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Overconfidence Bias and Firm Market Value: The Mediating Role of Stock Return Volatility – Evidence from the Nairobi Securities Exchange

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Abstract

This study examines the effect of overconfidence bias on firm market value and the mediating role of stock return volatility in this relationship among firms listed on the Nairobi Securities Exchange (NSE) over the period 2016 - 2025. Despite growing evidence from developed markets, limited empirical research exists on the transmission mechanisms through which overconfidence bias influence firm valuation in frontier African markets. Using a panel dataset of 54 firms (537 firm-year observations) and employing fixed effects panel regression with bootstrap mediation analysis (5,000 resamples), the study finds that overconfidence bias has a positive and significant effect on firm market value. The study further establishes that stock return volatility significantly mediates the relationship between overconfidence bias and firm market value. The study contributes to behavioural finance literature by extending the mediation model to a frontier market context and revealing the transmission channel through which overconfidence bias affects firm market value.

Keywords: Overconfidence bias, stock return volatility, firm market value, mediation analysis, Nairobi Securities Exchange, behavioral finance, frontier markets

1. INTRODUCTION

1.1 Background to the Study

Traditional finance theories are grounded on the assumption of rationality, theorizing that investors are utility maximisers, process all available information efficiently, and their expectations are often unbiased. The Efficient Market Hypothesis (EMH), developed by Eugene Fama (1970), asserts that financial markets are informationally efficient and stock prices at any given moment fully incorporate all available information and consequently reflect their intrinsic values. Under this assumption, investors cannot consistently earn abnormal returns in excess of the overall market after adjusting for risk, as new information is rapidly incorporated into security prices (Ooi, 2024). Behavioural finance has increasingly challenged the rationality assumption of traditional finance theories by incorporating insights from psychology and economics to explain how cognitive errors, emotional influences, and sentiment fluctuations lead to systematic market anomalies. These anomalies can meaningfully influence asset prices, risk perceptions, and firm value (Barberis, 2018; Shefrin, 2021).

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1.1.1 Overconfidence Bias and Firm Market Value

Overconfidence bias arises when investors overestimate the accuracy of their private information or forecasting ability, leading to excessive trading, risk taking, and suboptimal decision making (Cervellati et al., 2024). This study positions overconfidence as a central variable due to its profound influence on key market dynamics. Overconfidence bias offers essential insight into how the overestimation of one's own predictive skill increases trading intensity, speculative risk taking, and mispricing, which directly affect volatility and firm value.

In developed economies, Bouteska (2023) found that U.S. investors display mild overconfidence during bullish markets, but regulatory mechanisms and automated trading moderate its adverse effects. In contrast, Akin and Akin (2024) reported that during periods of optimism in the S&P 500, overconfidence amplified mispricing and prolonged overvaluation. Bouteska et al. (2023) further found that overconfidence persisted during the COVID -19 pandemic, with positive returns driving trading volumes despite declining fundamentals.

In emerging economies, overconfidence bias has been shown to significantly influence investors' behaviour. In Malaysia, Tan (2025) in exploring overconfidence bias and stock trading performance in the banking industry, found that overconfidence led to increased trading frequency and higher transaction costs among banking sector investors. Similarly, Mahmood et al. (2024) found that overconfidence increased trading volume and speculative exposure among 250 Pakistani stock investors, inflating temporary valuation bubbles. In Tanzania, Kasoga (2021) observed that overconfidence bias significantly affected investment decisions, contributing to persistent valuation errors and slower adjustment of prices to new information. Emerging markets amplify the effects of overconfidence due to thin trading, information asymmetry, and institutional inefficiencies (Das & Panja, 2022; Fei & Zhang, 2023). Jointly, these studies highlight that overconfidence can drive excessive trading, speculative behaviour, and persistent mispricing in emerging markets.

Building on these insights, evidence from Kenyan markets shows similar behavioural patterns at the local level. Kamau et al. (2025) surveyed 102 fund managers and trustees and found a positive correlation between overconfidence and aggressive investment decisions. Githinji and Karanja

(2023) reported that overconfidence contributes to stock mispricing and unstable return patterns. Similarly, Onderi and Miroga (2025) observed that overconfidence significantly reduced portfolio returns among retail investors. This juxtaposition shows that while overconfidence may fuel short-term momentum, it undermines long-term value by increasing exposure to correction risk.

Overconfidence similarly influences stock return volatility, increasing speculative behaviour and deviations from fundamentals at the Nairobi Securities Exchange. Onderi and Miroga (2025) documented that overconfidence significantly increases risk taking among investors, a behaviour likely to contribute to volatility. Study by Lovega and Njeru (2023) and Kimani (2018) further show overconfidence's strong association with investment decisions and portfolio performance, though research in Kenya remains limited regarding how it indirectly impacts firm market value through stock return volatility, a gap which this study sought to fill.

1.1.2 Stock Return Volatility as a Mediating Variable

Stock return volatility represents the degree of variation in stock prices over time and constitutes a crucial measure of market risk and uncertainty. Volatility is both an outcome of behavioural dynamics and a mediator through which behavioural biases influence firm market value. Excessive volatility amplifies the effects of behavioural biases by altering investors' perceptions of risk and expected returns, thereby affecting the discount rates used to value firms' future cash flows (Gao et al., 2022; Liu et al., 2022). Higher volatility increases perceived risk and therefore raises the cost of equity, reducing the present value of expected cash flows and lowering firm market value (Zaremba et al., 2021).

Global evidence correspondingly underscores the importance of mechanisms mediating. Osterrieder et al. (2019) examined the variance premium and its relationship with expected returns, demonstrating that when risk is captured by variance-based measures rather than conventional market volatility indices, consistent estimation of the risk-return trade-off is possible.

In emerging markets, most studies show that behavioural biases are major contributors to volatility. Mahmood et al. (2024) reported that overconfidence increased trading volume and speculative exposure among 250 Pakistani stock investors, supporting the prediction that overconfidence

inflates temporary valuation bubbles. In Vietnam Nguyen et al. (2024) analysed the effect of stock return volatility on firm value using Tobin Q and found a negative correlation of stock return volatility (SRV) with firm value suggesting that higher stock return volatility is associated with lower firm value.

At the frontier market level, Ondigo and Wepukhulu (2025) demonstrated that stock return volatility mediates the impact of earnings variability on firm market value, underscoring its importance as a channel through which behavioural factors shape market outcomes. Maina et al. (2025) investigated the effect of earnings variability on share price volatility at the NSE but found no significant direct effect, while Njuguna et al. (2022) show that cash flow volatility significantly influences corporate investment decisions and firm value. Kuria et al. (2024) established that operating cash flow volatility has a negative impact on firm value.

1.1.3 Firm Market Value

Firm market value represents the total financial worth assigned to an organization by investors, comprising both its stock and, under specific capital structures, its debt instruments (Damodaran, 2020; 2010; Pandey, 2006; Said & Kaplelach, 2019). It effectively mirrors the broader market's perception of the company's financial resilience, growth potential, and overall macroeconomic relevance. Beyond serving as a crucial gauge of investor trust, this metric exerts considerable influence over high-level corporate governance, directing resource allocation, investment evaluations, and the formulation of long-term business policy (Kuria et al., 2024).

1.1.4 The Nairobi Securities Exchange

The Nairobi Securities Exchange (NSE) is Kenya's principal securities market, established in 1954 as the Nairobi Stock Exchange and officially demutualized in 2011. It provides a platform for buying and selling equity and debt instruments, facilitating capital formation for companies and offering investment opportunities for institutional and retail investors (Kaberia et al., 2025; Said et al., 2022). The NSE plays a critical role in determining firm market value, as stock prices quoted on the exchange reflect investor perceptions, expectations, and reactions to both firm-specific and macroeconomic information. As of October 2025, the NSE hosts approximately 57 listed companies across various sectors, including banking, manufacturing, insurance, and

telecommunications (Nairobi Securities Exchange [NSE], 2025). As one of Africa's leading frontier markets, the NSE exhibits moderate market efficiency, heightened susceptibility to local and regional news, relatively lower liquidity, informational asymmetries, and rapidly growing retail investor participation (Alshater et al., 2024; Wamae, 2023).

1.1.5 Theoretical Framework

This study is anchored on three interrelated theories, collectively providing a solid conceptual foundation for examining the linkages between overconfidence bias, stock return volatility, and firm market value. Behavioural Finance Theory, developed by Daniel Kahneman and Amos Tversky in the late 1970s and early 1980s, challenges the traditional efficient markets hypothesis by positing that psychological biases and emotional factors systematically influence investor decisions, leading to market anomalies and inefficiencies (Shefrin, 2021). Prospect Theory, introduced by Kahneman and Tversky in 1979, refines this understanding by demonstrating that individuals value gains and losses asymmetrically, losses are felt more intensely than equivalent gains, leading to risk averse behaviour in the domain of gains and risk seeking behaviour in the domain of losses (Barberis, 2018).

The Efficient Market Hypothesis (EMH), which serves as the contrasting benchmark theory in this study, formalized by Fama (1970), posits that asset prices fully reflect all available information, providing a baseline for assessing deviations caused by behavioural biases (Brown, 2020; Kung'u & Kinyua, 2024). This study therefore employed EMH as a contrasting theoretical lens to highlight how deviations from rationality, arising from overconfidence bias, can explain observed variations in stock return volatility and firm valuation.

1.2 Statement of the Problem

Despite the strategic importance of NSE to Kenya's capital market, empirical evidence on how overconfidence bias influence firm market value, and whether stock return volatility mediates this relationship remains limited. The problem this study seeks to address is the inadequate empirical understanding of how overconfidence bias influence firm market value and whether stock return volatility mediates this relationship among firms listed on the Nairobi Securities Exchange. This gap constrains the development of informed market regulations, limits firms' valuation strategies,

and hampers investors' ability to make optimal decisions in a market increasingly influenced by behavioral factors.

1.3 Research Objectives

1.3.1 General Objective

To examine the mediating role of stock return volatility in the relationship between overconfidence bias and firm market value among firms listed on the Nairobi Securities Exchange.

1.3.2 Specific Objectives

- i. To assess the effect of overconfidence bias on firm market value among firms listed on the Nairobi Securities Exchange.
- ii. To analyze the mediating role of stock return volatility in the relationship between overconfidence bias and firm market value among firms listed on the Nairobi Securities Exchange.

1.4 Research Hypotheses

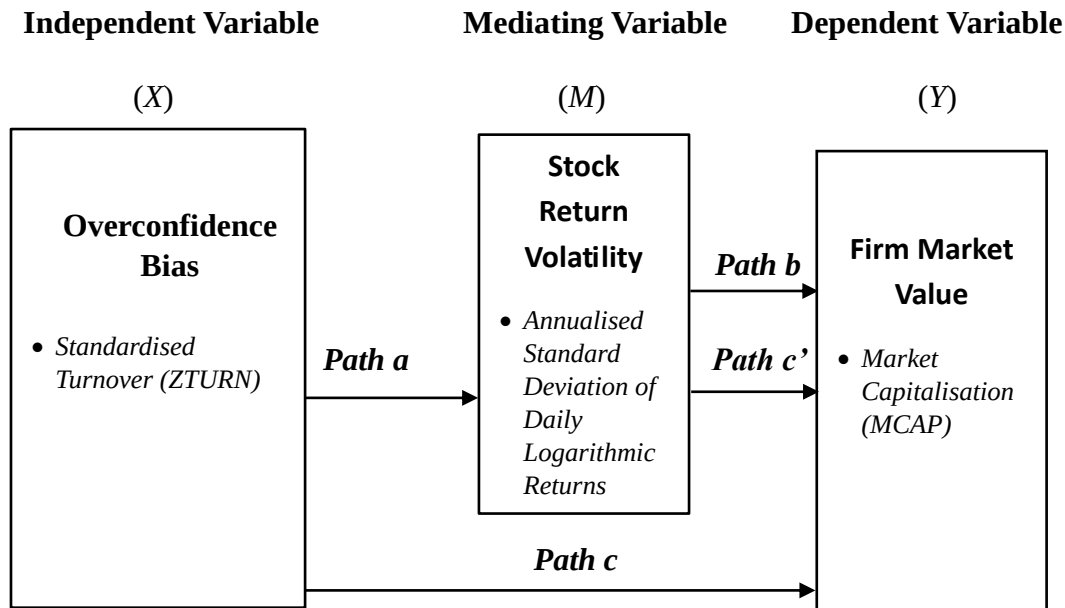
H₀₁: Overconfidence bias has no significant effect on firm market value among firms listed on the Nairobi Securities exchange.

H₀₂: Stock return volatility does not significantly mediate the relationship between overconfidence bias and firm market value among firms listed on the Nairobi Securities Exchange.

1.5 Conceptual Framework

Grounded in behavioral finance theory, the conceptual framework posits that overconfidence bias influences firm market value, with stock return volatility acting as the mediating mechanism through which these effects are transmitted. Following the standard mediation notation of Hayes (2018), the causal paths are denoted as follows: **a**-path (overconfidence bias → stock return volatility), **b**-path (stock return volatility → firm market value), **c**-path (overconfidence bias → firm market value), and **c'** (direct effects of overconfidence bias on firm market value controlling for volatility). This notation clarifies how total, direct, and indirect effects are computed and interpreted in the empirical models.

Figure 2.1: *Conceptual Framework*



1.6 Study Contribution

The demonstration that stock return volatility significantly mediates the relationship between overconfidence bias and firm market value is a novel contribution. While previous studies have examined direct effects of overconfidence on volatility or on value, few have tested the complete mediation pathway in a frontier market using robust bootstrap methods.

2. RESEARCH METHODOLOGY

2.1 Research Philosophy and Research Design

Anchored on positivist philosophy, this study adopted a quantitative, explanatory research design employing longitudinal panel data, which is suitable for analysing causal relationships between overconfidence bias, stock return volatility, and firm market value among firms listed on the Nairobi Securities Exchange in the period 2016-2025.

2.2 Target Population and Sampling Design

The target population consisted of all the 57 firms listed on the Nairobi Securities Exchange during the study period (2016-2025). The study adopted a census sampling approach targeting all firms listed on the NSE that met the prescribed inclusion criteria. Firms listed and actively traded for the entire study period 2016-2025 were included, while non-equity instruments and firms that

exhibited prolonged non-trading periods were excluded to ensure data adequacy and consistency. The final sample, therefore, consisted of 54 firms that were actively traded throughout the 2016 - 2025 period, drawn from various sectors of the Nairobi Securities Exchange.

2.3 Data Sources and Collection

The study employed a data extraction sheet to systematically collect relevant secondary data from audited financial statements and annual reports of the NSE listed firms, and daily equity data from NSE repositories.

2.4 Measurement of Variables

The selected variables, overconfidence bias, stock return volatility, and firm market value are directly and empirically measurable using secondary trading and firm level data, making them suitable for quantitative modelling.

2.4.1 Firm Market Value (MCAP)

In this study, firm market value served as the dependent variable, capturing the market-based outcome of overconfidence bias and stock return volatility.

Firm market value for firm i in year t computed as:

$$FMV_{it} = P_{it} \times N_{it}$$

Where:

FMV_{it} = Market value (capitalization) of firm i in year t ; P_{it} = Closing market price per share of firm i at the end of year t ; N_{it} = Number of outstanding ordinary shares.

To enable comparability across firms and years, firm market value was converted to natural logarithms before analysis to stabilise variance and reduce skewness, Wooldridge (2020).

2.4.2 Overconfidence Bias (OC)

Overconfidence bias measured as standardized turnover, whereby unusually high stock turnover relative to firm's historical average indicates overconfidence driven trading behavior. This proxy reflects the tendency of overconfident investors to trade excessively, leading to abnormally high turnover.

The standardized turnover computed as:

$$ZTURN_{i,t} = \frac{TURN_{i,t} - \overline{TURN}_i}{SD(TURN_i)}$$

Where:

$ZTURN_{i,t}$ = standardized turnover;

$TURN_{i,t}$ = turnover ratio for firm i in period t

$\overline{TURN}_i$ = historical mean turnover ratio for firm i ;

$SD(TURN_i)$ = historical standard deviation of the turnover ratio for firm i .

2.4.3 Stock Return Volatility (SRVOL)

Stock return volatility measured as the annualized standard deviation of daily logarithmic returns for each firm-year (Liu et al., 2022; Maina et al., 2025; Ondigo & Wepukhulu, 2025).

Stock Return Volatility value for firm i in year t computed as:

$$\sigma_{i,t}^A = \sqrt{252} \sqrt{\frac{1}{n_{i,t} - 1} \sum_{d=1}^{n_{i,t}} (r_{i,t,d} - \bar{r}_{i,t})^2}$$

Where:

$\sigma_{i,t}^A$ = annual stock return volatility for firm i in year t ; $r_{i,t,d}$ = daily logarithmic return on trading day d ; $\bar{r}_{i,t}$ = mean daily logarithmic return for firm i during year t ; $n_{i,t}$ = number of trading days for firm i in year t ; $\sqrt{252}$ annualises the daily volatility based on the approximate number of trading days in a year.

The daily logarithmic return is computed as:

$$r_{i,t,d} = \ln\left(\frac{P_{i,t,d}}{P_{i,t,d-1}}\right)$$

Where:

$P_{i,t,d}$ = closing stock price on day d ; $P_{i,t,d-1}$ = closing stock price on the previous trading day.

This approach captures firm specific volatility patterns and aligns with studies that used panel data to investigate market reactions and behavioural dynamics (Rabbani et al., 2024; Yin, 2025).

2.4.4 Control Variables

Firm size (SIZE), return on assets (ROA), leverage (LEV), and liquidity (LIQ) were included in the panel regression model. Firm size measured as the natural logarithm of total assets. ROA computed as net income divided by total assets. Leverage measured as total debt divided by total assets. Liquidity measured as the current ratio (current assets divided by current liabilities).

2.5 Data Analysis Techniques

The data was analyzed using descriptive and inferential statistical techniques. Panel regression analysis was then employed to estimate the effects of overconfidence bias on firm market value using the appropriate panel data estimator. The mediating role of stock return volatility was examined using a regression-based mediation approach, with bootstrap resampling employed to estimate indirect effects and their corresponding confidence intervals. All statistical analyses were performed using **EViews 14.0 University Edition**, which provides robust tools for panel data estimation, mediation analysis, hypothesis testing, and diagnostic testing.

2.6 Panel Data Diagnostics and Model selection

Prior to model estimation, several diagnostic tests were conducted to assess the validity of the panel regression assumptions. Multicollinearity was evaluated using the Variance Inflation Factor (VIF), while panel unit root tests were performed to verify the stationarity of the variables. Model specification was guided by the Chow and Hausman tests. Further diagnostic checks included the Panel Cross-section Likelihood Ratio test for heteroskedasticity, the Wooldridge test for serial correlation, the Breusch-Pagan LM and Pesaran CD tests for cross-sectional dependence, and the Jarque-Bera test to assess the normality of the regression residuals.

2.7 Model Specification

To examine the relationships among overconfidence bias, stock return volatility, and firm market value, panel regression models were employed. Stock return volatility was treated as a mediating variable in the relationship between overconfidence bias and firm market value. The models incorporate both firm fixed effects (μ_i) to control for time-invariant unobserved firm heterogeneity and year fixed effects (γ_t) to account for macroeconomic shocks and common time trends.

Model 1: Total Effect Model

Estimated the total effect (c) of overconfidence bias on firm market value.

$$MCAP_{it} = \beta_0 + \beta_1 OC_{it} + \beta_2 X_{it} + \mu_i + \gamma_t + \varepsilon_{it}$$

Model 2: Mediator Model

Estimate the effect (path a) of overconfidence bias on stock return volatility.

$$SRVOL_{it} = \beta_0 + \beta_1 OC_{it} + \beta_2 X_{it} + \mu_i + \gamma_t + \varepsilon_{it}$$

Model 3: Full Mediation Model

Estimate the direct effect (c') of overconfidence bias and the effect of stock return volatility (path b) on firm market value.

$$MCAP_{it} = \beta_0 + \beta_1 OC_{it} + \beta_2 SRVOL_{it} + \beta_3 X_{it} + \mu_i + \gamma_t + \varepsilon_{it}$$

Where:

MCAP = Firm market value; SRVOL_{it} = stock return volatility; OC_{it} = overconfidence bias; X_{it} = vector of control variables; μ_i = firm fixed effect; γ_t = year fixed effect; and ε_{it} = error term.

The mediation analysis followed the principles of Baron and Kenny (1986) and was implemented using contemporary best practices outlined by Hayes (2018). The existence of mediation was determined by a significant indirect effect, quantified as the product of the path from the independent variable to the mediator and the path from the mediator to the dependent variable in the full model.

3. RESULTS

3.1 Descriptive Statistics

The descriptive statistics indicate that overconfidence exhibited moderate variability across the sample, with a mean of 0.3614 and a median of 0.2100, suggesting a positively skewed distribution characterized by a small number of firms with unusually high overconfidence levels. The standard deviation (0.4055) and the wide range of values (0.0199 - 1.5899) further indicate substantial cross-sectional heterogeneity in overconfidence. The distribution was markedly non-normal, as evidenced by positive skewness (1.9575), excess kurtosis (6.0024), and a significant Jarque - Bera statistic (544.63, $p < .001$), indicating the presence of extreme observations. These distributional characteristics support the use of robust estimation techniques to ensure reliable statistical inference.

Table 3.1: Overall NSE Overconfidence Bias Descriptive Statistics

<i>Statistic</i>	<i>OC</i>
Mean	0.3614
Median	0.2100
Maximum	1.5899
Minimum	0.0199
Std. Dev.	0.4055
Skewness	1.9575
Kurtosis	6.0024
Jarque-Bera	544.6345
Sigf.	0.000
Obs.	537

3.2 Correlation Analysis

Table 3.2: Correlation matrix

<i>Correlation</i>	<i>MCAP</i>	<i>SRVOL</i>	<i>OC</i>
MCAP	-		
SRVOL	-0.3406***	-	
OC	-0.0085*	0.0389*	-
LEV	-0.1384***	0.2793***	-0.0900**
LIQ	-0.1361**	-0.2137***	0.1317**
ROA	0.4905***	-0.2418***	0.0290*
SIZE	0.7624***	-0.2071***	-0.0347*

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. Two-tailed tests. $N = 537$

The correlation matrix reveals that overconfidence exhibits very few significant relationships, only a weak negative link with leverage ($r = -0.090$, $p = 0.037$) and a weak positive one with liquidity ($r = 0.132$, $p = 0.002$), suggesting it captures a relatively unique behavioral dimension. Overconfidence has no statistically significant association with firm market value ($p = 0.8436$) or stock return volatility ($p = 0.3688$). The lack of significant correlation at the bivariate level suggests that the relationship between overconfidence and firm market value may be more complex, potentially operating through mediating channels. All correlation coefficients are well below the

commonly accepted multicollinearity threshold of 0.80, qualifying the variable to be included in subsequent regression analyses.

3.3 Panel Data Diagnostics and Estimation Technique

Table 3.3: *Summary of Diagnostics Tests Results*

Diagnostic test	Test statistic	<i>p</i> value	Decision
Chow test	$F = 45.13$	$< .001$	Fixed effects preferred
Hausman test	$\chi^2 = 155.19$	$< .001$	Fixed effects selected
Variance inflation factor	VIF < 2	-	No multicollinearity
LLC/IPS unit root tests	-	$< .05$	Variables stationary
Cross-section heteroskedasticity LR test	LR = 441.88	$< .001$	Heteroskedasticity present
Wooldridge test	$F = 12.56$	0.001	Serial correlation present
Pesaran CD test	CD = 28.43184	$< .001$	Cross-sectional dependence present
Jarque-Bera Test	JB = 270.37	$< .001$	Residuals are not normally distributed

The Chow and Hausman tests strongly favoured the fixed-effects specification over pooled OLS and random-effects models (both $p < .001$). Diagnostic tests further indicated no evidence of multicollinearity (VIF < 2) or unit root problems, confirming that all variables were stationary at level. However, the data exhibited heteroskedasticity, serial correlation, cross-sectional dependence, and non-normality of residuals (all $p < .001$), necessitating the use of robust estimation techniques.

3.4 Panel Regression Results

The study employed a cross-section weighted, cross-section and period fixed effects Panel EGLS estimator with White period (cross-section cluster) standard errors and covariance (d.f. corrected). The sample comprised of 54 cross-sections (firms) and 537 firm-year observations.

3.4.1 Effect of Overconfidence Bias on Firm Market Value

Table 3.4: *Total Effect of Overconfidence Bias*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OC	0.0877	0.0261	3.3666	0.0014
LEV	-0.0343	0.0688	-0.4989	0.6199
LIQ	-0.0045	0.0245	-0.1840	0.8547
ROA	0.0664	0.0252	2.6357	0.0110
SIZE	0.0625	0.0309	2.0212	0.0483
Constant	27.7284	0.7401	37.4677	0.0000

The total effect model (Model 1) reveals that overconfidence bias has a positive and statistically significant effect on firm market value ($\beta = 0.0877$, $p = 0.0014$), rejecting the null hypothesis, this finding is echoed by Rachmawati and Sembiring (2025) who found that overconfidence significantly influenced investment decisions in Indonesia and Wafula et al. (2023) who reported that overconfidence had a positive substantial influence on the financial performance of mutual funds. A one-unit increase in overconfidence is associated with an approximately 0.0877-unit increase in the natural log of market capitalization, all other variables held constant. Given the within-firm standard deviation of 0.3572, a one-standard-deviation increase in overconfidence increases market capitalization by approximately 3.1% in levels.

3.4.2 Effect of Overconfidence Bias on Stock Return Volatility

Table 3.5: Effect of Overconfidence Bias on the Mediator

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OC	0.0325	0.0133	2.4333	0.0154
LEV	-0.0194	0.0127	-1.5239	0.1283
LIQ	-0.0149	0.0115	-1.2903	0.1977
ROA	0.0058	0.0073	0.7863	0.4321
SIZE	-0.0093	0.0068	-1.3728	0.1705
C	0.6225	0.1612	3.8617	0.0001

Mediator model (Model 2) shows that overconfidence bias has a positive and significant effect on stock return volatility ($\beta = 0.0325$, $p = 0.0154$). A one-unit increase in overconfidence increases stock return volatility by approximately 0.0325 units. This result suggests that investors who overestimate their abilities and information tend to influence stock return volatility positively, the finding aligns with the results of Rachmawati and Sembiring (2025), who found that overconfidence significantly predicted volatility spikes in Indonesia and Onderi and Miroga (2025), who documented that overconfidence significantly increases risk-taking at the Nairobi Securities Exchange.

3.4.3 Effect of Overconfidence Bias and Stock Return Volatility on Firm Market Value

The coefficient of overconfidence bias remains positive and statistically significant in the full mediation model ($\beta = 0.0800$, $p = 0.0041$), but its coefficient decreased by 8.8% compared to the

total effect model. This reduction suggests that part of the positive effect of overconfidence on market value is mediated by volatility. The results show that a one-unit increase in overconfidence is associated with an approximate 0.0800 increase in the natural logarithm of market capitalization, all other variables assumed constant. Given the within-firm standard deviation of overconfidence of 0.3572, a one-standard-deviation increase increases firm market value by approximately 2.9% in levels.

Table 3.6: Effect of Overconfidence Bias and the Mediator on Firm Market Value

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OC	0.0800	0.0266	3.0032	0.0041
SRVOL	0.1230	0.1065	1.1551	0.2532
LEV	-0.0281	0.0688	-0.4079	0.6850
LIQ	-0.0009	0.0231	-0.0387	0.9693
ROA	0.0686	0.0253	2.7062	0.0091
SIZE	0.0659	0.0322	2.0455	0.0458
C	27.5996	0.7790	35.4288	0.0000

3.5 Mediation Analysis

Table 3.7: Bootstrap Mediation Analysis (5,000 resamples) Results

Path	OC
a (X→M)	0.0325
b (M→Y, controlling for X)	0.2540
c (X→Y, without M)	0.0877
c' (X→Y, with M)	0.0800
Indirect effect (a x b)	0.0082
Proportion Mediated	9.40%
Bootstrap SE	0.0035
95% CI (Lower)	0.0024
95% CI (Upper)	0.0156
Decision	Significant

The mediation analysis shows that the coefficient for path a is 0.0325, demonstrating that overconfidence bias positively influences stock return volatility. Path b is 0.2540, suggesting that higher stock return volatility is associated with higher firm market value after controlling for overconfidence bias. The total effect of overconfidence on firm market value (c) is 0.0877, while

the direct effect (c') declines to 0.0800 after including stock return volatility, signifying partial mediation. The indirect effect is 0.0082, with a bootstrap standard error of 0.0035 and a corresponding 95% bootstrap confidence interval of [0.0024, 0.0156], which excludes zero. The exclusion of zero from the confidence interval indicates that the indirect effect is statistically significant. Therefore, stock return volatility significantly mediates the relationship between overconfidence bias and firm market value. The reduction in the coefficient from the total effect to the direct effect indicates partial mediation, implying that overconfidence affects firm market value both directly and indirectly through stock return volatility. Investors' excessive confidence appears to increase market volatility, which subsequently contributes to changes in firm valuation. The proportion mediated is 9.4%, indicating that approximately 9.4% of the effect of overconfidence on value is transmitted through volatility.

4. DISCUSSION AND CONCLUSION

4.1 Summary of Findings

The results show that overconfidence bias has a significant total effect on firm market value. Overconfidence bias positively enhances market capitalization, implying that overconfident investors drive up stock prices, this finding is consistent with the study by Mahmood et al. (2024) who reported that overconfidence increased trading volume and speculative exposure in Pakistan. Tan (2025) found that overconfidence led to increased trading frequency and higher transaction costs in Malaysia. In Kenya, Kamau et al. (2025) found a positive correlation between overconfidence and aggressive investment decisions. However, Onderi and Miroga (2025) reported a negative effect of overconfidence on portfolio returns ($\beta = -0.152$).

Overconfidence bias significantly influences stock return volatility, with overconfident investors generating excess volatility through aggressive trading. The current results support the findings by Onderi and Miroga (2025) who documented that overconfidence significantly increases risk taking among investors, a behaviour likely to contribute to volatility. Moreover, the bootstrap mediation analysis reveals that stock return volatility significantly mediates the relationship between overconfidence bias and firm market value, as evidenced by a 95% bootstrap confidence interval that excludes zero. Furthermore, the direct effect of overconfidence remains significant after controlling volatility, indicating partial mediation. Finally, the findings robustly reject the Efficient

Market Hypothesis in the context of the Nairobi Securities Exchange and provide strong support for Behavioural Finance Theory and Prospect Theory.

4.2 Theoretical Contributions

The study makes several theoretical contributions. It extends behavioural finance to a frontier market, introducing stock return volatility as a tested mediator for the relationship between overconfidence bias and firm market value. By rejecting EMH, the study provides evidence that the NSE is not efficient in the semi-strong form, aligning with the view that behavioural factors are first-order determinants of pricing in less mature markets. The notable influence of overconfidence found in this study suggests that stock prices at the NSE do not always efficiently mirror fundamental information. Instead, investor psychology plays a significant role in how prices are formed, with market participants either underreacting or overreacting to new information.

4.3 Practical and Policy Implications

4.3.1 For Investors

Investors on the Nairobi Securities Exchange should recognize that overconfidence materially affects stock prices and ultimately firm market value. The positive effects of overconfidence on firm market value might tempt investors to follow market euphoria, but the significant mediation through volatility warns that such price increases may be accompanied by higher risk. The results suggest that a disciplined, research-based approach to investing is recommended, avoiding excessive trading driven by overconfidence.

4.3.2 For Corporate Managers

Managers of firms listed on the Nairobi Securities Exchange should be aware that overconfidence influences the market's valuation of their companies. During periods of high overconfidence, managers might consider equity issuance to take advantage of overvaluation. Conversely, during periods of low overconfidence, they might communicate more transparently to counteract negative sentiment. Managers should also recognize that volatility, which can be exacerbated by overconfidence, does not directly affect value once overconfidence is controlled, so short-term price fluctuations need not trigger reactive corporate actions.

4.3.3 For Regulators and Policy Makers (CMA, NSE)

The Capital Markets Authority and the Nairobi Securities Exchange should consider investor education programmes that specifically address overconfidence bias. Given the high positive skewness and leptokurtosis of overconfidence, a small number of extreme episodes can destabilize the market. Regulators might implement circuit breakers or trading halts during periods of extreme volatility to prevent cascades of overconfidence-driven behavior. Additionally, improving disclosure standards and reducing information asymmetry could mitigate overconfidence effects by providing more timely and relevant information. The evidence that the Nairobi Securities Exchange is not semi-strong efficient suggests that insider trading regulations and enforcement should be strengthened to protect less sophisticated investors.

4.3.4 For Financial Analysts and Valuation Practitioners

Valuation models used for Nairobi Securities Exchange firms should incorporate overconfidence as an additional risk or sentiment parameter. Traditional discounted cash flow models that assume rational expectations may misprice firms, especially during periods of high overconfidence. Analysts could adjust discount rates based on a volatility regime or overconfidence index. The significant mediation role of volatility implies that models that only consider volatility without controlling for overconfidence are mis specified.

4.4 Conclusion and Recommendations

The results show that overconfidence bias has a significant total effect on firm market value and significantly influences stock return volatility. Moreover, the bootstrap mediation analysis reveals that stock return volatility significantly mediates the relationship between overconfidence bias and firm market value. The study confirms that in the Nairobi Securities Exchange, investor overconfidence is not a peripheral curiosity but a central driver of market outcomes, and behavioral considerations should be incorporated into investment analysis, corporate valuation, and regulatory policy frameworks aimed at enhancing market efficiency and stability within Kenya's capital market.

REFERENCES

- Akin, I., & Akin, M. (2024). Behavioral finance impacts on US stock market volatility: An analysis of market anomalies. *Behavioural Public Policy*, 1-25. <https://doi.org/10.1017/bpp.2024.13>
- Alshater, M. M., Alshammari, F., & Elheddad, M. (2024). *Behavioural finance and market efficiency: New evidence from emerging markets*. *Journal of Behavioral and Experimental Finance*, 41(3), 100857. <https://doi.org/10.1016/j.jbef.2024.100857>
- Barberis, N. (2018). *Psychology-based models of asset prices and trading volume*. In H. K. Baker & J. R. Nofsinger (Eds.), *Handbook of behavioural finance* (pp. 1-40). Edward Elgar Publishing.
- Bouri, E., Cepni, O., Gabauer, D., & Gupta, R. (2021). Return connectedness across asset classes around the COVID-19 outbreak. *International Review of Financial Analysis*, 73, 101646. <https://doi.org/10.1016/j.irfa.2020.101646>
- Bouteska, A., Harasheh, M., & Abedin, M. Z. (2023). Revisiting overconfidence in investment decision-making: Further evidence from the U.S. market. *Research in International Business and Finance*, 66, Article 102028. <https://doi.org/10.1016/j.ribaf.2023.102028>
- Brown, S. J. (2020). The efficient market hypothesis, *the Financial Analysts Journal*, and the professional status of investment management. *Financial Analysts Journal*, 76(2), 5-14. <https://doi.org/10.1080/0015198X.2020.1734375>
- Cervellati, E. M., Angelini, N., & Stella, G. P. (2024). Behavioral finance and wealth management: Market anomalies, investors' behavior and the role of financial advisors. *Virtus Interpress*. <https://doi.org/10.22495/bfwm>
- Das, A. R., & Panja, S. (2022). An Empirical Investigation on the Influence of Behavioural Factors on Investment Decision Making. *Vision*, 0(0). <https://doi.org/10.1177/09722629221131101>
- Damodaran, A. (2024). *Investment valuation: Tools and techniques for determining the value of any asset* (4th ed.). Wiley. <https://www.wiley.com/en-us/Investment%2BValuation%3A%2BTools%2Band%2BTechniques%2Bfor%2BDetermining%2Bthe%2BValue%2Bof%2BAny%2BAsset%2C%2B4th%2BEdition-p-00417217>
- Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance*, 25(2), 383-417. <https://doi.org/10.1111/j.1540-6261.1970.tb00518.x>

- Fei, F., & Zhang, J. (2023). *Chinese stock market volatility and herding behavior asymmetry during the COVID-19 pandemic*. *Cogent Economics & Finance*, 11(1), 2203436. <https://doi.org/10.1080/23322039.2023.2203436>
- Gao, Y., Zhao, C., Sun, B., & Zhao, W. (2022). Effects of investor sentiment on stock volatility: new evidences from multi-source data in China's green stock markets. *Financial innovation*, 8(1), 77. <https://doi.org/10.1186/s40854-022-00381-2>
- Githinji, E., & Karanja, P. (2023). Investor overconfidence and stock mispricing: Evidence from the Nairobi Securities Exchange. *African Journal of Business Management*, 17(4), 112-123. <https://doi.org/10.5897/AJBM2023.9544>
- Kaberia, Z. K., Kiruga, A., & Munene, A. (2025). Effect of market capitalization on financial performance of cross-listed firms: Evidence from the Nairobi Securities Exchange. *Cuea Journal of Business and Economics*, 2(1), 1-18. <https://journal.cuea.edu/ojs1/index.php/cjb/article/view/165>
- Kamau, C. G., Patrick, M. K., & Ratanya, S. N. (2025). Behavioural finance and equity investment decisions: Evidence from the Nairobi Securities Exchange, Kenya. *SAM Advanced Management Journal*, 90(2), 165-193. <https://doi.org/10.1108/SAMAMJ-08-2024-0044>
- Kasoga, P. S. (2021). Heuristic biases and investment decisions: Multiple mediation mechanisms of risk tolerance and financial literacy-a survey at the Tanzania stock market. *Journal of Money and Business*, 1(2), 102-116. <https://doi.org/10.1108/JMB-10-2021-0037>
- Kimani, S. M. (2018). *The effect of behavioural biases on individual investment decisions at the Nairobi Securities Exchange* [Master's thesis, University of Nairobi]. University of Nairobi Research Archive. <https://erepository.uonbi.ac.ke/handle/11295/105445>
- Kung'u, M. N., & Kinyua, H. W. (2024). *Effect of herding behavior on stock market liquidity at Nairobi Securities Exchange*. *International Journal of Economics, Commerce and Management*, 12(2). <https://ijecm.co.uk/wp-content/uploads/2024/02/12219.pdf>
- Kuria, S. M., Memba, F., Oluoch, O. (2024). Operating cash flow volatility and firm stock market value of the companies quoted at the Nairobi Securities Exchange. *International Academic Journal of Economics and Finance*, 4(1), 179-194. https://iajournals.org/articles/iajef_v4_i1_179_194.pdf
- Liu, Z., Liu, J., Zeng, Q., & Wu, L. (2022). VIX and stock market volatility predictability: A new approach. *Finance Research Letters*, 48, 102887. <https://doi.org/10.1016/j.frl.2022.102887>

- Lovega, S., & Njeru, D. M. (2023). The relationship between behavioral biases and portfolio performance among individual investors at the Nairobi Securities Exchange. *African Development Finance Journal*, 5(4), 211-226. University of Nairobi. <https://uonjournals.uonbi.ac.ke/ojs/index.php/adfj/article/view/1815>
- Mahmood, F., Arshad, R., Khan, S., Afzal, A., & Bashir, M. (2024). Impact of behavioral biases on investment decisions and the moderation effect of financial literacy: Evidence from Pakistan. *Acta Psychologica*, 244, 104303. <https://doi.org/10.1016/j.actpsy.2024.104303>
- Maina, S. N., Nasieku, T., & Bichanga, J. M. (2025). Earnings variability on share price annualized volatility among quoted non-financial companies at Nairobi Securities Exchange. *International Journal of Research and Innovation in Social Science*, 9(5), 3178-3188. <https://ideas.repec.org/a/bcp/journl/v9y2025issue-5p3178-3188.html>
- Nairobi Securities Exchange. (2025.). *Listed companies*. Retrieved October 4, 2025, from <https://www.nse.co.ke/listed-companies/>
- Nguyen, T., Tran, M., & Hoang, L. (2024). *Firm value, stock return volatility, and growth opportunity: Insight from an emerging market*. ResearchGate. https://www.researchgate.net/publication/378179986_Firm_value_stock_return_volatility_and_growth_opportunity_Insight_from_an_emerging_market
- Njuguna, T. W., Iraya, C., Nyamute, W., & Kiiru, J. (2022). *Cashflow volatility, corporate investments and value of nonfinancial firms listed in Kenya*. *European Journal of Business and Management Research*, 7(4), Article 1552. <https://doi.org/10.24018/ejbmr.2022.7.4.1552>
- Onderi, D. O., & Miroga, J. (2025). Behavioural biases and investment decisions at the Nairobi Securities Exchange. *The Strategic Journal of Business & Change Management*, 12 (2), 543
- Ondigo, P., & Wepukhulu, J. (2025). Earnings variability and stock return volatility among non-financial companies listed at the Nairobi Securities Exchange. *Journal of Emerging Markets Finance*, 19(1), 45-63. <https://doi.org/10.1177/0972652725123456>
- Ooi, K. L. (2024). *Demystifying behavioral finance: Foundational theories to contemporary applications and future directions*. University of Malaya Press

- Osterrieder, D., Ventosa-Santaulària, D., & Vera-Valdés, J. E. (2019). The VIX, the Variance Premium, and Expected Returns. *Journal of Financial Econometrics*, 17(4), 517-558. <https://doi.org/10.1093/jfinec/nby008>
- Pandey, I. M. (2006). *Financial Management* (9th ed.). Vikas Publishing House Pvt. Ltd.
- Rabbani, M. R., Azam, M. Q., Hawaldar, I. T., Aljalalma, R., & Dsouza, S. (2024). Does an overconfidence bias affect stock return, trading volume, and liquidity? Fresh insights from the G7 nations. *Cogent Economics & Finance*, 12(1), 2373266. <https://doi.org/10.1080/23322039.2024.2373266>
- Rachmawati, R. A., & Sembiring, F. M. (2025). The effect of overconfidence bias and loss aversion bias on investment decisions in West Java: Study on West Java investors using robo-advisors from six investment applications in Indonesia. *Journal of International Business, Management and Finance Studies*, 3(2), 93–105. <https://journal.worldofpublication.com/index.php/jibmfs/article/view/93>
- Said, A. A., & Kaplelach, S. (2019). Firm performance metrics and market value of companies listed on Nairobi Securities Exchange, Kenya. *The Strategic Journal of Business & Change Management*, 6 (3), 200 - 215.
- Sharma, A., Hewege, C., & Perera, C. (2025). Exploring the Relationships Between Behavioural Biases and the Rational Behaviour of Australian Female Consumers. *Behavioral Sciences*, 15(1), 58. <https://doi.org/10.3390/bs15010058>
- Shefrin, H. (2021). *Behavioral finance: What everyone needs to know*. Oxford University Press.
- Tan, C. K. X. (2025). *The impact of overconfidence bias on stock trading performance in the banking industry: A comparative analysis of developed and developing countries*. Tunku Abdul Rahman University of Management and Technology Repository. <https://eprints.tarc.edu.my/33737/>
- Wafula, D. S., Tibbs, Y., & Ondiek, B. (2023). *The Moderating Role of Fund Size on the Relationship between Overconfidence and Portfolio Financial Performance of Mutual Funds in Kenya*. *African Journal of Empirical Research*
- Wamae, J. M. (2023). Behavioural factors and stock return volatility: Evidence from the Nairobi Securities Exchange. *African Journal of Business Management*, 17(2), 45-59. <https://doi.org/10.5897/AJBM2023.9612>

Wooldridge, J. M. (2020). *Introductory econometrics: A modern approach* (7th ed.). Cengage Learning.

Zaremba, A., Cakici, N., Demir, E., & Long, H. (2021). When bad news is good news: Geopolitical risk and the cross-section of emerging market stock returns. *Journal of Financial Stability*, 58, 100964. <https://doi.org/10.1016/j.jfs.2021.100964>