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EFFECT OF OVER-PRECISION ON REAL ESTATE INVESTMENT PERFORMANCE IN KIAMBU COUNTY, KENYA

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ABSTRACT

This study examined the effect of over-precision on real estate investment performance in Kiambu County, Kenya. An explanatory research design was adopted, and the article reports findings from the quantitative survey. The target population comprised 7,000 real estate developers, private investors, and property professionals. Respondents were selected using stratified and simple random sampling. The planned sample was 379. Of the 362 questionnaires administered, 308 were completed and usable, yielding a response rate of 85.1%. Data were collected using a structured five-point Likert-scale questionnaire and analysed using descriptive statistics, Pearson correlation, and bivariate linear regression. Over-precision had a moderate positive correlation with reported real estate investment performance ($r = .507$, $p < .001$). The regression coefficient was positive and statistically significant ($B = .561$, $p < .001$), and the model accounted for 25.7% of the variation in reported performance scores ($R^2 = .257$). The study concluded that respondents who reported greater certainty in their forecasts tended to report better investment performance. It recommended that real estate decision-makers use market evidence, independent feasibility assessments, and scenario analysis to test their assumptions before committing capital.

Keywords: Over-precision, managerial overconfidence, real estate investment performance, behavioural finance, Kiambu County

1. INTRODUCTION

Real estate investment performance depends partly on how accurately investors forecast rental income, occupancy, development costs, and changes in property values. Singh et al. (2023) identify overconfidence as one of the behavioral biases that can shape real estate investment decisions. One form of overconfidence is over-precision, which refers to excessive certainty about the accuracy of one's judgment (Moore, 2023). In property investment, over-precision can arise when a decision-maker gives too much weight to a single rent projection or allows too narrow a range for possible construction costs.

In Kenya's Nairobi Metropolitan Area, average rental yields varied across property segments in 2024. Cytonn Research (2025) reported yields of 5.4% for residential property, 7.8% for commercial offices, and 8.4% for retail property. These differences illustrate the importance of using market evidence specific to the property under consideration. When investors are overly certain about their forecasts, they may give insufficient weight to scenarios such as slower tenant uptake, lower rents, or higher development costs.

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For Kiambu County, the question is whether decision-makers who express greater certainty about their forecasts also report different investment outcomes. This study examined the relationship between self-reported over-precision and reported real estate investment performance among developers, private investors, and property professionals in the county. It assessed over-precision through respondents stated confidence in their forecasts, reliance on narrow estimates, and tendency to question their projections. Reported investment performance covered return on investment, rental income, occupancy, and property value appreciation.

2. STATEMENT OF THE PROBLEM

Real estate investment performance depends partly on whether properties achieve the rental income and occupancy levels anticipated during appraisal. In the Nairobi Metropolitan Area, average commercial office occupancy rose from 80.7% in 2024 to 82.3% in 2025 (Cytonn Research, 2026). Despite this improvement, 17.7% of commercial office space remained vacant in 2025. Slower tenant uptake can reduce rental income and delay the recovery of development costs. Overconfidence can shape real estate investment decisions (Singh et al., 2023). One form of overconfidence is over-precision, which occurs when decision-makers are excessively certain about the accuracy of their judgments (Moore, 2023). In property appraisal, this may lead investors to consider too narrow a range of possible rental or occupancy outcomes. What remains unclear is how this forecasting certainty relates to the investment performance reported by real estate decision-makers in Kiambu County. The study examined the relationship between self-reported over-precision and reported real estate investment performance among developers, private investors, and property professionals in Kiambu County, Kenya. Performance was assessed using respondents' reports of return on investment, rental income, occupancy, and property value appreciation.

Objective

The objective of this study was to determine the effect of over-precision on real estate investment performance in Kiambu County, Kenya.

Hypothesis

H01: Over-precision has no statistically significant effect on real estate investment performance in Kenya.

3. LITERATURE REVIEW

Theoretical Review

Odean (1998) modelled investor overconfidence as a tendency to assign too much precision to private information, while Barber and Odean (2001) applied the concept of overconfidence to investor trading behavior. Moore and Healy (2008) distinguished over-precision from overestimation of one's own performance and over placement relative to others. Over-precision concerns the degree of certainty attached to a judgment. In real estate investment, a developer may express strong confidence in an occupancy forecast despite limited evidence about tenant demand. This perspective anchors the study's examination of how reported certainty about property forecasts relates to reported investment performance.

Prospect theory explains how decision-makers evaluate gains and losses relative to a reference point and assign decision weights to outcomes under risk (Kahneman & Tversky, 1979). A property investor may use a target rental yield as a reference point when judging a project's expected returns. The prospect of falling below that target can shape how the investor evaluates possible outcomes.

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Prospect theory therefore provides a complementary explanation of how investors assess outcomes under uncertainty, while the overconfidence literature explains the degree of certainty they attach to their forecasts.

Empirical Review

Singh et al. (2023) reviewed behavioral biases in real estate investment and identified overconfidence among the biases that can influence property investment decisions. Their review provides a basis for examining whether specific forms of overconfidence have different implications for real estate investors. Moore (2023) examined excessive certainty in judgment and discussed how decision-makers can give disproportionate weight to one estimate while overlooking plausible alternatives. In property appraisal, this distinction matters because certainty about a rent, occupancy, or cost forecast can affect the range of outcomes considered before capital is committed. These studies provide the basis for the present study's focus on over-precision as a distinct dimension of overconfidence and its relationship with reported real estate investment performance among developers, private investors, and property professionals in Kiambu County, Kenya.

4. METHODOLOGY

The study adopted an explanatory research design and used a quantitative survey to examine the effect of over-precision on reported real estate investment performance in Kiambu County, Kenya. The target population comprised 7,000 real estate decision-makers, including 1,200 developers, 3,500 private investors, and 2,300 property professionals such as agents, consultants, and property managers. A multistage sampling procedure was used. Active registered firms were first identified purposively. Eligible respondents were then grouped into three strata by role and selected through simple random sampling within each stratum. The planned sample of 379 was calculated using Yamane's (1967) formula with a precision parameter of .05 and rounding up. The planned allocation comprised 65 developers, 190 private investors, and 124 property professionals. Of the 362 questionnaires administered, 308 were completed and usable, yielding a response rate of 85.1%.

Data were collected using a structured questionnaire with a five-point Likert scale. Six items assessed over-precision by asking respondents about their certainty in market predictions, investment forecasts, and property value trends, as well as their reliance on narrow estimates and their tendency to question their forecasts. The investment performance items captured respondents' assessments of return on investment, rental income, occupancy, and property value appreciation. The questionnaire was piloted with 38 respondents in Nairobi County to assess its clarity and suitability. University supervisors and real estate finance specialists reviewed the questionnaire for content validity, and internal consistency was assessed using Cronbach's alpha. Questionnaires were distributed in person for later collection and through an online survey platform.

Completed questionnaires were checked for completeness and coded in SPSS. Frequencies, percentages, means, and standard deviations were used to summarize the survey responses. Pearson correlation was used to assess the direction and strength of the relationship between over-precision and reported real estate investment performance. A bivariate linear regression, with over-precision as the sole predictor and reported real estate investment performance as the outcome, was used to test the null hypothesis at the 5% significance level. Research authorization and ethical clearance were obtained before data collection. Participation was voluntary, and respondents gave written informed consent and could withdraw from the study. Personal and corporate identifiers were excluded from the analysis dataset. Data were stored securely, and results were reported in aggregate.

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5. RESULTS AND FINDINGS

Response Rate and Demographics

Of the 362 questionnaires administered to real estate developers, private investors, and property professionals in Kiambu County, 308 were completed, returned, and retained for analysis. This represents a response rate of 85.1%, exceeding the 70% benchmark cited by Mugenda and Mugenda (2019). Questionnaires were distributed through a combination of drop-and-pick procedures and an online survey platform. The planned sample of 379 respondents comprised 65 real estate developers, 190 private real estate investors, and 124 property professionals, including estate agents, consultants, and property managers. The respondents included proprietors, company directors, general managers, investment managers, and finance officers. Their responsibilities included capital allocation, project feasibility assessment, and revenue management.

Descriptive Statistics for Over-Precision

Table 1 presents responses to the six items used to assess over-precision. Across the items, the proportion of respondents who agreed or strongly agreed ranged from 73.7% to 77.6%. Mean scores ranged from 4.09 to 4.14, and standard deviations ranged from 0.85 to 0.89.

Table 1: Descriptive Statistics for Over-Precision

Item	Statement	SD, *n* (%)	D, *n* (%)	N, *n* (%)	A, *n* (%)	SA, *n* (%)	*M*	*SD*
OP1	I am always confident that my real estate forecasts are highly accurate.	1 (0.3)	10 (3.2)	61 (19.8)	108 (35.1)	128 (41.6)	4.14	0.87
OP2	I believe my market predictions rarely need revision.	1 (0.3)	10 (3.2)	63 (20.5)	106 (34.4)	128 (41.6)	4.14	0.87
OP3	I often rely on narrow estimates because I trust my judgement.	1 (0.3)	11 (3.6)	62 (20.1)	111 (36.0)	123 (39.9)	4.12	0.87
OP4	I seldom question the precision of my investment forecasts.	0 (0.0)	12 (3.9)	65 (21.1)	111 (36.0)	120 (39.0)	4.10	0.87
OP5	I believe my projections remain accurate despite market uncertainty.	1 (0.3)	11 (3.6)	69 (22.4)	104 (33.8)	123 (39.9)	4.09	0.89
OP6	I feel certain about property value trends even with limited data.	0 (0.0)	13 (4.2)	56 (18.2)	118 (38.3)	121 (39.3)	4.13	0.85

Note. N = 308. SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree. M = mean; SD = standard deviation.

Correlation Between Over-Precision and Financial Performance

Pearson correlation analysis was used to examine the relationship between over-precision and reported real estate investment performance in Kiambu County. Table 2 presents the results for the 308 respondents.

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Table 2: Pearson Correlation Between Over-Precision and Reported Real Estate Investment Performance

Variables	Pearson's *r*	*p* (two-tailed)
Over-precision and reported real estate investment performance	.507	< .001

The results showed a moderate, positive, and statistically significant correlation between over-precision and reported real estate investment performance ($r = .507$, $p < .001$). Respondents who expressed greater certainty about the accuracy of their forecasts tended to report better investment performance. This result describes the association between the two survey scores. The subsequent bivariate regression estimates the change in the reported performance score associated with a one-unit increase in the over-precision score.

Bivariate Regression Analysis for Over-Precision and Financial Performance

Model Summary

The model yielded an R of .507 and an R^2 of .257, indicating that over-precision accounted for 25.7% of the variation in reported financial performance. The adjusted R^2 was .254. Respondents who expressed greater confidence in the precision of their forecasts tended to report better financial performance.

Ng'ang'a (2024) found that overconfidence influenced investment choices among real estate investors in Nairobi and was associated with risk underestimation and overcommitment to projects. Muriithi (2022) linked broader measures of overconfidence among Nairobi developers to aggressive project roll-outs, optimistic demand projections, project failures, and high vacancy rates. These findings provide context for the positive association observed in Kiambu County, where the analysis focused specifically on over-precision and respondents' reports of financial performance.

Table 3: Model Summary for Over-Precision and Financial Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.507	.257	.254	.66092

Note. Predictor: Over-precision. Dependent variable: Financial performance of real estate firms. N = 308.

ANOVA for the Effect of Over-Precision on Financial Performance

Table 4 presents the ANOVA results for the bivariate regression model examining over-precision and reported financial performance. The model was statistically significant, $F(1, 306) = 105.721$, $p < .001$, indicating that over-precision was a significant predictor of reported financial performance. The regression sum of squares was 46.180, and the residual sum of squares was 133.665.

The result is broadly consistent with Ng'ang'a (2024), who found that overconfidence significantly influenced investment choices among real estate investors in Nairobi. Muriithi (2022) linked broader measures of overconfidence to project failures and high vacancy rates among Nairobi developers. In the present study, respondents in Kiambu County who scored higher on over-precision tended to report better financial performance.

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Table 4: ANOVA for the Effect of Over-Precision on Financial Performance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	46.180	1	46.180	105.721	<.001
Residual	133.665	306	.437		
Total	179.845	307			

Regression Coefficients for Over-Precision and Financial Performance

Table 5 presents the regression coefficients for over-precision as a predictor of reported financial performance. The coefficient for over-precision was positive and statistically significant (B = .561, β = .507, t (306) = 10.282, p < .001). A one-unit increase in the over-precision score was associated with a 0.561-unit increase in the predicted financial performance score. The standardized coefficient of .507 indicates a moderate positive relationship.

Ng'ang'a (2024) found that overconfidence significantly influenced investment choices among real estate investors in Nairobi. Muriithi (2022) linked overconfidence to aggressive investment behavior, project failures, and high vacancy rates. In Kiambu County, respondents who scored higher on over-precision tended to report better financial performance. This positive association may partly reflect the self-reported nature of the performance measure.

Table 5: Regression Coefficients for Over-Precision and Financial Performance

Model	B	Std. Error	Beta (β)	t	Sig.
Constant	1.482	.227	—	6.522	<.001
Over-precision	.561	.055	.507	10.282	<.001

Hypothesis Testing

$H_0$1: Over-precision has no statistically significant effect on real estate investment performance in Kenya.

The bivariate regression showed a positive and statistically significant coefficient for over-precision (β = .507, t (306) = 10.282, p < .001). The study therefore rejected H_{01} at the 5% significance level. Respondents with higher over-precision scores tended to report better real estate investment performance in Kiambu County, Kenya.

6. DISCUSSION

The findings show a positive and statistically significant relationship between over-precision and the reported financial performance of real estate firms in Kiambu County, Kenya, as indicated by the correlation (r = .507, p < .001) and bivariate regression (β = .507, p < .001). Respondents who expressed greater certainty in their forecasts and investment judgments tended to report better investment performance. The performance score covered return on investment, rental income, occupancy rates, and property value appreciation.

Dai (2022) examined how behavioral biases influence investment decisions among real estate agents in Shenzhen. In Kenya, Muriithi (2022) and Ng'ang'a (2024) examined behavioral biases in the investment decisions of developers and investors in Nairobi. The present study extends this work by examining over-precision as a distinct dimension of overconfidence and relating it to reported investment performance in Kiambu County.

Overconfidence can lead decision-makers to place excessive weight on their own judgments (Barber & Odean, 2001; Moore & Healy, 2008; Odean, 1998). In real estate appraisal, this can

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narrow the range of outcomes considered when forecasting rental income, tenant demand, and development costs (Singh et al., 2023). The positive association observed in Kiambu County may partly reflect how respondents rated their own forecasts and investment outcomes. Respondents who perceived their investments as successful may also have become more confident in the judgments that informed those investments.

7. CONCLUSION

The study found a positive and statistically significant association between over-precision and reported real estate investment performance in Kiambu County, Kenya ($B = 0.561$, $p < .001$). Respondents who expressed greater certainty about their market forecasts, investment projections, and property valuations tended to report better investment performance. The study therefore rejected the null hypothesis (H_{01}) at the 5% significance level. The finding highlights the relevance of forecasting certainty to how real estate decision-makers assess their investment outcomes.

RECOMMENDATIONS

Real estate managers, developers, and investors in Kiambu County should test their projections of rental income, occupancy, construction costs, and property values against current market evidence before committing capital. Independent feasibility assessments and scenario analysis can help them assess how projected returns would change if tenant uptake were slower, rents were lower, or construction costs were higher than expected. Financial institutions should independently assess the assumptions underlying major project financing proposals, particularly projected rental income, occupancy, and development costs. Professional bodies should strengthen training in investment appraisal, forecast calibration, and risk assessment, while policymakers should support access to reliable property market data. Future studies should compare investors' forecasts with realized outcomes and use documented measures of rental income, occupancy, and investment returns. Research across different counties and property segments could establish whether the observed relationship holds under different market conditions.

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