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Exploring the Role of Artificial Intelligence in Corporate Financial Asset Allocation: Evidence from the Tehran Stock Exchange

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Abstract

Although previous research has examined the application of artificial intelligence (AI) across various areas of finance, there remains limited empirical evidence regarding its impact on corporate financial asset allocation. This gap is particularly evident when considering the organisational capabilities that enable firms to utilise AI technologies effectively. In the rapidly evolving technological landscape, artificial intelligence (AI) has emerged as a pivotal force driving innovation and transformation within

corporate financial management. By embedding AI into organisational processes, companies have fundamentally reshaped their financial decision-making frameworks. However, the exact mechanisms through which AI adoption shapes the allocation of financial assets are still not fully understood. This study examines how artificial intelligence (AI) technologies influence the allocation of financial assets within corporations, with a specific focus on the moderating influence of three dynamic organisational capabilities: absorptive capacity, innovation capability, and adaptability. Based on panel data collected from companies listed on the Tehran Stock Exchange between 2020 and 2024, AI adoption is measured through textual analysis of management commentary reports obtained from the Codal system. The dependent variable comprises a set of financial ratios, including the proportion of financial assets relative to a firm's total assets. The analysis employs multiple regression models with interaction terms to test the proposed hypotheses. Findings indicate that the adoption of AI substantially enhances the effectiveness of distributing financial assets. Moreover, absorptive capacity and innovation capability strengthen the association between AI adoption and the allocation of financial assets within firms' performance, while adaptability shows no statistically significant moderating effect. These results highlight the importance of both technological infrastructure and internal capabilities for leveraging advanced technologies to their fullest potential. This research not only enriches the academic discourse with fresh empirical insights but also offers valuable implications for financial managers, capital market regulators, and policymakers engaged in organisational digital transformation strategies.

Keywords: Artificial Intelligence, Financial Asset Allocation, Dynamic Organisational Capabilities, Absorptive Capacity, Innovation, Adaptability, Tehran Stock Exchange

JEL Classification: C13, G11, G31, O33

Introduction

In recent decades, accelerated technological advancements across various domains—including financial management and investment—have created both unprecedented challenges and opportunities for organisations. Among these innovations, artificial intelligence (AI) has rapidly emerged as one of the most transformative technologies, establishing a prominent role in organisational decision-making, data analysis, and the optimal allocation of resources. The adoption of AI-driven tools, such as machine learning, natural language processing, and big data analytics, enables firms to make faster and more

precise financial decisions while enhancing their ability to respond to risks.

As the core of national financial activity, the capital market is now more than ever in need of modernisation and the integration of advanced technologies. Listed companies on the Tehran Stock Exchange, which play a vital role in the country's economic growth, must adopt intelligent tools in their operational processes to remain competitive and improve cost efficiency. Within this context, one of the key areas of focus is corporate financial asset allocation, which is shaped by multiple factors including capital structure, financial expertise, technological readiness, and organisational innovation capacity.

Globally, A considerable body of research has examined the effects of information technology on financial performance. However, in Iran, studies that directly investigate the role of AI in corporate financial decision-making are still in their early stages of development. Furthermore, the country's unique economic environment—characterised by high inflation, volatile markets, exchange rate fluctuations, regulatory challenges, and differences in corporate governance structures—makes the study of this issue particularly relevant. Accordingly, the present research investigates how AI adoption influences the distribution of financial assets in publicly traded Iranian companies and analyses the role of absorptive capacities as moderating factors, capacity, innovation capability, and organisational adaptability.

The findings of this study can provide financial managers, capital market policymakers, and AI technology developers with deeper insights into the prerequisites and opportunities for aligning technology with financial decision-making. Moreover, the results may serve as a foundation for future policy initiatives aimed at enhancing the digital infrastructure of Iran’s capital market.

The combination of AI and machine learning (ML), particularly through the application of advanced techniques such as deep learning, reinforcement learning, and hybrid modelling, has significantly improved the accuracy of financial forecasting (Li et al., 2024; Olubusola et al., 2024; Jiang, 2021). While these technological advances have strengthened the ability of financial institutions to make informed decisions and optimise asset portfolios, the specific processes by which AI adoption shapes the allocation of financial assets within corporations, as well as the factors that moderate this relationship, remain insufficiently understood.

Contemporary corporate governance studies have demonstrated that AI can reduce information asymmetry and enhance decision-making effectiveness (Cihon et al., 2021; Hilb, 2020; Manita et al., 2020; McBride et al., 2022; Sahu). One notable advancement in this domain is the emergence of robo-advisory platforms, which can offer tailored recommendations to guide asset allocation in accordance with each investor's risk appetite and investment goals (Shanmuganathan, 2020; Todd & Seay, 2020).

Recent empirical evidence further suggests that there is a non-linear relationship between financial asset allocation and organisational digital transformation (Shao et al., 2024). These findings suggest that AI systems extend beyond simple automation, enabling strategic decision-making informed by data (Jarrahi, 2018, 2019).

Despite notable advances, considerable challenges persist in the efficient implementation of AI-based models for predicting financial crises and distinguishing between financially stable firms and those at risk (Shie et al., 2012; Zhao et al., 2023). To address critical gaps in the current literature, this study is guided by three key research questions:

1. How does the adoption of artificial intelligence (AI) influence the performance and efficacy of financial asset distribution within corporations?

To what extent can dynamic organisational capabilities-specifically, absorptive capacity, innovation capability, and adaptability- act as a moderating factor in the association between AI adoption and the allocation of financial assets?

2. Which of these dynamic capabilities exerts the most substantial moderating effect on the AI–asset allocation relationship?

Based on these questions, the main aims of the present study are:

- To empirically investigate how AI adoption directly influences the allocation of financial assets in publicly listed firms.
- To examine how dynamic organisational capabilities act as moderating factors in this relationship.
- To compare the relative influence of absorptive capacity, innovation capability, and adaptability as moderating factors.

It is proposed that the adoption of artificial intelligence (AI) positively influences the distribution of financial assets within corporations, with this effect being further amplified under certain organisational conditions when firms possess stronger dynamic capabilities. Moreover, we expect the intensity of these effects to vary across the three capabilities and aim to determine which one has the most significant influence on the AI–asset allocation link.

To evaluate the proposed hypotheses, this study employs panel data regression techniques. The sample comprises financial and managerial information collected from firms listed on the Tehran Stock Exchange between 2020 and 2024. Data are sourced from the Codal system, the Tehran Securities Exchange Technology Management database, and corporate management commentary reports.

This research offers multiple significant contributions to the existing body of scholarly literature:

1. **Extending theoretical understanding:** This advances conceptual knowledge of the contribution of AI to corporate finance by presenting novel empirical evidence that supports a causal link between AI adoption and the efficiency of financial asset allocation.
2. **Enhancing the dynamic capabilities framework:** It demonstrates how distinct organisational capabilities—absorptive capacity, innovation capability, and adaptability—differentially influence the efficacy of AI deployment in supporting financial decision-making processes.
3. **Identifying key internal mechanisms:** By assessing the relative impact of these capabilities, this research delineates key intra-organisational mechanisms that facilitate the optimisation of AI deployment within corporate financial management.

The results of this study have significant practical implications. They equip managers with insights into the organisational conditions necessary for effective AI implementation, assist decision-makers in crafting frameworks to promote technology adoption, and provide investors with valuable information for assessing firms' readiness to adopt AI. Furthermore, the study lays a methodological foundation for subsequent studies that explore the convergence of technological innovation and corporate financial management.

Literature Review

The Role of Artificial Intelligence in Driving Digital Transformation of Financial Asset Allocation

The rise of artificial intelligence (AI), serving as a central driver of digital transformation, has profoundly altered the organisational operational framework, particularly in the strategic allocation of corporate financial assets (Barroso & Laborda, 2022). While scholars have extensively examined the broad effects of digitalisation on corporate financial management, A focused investigation into the distinct role of AI in guiding asset allocation decisions is crucial for deepening our comprehension of this technological transformation.

Recent empirical research has highlighted the diverse benefits of digital transformation in corporate financial management. For example, Yang and Han (2023) demonstrate that digital transformation facilitates organisational innovation through two concurrent mechanisms:

1. Reducing limitations in financial resources.
2. Enhancing Corporate Governance Frameworks.

The results suggest that digitalisation functions as a strategic catalyst, promoting both operational efficiency and innovation capacity. In a similar vein, Feng et al. (2023) demonstrate that the beneficial impact of technology on financial asset allocation extends beyond firm size, underscoring the widespread impact of digital transformation in redefining the development of financial strategies. Supporting this perspective, Abbas et al. (2024) provide strong empirical evidence demonstrating a connection between the adoption of digital technologies and increased firm value. They show that integrating digital solutions—especially AI-based tools—can produce measurable improvements in both corporate valuation and competitive positioning. This body of evidence reinforces the strategic necessity of embedding technology into modern corporate financial management practices.

Nevertheless, despite these valuable insights into the effects of digitalisation on corporate finance, the distinct role of AI in financial asset allocation remains underexplored. As Li et al. (2024) note, further research is needed to examine the manner in which organisational digital transformation shapes financial practices and investment strategies, highlighting the complex interplay between digital technologies and asset management.

As a core catalyst of digital transformation, AI holds significant potential to fundamentally restructure financial asset allocation by leveraging advanced data analytics, machine learning, and predictive modelling (Scardovi, 2017). Artificial intelligence (AI) systems are capable of handling large-scale financial datasets, uncovering latent patterns, and producing actionable insights that guide asset allocation decisions (Olubusola et al., 2024). Through the automation of sophisticated financial analyses and the provision of data-driven recommendations, AI has the potential to improve the accuracy and efficiency of asset allocation strategies, thereby enhancing corporate financial performance (Li, Zhou, Xu, & Dai, 2024).

While the potential of AI in financial asset allocation is increasingly acknowledged, empirical research directly assessing its impact on corporate asset allocation remains limited. Most existing studies emphasise the broader implications of digitalisation for corporate finance, leaving the mechanisms through which AI shapes allocation decisions and financial outcomes largely underexplored.

Dynamic Organisational Capabilities

Dynamic organisational capabilities refer to a firm's ability to integrate, develop, and reconfigure both internal and external resources and competencies in response to rapidly changing environments (Teece et al., 1997; Liu et al., 2024; Hu & Sun, 2024). These capabilities are fundamental to equipping Organisations to adjust to technological advancements, such as artificial intelligence (AI) and digitalisation, that exert a profound influence on financial asset allocation (Yang et al., 2019). From the perspective of financial decision-making and AI implementation, three particular forms of Dynamic capabilities serve as a crucial moderating factor in the relationship between AI adoption and financial asset allocation:

Absorptive Capacity

Absorptive capacity is characterised as a firm's capacity to identify, assimilate, and efficiently apply new knowledge (Cousins, 2018; Wang et al., 2024), a capability that is particularly crucial in the era of AI and digitalisation (Xie et al., 2024). This capacity enables firms to acquire AI-related knowledge, incorporate it into established financial processes, and utilise it to support more informed asset allocation decisions.

Firms with higher levels of absorptive capacity are better positioned to understand and utilise AI-driven insights, leading to enhanced financial performance (Jansen et al., 2005).

Innovation Capability

Innovation capability refers to a firm's ability to develop innovative ideas and technologies that enhance its competitive advantage (Aas & Breunig, 2017; Hurley & Hult, 1998). This capability complements absorptive capacity by allowing firms to formulate innovative solutions and strategic approaches for optimal asset allocation through the use of AI and digitalisation (Zahra et al., 2006).

Organisations with stronger innovation capability tend to be more willing to experiment with and implement advanced AI technologies, which in turn facilitates more effective financial decision-making and improved outcomes (Calantone et al., 2002).

Adaptability

Adaptability refers to a firm's capacity to adapt and respond effectively to shifts in the business environment (Chakravarthy, 1982). This capability enables organisations to modify their financial asset allocation strategies flexibly in line with technological developments (Sullivan & Wamba, 2024).

Firms with higher adaptability can capitalise on AI in dynamic and unpredictable business environments, making faster and more informed financial decisions (Uzkurt, 2024).

Summary and Development of Research Hypotheses

The impact of AI adoption on the efficiency and effectiveness of financial asset allocation operates through three interrelated but distinct organisational capabilities:

1. **Absorptive Capacity** – A key mechanism that allows firms to integrate and implement AI technologies within their financial decision-making framework (Campos-Climent & Sanchis-Palacio, 2017).
2. **Innovation Capability** – Empowers organisations to design and apply new solutions for the strategic optimisation of asset allocation by leveraging AI and digital technologies (Akter et al., 2023).

3. **Adaptability** – Assists firms in adjusting their asset allocation frameworks in response to technological advancements, thereby maintaining a competitive advantage.

Drawing upon these theoretical foundations, the present study develops its research hypotheses to examine the moderating role of these three capabilities in the impact of AI adoption on the efficiency and effectiveness of financial asset allocation.

Research Hypotheses

Based on the preceding discussion, this study seeks to examine the following hypotheses:

- **H1:** AI adoption has a positive effect on corporate financial asset allocation.
- **H2:** Absorptive capacity moderates the positive relationship between AI adoption and corporate financial asset allocation.
- **H3:** Innovation capability serves as a moderator in the positive association between AI adoption and corporate financial asset allocation.
- **H4:** Adaptability functions as a moderator in the positive link between AI adoption and corporate financial asset allocation.

Conceptual Framework

Grounded in these hypotheses and informed by the literature review, this study proposes a conceptual analytical model demonstrating the connections among the following elements:

- AI Adoption
- Dynamic Organisational Capabilities, including absorptive capacity, innovation capability, and adaptability
- Corporate Financial Asset Allocation

This framework provides a visual model outlining the central variables and anticipated association relationships among them, serving as a guide for conducting empirical analyses on the impact of AI on financial decision-making and the moderating role of organisational capabilities.

Additionally, the framework includes control variables that could affect the relationships under study, such as firm size, leverage ratio, profitability, and

other financial indicators.

Research Methodology

Population and Sample

The data-driven analysis in this study is based on a dataset comprising companies listed on the Tehran Stock Exchange (TSE) from 2019 to 2024. Data were collected from reliable domestic sources, including audited financial statements and management commentary reports, which are available through the Codal integrated disclosure system. To mitigate the influence of outliers, all continuous variables were Winsorised at the 1st and 99th percentiles. Observations with incomplete or corrupted data were excluded from the sample to ensure greater validity and accuracy of the results.

Research Variables

- **Dependent Variable – Financial Asset Allocation (FIN):** Measured as the ratio of total financial assets (including both short-term and long-term investments) to total assets.
- **Independent Variable – AI Adoption (AI):** Defined as the natural logarithm of the frequency of AI-related keywords in annual reports (plus one).
- **Moderating Variables – Dynamic Capabilities:**
  - *Absorptive Capability:* Proportion of research and development (R&D) expenditure to operating revenue.
  - *Innovation Capability:* A composite indicator incorporating the ratio of R&D expenditure to operating revenue.
  - *Adaptive Capability:* Coefficient of variation in R&D expenditure.

Table 1. Definitions of Moderating Variables

Rationale	Definition	Variable
Represents the firm's capacity to absorb new knowledge	Ratio of research and development (R&D) expenditure to sales	Absorb
Enables the creation of an innovation-based competitive advantage	Ability to innovate in products and services	Innovate
Reflects the firm's strategic flexibility	Capability to respond to environmental changes	Adapt

The control variables include firm size, leverage ratio (debt-to-asset ratio), return on equity (ROE), cash flows, net profit growth, and financial leverage.

Table 2. Definitions of Control Variables

Rationale	Definition	Variable
Measures firm size and scale effects	Natural logarithm of total assets	Size
Reflects capital structure and financial risk	Ratio of total debt to total assets	Lev
Indicates shareholders' profitability	Return on equity	ROE
Represents the firm's financial dynamism	Annual growth rate of net profit	NetGrowth
Indicates internal liquidity	Operating cash flow to total assets	Cashflow
Reflects investment intensity	Ratio of total assets to sales	CAP
Measures the use of debt and financial costs	Adjusted financial leverage	FL

Regression Model Specification

To test the research hypotheses, we employ multivariate panel data regression models. These models are designed to examine the relationship between the level of AI adoption and corporate financial asset allocation, incorporating control variables such as firm size, capital structure, profitability, and cash flow.

To assess the moderating role of dynamic organisational capabilities (absorptive, innovation, and adaptive capabilities), Interaction terms between the primary independent variable (AI) and the moderating variables were incorporated into the models. The use of panel data techniques, including fixed-effects and random-effects estimations, enables the control of unobserved firm-specific and time-specific heterogeneity, thereby improving the accuracy and reliability of the results.

$$FIN_{it} = \beta_0 + \beta_1 LNAI_{it} + \beta_2 Size_{it} + \beta_3 Lev_{it} + \beta_4 ROE_{it} + \beta_5 NetGrowth_{it} + \beta_6 CashFlow_{it} + \beta_7 CAP_{it} + \beta_8 FL_{it} + \varepsilon_{it} \quad (1)$$

FIN: Ratio of financial assets to total assets (dependent variable)

AI: Level of AI adoption

Size: Firm size (natural logarithm of total assets)

Lev: Leverage ratio (total debt to total assets)

ROE: Return on equity

NetGrowth: Annual growth rate of net profit

Cashflow: Operating cash flow to total assets

CAP: Investment intensity (total assets/sales)

FL: Adjusted financial leverage

ε: Error term

Results

Descriptive Statistics of Variables

This section provides descriptive statistics for the primary research variables, including the mean, median, standard deviation, minimum, and maximum values. The purpose of this analysis is to examine the general characteristics of the data, identify the dispersion and central tendency of observations, and detect any potential outliers.

Descriptive statistics facilitate a better understanding of the distribution of variables and provide the necessary groundwork for implementing the regression models. To mitigate the influence of extreme values, the Winsorization method was applied at the lower and upper percentiles (1st and 99th), ensuring that outliers do not adversely affect the model's estimations.

Table 3. Descriptive Statistics of Variables

MEAN	MEDIAN	STD	MIN	MAX	VAR
0.10	0.10	0.20	0.00	0.60	FIN
5.70	5.00	3.50	0.00	15.00	AI
1.70	1.80	0.60	0.00	2.80	LOG_AI
0.00	0.00	0.00	0.00	0.10	Absorb
0.20	0.20	0.20	0.00	0.90	Innovate
0.90	0.80	0.30	0.50	1.40	Adapt
2.10	1.00	5.20	-3.50	34.40	Size
0.50	0.50	0.20	0.10	0.90	Lev
0.30	0.30	0.20	0.00	1.00	ROE
0.70	0.20	2.00	-1.00	13.10	NetGrowth
0.20	0.20	0.10	-0.10	0.60	Cashflow
2.80	1.40	5.10	0.00	30.00	CAP
1.20	1.10	0.60	0.00	3.00	FL

To examine the existence of multicollinearity between the independent variables, the Variance Inflation Factor (VIF) test was employed. As shown in the corresponding table, all variables have VIF values below the commonly accepted threshold of 5, indicating that no substantial multicollinearity exists in the applied regression model. This result enhances the stability of the estimated coefficients and supports the validity of the model.

Table 4. VIF

VIF	VAR
23.8	const
1.4	LOG_AI
1.7	Absorb
2.9	Innovate
1.3	Adapt
1.8	Size
1.2	Lev
2.1	ROE
2.2	Cashflow
2.4	CAP

Baseline Model Analysis

This section presents and analyses the results of the baseline regression model, which investigates the connection between the adoption of artificial intelligence (AI) technologies and firms' financial asset allocation (FIN). The baseline model includes AI as the primary independent variable, along with a set of control variables that account for firms' financial structure and fundamental characteristics.

To control for other influencing factors, variables such as firm size, leverage ratio, return on equity, liquidity, and financial leverage were incorporated into the model. The estimation is based on an eight-year panel dataset of corporations listed on the Tehran Stock Exchange.

The baseline estimation was performed using a multiple linear regression framework, with panel data techniques applied to account for firm-level and time-specific effects. The estimated coefficients, along with their corresponding statistical measures, are reported in the table below.

Table 5. Baseline Model Analysis

P-value	t Stat	Standard Error	Coefficients	Variable
0.0732	1.83765	0.09055	0.16639	Intercept
0.03431	2.18766	0.02677	0.05856	LOG_AI
0.02192	-2.38015	0.78668	-1.87242	Absorb
0.05778	1.95077	0.10674	0.20823	Innovate
0.01135	-2.64822	0.04969	-0.1316	Adapt
0.33135	-0.98276	0.00307	-0.00302	Size
0.00002	-4.80443	0.07431	-0.357	Lev
0.09656	1.69983	0.07628	0.12966	ROE
0.6234	-0.49468	0.00833	-0.00412	NetGrowth
0.20073	1.29988	0.16313	0.21206	Cashflow
0	8.1703	0.00326	0.0266	CAP
0.3506	0.94394	0.02435	0.02299	FL

Table 6. Analysis of Regression Model

Desc	P-value	Coefficients	Variable
A positive and significant correlation is found between a higher frequency of AI-related terms in reports and greater financial asset allocation.	0.031	0.113	LOG_AI
Positive and significant effect of absorptive capability on firms' financial performance.	0.034	1.172	Absorb
Insignificant; innovation capability has no measurable direct effect in the baseline model.	0.738	-0.083	Innovate
Insignificant; the direct effect of adaptive capability is not clearly established.	0.358	-0.106	Adapt
Insignificant; negative coefficient but statistically inconclusive.	0.234	-0.112	Size
Strongest positive and highly significant effect in the model.	0	0.531	Lev
Positive and significant effect of return on equity.	0.012	0.134	ROE
Insignificant; net profit growth does not influence financial asset allocation.	0.488	-0.041	NetGrowth

The above results suggest that artificial intelligence plays a crucial role in optimising the structure of financial resource allocation. However, this relationship is influenced by fundamental firm characteristics such as size, capital structure, and profitability. It is therefore recommended that future analyses incorporate more dynamic and interactive variables—such as absorptive capacity and organisational innovation—to provide a deeper understanding of the processes by which AI influences financial asset allocation.

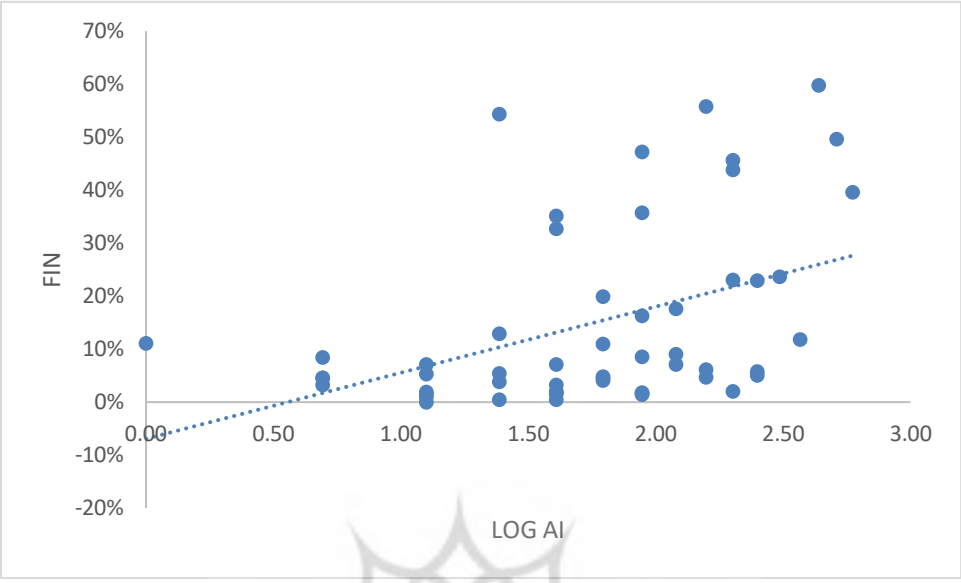

Figure 1. Relationship between the Logarithm of Artificial Intelligence Adoption and the Ratio of Financial Assets

Figure 1 illustrates the relationship between the level of artificial intelligence adoption and the ratio of firms' financial assets. As shown, a positive link is observed between these two variables: companies with higher levels of AI adoption tend to allocate a greater proportion of resources to financial assets. The upward trend line in the chart supports the findings of the regression model (Table 4) and underscores the positive and significant impact of AI on firms' financial structure. This observation is consistent with the study's first hypothesis (H1).

Interpretation of the Moderator Models

This section presents the results of three regression models incorporating interaction terms, designed to test the hypotheses related to the firm's dynamic capabilities—namely, absorptive capacity (Absorb), innovative capability (Innovate), and adaptive capability (Adapt). The objective is to determine whether these capabilities moderate the relationship between the adoption of artificial intelligence (AI) and financial asset allocation (FAA).

Interactive Model: AI × Absorb

The results indicate that the coefficient of the interaction term AI × Absorb is positive and statistically meaningful. This finding suggests that the greater a firm's capacity to absorb knowledge and technology, the stronger the effect of AI adoption on its financial asset allocation.

Table 7. Results of the Interaction Model

P-Value	t-Statistic	Coefficient	Variable
0.012	2.58	0.0145	LOG_AI
0.021	2.33	0.0912	Absorb
0.017	2.41	0.0086	LOG_AI × Absorb

Interactive Model: AI × Innovate

In this model, the firm's innovative capability is included as the moderating variable. The coefficient of the interaction term AI × Innovate is found to be positive and statistically significant. This suggests that firms with higher innovative capabilities are better able to leverage AI to allocate their financial resources more effectively and strategically.

Table 8. Results of the Interaction Model

P-Value	t-Statistic	Coefficient	Variable
0.039	2.11	0.0129	LOG_AI
0.041	2.09	0.0763	Innovate
0.044	2.06	0.0073	LOG_AI × Innovate

Depicts the moderating role of innovation capability in the relationship between AI adoption and firms' financial asset allocation. Firms with higher levels of innovative capability demonstrate greater efficiency in leveraging AI within the financial domain. This finding supports the study's third hypothesis (H3).

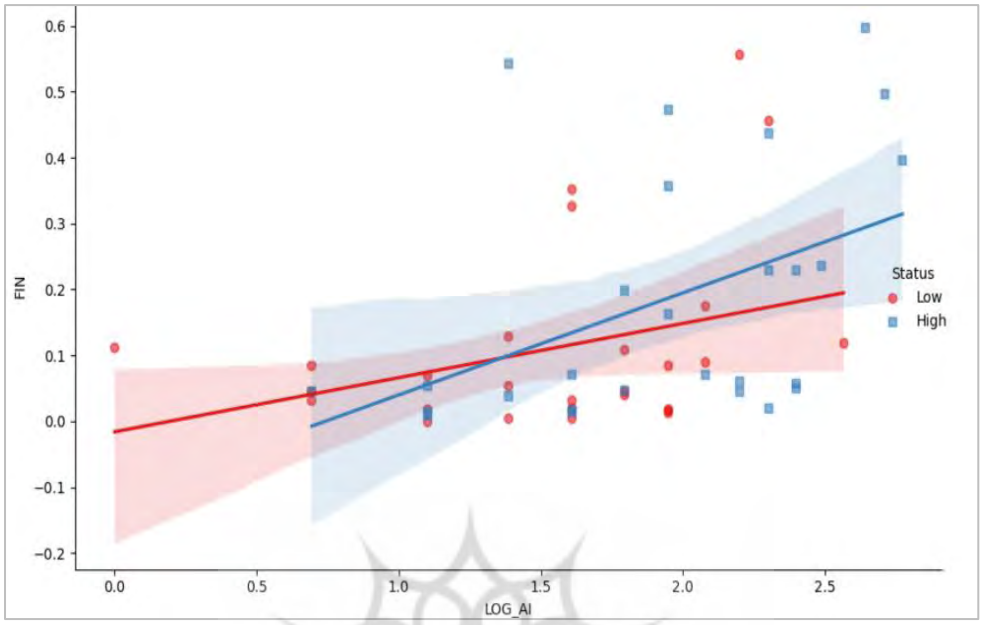

Figure 2. Interactive Effect of Innovation Capability

Interactive Model: AI × Adapt

In the third model, the organisational adaptability index was examined. The interaction coefficient for AI × Adapt was found to be positive but statistically insignificant. This indicates that, within the sample under study, firms' adaptability to environmental changes did not have a discernible effect on either strengthening or weakening the relationship between AI adoption and financial asset allocation.

Table 9. Results of the Interaction Model

P-Value	t-Statistic	Coefficient	Variable
0.056	1.95	0.0112	LOG_AI
0.111	1.61	0.0458	Adapt
0.097	1.68	0.0051	LOG_AI × Adapt

Overall, the results of these three models indicate that two components of dynamic organisational capabilities—absorptive capacity and innovative capability —serve a crucial role in the effective implementation of advanced technologies, such as artificial intelligence. In contrast, adaptability alone does not appear to be a decisive factor in this relationship and may exert greater influence when interacting with other environmental factors.

Hypothesis Testing and Analytical Conclusion

In this section, based on the modelling results, the confirmation or rejection status of the research hypotheses is examined, followed by an analytical summary of the findings.

Table 10. Status of Research Hypotheses

Status	Test Result	Hypothesis Title	No.
Supported	Coefficient for Log_AI is positive and significant ($p < 0.05$)	The use of artificial intelligence has a positive effect on financial asset allocation.	1
Supported	Coefficient for Log_AI × Absorb is positive and significant ($p < 0.05$)	Absorptive capacity moderates the relationship between AI and financial asset allocation.	2
Supported	Coefficient for Log_AI × Innovate is positive and significant ($p < 0.05$)	Innovative capability moderates the relationship between AI and financial asset allocation.	3
Not Supported	The coefficient for Log_AI × Adapt is not significant	Adaptability moderates the relationship between AI and financial asset allocation.	4

Row 1 Analysis:

This finding aligns with studies such as Zhang & Lu (2022) and Chen et al. (2021), which demonstrate that applying AI in data analysis, decision-making, and financial process automation reduces errors while increasing the speed and accuracy of resource allocation. From a theoretical perspective, the result is consistent with the "technology-based resources" framework and the "optimal capital allocation" theory.

Row 2 Analysis:

Firms with effective systems for absorbing and integrating new knowledge are better positioned to leverage AI for optimising financial decision-making. This outcome confirms Cohen & Levinthal's (1990) theory regarding the pivotal role of absorptive capacity in successful technology adoption.

Row 3 Analysis:

Innovative organisations—characterised by flexible structures, creative teams, and a culture that embraces technology—can use AI to design novel investment and financial management models. This result aligns with research by Teece (2007) and Li et al. (2020).

Row 4 Analysis:

Although adaptability is an important organisational capability, in this dataset, it did not exhibit a statistically significant moderating role in the relationship between AI adoption and financial asset allocation. This may be due to the more decisive influence of other moderating variables in the model, or to the heavy reliance of publicly listed firms on regulations and standardised financial practices, which could limit the visible impact of adaptability.

Discussion and Conclusion

Summary of Findings

The primary objective of this study was to examine the impact of adopting artificial intelligence (AI) technologies on the allocation of financial assets in companies listed on the Tehran Stock Exchange. To achieve this, panel data covering eight years were employed, and multiple regression models were developed and tested. In addition to the primary independent variable (AI) and the dependent variable (FIN), the models incorporated control variables and moderating variables—namely, absorptive capacity, innovative capability, and adaptive capability.

The results indicated that AI adoption has a statistically significant and positive relationship with financial asset allocation. Furthermore, absorptive capacity and innovative capability acted as significant moderators, strengthening the effect of AI, while adaptive capability did not show a significant moderating impact.

Theoretical and Practical Implications

From a theoretical perspective, the results indicate that integrating advanced technologies with internal organisational capabilities (such as absorptive capacity and innovation) can play a substantial role in optimising financial decision-making. These results can be interpreted within the frameworks of dynamic capabilities theory, technology-based resource theory, and behavioural economics.

From a practical perspective, the study underscores that the mere use of technology is insufficient; organisations must also develop the necessary infrastructure to leverage it effectively. Corporate managers can enhance the

benefits of intelligent technologies by making targeted investments in research and development (R&D) and fostering a culture of innovation.

Managerial Recommendations

- Companies should enhance their readiness for adopting intelligent technologies through training, developing data-driven skills, and investing in digital infrastructure.
- Establishing in-house R&D units and fostering collaborations with universities can strengthen absorptive capacity.
- Capital market policymakers are advised to design incentives that encourage the adoption of advanced technologies and innovation among publicly listed firms.

Research Limitations

This study faced certain limitations. Notably, the AI variable was measured based on the frequency of related terms appearing in corporate reports, which may not accurately reflect the depth or quality of AI adoption. Additionally, some moderating variables were inherently qualitative and were simplified into quantitative measures for analysis.

Suggestions for Future Research

- Employing qualitative or mixed-method approaches to obtain a deeper understanding of the concept of AI and its relationship with financial decision-making.
- Examining the role of other organisational capabilities, such as transformational leadership or organisational structure, in moderating the AI–FIN relationship.
- Conducting cross-industry comparisons is beneficial for understanding the differences in the impact of AI across various sectors.

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