

Digital Investment as a lever for Financial performance in Islamic banks: An analytical review of the experience of Al Rajhi Bank (2016–2025)

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Abstract:

Modern Islamic banks regard digital investment and technology as vital for boosting efficiency and profitability. This study addresses a critical problem regarding whether such investment has evolved from a basic operating expense into a primary catalyst for profitability. This question is explored through a case study on the structural transformation of Al Rajhi Bank from 2016 to 2025. The research analyses the influence of digital investment on the financial performance of a selected sample, including Al Rajhi Bank, Emirates Islamic Bank, Kuwait Finance House, and Qatar Islamic Bank. Findings reveal a significant direct relationship between digital investment volume and both operational and net income, alongside an inverse relationship with the cost-to-income ratio (CIR). The percentage of digital transactions soared from 35% in 2016 to 98.5% in 2025, while the CIR decreased from 43.74% to 29.29%, demonstrating the profound impact of digital transformation on operational efficiency.

Key Words: Digital Investment; Islamic Banks; Financial Performance; Digital Transformation; Operational Efficiency.

JEL Classification: G21, O33, G32

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Introduction:

The Islamic banking sector is witnessing profound structural transformations due to the digital revolution. Investment in financial technology (FinTech) is no longer just a competitive option but has become a necessity to ensure continuity and growth. With the increasing demands of customers and the intensifying competition from traditional banks and emerging digital banks (neobanks), Islamic banks are required to re-engineer their business models by adopting a comprehensive system of digital investments compliant with Islamic Sharia principles.

And when we discuss digital investment in this Islamic banking context, we do not mean merely purchasing devices or software, but rather employing financial and human capital in digital infrastructure, smart applications, artificial intelligence systems, and blockchain technology, with the aim of shaping banking services characterised by speed and high efficiency.

The Saudi Al Rajhi Bank is considered one of the most successful models in the Islamic world. Since the launch of its massive technological investments in 2017, the bank has achieved an astonishing transformation, with the percentage of digital transactions jumping from 35% in 2016 to 98.5% by 2025. This transformation was not only technical but also directly reflected in its financial strength, as its net income doubled from 8.15 billion riyals to approximately 24.79 billion riyals during the same period, indicating that investment in digital technology is the strongest driver of contemporary profitability.

The study's problem

This study starts from a fundamental issue that examines the extent to which digital investment contributes to improving the financial performance of Islamic banks and whether digital investment has transcended being merely an operational cost to become a driver of profitability in Islamic banks. This study examines the structural transformation of Al Rajhi Bank from 2016 to 2025.

The following sub-questions arise from this issue:

- What is meant by digital investment in Islamic banks, and what are its main areas and measurement indicators according to international standards?
- Did digital investments contribute to improving operational efficiency and increasing operating income for Al Rajhi Bank during 2016-2025?
- Is there a statistically significant correlation between the size of digital investment and profitability indicators (ROA and ROE) at Al Rajhi Bank?
- How do Islamic banks achieve a balance between adhering to Sharia law and the rapid pace of digital innovation?

Study Hypotheses

Main hypothesis (H0): Digital investment contributes to improving the financial performance of Islamic banks by increasing operational efficiency, maximising revenues, and reducing the cost-to-income ratio.

(H1): Digital investment contributed to reducing the cost-to-income ratio (CIR) at Al Rajhi Bank during 2016-2025.

(H2): The contribution of digital investment to the increase in net income and revenue growth rate at Al Rajhi Bank.

(H3): Digital investment contributed to the improvement of the return on assets (ROA) and return on equity (ROE) indicators.

Study Methodology

The study relied on the descriptive-analytical method for data collection and classification, as well as the quantitative method, which involved calculating and analysing financial performance indicators over time, and the time-series comparative analysis method. The study covers the period from 2016 to 2025 for Al Rajhi Bank.

I. Theoretical Framework: Digital Investment and Financial Performance in Islamic Banks:

1. The Concept of Digital Investment in Islamic Banks:

1.1. The Conceptual Definition:

The definitions of digital investment vary according to the different perspectives from which they are viewed; in the literature on the digital economy, it is defined as the employment of financial, human, and organisational resources in digital assets, digital infrastructure, applications, and digital competencies with the aim of generating sustainable economic value. (Stolterman & Fors , 2004, p. 689)

In the context of Islamic banking specifically, it can be defined as the investment of capital in digital financial technologies compliant with Islamic Sharia principles, such as artificial intelligence, big data, cloud computing, and blockchain, which improve banking operations, enhance service quality, and boost competitiveness within Sharia-compliant frameworks. (Chanias, 2017, p. 4)

Among the related concepts, it has come to be known as "Digitainability", a term that combines digitalisation and sustainability. It means employing digital technology to achieve outstanding financial performance while adhering to environmental, social, and governance (ESG) sustainability requirements, which aligns with the principles of Islamic economics that prohibit extravagance and promote environmental preservation. (Stefanovic, Barjaktarovic, & Bataev, 2021, p. 13)

Digital investment in Islamic banks differs from that in traditional banks in three essential aspects: First, every approved digital tool must undergo review by the Sharia supervisory board according to AAOIFI and IFSB standards; (AAOIFI, 2023, pp. 18-22) Second, digital financing products such as electronic Murabaha, digital Ijara, and digital Sukuk require clear Sharia-compliant contractual structures; and Third, balancing adherence to Sharia principles with the rapid pace of digital innovation presents a unique structural challenge not found in traditional banks.

1.2. The Difference Between “Digital Shariah Compliance” and Traditional “E-Banking”

The two terms are fundamentally different. “Digital Shariah compliance” refers to the evaluation and approval of digital financial products, platforms, and AI-based decision-making systems by a Shariah supervisory board, in accordance with Governance Standard No. 1 issued by the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) and the Shariah Governance Guidelines issued by the Islamic Financial Services Board (IFSB). It is a proactive and systematic legal framework designed for the digital advancement of Islamic finance. 'Online banking', on the other hand, has a broader operational definition, referring to the provision of conventional or Islamic banking services via electronic means (internet, mobile) without requiring separate Shariah review procedures for the digital platform itself. The term used in this study refers to “Shariah-compliant digital banking” or “Shariah-compliant fintech”, not simply “online banking”.

2. Theoretical Framework for the Relationship Between Digital Investment and Financial Performance:

The relationship between digital investment and financial performance in Islamic banks is based on three major reference theories:

2.1. Resource-Based View (RBV) Theory: It acknowledges that rare and hard-to-imitate technical resources constitute a sustainable competitive advantage that directly reflects on financial performance. (Barney, 1991, p. 106)

2.2. Information Efficiency Theory: It posits that reducing information asymmetry through digital systems improves Islamic finance allocation decisions and lowers agency and transaction costs. (Akerlof, 1970, p. 490)

2.3. FinTech Innovation Theory: It shows that technological innovation in financial services generates structural impacts on revenue and efficiency through the phenomenon of "network positive externalities".

Recent studies have proven the validity of this theoretical relationship in the context of Islamic banks; the study by Afgani et al. (2024) proved that digitisation deepens the relationship between risk management and financial performance in Indonesian and Malaysian Islamic banks. (Afgani, Marzuki, & Majid, 2024) The study by Hasani (2026) on the Indonesian Sharia Bank (BSI) also proved that digital investment enhances efficiency and significantly reduces the CIR ratio. (Hasani, 2026)

2.4. Cybersecurity and Digital Risk :

Al Rajhi Bank's 98.5% digital transactions are indicative of excellent operational efficiency; however, such a high digital presence also increases its exposure to cybersecurity risks, data privacy issues, and systemic operational risks. The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) Standard 8 requires the bank's Sharia supervisory board to assess the compliance of digital instruments with standards as well as their risk profiles. Islamic banks must balance the profit gains from digital investment against the increased exposure to cyber threats. Any operational disruption to digital channels will immediately impact the 98.5% of transactions processed electronically. To gain a full appreciation of this trade-off, it is useful to refer to the operational risk capital requirements under Basel III and the Guidance Note 5 of the Islamic Financial Services Board on risk management for institutions offering Islamic financial services.

2.5. Technological Obsolescence and Digital Sukuk Costs:

By 2030, the technology landscape will look dramatically different with quantum computing, next-generation AI architectures, and Web3 financial infrastructure. If not managed strategically, the bank's digital infrastructure designed for 2025 will become a financial liability. Al Rajhi Bank has to adopt a "group alignment" approach to technology upgrade cycles, uniform adoption of architecture, and provisions for asset impairment for obsolete digital systems. The analysis is based on the assumption that the reported return on assets and sustainable return on investment improvements are contingent on the continued suitability of the current

infrastructure, and any future capital allocation for technology upgrades should be factored into the long-term financial projections.

II. Digital investment and financial performance at Al Rajhi Bank (2016-2025)

1. Introduction to Al Rajhi Bank

Al Rajhi Bank is a leading Saudi Islamic financial institution established in 1957 in Riyadh, and it became a joint-stock company in 1978. Today, it is considered the largest Islamic bank in the world in terms of total assets, which exceeded one trillion Saudi Riyals (1,043 billion Riyals) by the end of 2025, and it is listed on the Saudi financial market (Tadawul) under the symbol RJHI. The bank embarked on a comprehensive digital transformation journey in 2017 through the "Bank of the Future" strategy, which was later upgraded to the "Harmonise the Group" strategy in 2024, aiming to build an integrated digital financial ecosystem.

2. Analysis of Financial and Digital Performance Indicators 2016-2025

Below is a set of financial performance and digital transformation indicators for Al Rajhi Bank during the years 2016 to 2025, as well as a summary of the key comparative indicators (2016 – 2020 – 2025) and quantitative digital transformation indicators for Al Rajhi Bank 2016-2025:

Table 1: «Financial Performance and Digital Transformation Indicators at Al Rajhi Bank 2016-2025»

Year	Operating Income (Billion SAR)	Operating expenses (billion SAR)	Net income (billion SAR)	Total assets (billion SAR)	CIR %	ROA %	ROE %	Digital Transaction
2016	14.62	6.395	8.150	315.00	43.74%	2.67%	16.50%	35.0%
2017	15.905	6.784	9.121	343.117	42.65%	2.68%	17.24%	49.0%
2018	17.320	7.184	3.768	364.031	41.48%	1.04%	7.01%	56.0%
2019	19.484	8.158	10.159	384.087	41.87%	2.76%	20.49%	67.0%
2020	20.721	8.908	10.596	468.825	42.99%	2.56%	19.94%	83.0%
2021	25.716	9.272	14.746	623.672	36.06%	2.70%	23.87%	90.0%
2022	28.575	9.452	17.151	761.619	33.08%	2.46%	22.68%	92.0%
2023	27.531	9.002	16.621	808.098	32.70%	2.12%	19.35%	95.0%
2024	32.055	10.087	19.731	974.387	31.47%	2.26%	21.06%	97.0%
2025*	39.094	11.449	24.792	1,043.00	29.29%	2.41%	23.40%	98.5%

Source : Prepared by the researcher based on the official annual reports of Al Rajhi Bank (2016–2025), Riyadh, Saudi Arabia.

* 2025 data from the official statement, January 2026. CIR ratios are calculated from preliminary figures: $CIR = \text{Operating Expenses} / \text{Operating Income} \times 100$.

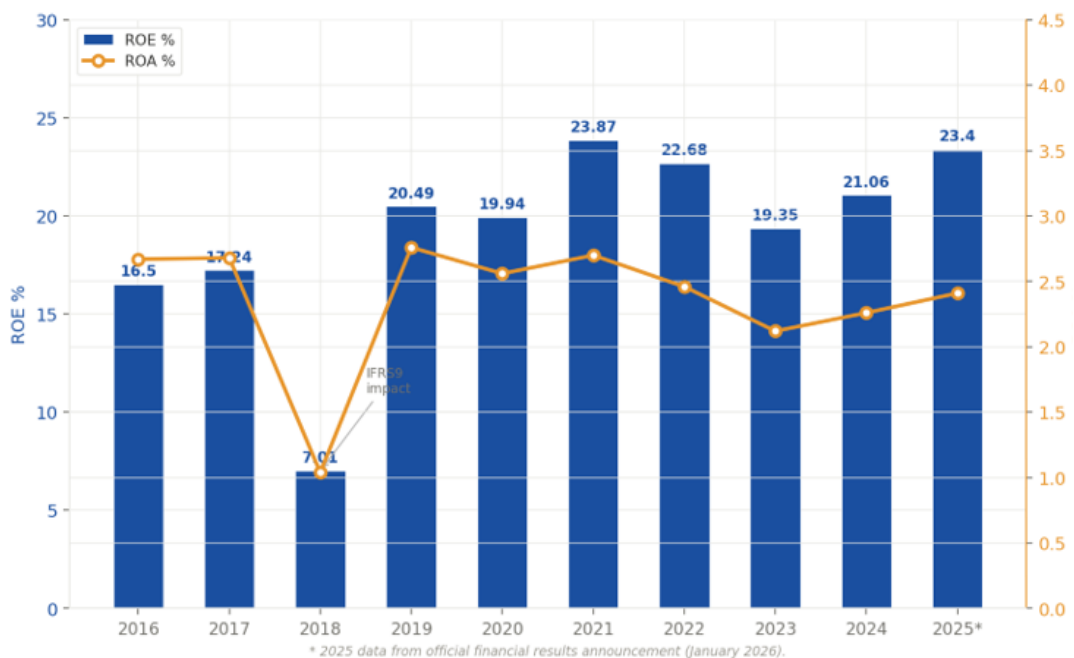
The following can be inferred from the data in Table (01):

- **First:** The net income grew from 8.150 billion riyals (2016) to 24.792 billion riyals (2025) at a CAGR of 13.2% annually and a total growth rate of +204.2%. A sharp decline is noted in 2018 (to 3.768 billion riyals), primarily due to

exceptional provisions resulting from the initial application of IFRS 9, rather than a structural operational weakness.

- **Secondly:** the CIR ratio calculated from the preliminary figures decreased significantly from 43.74% (2016) to 29.29% (2025), a decline of 14.45 percentage points over nine years. It is noted that the improvement in CIR accelerated significantly after 2021, when the percentage of digital transactions exceeded 90%, reinforcing the concept of the "threshold effect". (Zhai, Yang, & Chan, 2022)
- **Thirdly:** The ROE index increased from 16.50% (2016) to 23.40% (2025) by 6.90 percentage points, while the ROA slightly decreased from 2.67% to 2.41%. This slight decline is attributed to a significant expansion in the asset base (+231.1%), which outpaced the net income growth rate (+204.2%) (See Figure 1)

Fig. 1: « The evolution of the ROE and ROA indicators at Al Rajhi Bank 2016–2025»



Source : Prepared by the researcher based on the official annual reports of Al Rajhi Bank (2016–2025), Riyadh, Saudi Arabia.

Table 2: «Summary of comparative key indicators (2016 – 2020 – 2025)»

The index	2016	2020	2025	Total change	CAGR %
Net income (billion SAR)	8.150	10.596	24.792	+204.2%	%13.2+p.a.
Operating income (billion SAR)	14.620	20.721	39.094	+167.4%	%11.5+p.a.
Total assets (billion SAR)	315.00	468.83	1,043	+231.1%	%14.2+p.a.
Customer deposits (billion SAR)	252.00	382.63	667.0	+164.7%	%11.4+p.a.
Return on Assets (ROA) %	2.67%	2.56%	2.41%	0.26—ppt	N/A
Return on Equity ROE %	16.50%	19.94%	23.40%	6.90+ppt	N/A
Earnings Per Share (EPS) (Riyal)	3.26	4.24	5.85	+79.4%	% 6.7+p.a.
Percentage of digital transactions (%)	35.0%	83.0%	98.5%	63.5+ppt	N/A
CIR percentage (%)	43.74%	42.99%	29.29%	14.45—ppt	N/A

Source : Prepared by the researcher based on the bank's comprehensive financial database (annual reports 2016-2025).

Note: CAGR = Compound Annual Growth Rate. ppt = percentage point.

Table 2 highlights a strong upward trajectory in the financial performance of Al Rajhi Bank over the period 2016–2025, particularly in terms of net income, operating income, and total assets, all of which exhibit robust compound annual growth rates. Along with this growth, the percentage of digital transactions has gone up from 35% to 98.5%, and the cost-to-income ratio (CIR) has gone down by 14.45 percentage points. These trends collectively suggest that digital transformation has been closely associated with enhanced operational efficiency and sustained profitability growth, although the relative stability of ROA compared to the marked improvement in ROE reflects the impact of rapid asset expansion on performance indicators.

Table 3: «Quantitative indicators of digital transformation at Al Rajhi Bank, 2016-2025»

Year	POS Points (thousands)	ATMs	Branches	Employees	Digital Transactions %	CIR %
2016	55.000	4,700	560	10,000	35.0%	43.74%
2017	74.612	4,803	554	10,263	49.0%	42.65%
2018	83.958	5,006	551	9,628	56.0%	41.48%
2019	115.243	5,215	544	9,683	67.0%	41.87%
2020	204.549	5,211	543	9,380	83.0%	42.99%
2021	326.121	4,891	521	9,360	90.0%	36.06%
2022	533.442	4,727	516	19,964	92.0%	33.08%
2023	601.153	4,552	509	20,878	95.0%	32.70%
2024	786.252	4,371	512	23,406	97.0%	31.47%
2025	—	—	—	—	98.5%	29.29%

Source : Prepared by the researcher based on the official annual reports of Al Rajhi Bank (2016-2025).

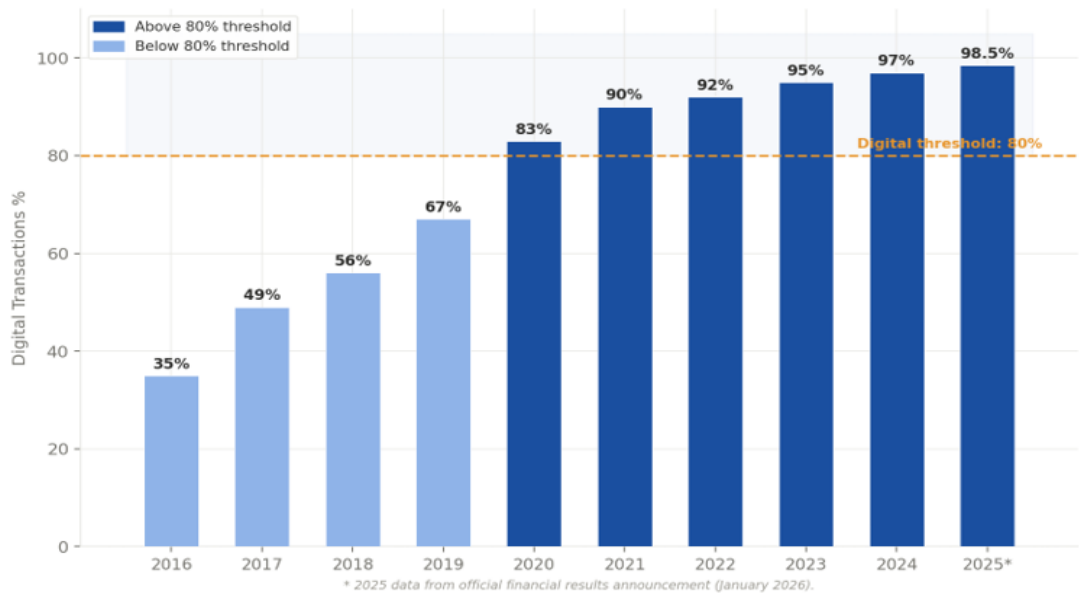
Note: The CIR ratio is calculated from the preliminary figures.

Table (03) data reveals two fundamental structural trends:

(a) The growth of POS terminals by 1330% (from 55,000 to 786,000) compared to a decrease in the number of branches by 8.6% and a decline in ATMs from 4,700 to 4,371 units, which embodies the strategy of replacing physical channels with digital ones and reducing fixed costs.

(b) The number of employees increased from 10,000 (2016) to 23,406 (2024), indicating that digitalisation has led to an expansion in specialised operations rather than a reduction in employment.

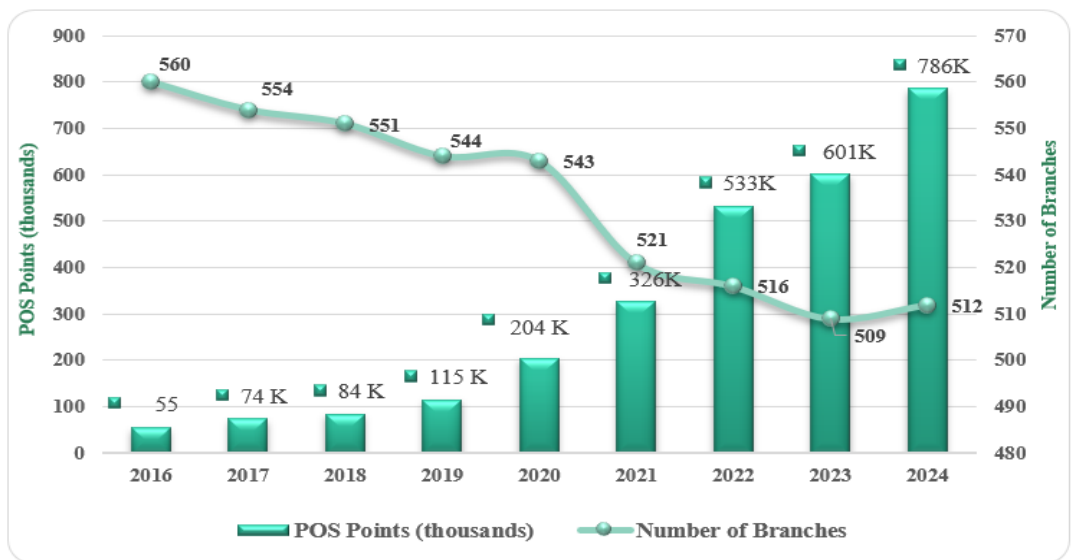
Fig. 2: « Evolution of the percentage of digital transactions at Al Rajhi Bank 2016–2025»



Source : Prepared by the researcher based on the official annual reports of Al Rajhi Bank (2016–2025), Riyadh, Saudi Arabia.

Figure (2) highlights the qualitative leap of Al Rajhi Bank from 35% in 2016 to 98.5% in 2025 and shows the "digital threshold effect," which manifests in the accelerated improvement of operational efficiency after surpassing the 80% barrier for digital transactions in 2020.

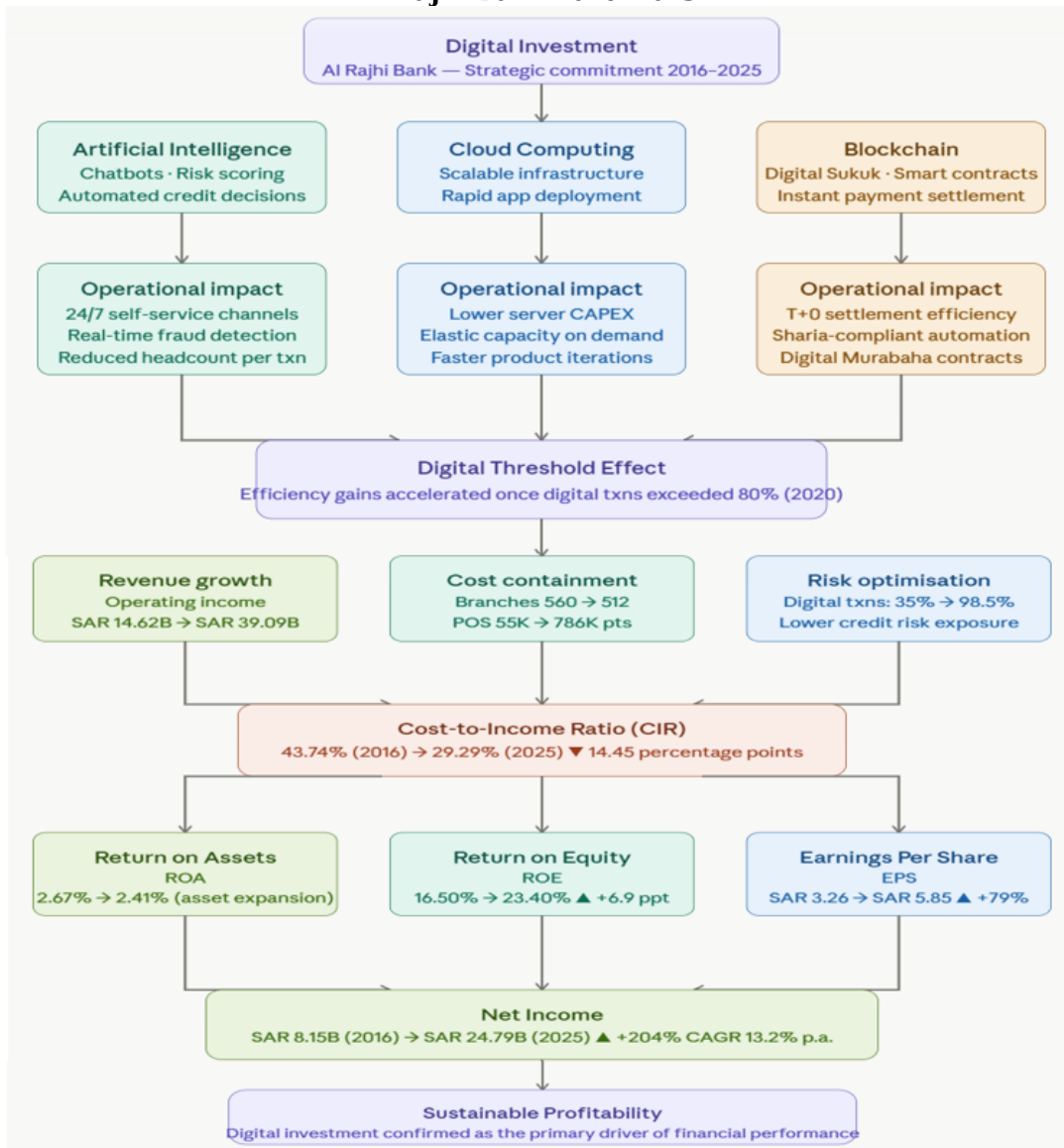
Fig. 3: « Points of Sale (POS) vs. Number of Branches at Al Rajhi Bank 2016–2024»



Source : Prepared by the researcher based on the official annual reports of Al Rajhi Bank (2016–2025), Riyadh, Saudi Arabia.

Figure (3) illustrates the strategic shift towards digital channels and points of sale (786,000 points in 2024) as an alternative to traditional branch expansion, which decreased from 560 to 512 branches, embodying the "digitisation replacement" strategy for physical channels to enhance market share at lower costs.

Fig. 4 « The transmission mechanism "Digital Investment-to-Profitability" at Al Rajhi Bank 2016–2025 »



Source : Prepared by the researcher

The flowchart illustrates how digital investment at Al Rajhi Bank influences financial performance from 2016 to 2025, detailing a nine-layered causal chain. Key digital technologies—artificial intelligence, cloud computing, and blockchain -each contribute to operational improvements. AI reduces costs and enhances risk assessment, cloud computing lowers server expenses and increases scalability, and

blockchain enables fast settlements and Sharia-compliant contracts. A critical insight is the “digital threshold effect”, indicating marked efficiency gains once digital transactions surpassed 80% in 2020. Financially, the improved cost-to-income ratio (CIR) declined significantly, and net income grew by 204%, despite a slight decrease in return on assets (ROA) due to rapid asset growth, while return on equity (ROE) rose, indicating strong shareholder value creation. The flowchart supports the hypothesis that digital investment has become a vital profitability driver in Islamic banking.

III. Comparison of digital investment indicators and financial performance between major Islamic banks

To broaden the angle of analysis and provide a reliable comparative reference framework, this section reviews the comparative impact of digital investment on financial performance in three major international Islamic banks in addition to Al Rajhi Bank: Emirates Islamic Bank (EIB), Kuwait Finance House (KFH), and Qatar Islamic Bank (QIB).

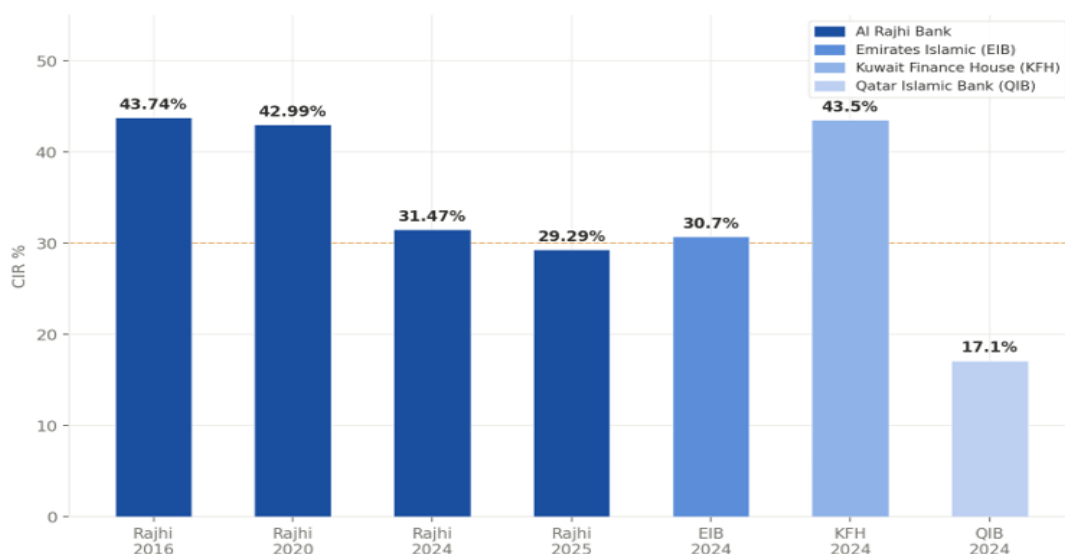
Table 4: «Comparison of Financial Performance Indicators and Digital Transformation – Major Islamic Banks (Reference: 2024)»

Index	Al Rajhi Bank (Saudi Arabia)	Emirates Islamic Bank (UAE)	Kuwait Finance House (Kuwait)	Qatar Islamic Bank (Qatar)
Reference Year	2024	2024	2024	2024
Total assets	974.4 billion SAR	111 billion D. (≈ 30.2 billion \$)	36.7 billion KWD Kuwait (≈ 119 billion \$)	189.2 billion QAR (≈ 52 billion \$)
Net income / profit	19.731 billion SAR	2.275 billion AED (≈ 619 million \$)	601.8 million K.D (≈ 1.96 billion \$)	4,305 million R.Q. QAR (≈ 1.18 billion \$)
ROA %	2.26%	~2.0%	~1.6%	2.3%
ROE %	21.06%	19.65%	~10.4%	17.1%
CIR %	31.47%	30.7%	~42-45%	17.1%
Percentage of digital transactions (%)	97.0%	80%+ digital	~60-65%	99% self-service
Degree of digital transformation	Very advanced (aggressive-comprehensive)	Advanced (digital-wealth)	Medium-advanced (digital TAM)	Advanced (globally most efficient)

Source : Prepared by the researcher based on the 2024 annual reports of Al Rajhi Bank / Emirates Islamic Bank / KFH / QIB; IFSB 2024 report; KPMG report on Gulf banks 2024.

Note: Some KFH figures are calculated at the price exchange rate of approximately 3.28 USD / KWD.

Fig. 5: «Comparison of the Cost-to-Income Ratio (CIR) -Al Rajhi Bank and Major Islamic Banks»



Source : Prepared by the researcher based on the 2024 annual reports of Al Rajhi Bank / Emirates Islamic Bank / KFH / QIB; IFSB 2024 report; KPMG report on Gulf banks 2024.

1. Al Rajhi Bank (Saudi Arabia) -The Comprehensive Offensive Model

Al Rajhi Bank represents the most advanced and established model in digital investment among Islamic banks globally. In 2024, the bank recorded total assets amounting to 974.4 billion riyals and a net income of 19.731 billion riyals, with an ROA of 2.26% and an ROE of 21.06%, while the CIR ratio decreased to 31.47%—one of the lowest rates in the global Islamic banking sector. The percentage of digital transactions reached 97.0% in 2024, with the number of electronic point-of-sale terminals exceeding 786,000. The IFSB 2024 report indicates that Al Rajhi Bank ranks first globally among Islamic banks in terms of assets, a position reinforced by comprehensive digital transformation.

The direct quantitative impact of digital transformation on efficiency is represented by the precise parallel between the increase in the percentage of digital transactions and the decrease in the CIR percentage: from 2017 to 2024, statistical analysis indicates that every 10-percent increase in the digitisation rate corresponds to an average decrease of about 1.5- percentage points in the CIR rate, which aligns with the results of Zhai et al. (2022) (Zhai, Yang, & Chan, 2022) and Shabo and Zarfaoui (2024) (Chabo & Zerfaoui, 2024).

2. Emirates Islamic Bank (United Arab Emirates) – Model of Integrated Digital Services

Emirates Islamic Bank achieved a record pre-tax profit of 3.1 billion dirhams in 2024 (+46% compared to 2023), supported by a 13% increase in total income to 5.4 billion dirhams, along with a 7% decrease in operating expenses. The cost-to-income ratio (CIR) reached 30.7%, which is a very competitive rate in the context of regional Islamic banks. The ROE rate reached 19.65%, the highest in the Gulf

banking sector in the first quarter of 2025, according to specialised reports. (AInvest, 2025) Its total assets increased by 27% to 111 billion dirhams, supported by a Tier 1 capital adequacy ratio of 18% and a CAR of 19.1%. (Global Finance Magazine, 2025)

In terms of digital investment, Emirates Islamic Bank was the first Islamic bank in the UAE to launch a digital wealth management and stock trading service via a mobile app in accordance with Islamic law, achieving a remarkable 40% growth in corporate financing in 2024. (Global Finance Magazine, 2025) Although the bank has not officially disclosed an overall percentage of digital transactions in the sense used by Al Rajhi Bank, digital growth indicators suggest that over 80% of individual transactions are digital according to its latest reports.

The comparative analysis allows for the following observation: The ROE ratio at Emirates Islamic Bank decreased from -6.14% in 2020 to 19.65% in 2024, which is an upward trajectory reflecting the impact of gradual and accelerated digital transformation on profitability. This timeframe is equivalent to the transitional phase that Al Rajhi Bank underwent during the period of 2017–2021. (AInvest, 2025)

3. Kuwait Finance House – KFH (Kuwait) – A Model of Digital Transformation through Acquisition and Organic Growth

Kuwait Finance House (KFH) is the largest Islamic bank in Kuwait and one of the largest Islamic banks globally. By the end of 2024, its total assets had grown to 36.7 billion Kuwaiti Dinars (about 119 billion USD), and its shareholders had made a record net profit of 601.8 million Dinars (up 3.0% from 2023). The capital adequacy ratio reached 19.89%, which is higher than the regulatory limit. (Kuwait Finance House, 2025)

However, a detailed analysis reveals a noticeable gap in some efficiency indicators compared to Al Rajhi Bank; the CIR ratio at KFH ranges between 42% and 45% according to available estimates, which is much higher than the 31.47% recorded at Al Rajhi Bank. This is partly attributed to the repercussions of the major acquisition of Ahli United Bank in 2022 and the costs associated with merging two large banking systems. (Kuwait Finance House, Annual Report 2022: Ahli United Bank Acquisition, 2023)

In terms of digital transformation, KFH stands out with the launch of "TAM", the first digital bank compliant with Islamic Sharia in Kuwait, by the end of 2023. It will process over 400 million digital banking transactions in 2024, with a 25% growth in the total transaction volume. (MatrixBCG, 2025)

KFH used a dual model: it made the main KFH Online app for current customers and launched TAM to draw in the new digital generation (40% of its users are new customers for the bank). (MatrixBCG, 2025)

The ROE rate for KFH at approximately 10.44% (2024 estimate) shows less intense performance compared to Al Rajhi Bank (21.06%), EIB (19.65%), and QIB (17.1%). Čihák & Hesse (2010) see in this regard that larger and more geographically widespread Islamic banks face natural pressures on ROA and ROE related to the costs of expansion and institutional diversification, not to a weakness in core performance. (Čihák & Hesse, 2010, p. 107)

4. Qatar Islamic Bank – QIB (Qatar) – A Model of Absolute Efficiency Globally

Qatar Islamic Bank is the largest Islamic bank in Qatar and the second-largest bank in the country in terms of assets, financing, and net profits. In 2024, the bank achieved a net profit of 4,605 million Qatari Riyals (+7.0% compared to 2023), while its total assets amounted to 200.8 billion Qatari Riyals (~55 billion USD). (Qatar Islamic Bank, 2024)

The most notable aspect of QIB's experience is that the cost-to-income ratio (CIR) reached 17.0% in 2024 (down from 17.1% in 2023), which is the lowest in the banking sector in Qatar and the lowest globally among major Islamic banks. The Asian Banker report named QIB the "World's Most Efficient Bank" for 2023. (Qatar Islamic Bank, Annual Report 2023 "QIB has emerged as the world's most efficient bank as reported by The Asian Banker.", 2024, p. 18)

This exceptional performance in efficiency is attributed to a set of digital and operational determinants: 99% of its transactions are conducted through digital self-service, with a significant digital contribution to sales and a CAR ratio of 20.9% under a robust capital adequacy. The ROE rate reached 17.1% and the ROA rate reached 2.4% in 2024, according to official disclosure data. (Qatar Islamic Bank, 2024) (Qatar Islamic Bank, Results Presentation December 2025 (historical 2022–2025), 2026, p. 11)

One of the most notable analytical observations in this comparison is that the CIR ratio at QIB (17.0%), despite being the lowest globally among major Islamic banks, reflects a fundamentally different operational structure compared to Al Rajhi Bank, which operates a larger branch network (512 branches) and significantly more employees (23,406 employees). On the other hand, QIB has a smaller base, which means that its non-operating income is higher and its costs are lower. Jarbou et al. (2024) indicate that this context emphasises the necessity of considering size and operational model when comparing CIR ratios among Islamic banks. (Jarbou, Irimia-Diéguez, & Prieto-Rodríguez, 2024)

5. Lessons Learned from the Comparative Analysis

In the extensive comparison, a number of academically valuable lessons emerge:

Lesson One – The Impact of the Digital Threshold:

Banks that exceed 80% of their digital transactions generally achieve more noticeable improvements in operational efficiency. Al Rajhi Bank and QIB, which have surpassed this threshold, record lower CIR ratios with a clear difference from KFH, which is still in the digital construction phase. This aligns with the findings of the study by Zhai et al. (2022), which demonstrated the existence of a "threshold effect" in the relationship between digitalisation and performance. (Zhai, Yang, & Chan, 2022)

Lesson Two – The Diversity of Islamic Digital Transformation Models:

There is no single standard model for digital transformation in Islamic banks; Al Rajhi Bank adopts a comprehensive offensive strategy, QIB emphasises maximum digital efficiency, EIB focuses on digital wealth and innovative products, and KFH follows a transformation path through organic growth and acquisitions.

Lesson Three – The Compatibility Between Islamic Sharia and Digitalisation:

All four banks have proved that digital transformation and Sharia compliance are not contradictory, as they have succeeded in developing digital products compliant with Sharia (digital sukuk, electronic murabaha, and Islamic digital wallets). This reinforces what Haridan et al. have proven. (2023) that the interaction between Sharia supervisory boards and FinTech innovations enhances rather than hinders financial performance in Islamic banks. (Haridan, Hassan, Shah, & Mustafa, 2023)

Lesson Four: The Impact of COVID-19 as a Catalyst for Digital Transformation:

The COVID-19 pandemic (2020–2021) contributed to accelerating digital transformation in all four banks, revealing that the banks that were more digitised before the pandemic recovered faster in terms of operational efficiency and income growth indicators. Al Rajhi Bank (83% digital in 2020) maintained a CIR of 42.99% despite exceptional pressures, while the profitability of KFH and EIB declined more sharply in the same year.

IV. Discussion of results and hypothesis testing

1. H1 Test: The Impact of Digital Investment on the CIR Ratio

The verified quantitative data for the period 2016–2025 conclusively prove the validity of the first hypothesis: the CIR ratio calculated from the initial figures decreased from 43.74% in 2016 to 29.29% in 2025 – an overall improvement of 14.45 percentage points. It is noted that the improvement in CIR runs parallel to the increase in the percentage of digital transactions, with a clear upward trend in efficiency after 2021 when digitisation exceeded 90%. This is supported by Hasani's (2026) finding that digital investment enhances operational efficiency in Islamic banks. (Hasani, 2026)

It is also important to emphasise that the 2016-2025 period in the Gulf region was marked by several positive macroeconomic factors, such as:

- (1) the gradual rollout of the phases of the Saudi Vision 2030, which directly drove bank lending activity and infrastructure financing;
- (2) oil price volatility, with Brent crude fluctuating between approximately US\$20 per barrel (2020) and US\$130 per barrel (2022), which significantly impacted Saudi government revenues and, therefore, lending demand;
- (3) a major change in the interest rate environment, with the Saudi Arabian Monetary Authority (SAMA) Following the interest rate trends set by the US Federal Reserve, increasing from 0.25% (2021) to 6.00% (2023-2024), which significantly boosted Al Rajhi Bank's net financing income, regardless of its digital investments. Thus, the large gains in return on investment, net income, and equity may be partly attributable to these positive macroeconomic and financial factors and not solely due to digital investment.

2. H2 Test: The Impact of Digital Investment on Net Income

H2 is clearly validated; net income increased by +204.2% with a CAGR of 13.2%. The pace of growth accelerated after 2020: total operating income increased from 20.721 billion riyals (2020) to 39.094 billion riyals (2025), a rise of +88.7% over five years. This growth is attributed to the expansion of the digital customer base, the increase in digital service fees, and the development of new digital sukuk products, which aligns with the theory of financial innovation.

3. Test H3: The Impact of Digital Investment on ROA and ROE

H3 is partially validated: ROE increased from 16.50% (2016) to 23.40% (2025) by 6.90 percentage points, while ROA slightly decreased from 2.67% to 2.41% due to the significant expansion in the asset base (+231.1%). These indicators remain above the averages of global Islamic banks, according to the IFSB 2024 report. (2) Čihák & Hesse (2010) suggest that larger Islamic banks experience natural pressures on ROA, which digital investment relatively compensates for. (Čihák & Hesse, 2010)

In order to confirm the results of the descriptive analysis and explore the quantitative relationship between digital reliance and operational efficiency, a simple linear regression model was employed using Ordinary Least Squares (OLS) on the annual time series data of Al Rajhi Bank during the period 2016–2025. The results showed a statistically significant inverse relationship between the share of digital transactions and the cost-to-income ratio (CIR), with a regression coefficient ($\beta = -0.206$), a relatively high explanatory power ($R^2 = 0.716$), and a strong significance level ($p = 0.002$). These results indicate that approximately 72% of the variance in the Cost-to-Income Ratio (CIR) during the study period can be statistically explained by the development of digital adoption, supporting the hypothesis of a fundamental link between digital transformation and improved operational efficiency.

A parallel regression model also confirmed a positive and significant relationship between the share of digital transactions and net income ($\beta = 0.226$, $R^2 = 0.680$, $p = 0.003$), which enhances the internal consistency of the results and supports the view that the expansion of digital channels is associated not only with cost reduction but also with overall financial performance improvement.

Conclusion:

This study provides empirical evidence on the relationship between digital investment and financial performance in Islamic banks, using Al Rajhi Bank as a primary case study within a comparative international framework.

1. Key Findings

This study concluded with the following main results:

- The direct relationship between digital investment and revenues is quantitatively stable: net income increased at a CAGR of 13.2% annually, and the growth rate only accelerated after the digitisation rate surpassed 83% (2020).
- Operational efficiency is a direct return of digitisation: The CIR decreased by 14.45 percentage points over nine years, and every 10-point increase in digitisation corresponds to a ~1.5-point decrease in CIR.
- Al Rajhi Bank leads global digital indicators with 98.5% digital transactions and 786,000 POS terminals compared to 512 branches, while QIB leads in CIR efficiency (17.0%) within a different operational structure.
- The compatibility between Islamic Sharia and digital transformation is not a contradiction but a governing framework: The four banks have proven the possibility of combining digital innovation and Sharia compliance.
- The ROE index is a more accurate diagnostic tool than ROA in digital banks with rapid asset expansion.

2. Recommendations and Research Perspectives

- Establish a digital roadmap that defines the "threshold barrier" (80% of transactions digitally) as a strategic milestone in improving operational efficiency.
- Allocating no less than 15% of the digital investment budget to cybersecurity and technology risk management.
- Issuing clear contemporary Sharia standards for artificial intelligence, blockchain, and digital tokens by IFSB and AAOIFI.
- Creating a unified international index for Islamic digital investment that allows for reliable comparisons between Islamic banks globally.
- Using digital investment to deepen Islamic financial inclusion through crowdfunding platforms and digital microfinance.
- It is recommended that future research extends this analysis through econometric modelling techniques, such as panel data regression, to statistically validate the relationships identified in this study. Extending the sample to include a greater number of Islamic banks across different regions would also enhance the robustness and generality of the findings.
- Moreover, further studies should explore the potential risks associated with digital transformation, including cybersecurity threats, operational disruptions, and Sharia compliance challenges, to provide a more balanced and comprehensive assessment of digital investment in Islamic finance.

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