)- findings, implications, recommendations, and the conclusion.

2. Financial technology

2.1 The concept of FinTech

Financial Technology (FinTech) is an interdisciplinary field combining finance and technology to improve financial services through innovation. [Barbu, Florea, Dabija, and Barbu \(2021\)](#) describe FinTech as a set of new services enabled by information and communication technologies (ICTs). [Abad-Segura, González-Zamar, López-Meneses, and Vázquez-Cano \(2020\)](#) define FinTech as innovative financial institutions that use technology to enhance efficiency, accessibility, and customer experience.

FinTech involves applying computerized systems and software to facilitate many different financial services, online payments, electronic money transfer, credit cards and ATM machines ([Nurlaela, Luthfiyana, Sulastri, & Wahyunita, 2020](#)). [Zaghol, Ramdhan, and Othman \(2021\)](#) also describe the use of digital networks and online infrastructure to deliver financial services as FinTech and note that it may be regarded as the next step of technology application in the financial sector ([Rizwan et al., 2024](#); [Ganlin Pu et al., 2024](#); [Zhang Kai et al., 2024](#); [Haipeng Shan et al., 2024](#); [Gai, Qiu, & Sun, 2018](#)).

Emerging technologies such as artificial intelligence (AI), mobile wallets, blockchain, Internet of Things (IoT), and near-field communication (NFC) have significantly driven FinTech development ([Lim, Kim, Hur, & Park, 2019](#)). Their use in financial systems has transformed customer interaction with banks by enabling real-time, 24/7 access to personalized services ([Suseendran, Chandrasekaran, Akila, & Sasi Kumar, 2019](#)). [Barbu et al. \(2021\)](#) further highlight that FinTech improves financial operations by integrating digital technologies to enhance convenience, accuracy, and personalization.

FinTech innovation not only improves banking efficiency but also transforms service delivery in financial institutions ([Nangin, Barus, & Wahyoedi, 2020](#)). Unlike traditional banks that rely on physical infrastructure, FinTech firms focus on digital platforms to deliver faster, more cost-effective, and customer-centered services. [Romanova and Kudinska \(2016\)](#) note that both tech companies and traditional banks are adopting FinTech to enhance performance and service quality.

FinTech systems can act as online intermediaries between lenders and borrowers, enabling transactions without traditional banks. This peer-to-peer model improves financial efficiency and expands access to underserved populations. [Zaghol et al. \(2021\)](#) and [Puschmann \(2017\)](#) also view FinTech as the digitalization of finance, where IT drives innovation in service delivery, customer interaction, and operational flexibility. ([Rizwan et al., 2024](#); [Ganlin Pu et al., 2024](#); [Zhang Kai et al., 2024](#); [Haipeng Shan et al., 2024](#)).

2.2 FinTech and banks

FinTech has transformed the development and delivery of banking services by enabling customer-focused products that improve satisfaction (Report on the State of Financial Technologies, 2018). [Friedline, Despard, and Birkenmaier \(2018\)](#) note that it promotes financial inclusion by making services more accessible and affordable.

It has also reduced reliance on high-interest credit by introducing more cost-efficient lending models. [Petralia, Philippon, Rice, and Veron \(2019\)](#) argue that FinTech has reshaped traditional banking models by improving efficiency and innovation. Similarly, [Nguyen et al. \(2021\)](#) state that it has expanded across deposits, lending, investment, capital raising, and payments, reshaping the financial sector.

[Arslanian and Fischer \(2019\)](#) note that the growing competition between FinTech firms and traditional banks is pushing banks to innovate and rethink their business models to remain relevant. This has increased risk-taking, innovation, and changes in performance structures. [Buchak, Matvos, Piskorski, and Seru \(2018\)](#) add that regulatory frameworks significantly affect FinTech credit services, highlighting the importance of flexible regulation for banking performance.

2.3 Literature review

Research consistently shows a positive link between FinTech adoption and improved financial service quality, efficiency, and cost reduction. [Nguyen et al. \(2021\)](#), [Chen, Wu, and Yang \(2019\)](#), and [Yao and Song \(2021\)](#) argue that FinTech enhances transaction accessibility and efficiency, while [Rita \(2018\)](#) finds that markets respond positively to FinTech adoption, reflecting investor confidence.

Two main theories explain FinTech's role in banking: the customer hypothesis and disruptive innovation theory. The customer hypothesis suggests FinTech helps banks better respond to changing customer needs, while disruptive innovation theory argues that FinTech reduces costs and improves convenience, challenging traditional banks ([Nguyen et al., 2021](#)). [Yudaruddin \(2022\)](#) adds that digital platforms are reshaping financial services and increasing competition.

[Juengerkes \(2016\)](#) highlights that collaboration between banks and FinTech firms can help banks manage disruption effectively. [Nguyen et al. \(2021\)](#) also note that FinTech improves payment systems through mobile platforms, reducing transaction costs but limiting some traditional banking advantages.

Comparative studies show differences between Islamic and conventional banks in FinTech adoption. [Abdul-Majid, Falahaty, and Jusoh \(2017\)](#) and [Yudaruddin \(2022\)](#) note that Islamic banks face higher operating costs due to Shariah compliance requirements that limit speed and innovation. Similarly, [Panjwani and Shili \(2020\)](#) find that Islamic banks adopt FinTech more slowly due to regulatory constraints and adaptation to Shariah standards. [Ali, Rose, and Zaini \(2019\)](#) also report that conventional banks tend to innovate faster than Islamic banks.

[Nguyen and Dang \(2022\)](#) find that FinTech's impact on financial stability is weaker in emerging markets with higher foreign ownership and stronger institutions. In contrast, [Shuli, Du, and Liu \(2022\)](#) show FinTech improves ROE, total assets, and net interest margin while reducing non-performing loans, indicating stronger profitability and risk control when effectively implemented.

This study applies TOE and DOI frameworks. In TOE, APMs and automation are technological factors, financial inclusion is both technological and organizational, and regulation is environmental. DOI suggests that innovations with clear advantages spread quickly and shape customer behavior. Accordingly, APMs increase deposits and profitability through convenience, automation improves profitability via cost efficiency, and financial inclusion expands deposits and lending.

However, FinTech may also produce neutral or negative short-term effects. High implementation costs, legacy system integration issues, cybersecurity risks, and increased competition can compress margins. These challenges suggest that FinTech outcomes depend on institutional readiness and regulatory conditions.

3. Methodology

3.1 Research design

The study adopts a quantitative, deductive approach to examine the relationship between FinTech adoption and UAE commercial bank performance from 2012–2021. Primary data are collected through a structured questionnaire measuring FinTech implementation, while secondary data are obtained from bank financial statements. Because the study combines self-reported and archival data over time, it tests associations rather than strict causality.

The analysis examines three FinTech components – Financial Inclusion (FI), Alternative Payment Methods (APMs), and Automation (Auto) – against three performance indicators: Total Deposits (TD), Total Loans (TL), and Net Profit Margin (NPM). Regression analysis is used to assess relationships, but results are interpreted cautiously due to possible omitted variables and timing effects.

A cross-sectional survey of banking professionals captures perceptions of FinTech adoption, which is then linked to bank-level financial data. While this mixed approach enhances relevance, it may introduce common-method bias and timing misalignment, which are acknowledged as limitations.

3.2 Population and sampling

The target population includes all CBUAE-regulated commercial banks in the UAE, totaling 21 banks as of 2021, covering both domestic and foreign institutions.

Purposive sampling was used to select banks listed on the ADX and DFM, focusing on managerial and professional staff in Finance, Operations, IT, Credit, Digital Banking, and Customer Service. Of 280 distributed questionnaires, 205 valid responses were analyzed, giving a response rate of over 73%.

This relatively large and diverse sample enhances the reliability and generalizability of the findings within the UAE banking sector.

3.3 Variables measurement

All the variables were measured and defined systematically to strictly test the hypotheses of the study. FinTech adoption was the independent variable, and was categorized into three clearly distinct dimensions, which included Financial Inclusion (FI), Alternative Payment Methods (APMs), and Automation (Auto). The dependent variable which was the financial performance was expressed in three indicators which could be measured: Total Deposits (TD), Total Loans (TL), and Net Profit Margin (NPM).

3.3.1 Dependent variables. Bank financial performance was measured using Total Deposits (TD), Total Loans (TL), and Net Profit Margin (NPM) from published statements (2012–2021). To reduce yearly fluctuations, the average of each indicator was calculated over the ten-year period for each bank. Since TD and TL are size-dependent, results are interpreted in terms of deposit and lending capacity. Future studies could apply scaling, logarithmic transformations, and bank size controls.

3.3.2 Independent variables. FinTech adoption was measured using a structured questionnaire assessing implementation across three dimensions. The questionnaire included items related to FI, APMs, and Automation. Each item was rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree).

In order to establish an effective representation, the response data was summed up accordingly within the respective banks and a single composite score was obtained to represent the overall level of the FinTech adoption within a particular bank. It was an approach-consistency in that the data of quantitative survey should be compared with secondary financial records.

3.4 Research instrument design

In line with the study objectives, a quantitative, deductive approach was used, combining a structured questionnaire (based on prior literature and practitioner input) with secondary financial data.

The questionnaire had two sections.

Part 1 collected demographic information, including gender, education level, job rank, work experience, and department.

Part 2 examined the impact of FinTech dimensions – financial inclusion, automation, and alternative payment methods – on bank performance.

Responses were measured using a five-point Likert scale, where 1 represented the lowest importance and 5 the highest. Participants were required to have sufficient knowledge and experience in financial technology and banking. As a result, only managers and technical staff involved in digital banking practices were selected to ensure valid data.

3.5 Study reliability test

Content validity was ensured through expert review. Academics in finance, technology, and research methods evaluated the survey items for clarity, relevance, and alignment with study objectives, leading to minor revisions.

Reliability was tested using Cronbach’s alpha for each FinTech construct, with all values exceeding acceptable thresholds, indicating strong internal consistency (Table 1).

However, the study does not apply factor analysis or report multicollinearity tests such as VIF. Future research should include these checks to confirm construct validity and ensure the independence of closely related digitalization measures in regression analysis.

The values of Cronbach’s Alpha in Table 1 indicate high levels of reliability in all the constructs and the coefficient value is above the required coefficient (0.70) as indicated in the literature. The coefficient is the lowest (0.836) however still shows a high level of consistency, which proves that all the questionnaire items were effective to map their intended constructs.

This discussion shows that the instrument is statistically sound and methodologically reliable, producing accurate data for hypothesis testing. The strong reliability results suggest that the findings would likely remain consistent if the study were repeated under similar conditions, supporting the credibility and validity of the research.

4. The descriptive statistics of the study sample and the variables of the same

4.1 Methods of demographic characteristics of study sample

Table 2 presents the demographic profile of the respondents. Males formed the majority of the sample (65.9%), indicating a male-dominated workforce in UAE banking, particularly in management and technical roles linked to FinTech adoption.

Most respondents held a bachelor’s degree (68.3%), suggesting a well-educated workforce capable of engaging with financial technologies. Additionally, 14.6% had master’s degrees, reflecting the presence of skilled professionals, while 7.3% held PhDs, indicating a smaller group of highly qualified staff.

The average age was around 34 years, with many respondents aged between 35 and 40, reflecting mid-career professionals with substantial experience. In terms of tenure, 80.5% had worked in their organizations for more than five years, indicating strong familiarity with institutional practices and FinTech integration.

Overall, this demographic profile enhances the reliability of responses due to the participants’ education, experience, and professional exposure to technological change in banking.

Table 1. Values of Cronbach’s alpha results

Factors affecting	Cronbach’s alpha
Alternative Payment Methods	0.836
Financial Inclusion	0.902
Automation	0.926

Table 2. The demographic distribution of the study sample

Category	Variable value	Repetition value	Percentage
Gender	Female	70	34.1
	Male	135	65.9
	Total	205	100
Academic Degree	Ph.D.	15	7.3
	Master	30	14.6
	High diploma	10	4.9
	Bachelor	140	68.3
	Diploma	10	4.9
	High secondary school	0	0
	Total	205	100
Age	Less than 35	35	17.1
	35 – less than 40	70	34.1
	40 – less than 45	50	24.4
	45 – less than 50	35	17.1
	More than 50	15	7.3
	Total	205	100

4.2 Independent variables descriptive analysis

Survey responses were analyzed using descriptive statistics, including mean and standard deviation for all items. Responses were measured on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Upper and lower class limits for interpretation were calculated using a standard formula.

$$(5-1)/5 = 0.8.$$

The results, the mean scores, were, therefore, understood as follows:

4.21–5.00 = Very High

3.41–4.20 = High

2.61–3.40 = Moderate

1.81–2.60 = Low

1.00–1.80 = Very Low

In this categorization, a systematic analysis was conducted on the level of concurrence and perception of the respondents on each of the FinTech dimensions.

4.2.1 Financial inclusion (FI). Table 3 shows descriptive statistics for Financial Inclusion. Question 10 has the lowest mean, relating to banks' support for different economic sectors. Questions 1 and 2 record the highest mean (4.511), indicating strong agreement on banks' role in supporting society and economic development.

Overall, financial inclusion shows high adoption in UAE commercial banks, with a mean of 4.453 and a standard deviation of 0.520. This indicates active expansion of financial access and improved inclusiveness. The low standard deviation suggests consistent responses, with financial inclusion showing a strong positive effect on banking performance and service accessibility in the UAE.

4.2.2 The acceptance of alternative payments methods (APMs). Table 4 presents descriptive results for Alternative Payment Methods (APMs). Mean scores range from about 4.067 to 4.244, showing strong agreement that APMs are widely used and improve service quality, customer reach, and bank performance in the UAE.

The overall mean of 4.156 and standard deviation of 0.440 indicate a high level of APM adoption. This suggests that digital payment tools such as mobile wallets, online transfers, and

Table 3. Results of the descriptive analysis of the independent variable, financial inclusion

Question	Std. dev.	Significance	Mean
Does the bank provide financial products and services that effectively meet the needs of various segments of society?	0.589	High	4.511
Does the bank play a significant role in contributing to national economic development?	0.588	High	4.533
Are individuals and institutions able to access diverse financial services remotely and at an affordable cost?	0.625	High	4.467
Is one of the bank's primary objectives to support low-income individuals in improving their financial well-being?	0.621	High	4.422
Do clients have ample opportunities to utilize different payment options, including digital payment systems?	0.695	High	4.511
Does the bank deliver a comprehensive range of its services through online platforms?	0.618	High	4.400
Do you believe that the bank safeguards the rights and interests of its customers?	0.752	High	4.444
Does the bank actively promote financial awareness among clients to strengthen their decision-making capabilities?	0.654	High	4.400
Do you agree that the bank implements a comprehensive strategy aimed at promoting financial inclusion?	0.693	High	4.444
Does the bank engage in initiatives that support the growth and development of various economic sectors?	0.720	High	4.400
<i>Financial inclusion average</i>	<i>0.520</i>	<i>High</i>	<i>4.453</i>

Table 4. Results of the descriptive analysis of the independent variable, alternative payment methods (APMs)

Question	Std. dev.	Significance	Mean
Has the bank switched to making use of alternative payment methods (APMs) to improve the quality of its services?	0.609	High	4.244
Do APMs adoption also assist the bank in gaining more attention and interest of the customers?	0.562	High	4.156
Does the introduction of APMs help in creating new and innovative payment systems in the bank?	0.539	High	4.067
Do the APMs support and integrate well with the current services in the bank?	0.557	High	4.089
Do the use of APMs enhance the overall efficiency and effectiveness of the performance of the bank?	0.614	High	4.178
Has the implementation of APMs led to growth of the number of clients accessing the services of the bank?	0.505	High	4.133
Has the application of APMs helped in reducing the cost of operation or service delivery incurred by the bank?	0.588	High	4.133
Has APMs impacted positively on the financial performance of the bank?	0.548	High	4.200
Is there any preference in the use of their preferred payment methods so that clients can easily address their banking requirements?	0.548	High	4.200
Does the bank offer multiple and mainstream payment systems including traditional and online payment systems?	0.520	High	4.156
Average	0.440	High	4.156

contactless payments are widely implemented due to their ability to enhance customer experience and operational efficiency.

Overall, the findings show that APMs are extensively used and considered strategically important within the UAE banking sector.

4.2.3 Automation. Automation, the third independent variable, is summarized in [Table 5](#). Mean scores are generally high, ranging from about 4.067 to 4.244, indicating strong perceived use of automation technologies in UAE banks.

These findings show a very high level of automation in UAE commercial banks, indicating that technologies such as RPA, AI, and machine learning are central to operations. Automation improves efficiency, accuracy, compliance, and overall performance.

The results confirm that automation is a key FinTech component that supports process optimization and enhances financial performance.

4.2.4 FinTech dimensions summary. [Table 6](#) shows the average mean scores for Financial Inclusion, Alternative Payment Methods, and Automation. Results indicate high adoption levels across all FinTech dimensions in UAE commercial banks.

Financial Inclusion has the highest mean (4.453), followed by Alternative Payment Methods (4.156) and Automation (4.149). Although differences are minimal, all variables fall within the “high” category, showing strong agreement that these FinTech practices are widely adopted and strategically important.

Overall, these results suggest that FinTech applications have become an integral part of UAE banking, supporting customer access, transaction convenience, and operational streamlining.

Table 5. Results of the descriptive analysis of the independent study variable, automation

Question	Std. dev.	Significance	Mean
Do you feel that the bank uses information technology (IT) solutions to automate different operational processes and activities?	0.611	High	4.111
Is the bank using the workflow automation systems in its operations?	0.573	High	4.111
Does the bank structure of employment affect the implementation of the automation?	0.532	High	4.111
And is it a sign of active involvement of the bank in the greater economy that it has adopted automation?	0.601	High	4.156
Does the bank use artificial intelligence (AI) technologies in its operating systems?	0.609	High	4.244
Does the bank have automation systems that are updated on a regular basis to ensure they meet the needs of clients?	0.599	High	4.222
Do the automation systems have enough flexibility to adapt to the alterations within the internal processes of the bank?	0.625	High	4.200
Has automation been applied in a way that has resulted in fewer expenditures on human resource?	0.654	High	4.067
Is there a gap in skills or competence between the employees due to the implementation of automation?	0.694	High	4.133
Has automation implicated any organizational or structural change in the bank?	0.625	High	4.133
<i>Average</i>	<i>0.489</i>	<i>High</i>	<i>4.149</i>

Table 6. Results of the descriptive analysis of FinTech dimensions

No.	The dimensions financial technology	Mean	Standard deviation	Significance
1	FI	4.453	0.520	High
2	APMs	4.156	0.440	High
3	Auto	4.149	0.489	High

4.3 Hypotheses test

To test the hypotheses, individual bank questionnaires were aggregated into a composite score per bank. For financial data, dependent variables were averaged over 2012–2021.

Multiple regression analysis was then used to examine the relationship between FinTech dimensions and financial performance. The F-statistic assessed overall model significance (Sig. F < 0.05 for acceptance). The t-statistic evaluated individual predictors, while adjusted R^2 measured the proportion of variance in the dependent variable explained by FinTech adoption.

The initial hypothesis of the study is the first main hypothesis (H1): FinTech and Total Deposits.

H1. There is a statistically significant role of FinTech on the financial performance of banks, i.e. Total Deposits.

The output of the multiple regression for H1 is presented in Table 7. The reported F-statistic indicates that the model is statistically significant at conventional levels. The adjusted R^2 suggests that the FinTech dimensions explain a large share of variation in the deposit outcome within the sample; however, this high explanatory power should be interpreted cautiously given the absence of bank-level controls, the possibility of correlated constructs, and the use of averaged financial outcomes.

- H1.1. Financial Inclusion significantly influences Total Deposits. The results (Sig. T = 0.000 < 0.05, b = 0.620) indicate a positive and significant relationship.
- H1.2. Alternative Payment Methods significantly affect Total Deposits. The results (Sig. T = 0.000, b = 0.700) show a strong positive effect, suggesting that digital payments increase deposit inflows.
- H1.3. Automation has a statistically significant positive effect on Total Deposits ($p < 0.05$), indicating that higher automation is associated with increased deposits through improved service quality and reliability.

FinTech and Total Loans: H2.

H2. FinTech statistically affects the income of a bank in terms of Total Loans.

Table 8 confirms that the motivation to build this model is confirmed since the calculated F-value of 231.57 is significant at 5% (Sig. F = 0.000). Adjusted R^2 (0.884) shows that FinTech dimensions explain 88.4% of the difference in total loans.

H2.1. Financial Inclusion has a significant impact on Total Loans.

Table 7. Results of the multiple regression test for the first hypothesis

Variables	β coefficient	Standard error	t-statistic	Probability
Constant	–	0.141	8.310	0
Financial inclusion	0.620	0.055	11.270	0
APMs	0.700	0.063	11.110	0.000
Automation	0.460	0.049	9.390	0.002
R	0.948			
R^2	0.899			
Adjusted R^2	0.897			
S.E. of regression	0.128			
F-statistic	27.158			
Probability	0			

Table 8. Results of multiple regression test for the second hypothesis

Variables	B coefficient	Std. error	t-statistic	Probability
<i>Constant</i>	–	0.587	6.234	0.000
Financial Inclusion	0.640	0.081	7.902	0.000
APMs	0.662	0.087	8.011	0.000
Automation	0.528	0.071	6.482	0.001
R	0.942			
R ²	0.887			
Adjusted R ²	0.884			
S.E. of regression	0.143			
F-statistic	231.57			
Probability (F-stat.)	0.000			

These findings (Sig. T = 0.000; b = 0.646) show that financial inclusion has a positive effect on the total loans which correlates with the argument that increased access to financial services spurs lending activity.

H2.2. Alternative Payment Methods significantly influence Total Loans. The results (Sig. T = 0.000, b = 0.662) indicate a strong positive effect, suggesting that digital payment systems improve credit accessibility and efficiency.

H2.3. Automation has a significant positive effect on Total Loans (Sig. T = 0.001, b = 0.528), indicating that it enhances lending capacity by reducing operational bottlenecks and improving loan processing accuracy.

Third Main Hypothesis (**H3**): FinTech and Net Profit Margin.

H3. FinTech adoption is positively associated with the Net Profit Margin (NPM) of banks.

Table 9 shows that the calculated F-value is of 245.28 and it is significant at 5% (Sig. F = 0.000), which confirms the regression model. The adjusted R² = 0.889 implies that the variations in NPM can be explained by FinTech applications up to 88.9% and, therefore, predictive reliability is high.

H3.1. Financial Inclusion has a large impact on Net Profit Margin.

The value of Sig. T = 0.001 and b = 0.590 show that financial inclusion has a positive impact on profitability due to increased market and deposit mobilization.

Table 9. Results of multiple regression test for the third hypothesis

Variables	B coefficient	Std. error	t-statistic	Probability
<i>Constant</i>	–	0.659	3.982	0.000
Financial Inclusion	0.590	0.089	7.283	0.000
APMs	0.665	0.100	7.610	0.000
Automation	0.571	0.077	6.987	0.001
R	0.944			
R ²	0.892			
Adjusted R ²	0.889			
S.E. of regression	0.151			
F-statistic	245.28			
Probability (F-stat.)	0.000			

H3.2. Alternative modes of payment have a considerable influence on Net Profit Margin.

The model indicates that APMs have a strong positive impact with a Sig. $T = 0.000$ and $b = 0.665$; hence, the effective payment technologies are able to increase the volume of transactions and speed of revenue streams.

H3.3. Net Profit Margin is greatly impacted by automation.

Sig. $T = 0.001$ and $b = 0.571$ have a positive value meaning that automation enhances profitability through cost reduction and optimization as well as operational performance.

5. Findings and discussion

This section interprets results from 205 valid questionnaires and bank financial statements. It examines whether higher FinTech adoption is associated with better bank performance in terms of total deposits, total loans, and net profit margin (NPM). The discussion focuses on observed relationships and underlying mechanisms rather than causal conclusions.

5.1 *The effect of FinTech on the total deposits*

The results show that FinTech dimensions are positively and significantly associated with total deposits. Financial inclusion, alternative payment methods, and automation all contribute to higher deposit levels, with APMs showing the strongest relationship.

This suggests that greater use of digital financial services encourages customers to deposit more funds, as banks offer easier, faster, and more secure 24/7 access to services. [Li, Li, Zhu, Yao, and Casu \(2020\)](#) support this, noting that mobile banking, internet banking, and digital wallets increase customer engagement and deposit mobilization.

In addition, digital transformation reduces physical and transactional barriers, enabling customers, especially in underserved or remote areas to open and manage accounts more easily. Overall, FinTech adoption enhances customer engagement, improves financial inclusion, and strengthens liquidity in UAE banks.

5.2 *Effect of FinTech on the total loans*

The second set of results examines the relationship between FinTech adoption and total loans as a measure of lending activity. All three FinTech dimensions are statistically significant. The model indicates that a considerable portion of variation in total loans is associated with differences in FinTech adoption, supporting the view that digital channels and automation reduce frictions in loan origination and servicing.

FinTech tools allow customers to access loan products anytime through mobile and online platforms, reducing waiting time and paperwork. This enables banks to serve more clients and process loans more efficiently. [Hu, Ding, Li, Chen, and Yang \(2019\)](#) support this, noting that FinTech-based lending improves financial inclusion and credit access, especially for SMEs.

In addition, automation in loan processing reduces operational risk by improving data accuracy and speeding up decisions. Overall, FinTech adoption helps banks identify creditworthy borrowers, lower default risk, and optimize loan portfolios, making the UAE banking sector more competitive and customer-focused.

5.3 *Net profit margin (NPM) impact of FinTech*

The third set of results relates FinTech adoption to Net Profit Margin (NPM), a profitability indicator. The regression output shows positive and statistically significant associations for all three FinTech dimensions. A plausible interpretation is that APMs can raise transaction volumes and fee-based income, while automation can reduce unit operating costs and improve processing efficiency.

FinTech will allow banks to reduce administrative costs by automating the repetitive functions, including data entries, verification, and monitoring. This simplification causes a great saving of labor and time. Simultaneously, with improved accessibility of digital banking products, new customers will appear and the process of transactions will grow, which will also provide new sources of revenue.

The results are consistent with those documented by [Liu and Jiang \(2020\)](#), who have stated that the adoption of FinTech reduces the operational costs and, at the same time, increases the service capacity, leading to high profit margins. With the growing interest of customers in using digital banking platforms, the economies of scale advantage of banks, including providing more services with less costs and attaining sustainable growth. Taken together, these results verify that FinTech has not only a positive effect on increasing financial indicators of performance but overall competitiveness of the UAE banking industry.

5.4 Discussion of findings in general

Across the three models (deposits, loans, and net profit margin), the adjusted R^2 values exceed 0.88, indicating high in-sample explanatory power. While this is consistent with strong associations, unusually high fit can also reflect model misspecification, omitted bank-level controls, construct overlap, or scale effects in the dependent variables.

Several limitations should be noted. First, FinTech adoption is based on self-reported survey data, which may introduce perception bias and common-method variance. Second, averaging performance data over 2012–2021 may not fully match the timing of FinTech implementation, limiting causal interpretation. Third, the regression models exclude key banking control variables such as size, capitalization, asset quality, liquidity, and cost efficiency, which may affect results. Future studies should use panel data, include control variables, test for multicollinearity, and apply factor analysis to improve validity and robustness.

FinTech adoption has transformed financial institutions by digitalizing traditional banking processes and promoting customer-focused innovation. The findings confirm that greater use of FinTech solutions (mobile banking, automation, and digital payment systems) is associated with stronger financial performance, as banks improve customer engagement and operational efficiency.

Also, the paper substantiates the theoretical premises of disruptive innovation and customer-driven development which imply that technological innovation can improve service delivery but allow banks to compete more in the digital era.

5.5 Recommendations

Based on the results, some recommendations can be given to reinforce the application of FinTech and guarantee the sustainable increase in the banking industry of the UAE:

Harness Overall FinTech Plans-Within the Digital Transformation plans, banks must incorporate a comprehensive strategy of financial inclusion, the use of alternative form of payment, and automation thus making the adoption of technologies dog with long-term business goals.

Enhance Financial Inclusion-Financial institutions must make financial services accessible to low-income groups and non-banked groups via mobile banking systems and simplified digital bank accounts, increasing national economic inclusion.

Encourage Alternative Payment systems such as the use of APM-mobile wallets, QR code payment, and contactless transactions to appeal to tech-savvy clients and help them make their transactions faster and safer.

Continuous Automation-automation must be prioritized in order to bridge competency gaps between employees and automate back-office. Staff must be trained to make the employees understand new technologies.

Cultivate Teamwork and Innovation-Banks need to engage FinTech start-ups, regulators and technology providers to facilitate innovation ecosystems to support responsible and inclusive financial development.

Propose Future Research-The research anticipates that further research in other areas and types of banks is needed to determine the patterns of comparative FinTech adoption and their financial implications. Cybersecurity, digital literacy, and artificial intelligence are variables that could be included in the future research to widen the knowledge.

5.6 Conclusions

The primary aim of this study was to examine how FinTech adoption relates to the performance of listed commercial banks in the UAE. Using survey responses alongside bank financial statements, the analysis finds statistically significant positive associations between FinTech dimensions and Total Deposits, Total Loans, and Net Profit Margin. These results suggest that digital transformation may be linked to improved customer access, operational efficiency, and profitability, but the findings should be interpreted cautiously given measurement and design limitations.

Practically, the findings benefit both customers and banks. For customers, they highlight the growing importance of online financial transactions. For banks, they emphasize the need to adopt technology to remain competitive, improve efficiency, and ensure profitability. The results align with prior studies (Ibrahim, 2018; Dwivedi *et al.*, 2021; Abbas & Shaheen, 2021), which also find a positive relationship between FinTech adoption and bank performance.

While the study's objectives were achieved, future research can be extended. To assess the long-term impact of FinTech, additional variables such as customer trust, regulatory factors, and cybersecurity readiness should be included. A larger sample size and longitudinal data would also improve reliability and generalizability. Overall, the findings confirm that FinTech is a key driver of banking innovation and performance. Continued digital transformation will help UAE banks enhance financial inclusion, profitability, and global competitiveness.

Author contributions

Hafez Baker conceived the idea, wrote the introduction. Hafez Baker and Mahmoud Nassar wrote the literature review and the methodology. Mahmoud Nassar wrote the empirical results and the conclusion. All authors have read and agreed to the published version of the manuscript.

Informed consent statement

Informed consent was obtained from all subjects involved in the study. The questionnaire included an introductory section outlining the purpose of the study, voluntary participation, anonymity, and data confidentiality. Participants indicated their consent by continuing with the survey.

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