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AI-Based Predictive Financial Modelling on Financial Performance of Listed Firms in Nairobi Securities Exchange

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Abstract

AI enables a systematic mechanism which allows businesses to gather more valuable and updated data to carry out accurate evaluation of market environment and internal operations simultaneously. AI is thus advantageous to firms as it allows them to apply AI driven decision making on sales and credit forecast. However, despite the growth of opportunities associated with the use of AI, external factors and market volatility pose significant risks to the performance of firms listed at NSE. The study thus sought to determine the effect of AI-based predictive financial modelling on financial performance of listed firms in NSE. The study was anchored on Technology-Organization-Environment model. Positivism was employed with correlational research design as the study design. The target population of were the 17 financial firms listed at NSE. Listed firms were the unit of analysis while the unit of observation were the heads of marketing departments, business development department, human resource departments and operations department within the 17 financial firms listed at NSE. Since the target population is relatively small, the investigation conducted a census of all the respondents. Structured questionnaire was to collect primary data. SPSS software was used in the analysis of data. Data analyses involved both descriptive and inferential outcomes which were presented in form of tables and charts. Inferential analysis included correlation and multiple regression analysis. From the results, the investigation established that AI-Based predictive financial modelling showed a positive and significant effect on financial performance (0.321, $0.000 < 0.05$). The study recommends that the firms listed at NSE ought to adopt AI-based predictive financial modelling as a strategic priority to enhance their financial performance as it improves the accuracy and timeliness of forecasting, budgeting and investment decisions. The study further recommends that ought to develop a supportive regulatory framework that encourages the adoption of AI-Business models by the listed firms under study to enhance performance.

Key Words: AI-based predictive financial modelling, financial performance, firms listed at Nairobi Securities Exchange.



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Introduction

Financial performance of listed firms is significant in increasing the value of firms and hence boosting the expansion across all the economic sectors accelerating the expansion of the country's economy (Surya et al., 2021). The performance of listed firms is influenced by various economic, regulatory and market factors. The key performance indicators for the listed firms include return on investment, stock price trends, profitability and revenue growth (Aayale et al., 2022). Stock price performance reflects the overall financial performance, market valuation and investor confidence of the listed firms. Rising stock prices presents a sign of effective management of the firm as well as strong earning potential whereas declining stock prices may be a signal of poor weak prospects (Vuong, 2022).

A key financial metric that can be applied in evaluating financial health and performance of a firm is its profitability as it provides the effectiveness, efficiency as well as the entity's overall financial strength (Desmita & Sihombing, 2024). Revenue growth of the listed firms is an indicator of the ability of the firms to increase sales as well as expand its share in the market over time (Vuković et al., 2022). The growth of revenues of the listed firms attracts more investors signalling higher shareholder value and profitability (Handayani & Rahayu, 2019).

With the current competitive and highly evolved environments, businesses struggle to find smart systems and best solutions to navigate these dynamic environments. Businesses should be increasingly adaptable and innovative to respond to

evolving customer needs, market dynamics as well as be proficient in utilizing advanced business systems. This includes utilizing the potential of new sophisticated technologies to collect the requested data and analyse them accurately and quickly (Rrucaj, 2023). Artificial intelligence is increasingly being considered a smart solution that can contribute to organization understanding of their internal and external factors, leading to improved decision-making (Olan et al., 2022). AI enables a systematic mechanism whereby businesses are able to collect more updated and valuable data that help conduct an accurate evaluation of internal operations and the market environment simultaneously (Rane et al., 2024). The successful adoption of AI is largely reliant on key capabilities of organizations. The effective use of AI in high-quality decision-making depends on how much employees negatively or positively value AI systems in the decision-making process (Al-Surmi et al., 2022).

AI can provide significant benefits by automating formerly manual procedures and enabling enhanced processes where humans and AI collaborate in a positive way (Wu et al., 2025). AI enables businesses to survive crises and hence must be utilized by businesses to build adaptive transformation and sense-and-respond capabilities that would spur innovation, enhance customer service and experience, and promote improved performance (Alghamdi & Agag, 2023). In Kenya, the emergence of big data tremendously transformed the financial business supporting data-driven decision making. Businesses are using big data to analyse data for their clients from many sources including sites such as you tube, twitter,



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Instagram and Facebook to generate credit scores that are used to calculate how much to lend to a customer. BDA has also been used by many firms in improving service delivery. Thus, data is being generated at an ever-increasing rate. However, there are a number of issues connected with big data including competition from existing businesses, lack of consumer confidence and data theft (Ogutu, 2024).

Firm performance has greatly been influenced by the adoption of AI business-based models since it has enabled firms to improve on decision-making, reduce costs and enhance efficiency. AI business-based models allow firms to access advanced AI capabilities without necessarily investing heavily hence improving flexibility and scalability (Khan et al., 2025). The models also allow firms integrate AI-driven analytics, machine learning and automation in their operations. The AI business-based models enhance the performance of firms by providing access to real-time business insights, accelerating innovation as well as reducing infrastructure costs for better strategic planning (Aithal, 2023). The firms that utilize AI in making decisions resulting enhanced operational efficiency and better financial performance. Firms can make more informed decisions, reduce uncertainties, and optimize their marketing and supply chain operations, leading to greater business success (Badmus et al., 2024).

A number of listed firms at NSE have recorded consistent profitability and growth of revenues including Equity group holdings and Safaricom PLC. Equity Group Holdings reported a pre-tax profit of Ksh. 51 bn for the first 3 quarters of 2024, an improvement from Ksh. 45.9 bn in the same period in 2023. Safaricom reported a 14%

increase in group service revenue for the half year ending 2024 but a decline in net income by 17.7% following the depreciation of Ethiopia's birr. NSE lifted the suspension of the trading shares of Kenya Airways in 2025, following the improved performance as the carrier recorded Ksh. 10.53 bn in operating profits in 2023, its first operating profit since 2017. These developments point out to improving performance of some of the listed firms reflecting strategic initiatives adopted by these firms to improve on their profitability. However, although many firms are increasingly leveraging AI applications to improve forecasting accuracy, mitigate risks, enhance investment decisions and prevent fraudulent activities, there is limited empirical evidence on how such innovations translate into measurable financial results for the firms listed at NSE. It is against this that this study sought to establish the effect of AI-based predictive financial modelling on financial performance of listed firms in NSE.

1. Literature Review

The study was anchored on Technology-Organization-Environment Framework (TOE) developed by Tornatzky and Fleischer (1990) providing the understanding on various factors influencing technological adoption and use such as the external environment under which the firm operates, the firm context in which technology is used as well as the characteristics of the technology itself. Thus, the framework is made up of three components including environment, organization and technology. Environment entails external context where the entity operates and covers factors such as cultural and social norms, regulatory requirements as well as the prevailing conditions in the



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market. Organization entails internal context such as resources, culture, structure as well as the size of the firm in which technology is used. Technology however refers to characteristics of the technology itself including ease of use, compatibility with existing systems, complexity and functionality (Awa et al., 2017).

The framework looks at a holistic perspective on implementation and adoption of technology which one of its strengths (Malik et al., 2021). The framework is useful to practitioners and researchers in variety of fields as it can be used in a wide range of organizational contexts and technologies and can be adapted to different research methods, including qualitative and quantitative approaches (Baker, 2011). One of the limitations of the framework is that it may be general and overly broad hence it may not be easy to be used in specific situations. Furthermore, the framework may not fully capture the complexity of technology adoption and implementation, particularly in rapidly changing environments where external factors can have a significant impact on technology decisions (Awa et al., 2016). The framework is of relevance to the study as it underlines the factors influencing technological adoption by listed firms including technological, organizational and environmental factors. These factors are also particularly important in explaining the adoption of AI-based predictive financial modelling among listed firms at NSE considering the rapid penetration of advanced information technologies.

Kang and Park (2021) researched on AI-based detection and predicting management of corporate earnings. The outcomes pointed out that over the last decade, there

have been substantial increase in the adoption AI applications including machine learning attributed to the advancements in computer volume and growth of data volume. The adoption of these technologies enhances the accuracy of the model compared to conventional linear regression models. The investigation presented a conceptual gap as the current investigation sought to establish the effect of AI-based predictive financial modelling on financial performance of Kenyan listed firms.

Wamba-Taguimdje et al. (2020) studied on the influence of artificial intelligence (AI) on firm performance: the business value of AI-based transformation projects. IT capabilities theory was used. The results indicated that a range of technologies are covered by AI such as machine translations, self-learning algorithms and chatbots which allow individuals to comprehend and act accordingly in their environments. The adoption of AI technological innovations by firms is aimed at enhancing their competitive advantage and further developing and optimizing strategic advantages. AI serves to improve automation, transformation and information and optimize existing processes. Contextual and conceptual gaps were presented as it focused on value of transformation projects that are AI-based whereas the study at hand focuses on AI-based predictive financial modelling and firm performance.

A study was conducted by Ho et al. (2022) on artificial intelligence and firm performance and whether machine intelligence shield firms from risks. Panel data were used in four periods. From the outcomes, the negative impact of Covid-19 was more severe on conventional stock markets in the immediate periods of the



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pandemic than on AI-stock market later. However, when financial market was exposed to the uncertainties of the pandemic, conventional stocks were less resilient. AI deployment is a crucial driver of sustainable performance in environments characterized by challenges. Conceptual and contextual gaps were observed as it focused on whether machine intelligence protect entities from risks whereas the study at hand focuses on AI-based predictive financial modelling and firm performance. Shiyab et al. (2023) researched on the impact of artificial intelligence disclosure on financial performance. Content analysis was used in the investigation and the results indicated that AI positively affects accounting performance and its effect on total expenses was negative. The performance of banks is affected by AI related keywords and disclosures though for AI related disclosures, it was weak for some banks. Contextual and conceptual gaps were noted as it focused on impact of AI disclosure on performance whereas the study at hand focuses on AI-based predictive financial modelling and firm performance.

A study was carried out by Agarwall et al. (2022) on whether artificial intelligence influence the operational performance of companies. Secondary data exacted from published reports of the entities under review was used. From the results, AI significantly influences operating profit and cost of the companies under investigation. The investigation presented contextual and conceptual gaps as it focused on whether AI affects the operational performance whereas the investigation at hand focuses on AI-based predictive financial modelling and firm performance.

2. Methodology

The study utilized a positivist research philosophy which was relevant in determining the relationship between AI-based predictive financial modelling and performance of entities listed at NSE. A correlational research design was also used as the study sought to determine the associations between AI-based predictive financial modelling and performance of listed firms in NSE. Correlational research design describes a situation or a phenomenon accurately by determining the relationships between variables. The unit of analysis for the study were financial firms listed at NSE while the unit of observation were the heads of marketing departments, business development department, human resource departments and operations department within the 17 financial firms listed at NSE (Nairobi Securities Exchange, 2025). Since the target population of the study is relatively small, a census of all the respondents was conducted.

The study utilized both primary and secondary information. A structured questionnaire was adapted in collecting primary data. The questionnaire contained closed ended questions which were presented in a Likert scale and was structured into various sections where the first contained questions pertaining respondents' demographic information. Section B, C, D and E contained questions on the independent variables while section F covered questions on the dependent variable. Secondary data was conducted for the dependent variable (financial performance) using the secondary data collection template attached in the appendices.

Analysis of data was conducted using SPSS software and the results presented as descriptive and inferential outcomes in



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form of tables and charts. Pearson correlation test was undertaken to explore the direction and strength of association between the factors in the study. Simple regression analysis was conducted to determine the influence of AI-based predictive financial modelling on financial performance of listed firms in the Nairobi Securities Exchange (Jeon, 2015). The model that was estimated was;

$$Y = \beta_0 + \beta_1 X_1 + \epsilon$$

Where,

Y is financial performance of firms listed at NSE, β_0, β_1 are constant terms, X_1 stands for AI-based predictive financial modelling, ϵ represented the error term.

The overall model significance was ascertained checked using ANOVA. A significance value of 0.05 as well as the

calculated F value was used. The critical F value and the estimated F value were compared. Furthermore, a critical p value of 0.05 was used to explore the significance of the regression coefficient.

4. Results

4.1 Demographic Characteristics of Respondents

The demographic analysis of the study included the analysis on department, level of adoption of AI-Based business models, length of service and the importance of AI-Based business models.

4.1.1 Department

The investigation sought to determine the department in which the participants were working in and the results are shown in Table 1.

Table 1: Department of the Respondents

	Frequency	Percent
Marketing	19	35.2
Business Development	12	22.2
Human Resource	15	27.8
Operations	8	14.8
Total	54	100

From the results, 35.2 percent of the participants were based in the marketing department, 22.2 percent business development department, 27.8 percent under human resource department and 14.8 percent under the operations department.

4.1.2 Level of Adoption of AI-Based Business Models

The investigation sought to determine the level of adoption of AI-Based Business Models and the results are presented in Figure 1.



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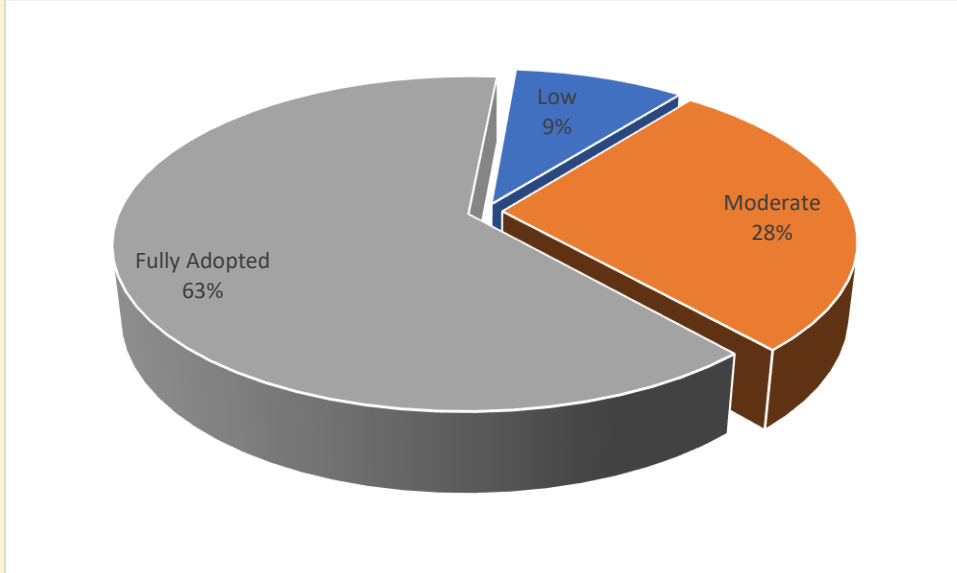


Figure 1: Level of Adoption of AI-Based Business Models

From the outcomes, 63 percent of the respondents indicated that AI-Business models had fully been adopted in their department, 28 percent moderately adopted and 9 percent indicated that the level of adoption was low.

4.1.3 Length of Service

The investigation sought to determine the length of service at the firm and the results are presented in Figure 2.

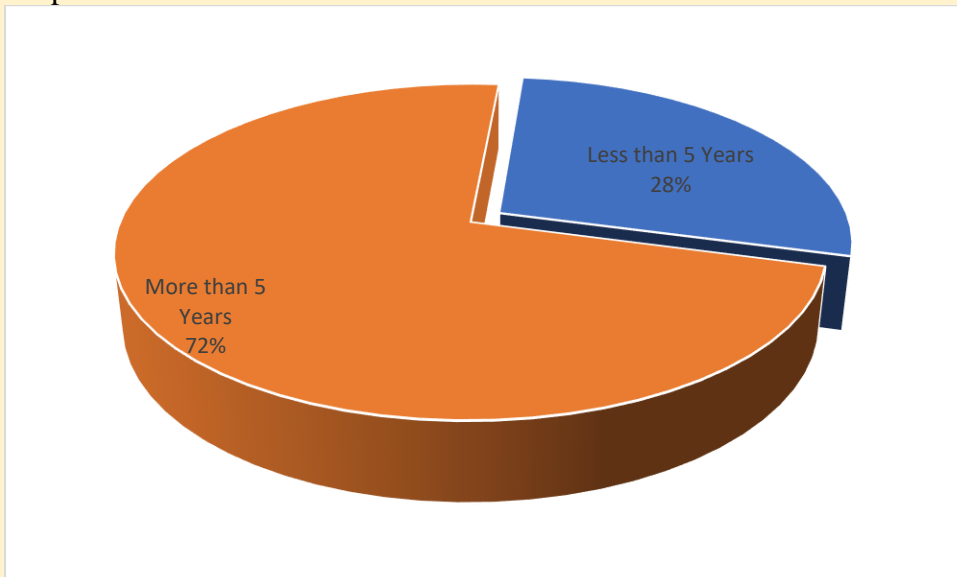


Figure 2: Length of Service

From the results, 72 percent of the participants had been working at their

respective listed firms for more than 5 years while 28 percent indicated less than 5 years.



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4.1.4 Importance of AI-Based Business Models

The study finally sought to determine whether AI-Based Business Models are

important and the results are presented in Figure 3.

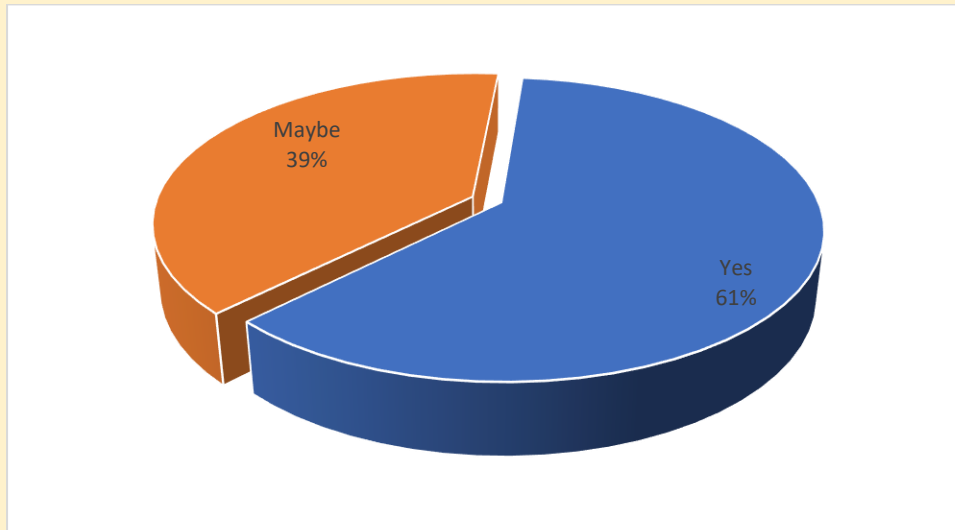


Figure 3: Importance of AI-Based Business Models

From the results, 61 percent of the respondents pointed out that AI-Based business models were important while 39 percent were not sure.

results were presented as frequencies, percentages, means and standard deviations. The responses were measured on a Likert scale of 1-5 where; 5 represents strongly agree, 4 agree, 3 neutral, 2 disagree and 1 strongly disagree.

4.2 Descriptive results

The descriptive results for financial performance are presented in Table 2. The

Table 2: Descriptive Results for Financial Performance

	SD	D	N	A	SA	S	
	N %	N %	N %	N %	N %	M	Dev
The firm is able to generate revenue and achieve profitability over time	6 11.1%	5 9.3%	2 3.7%	26 48.1%	15 27.8%	3.7	1.3
Strong financial performance enables firms to reinvest in operations	6 11.1%	4 7.4%	6 11.1%	20 37%	18 33.3%	3.7	1.3
The is consistency in the financial performance of the firm	3 5.6%	8 14.8%	7 13%	13 24.1%	23 42.6%	3.8	1.3
Effective financial management, is crucial for maintaining strong performance	6 11.1%	2 3.7%	6 11.1%	28 51.9%	12 22.2%	3.7	1.2



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Technological adoption and innovation often lead to efficiency gains	6	2	4	25	17	3.8	1.2
	11.1%	3.7%	7.4%	46.3%	31.5%		
Sustainable financial performance supports long-term business viability and resilience	4	4	6	24	16	3.8	1.2
	7.4%	7.4%	11.1%	44.4%	29.6%		
Composite Mean and SD						3.8	1.3

From the results outlined, 26(48.1%) of the respondents concurred that the firm is able to generate revenue and achieve profitability over time. On the other hand, 15(27.8%) concurred strongly while 2(3.7%) were neutral with a mean of 3.7 and a respective SD of 1.3 meaning that on average, the responses were in tandem. Concerning whether strong financial performance enables firms to reinvest in operations, 20(37%) of the respondents were in tandem, 6(11.1%) being neutral and 18(33.3%) were in tandem strongly with an SD of 1.3 and a mean of 3.7.

Furthermore, 13(24.1%) of the responses were in tandem concerning the statement ‘There is consistency in the financial performance of the firm’ while 23(42.6%) recording strong concurrence and 7(13%) neutral. The mean was 3.8 and a SD was 1.3 meaning that on average, the responses were in agreement. 6(11.1%) of the responses were neutral concerning the question ‘Effective financial management,

is crucial for maintaining strong performance, 28(51.9%) were in concurrence with 12(22.2%) strongly agreeing with a mean and SD of 3.7 and 1.2 implying concurrence among the responses on average.

Furthermore, 4(7.4%) of the responses were neutral with regards the statement ‘Technological adoption and innovation often lead to efficiency gains, 25(46.3%) were in tandem with 17(31.5%) strongly concurring with a mean and SD of 3.8 and 1.2. This gives the implication the responses were in tandem on average. Finally, 24(44.4%) of the respondents agreed that the sustainable financial performance supports long-term business viability and resilience while 6(11.1%) taking a neutral stand and 16(29.6%) indicating a strong agreement with a mean of 3.8 and a SD of 1.2 in that order. The descriptive results for AI-based predictive financial modelling.

Table 3: Descriptive Results for AI-Based Predictive Financial Modelling

	SD	D	N	A	SA		S
	N %	N %	N %	N %	N %	M	Dev
AI-based predictive financial modelling forecasts future financial outcomes with greater accuracy	6	4	8	18	18	3.7	1.3
	11.1%	7.4%	14.8%	33.3%	33.3%		



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Firms using AI in financial modelling can identify profitability trends	4 7.4%	5 9.3%	5 9.3%	24 44.4%	16 29.6%	3.8	1.2
Integrating AI into financial forecasting enhances the precision of cash flow projections	3 5.6%	5 9.3%	8 14.8%	24 44.4%	14 25.9%	3.8	1.1
The use of AI in financial modelling supports more informed investment decisions	7 13%	3 5.6%	4 7.4%	26 48.1%	14 25.9%	3.7	1.3
AI models can incorporate a wide range of data including macroeconomic indicators to produce holistic performance forecasts	4 7.4%	4 7.4%	2 3.7%	23 42.6%	21 38.9%	4.0	1.2
Predictive analytics powered by AI enables early detection of financial distress	2 3.7%	4 7.4%	6 11.1%	23 42.6%	19 35.2%	4.0	1.1
Composite Mean and SD						3.8	1.2

From the results, 18(33.3%) of the respondents agreed that AI-based predictive financial modelling forecasts future financial outcomes with greater accuracy. 18(33.3%) strongly concurred with the statement while 8(14.8%) were not decisive with a mean of 3.7 and a respective SD of 1.3 hence on average, the responses were in concurrence. On whether firms using AI in financial modelling can identify profitability trends, the responses indicated that 24(44.4%) of the responses concurred, 5(9.3%) being neutral and 16(29.6%) attracting a strong concurrence with a mean and SD of 3.8 and 1.2.

Furthermore, 24(44.4%) of the responses were in tandem that integrating AI into financial forecasting enhances the precision of cash flow projections. 14(25.9%) recording strong concurrence and 8(14.8%) were not decisive with a mean of 3.8 and a corresponding SD of 1.1 meaning that on average, there was concurrence among the responses. 4(7.4%) of the responses were

neutral on whether the use of AI in financial modelling supports more informed investment decisions. Furthermore, 26(48.1%) were in concurrence with 14(25.9%) strongly concurring with a mean and SD of 3.7 and 1.3. Hence, there concurrence among the responses on average.

Concerning the statement, AI models can incorporate a wide range of data including macroeconomic indicators to produce holistic performance forecasts, 23(42.6%) of the participants were in tandem, 21(38.9%) recording a strong agreement with 2(3.7%) being neutral. The mean and SD recorded by the question were 4.0 and 1.2 meaning that, on average the respondents concurred. Finally, 23(42.6%) of the respondents pointed to an agreement that predictive analytics powered by AI enables early detection of financial distress, while 19(35.2%) strongly concurred and 6(11.1%) being neutral with a mean of 4.0



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and SD of 1.1 meaning that on average, the respondents were in concurrence.

4.3 Inferential Statistics

Inferential analysis of the study included regression and Pearson Moment Correlation (r). Regression analysis was used to measure the effect of AI-based predictive financial modelling on financial performance of firms listed at NSE while Pearson Moment Correlation (r) was used to measure the nature and strength of association between study variables.

4.3.1 Correlation Results

Table 4: Correlation Results

		Financial Performance	AI-Based Financial Modelling	Predictive
Financial Performance	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	54		
AI-Based Financial Modelling	Pearson Correlation	.555**	1	
Predictive	Sig. (2-tailed)	0.000		
	N	54	54	

Pearson Moment Correlation was used to measure the nature and strength of association between AI-based predictive financial modelling and financial performance of firms listed at NSE. As per Schober et al. (2018), r of 0.7 and above implies very strong correlation, 0.5-0.69 strong correlations, r of 0.39 to 0.49 is moderate correlation, r less than 0.39 is weak correlation, r of 1 is perfect correlation whereas 0 implies no correlation. Table 4 shows the correlation results.

The correlation between financial performance of the firms listed at NSE and AI-Based predictive financial modelling was positive (0.555) and significant statistically ($p=0.000 < 0.05$). This means that AI-Based Predictive Financial Modelling has a strong positive correlation with performance of the firms listed implying that AI-Based Predictive

Financial Modelling and financial performance of listed firms move in the same direction.

4.3.2 Regression Analysis

This is conducted to determine the linear relationship between AI-based predictive financial modelling and financial performance of listed entities in Nairobi Securities Exchange.

Table 5: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.555a	0.308	0.294	0.88192

From the outcomes of the estimated model, AI-based predictive financial modelling explains to a tune of 30.8% of the total

variations in financial performance of listed firms under study. Thus, AI-based predictive financial modelling is a



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significant determinant of financial performance.

Table 6: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	17.972	1	17.972	23.107	.000b
Residual	40.444	52	0.778		
Total	58.417	53			

From the ANOVA outcomes, the estimated model is significant statistically. This is because the significance value is $0.000 < 0.05$ and the calculated F value (23.107) is greater than the F critical values

from the F tables (2.3683) under the same degrees of freedom. Thus, the results of the estimated model can be used to make reliable inferences.

Table 7: Multiple Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.357	0.517		2.626	0.011
AI-Based Predictive Financial Modelling	0.659	0.137	0.555	4.807	0.000

The coefficient of AI-Based predictive financial modelling was positive (0.659) and significant statistically ($p = 0.000 < 0.05$). Thus, a unit increase in AI-Based predictive financial modelling results in 0.659 units increase in performance of listed entities under investigation. Thus, AI-Based predictive financial modelling is a significant determinant of financial performance. The results are consistent with the findings of Kang and Park (2021) which pointed out that over the last decade, there have been substantial increase in the adoption AI applications including machine learning attributed to the advancements in computer volume and growth of data volume. The adoption of these technologies enhances the accuracy of the model compared to conventional linear regression models.

Wamba-Taguimdje et al. (2020) further indicated that a range of technologies are covered by AI models for example machine translations, self-learning algorithms and chatbots which allow

individuals to understand and act accordingly in their environments. The adoption of AI technological innovations by firms is aimed at enhancing their competitive advantage and further developing and optimizing strategic advantages. AI serves to improve automation, transformation and information and optimize existing processes. Ho et al. (2022) also indicated the negative impact of Covid-19 was more severe on conventional stock markets in the first month of the pandemic than on AI-stock market. However, when financial market was exposed to the uncertainties of the pandemic, conventional stocks were less resilient. AI deployment is a crucial driver of sustainable performance in environments characterized by challenges. Shiyyab et al. (2023) indicated that AI positively affects accounting performance and its effect on total expenses was negative. The performance of banks is affected by AI related keywords and disclosures though for AI related disclosures, it was weak for some banks.



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Agarwall et al. (2022) indicated that AI significantly influences operating profit and cost of the companies under investigation.

5. Conclusion

The coefficient of AI-Based predictive financial modelling was positive and significant statistically. Thus, a unit increase in AI-Based predictive financial modelling results in significant units increase in performance of listed entities in Nairobi Securities Exchange. Thus, AI-Based predictive financial modelling has a significant positive nexus with financial performance. AI-based predictive financial modelling has is significant for enhancing financial performance by leveraging advanced algorithms and machine learning to forecast trends, detect anomalies and optimize decision-making with high levels of accuracy. AI models can identify patterns and correlations, enabling organizations to anticipate market shifts, manage risks proactively and allocate resources more efficiently.

6. Recommendation

The investigation recommends that the firms listed at NSE ought to adopt AI-based predictive financial modelling as a strategic priority to enhance their financial performance as it improves the accuracy and timeliness of forecasting, budgeting and investment decisions. This enables the firms to get deeper insights into market trends, customer behavior and emerging risks, enabling more agile responses to changing conditions.

The study further recommends that ought to develop a supportive regulatory framework that encourages the adoption of AI-base predictive financial modelling by the listed firms under study to enhance performance. The framework should have clear guidelines on ethical AI use and data privacy among other critical components to build public trust while enabling innovation. Encouraging adoption of AI-base predictive financial modelling enables improved decision making by the firms, reducing costs and hence boosting profitability.

Further research on AI-based predictive financial modelling and its impact on the financial performance of listed firms on the NSE could explore the integration of machine learning techniques such

as deep learning, and natural language processing for enhanced prediction accuracy. Future studies could also do a comparative analysis across industries and firm sizes may uncover sector-specific insights and model applicability. Moreover, examining the regulatory, technological, and data infrastructure challenges unique to emerging markets like Kenya would provide a more comprehensive understanding of AI adoption barriers and enablers in financial decision-making and performance optimization.

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