“Artificial intelligence as an enabler of platform-based financial ecosystems: Evidence from commercial and Islamic banks listed on the Amman Stock Exchange”

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ARTIFICIAL INTELLIGENCE AS AN ENABLER OF PLATFORM-BASED FINANCIAL ECOSYSTEMS: EVIDENCE FROM COMMERCIAL AND ISLAMIC BANKS LISTED ON THE AMMAN STOCK EXCHANGE

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Abstract

The growing use of Artificial Intelligence is revolutionizing bank operations and contributing to the emergence of financial platform ecosystems, especially in economies in transition with digital and regulatory transformation. little empirical research has been conducted on the effects of AI capabilities on the market performance of banks in integrated platform ecosystems, particularly in dual banking systems (commercial and Islamic banks). This study examines the influence of AI-based data analytics, AI-based automation, and AI-based decision-making systems on the market performance of Amman Stock Exchange-listed banks. It also explores the mediation of platform integration capability and the moderation of regulatory readiness. The study used a mixed-method approach with secondary market data from 2014–2025 and primary data from a survey of 368 valid observations of commercial and Islamic banks in Jordan in January-May 2025. The relationships were tested using Partial Least Squares Structural Equation Modeling. The findings indicated a positive impact of AI-powered data analytics ($\beta = 0.29$, $p < 0.001$), smart automation ($\beta = 0.24$, $p = 0.001$), and AI-powered decision support systems ($\beta = 0.21$, $p = 0.002$) on market performance. Digital platform integration capability partially mediated the relationships, while regulatory readiness positively moderated the effect of AI capabilities on market outcomes. It is argued that banks' market performance can be improved by investing in AI capabilities along with a platform integration capability and regulatory readiness. The study offers insights for managers and policymakers to drive sustainable change in banking.

Keywords digital transformation, platform integration, regulatory readiness, emerging markets

JEL Classification G21, G28, O33

INTRODUCTION

Banks are essential to foster economic stability, financial resilience, and growth, especially in emerging markets where financial markets continue to undergo structural change and uncertainty. Recently, this has been accelerated by the use of Artificial Intelligence (AI), which has transformed financial service delivery, investment decisions, and financial markets. AI has also enabled the development of platform-based financial ecosystems where banks, customers, fintech companies, and other market players are connected via digital platforms. Using sophisticated data analytics, smart automation, and AI-based decision-making support systems, banks can increase efficiency, enhance risk management, and raise service levels in a fast-changing financial environment. These innovations may enhance financial intermediation efficiency and market performance. However, AI adoption also comes at the cost of significant investments, organizational changes, cybersecurity, regulatory issues, and technology risks.

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As such, there is a question mark over the net impact of the AI transformation on performance, especially from a market value point of view. While existing research has addressed issues of digital transformation and fintech innovation, there is a lack of empirical evidence explaining the role of AI capabilities in market valuation within platform-based financial ecosystems, particularly in emerging markets. This is especially important in Jordan, where the banking system comprises traditional and Islamic banks in the same market. This structure offers a unique institutional setting to explore the effect of AI-backed platform ecosystems on bank performance across the different banking models. Thus, this study examines the role of AI in facilitating platform-based financial ecosystems and the effect on market-based performance of commercial and Islamic banks listed on the Amman Stock Exchange. This study contributes to the existing literature by expanding knowledge on AI-based value creation in the banking sector and offering insights from an emerging market.

1. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The performance of the banking sector has long been considered one of the key measures of financial system efficiency given its impact on investment and capital allocation, and market sentiment (Al-Amarneh et al., 2023; Barra & D'Aniello, 2025). Most of the traditional banking and finance literature has attributed market performance to financial drivers such as profitability, liquidity, capital adequacy, and risk (Chen et al., 2025). While these factors continue to play a significant role, their effectiveness has been called into question in recent years due to the technological revolution in the banking sector (Alzubi, 2025a). Recently, Artificial Intelligence (AI) and financial platforms have gained prominence as sources of change in financial operations. AI applications help banks analyze large amounts of financial information, streamline their operations, and assist management in their decision-making using predictive analytics and smart decision-making systems (Tabas et al., 2025; De Fano et al., 2025). Furthermore, AI-driven platforms can increase the quality of available information, reduce information asymmetry, and increase coordination in the financial sector. Existing research indicates that AI adoption can have a positive impact on efficiency, profitability, and market value by enhancing banks' responsiveness to market signals and their risk management ability (Yuan & Chen, 2025; Aperstein et al., 2025; Gupta & Jaiswal, 2025). But research is not consistent on the effects of AI on performance. Some studies suggest that AI advantages are contingent on supportive organizational resources and capabilities, regulatory environment, and technological integration. In the absence of effective implementation and integration, AI technologies may result in increased complexity and diminished investor trust (Alashqar et al., 2025; Samara et al., 2025; Siaw & Ali, 2025). This suggests that the use of AI may not necessarily lead to better market performance.

Cost efficiency has been widely recognized as a key avenue for AI to enhance bank performance. Smart automation and efficiency improvements can help banks lower their costs, improve productivity and profitability, and increase market value (Seelanatha & Natoli, 2025; Sang & Cuong, 2025). Nevertheless, empirical evidence remains mixed. While some research confirms efficiency improvements, others highlight short-term financial costs associated with AI implementation, including the cost of adopting new technologies, integration of new systems, and staff reskilling (Mateev et al., 2025; Mirza et al., 2025). Thus, the relationship between AI and performance seems to be premised on institutional and organizational factors. The latest studies have also identified technological risks in AI-based banking. Increasing reliance on digital platforms could increase risks to the bank, such as cybersecurity, technical glitches, data governance, and revenue stability (Alqudah et al., 2025a, 2025b; Alobaydi et al., 2025). While AI can enhance risk assessment and management, it can also generate technological complexities, which affect market and investor perceptions. Current research is mostly focused on such risks in isolation, rather than as part of a platform-based financial ecosystem.

The second gap in previous research is its focus on advanced financial markets, which limits the extent to which existing insights can be applied to emerging

markets. In emerging markets, such as Jordan, banking systems are embedded in a regulatory environment that is changing and in varying levels of digital maturity, with institution and market forces that differ (Jogarao et al., 2024). Also, the presence of commercial and Islamic banking systems adds to the diversity of banking structures, which could affect AI adoption and outcomes. To summarize, previous studies demonstrate that there are still some gaps. First, few studies have considered AI as a facilitator of platform-based financial ecosystems, as opposed to a standalone technology. Second, previous results on the impact of AI on market performance are mixed. Third, few empirical studies have addressed the impact of AI with evidence from emerging markets, especially with dual banking systems. As such, there is a need for more research on the effect of both AI capabilities and platform integration on market performance. This research is designed to fill in these research gaps by analyzing commercial and Islamic banks listed on the Amman Stock Exchange.

This study aims to identify the role of artificial intelligence capabilities and platform integration on the market performance of banks in the Jordanian banking system. The above arguments suggest the following hypotheses:

H1: The effects of AI-based data analytics on the market performance of banks are significant and positive in nature.

H 2: Intelligent automation affects the market performance of banks in a meaningful positive way.

H3: AI-based decision support systems positively affect the performance of banks in the market to a great extent.

H4: AI-motivated data analytics positively affect the capability of the platform integration significantly.

H5: Intelligent automation positively influences the capability of platform integration significantly.

H6: AI-based decision support systems exert a serious positive impact on the capability of integrating platforms.

H7: The ability to integrate platforms has a strong positive effect on the market performance of banks.

H8: Platform integration feature mediates the connection between AI-based data analytics and the market performance of banks.

H9: Platform integration potential presupposes the mediating role in the association between intelligent automation and the market performance of banks.

H10: The capability of platform integration mediates the association between AI-based decision support systems and the market performance of banks.

H11: There is a positive moderating effect of regulatory preparedness between AI-based data analytics and the market performance of banks.

H12: The relationship between intelligent automation and market performance of the banks is moderated by regulatory readiness positively.

H13: The regulatory preparedness moderates the relationship between the AI-based systems of decision support and the market performance of banks positively.

2. METHOD

To answer the research questions, the study uses a mixed-method research design that will involve the primary use of survey data and secondary data of the market, which considers the possible inclusion of a thorough evaluation of the perceptual constructs of artificial intelligence (AI) capabilities, as well as objective performance indicators of the market. The secondary data were sourced from the Amman Stock Exchange (ASE) and audited annual reports, price and trading of the entire stock of all listed banks, in addition to disclosed financial data on the official websites of the individual banks. The data will be analyzed between 2014 and 2025, and it is possible to conduct a longitudinal analysis of the market performance.

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A structured questionnaire was used to gather primary data, interviewing senior managers, investment managers, digital banking managers, and IT specialists of banks listed on the Amman Stock Exchange (ASE), which constitutes the entire population of listed banks in Jordan, as detailed in Appendix A. Such respondents were chosen due to their firsthand experience with AI implementation and platform-based systems, which guarantee informed and dependable answers. The data collection is carried out during a five-month period between January and May 2025 through electronic distribution and face-to-face administration. The total number of questionnaires distributed was 400, and the number of valid responses obtained after the screening process was 368, which can be described as a high and acceptable organizational research response rate. Note that the responses are based on the opinions of professional experts, not institutional statements, which is also in line with previous empirical research in that field.

The items of (all) perceptual constructs were measured on a five-point Likert scale (1-strongly disagree, 5-strongly agree). Measurement items were taken from previous validated research on AI adoption, digital platforms, and financial innovation and customized to the Jordanian banking setting. The entire questionnaire tool is given in Appendix B to promote transparency and replicability. The market performance was a dependent variable, measured by objective data in accordance with ASE databanks, such as stock returns, market capitalization growth, and trading activity. The independent variables are AI-driven data analytics, intelligent automation, and AI-based decision-support systems, whereas the platform integration capability was the mediating variable, and regulatory readiness the moderating one. Control variables are the size of a bank in terms of the natural logarithm of total assets, and the bank type in terms of a dummy variable between commercial and Islamic banks. The perceptual and objective measures were integrated, and the responses obtained in the survey were matched with bank-level market data.

Partial Least Squares Structural Equation Modeling (PLS-SEM) was applied in the study to test the proposed relationships using SmartPLS, and the model complexity and the incorporation of mediation and moderation effects make this approach suitable. To estimate the direct, indirect, and moderating effects, bootstrapping was used, involving 5,000 resamples to determine statistical significance. The measurement model was tested before the structural model assessment so that reliability and validity could be assessed. Internal consistency reliability was established using Cronbach's alpha and composite reliability (CR), and all values exceeded the recommended level of 0.70. Factor loadings and average variance extracted (AVE) were used to determine convergent validity; all loadings were greater than 0.70, and average variance extracted was greater than 0.50 (Al-Daraba et al., 2025; Abu-AlSondos, 2025; Alrifae, 2025; Alzubi, 2025b). Discriminant validity was also assessed through the Fornell-Larcker criterion and heterotrait-monotrait ratio (HTMT), where HTMTs below 0.85 signify sufficient difference of constructs (Hijazin et al., 2025; Mahmoud, 2025; Mahmoud et al., 2025). The VIF was used to evaluate multicollinearity, and all values were smaller than 5, which proved that there were no collinearity issues (Taqa, 2025; Alzubi et al., 2017). These findings suggest the soundness of the measurement model and its further structural analysis.

3. RESULTS

The findings of the study are based on a blend of primary survey data from Jordanian commercial and Islamic banks and secondary market data via the Amman Stock Exchange (ASE). The descriptive statistics of the study variables are provided in Table 1. The findings show that the mean values of AI-based decision-support systems, intelligent automation, and AI-based data analytics are moderate-high, suggesting the growing use of AI technologies in the banking sector in Jordan. The capability of platform integration is also characterized by a rather high significance, implying that banks are currently trying to incorporate AI into digital and financial platforms. Regulatory preparedness has a moderate degree of variation in the sample, and it shows that there are variations in the perceived regulatory environment. Market performance has enough variation and can be considered as the dependent variable. The value of skewness and kurtosis is within reasonable limits, which shows that the data distribution is not far much out of normality.

Table 2 presents the results of the assessment of the measurement model. Each of the standardized factor loadings is above the recommended indicator reliability of 0.70. The values of composite reliability (CR) (ranging between 0.85 and 0.90) suggest a high internal consistency. Moreover, average variance extracted (AVE) values are above the minimum of 0.50 that endorses convergent validity. These findings validate that the measurement model is reliable and valid, and the following structural model can be evaluated.

The findings of the structural model, provided in Table 3, show that the impact of AI-based data analytics on market performance is positive and statistically significant (β = 0.29, 0.001), which confirms *H1*. To support *H2*, intelligent automation represents a positive and significant market performance (β = 0.24, 0.001). In the same manner, the AI-based decision-support systems have a positive impact on the market performance (β = 0.21, p = 0.002) and support *H3*. Moreover, AI potentials have a considerable impact on platform integration potential, which is seen in terms of the positive contribution made by AI-driven data analytics (β = 0.35, p < 0.001), intelligent automation (β = 0.31, p < 0.001), and AI-driven decision-support systems (β = 0.28, p < 0.001), which supports *H4*, *H5*, and H*6*. The ability of platforms to integrate has a strong positive impact on market performance (*H7*: β = 0.32, p < 0.001).

As the results of the mediation analysis (Table 4) show, platform integration capability is a partial mediator between the relationship between AI capabilities and market performance. In particular, the indirect impact of data analytics based on AI usage on the performance of the market concerning the ability to integrate platforms is considerable (β = 0.11, p = 0.004), which substantiates *H8*. On the same note, indirect impacts of intelligent automation (β = 0.10, p = 0.006) and AI-based decision-support systems (β = 0.09, p = 0.021) are also significant and in favor of *H9* and *H10,* respectively.

Table 5 shows the moderating effects of regulatory readiness. The terms of interaction show that regulatory readiness has a positive moderating effect on the associations between AI-driven data analytics and market performance (β = 0.14, p = 0.030), intelligent automation and market performance (β = 0.13, p = 0.041), and AI-based decision-support systems and market performance (β = 0.12, p = 0.048), which validates *H11*, *H12*, and *H13*. These results indicate that the AI abilities can be more efficient when operating in conditions of more accommodating regulations.

Lastly, Table 6 shows the explanatory power of the model. The findings show that the variation in platform integration capability can be explained by AI capabilities (R^2 = 0.58). Moreover, the combination of AI capabilities with platform integration capability and regulatory readiness explains 61% of the market performance variance (R^2 = 0.61), which is a significant explanatory force.

Table 1. Descriptive statistics

Variable	Mean	Std. Dev.	Skewness	Kurtosis
AI-Driven Data Analytics	3.84	0.67	0.31	2.74
Intelligent Automation	3.71	0.72	0.28	2.69
AI-Based Decision Support	3.76	0.69	0.34	2.81
Platform Integration Capability	3.88	0.65	0.26	2.77
Regulatory Readiness	3.62	0.73	0.41	2.93
Market Performance	0.056	0.021	0.18	2.61
Bank Size	9.41	0.46	0.49	3.04

Table 2. Measurement model assessment

Construct	CR	AVE
AI-Driven Data Analytics	0.88	0.64
Intelligent Automation	0.86	0.61
AI-Based Decision Support Systems	0.87	0.62
Platform Integration Capability	0.90	0.66
Regulatory Readiness	0.85	0.59

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Table 3. Structural model results (direct effects)

Hypothesis	Path	β	t-value	p-value	Result
H1	AI_DA → Market Performance	0.29	4.12	0.000	Supported
H2	IA → Market Performance	0.24	3.38	0.001	Supported
H3	AI_DS → Market Performance	0.21	3.06	0.002	Supported
H4	AI_DA → Platform Integration	0.35	5.01	0.000	Supported
H5	IA → Platform Integration	0.31	4.58	0.000	Supported
H6	AI_DS → Platform Integration	0.28	4.02	0.000	Supported
H7	Platform Integration → Market Performance	0.32	4.57	0.000	Supported

Table 4. Mediating effects

Hypothesis	Indirect Path	β	t-value	p-value	Result
H8	AI_DA → PIC → MP	0.11	2.91	0.004	Supported
H9	IA → PIC → MP	0.10	2.74	0.006	Supported
H10	AI_DS → PIC → MP	0.09	2.32	0.021	Supported

Table 5. Moderating effects (Regulatory readiness)

Hypothesis	Interaction	β	t-value	p-value	Result
H11	AI_DA × RR → MP	0.14	2.18	0.030	Supported
H12	IA × RR → MP	0.13	2.05	0.041	Supported
H13	AI_DS × RR → MP	0.12	1.98	0.048	Supported

Table 6. Explained variance

Endogenous Variable	R^2
Platform Integration Capability	0.58
Market Performance	0.61

4. DISCUSSION

The results show that AI-driven change has a positive impact on market performance, where the level of impact is moderated by integration and institutional factors.

First, we provide evidence that AI-based data processing, smart automation, and AI-based decision support systems have positive impacts on market performance. This implies that banks that possess greater AI capabilities can learn from processing information, gain efficiencies from automation and process improvement, respond to customer needs, and improve decisions. Market signals may be viewed by investors as a signal of future competitive advantage and higher profitability. This finding is in line with previous studies, which found positive relationships between technological capabilities and bank performance (Al-Majali et al., 2025; Badwan et al., 2025). By contrast, the current study adds to the existing literature by showing that certain AI capabilities (rather than digitalization in general) are positively associated with market performance.

Second, the findings suggest that AI capabilities positively influence platform integration capability. This suggests that AI leads to efficiency gains for firms and promotes platform integration, interoperability, data exchange, and coordination among digital financial platforms. A bank with superior analytics and automation capabilities, based on decision support systems, seems to be more capable of linking its back- and front-end operations with clients and external financial institutions. This aligns with earlier research that stressed the importance of technological abilities in creating digital financial platforms (Atiyah et al., 2024; Atieh et al., 2025). Hence, AI must be considered as the underlying platform enabling capability, rather than simply a technology.

Third, platform integration capability has a positive impact on market performance. This suggests that banks' investments in AI are enhanced when they effectively integrate AI technologies with integrated service platforms. Improved platforms may enhance customer satisfaction, as well as the speed of service delivery and responsiveness in the dynamic market. This is consistent with previous

arguments that platform ecosystems are starting to play a more important role in today's financial sector (Al-Khazaleh et al., 2025).

Fourth, mediation results show that platform integration capability partially mediates the impact of AI capabilities on market performance. This suggests that AI drives value via two paths: directly via efficiency and quality of decisions made, and indirectly via platform connectivity and platform ecosystem coordination. The results are in line with existing research, which has found that digital technologies have a greater impact when complemented by other organizational systems (Abdeldayem et al., 2023; Elshaer et al., 2025).

Fifth, AI regulation readiness positively moderates the impact of AI on market performance. This suggests that banks reap more benefits from their AI investments when they have regulatory, governance, and digital policies that support the use of AI. In developing markets like Jordan, regulatory readiness may mitigate regulatory risk and stimulate the use of technology. This result is consistent with other studies on the role of institutional readiness in achieving digital transformation in banks (Rafael et al., 2024; Saleem et al., 2024).

The present findings add to the body of knowledge by considering a holistic model that incorporates AI capabilities, platform integration, and regulatory readiness, as well as by offering insights from a dual banking system (commercial and Islamic banks). This study provides evidence that market performance is a result of the interaction between AI capabilities, platform integration, and regulatory readiness, rather than the individual factors, as reported in previous studies.

CONCLUSION

This study aims to test the impacts of artificial intelligence (AI) capabilities and platform integration on the market performance of commercial and Islamic banks listed on the Amman Stock Exchange. This study found that AI-based data analytics, smart automation, and AI-powered decision-support systems are positively related to market performance. The results also indicated that platform integration capability partially mediates these effects, while regulatory readiness also enhances the positive impact of AI capabilities on market performance. These findings suggest that AI enhances bank market performance if supported by a platform integration capability and regulatory readiness. Thus, banks should not consider AI as a stand-alone technology, but as a part of the digital ecosystem. The findings also imply that policymakers should create suitable regulatory rules that facilitate the use of AI and mitigate technology risks.

AUTHOR CONTRIBUTIONS

Conceptualization: Mohammad Mahmoud Saleem Alzubi.
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Writing – reviewing & editing: Mohammad Mahmoud Saleem Alzubi.

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APPENDIX A. LIST OF BANKS OPERATING IN JORDAN

Table A1. Commercial and Islamic banks listed on the Amman Stock Exchange (ASE)

No.	Bank Name
1	Arab Bank
2	Bank of Jordan
3	Cairo Amman Bank
4	Capital Bank of Jordan
5	Housing Bank for Trade & Finance (HBTF)
6	Jordan Ahli Bank
7	Jordan Commercial Bank
8	Jordan Kuwait Bank
9	Arab Jordan Investment Bank (AJIB)
10	INVESTBANK
11	Bank al Etihad
12	Arab Banking Corporation – Jordan (ABC)
13	Islamic International Arab Bank
14	Jordan Islamic Bank
15	Safwa Islamic Bank

APPENDIX B. Questionnaire instrument

Section A: General information

1. Position:

   ☐ Senior Manager
   ☐ Investment Manager
   ☐ Digital Banking Manager
   ☐ IT Specialist
   ☐ Other: _____

2. Type of Bank:

   ☐ Commercial Bank
   ☐ Islamic Bank

3. Years of Experience:

   ☐ Less than 5 years
   ☐ 5–10 years
   ☐ More than 10 years

Section B: Main constructs

Please indicate your level of agreement using the following scale:
1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree

AI-Driven Data Analytics (AI_DA)

   ☐ AI_DA1: Our bank uses AI technologies to analyze large volumes of financial data efficiently.
   ☐ AI_DA2: AI-based analytics improve the accuracy of financial forecasting and investment decisions.

- ☐ AI_DA3: AI tools enhance the bank's ability to detect patterns and trends in financial markets.
- ☐ AI_DA4: AI-driven data analytics support strategic decision-making processes.

Intelligent Automation (IA)

- ☐ IA1: Our bank uses AI to automate routine financial and operational processes.
- ☐ IA2: Automation technologies improve operational efficiency in our bank.
- ☐ IA3: AI-based automation reduces human errors in financial operations.
- ☐ IA4: Intelligent automation enhances the speed of service delivery.

AI-Based Decision Support Systems (AI_DS)

- ☐ AI_DS1: AI-based systems support managerial decision-making in our bank.
- ☐ AI_DS2: AI improves the quality of investment-related decisions.
- ☐ AI_DS3: Decision-support systems provide timely insights for financial planning.
- ☐ AI_DS4: AI tools enhance risk assessment and management decisions.

Platform Integration Capability (PIC)

- ☐ PIC1: Our bank effectively integrates AI technologies into its digital platforms.
- ☐ PIC2: Systems and platforms in our bank are well connected and interoperable.
- ☐ PIC3: AI applications are seamlessly integrated across different banking services.
- ☐ PIC4: Platform integration improves coordination between different departments.

Regulatory Readiness (RR)

- ☐ RR1: The regulatory environment supports the adoption of AI in banking.
- ☐ RR2: There are clear policies governing AI and digital platforms in the banking sector.
- ☐ RR3: Regulatory authorities encourage digital innovation and AI adoption.
- ☐ RR4: Compliance requirements related to AI are clear and manageable.

Market Performance

- ☐ MP1: AI adoption has improved the bank's competitive position in the market.
- ☐ MP2: AI technologies contribute to better market valuation of the bank.
- ☐ MP3: The bank's digital capabilities enhance investor confidence.
- ☐ MP4: AI implementation has improved overall financial performance.

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