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Earnings Variability on Share Price Annualized Volatility among Quoted Non-Financial Companies at Nairobi Securities Exchange

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ABSTRACT

The study examined the effect of earnings variability on share price annualized volatility among non-financial companies quoted at Nairobi Securities Exchange. Earnings variability is a situation where there is a fluctuating pattern of a company's net income or earnings per share (EPS) during a given period of time. The study was guided by pragmatic research philosophy and adopted a quantitative research design to evaluate earnings variability and share price annualized volatility among quoted non-financial firms at Nairobi securities exchange. A census study of 39 non -financial companies quoted at the NSE was employed, of which 33 met data requirements. The study used secondary data from audited annual financial reports of the quoted firms for twenty years, from January 2003 through December 2022. The data collected was analysed using descriptive and inferential statistics. The hypothesis that earnings variability had no significant effect on share price annualized volatility among quoted non-financial companies at Nairobi Securities Exchange was tested at a 95% confidence interval using t-statistic and p-value. The study used panel data Ordinary Least Square method technique for research analysis. Panel regression analysis using random effects model was conducted after necessary normality, model specification, homoscedasticity, linearity and autocorrelation diagnostic tests. Findings show that earnings variability had no significant effect (p = 0.843, $r^2 \approx 0.000$) on share price annualized volatility, among quoted non-financial firms at the Nairobi Securities Exchange.

Keywords: Earnings Variability, share price annualized volatility, Nairobi Securities Exchange, Quoted Non-Financial Companies

INTRODUCTION

Background to the study

Earnings variability is a situation where there is a fluctuating pattern of a company's net income or earnings per share (EPS) during a given period of time (Hanifah, 2019). Insiders can hide a firm's economic performance change using operating decisions and financial reporting aspects. Moreover, they are capable of using accounting discretion to cover economic shocks to the cash flow of a firm. For instance, they may delay the reporting of current costs to hide poor current performance or accelerate the reporting of future revenues. Evidently by engaging in such practices the share price performance is affected, which in turn affects decision making by the users of accounting information.

Investors depend on accounting information in their pricing of shares and companies which provide good quality information have thus an advantage in a lower cost of capital. Thus, an investigation of earnings variability and share price volatility focusing on the quoted non-financial firms is an important matter for developing countries





like Kenya. Therefore, this study sought to evaluate the effect of earnings variability on share price annualized volatility among non-financial companies listed at Nairobi Securities Exchange.

Statement of the Problem

Nairobi securities exchange has been performing well since the automation of NSE activities in 2004 as evidenced by the NSE 20 share index which increased from 2,738 in 2004 to 5,444 in 2007 before the decline in 2009 and bouncing back to better performance in 2012 at 6,173(NSE,2023) This has been brought about by the increase in companies issuing initial public offers and rights issues, which has given investors more opportunities to invest. The trading experts and specialists in the companies whose stocks are listed have been concentrating on building the markets for their securities. Stability in the stock's performance is highly desirable in all companies.

However, the shares prices at the Nairobi securities exchange have proved so versatile and non-stable. The investments in securities are too risky and hard to predict their future directions. According to behavioural theory of rational expectations, investors prefer low risk-low returns to high risk-high returns investments. This could be the reason behind unpopularity of securities market in Kenya. This study seeks to establish the effect of earning variability and share price annualized volatility among non-financial Companies listed at the Nairobi Securities Exchange. Scanty information is available in Kenya on the factors that influence the stock prices in the NSE, and how to interpret them and maybe the possible reactions to shield the investors and the traders from losses.

Research Objective

The objective of the study was to evaluate the effect of earnings variability on share price annualized volatility among quoted non-financial companies at Nairobi Securities Exchange.

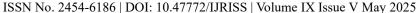
Research Hypothesis

The study research hypothesis was: H₀₁: There is no significant effect of earnings variability on share price annualized volatility among quoted non-financial companies at Nairobi Securities Exchange.

LITERATURE REVIEW

The study is anchored on efficient market hypothesis theory to explain the hypothesis of the study. According to Fama(1970) stock prices are a reflection of all available information in the capital market according to Fama, (1970) and are traded at their fair value at all times making it impossible to choose stocks that will beat the returns of the overall market. This theory was pioneered Miller and Modigliani (1961) and it indicates that the expected future cash flow patterns and not the historical ones affect the current price of equity securities of the relevant firm under consideration. According to the theory, the observed price of a share in the stock market is a direct reflection of the projected cash flows from the operations of the business. It asserts that the share price of a company is accordingly equivalent to the discounted value of the expected future cash flows per share from the operations of that business. This theory is therefore relevant and therein linked to earnings variability because of the nature of earnings and share prices fluctuating in the long term and the extent to which they vary from one period to another.

From an empirical perspective earnings variability is a circumstance where there is a declining pattern of the net income earnings of a company or the earnings per share (EPS) in a period of time. Firm managers may use discretionary accounting practices to smooth earnings, masking poor performance by accelerating revenues or deferring costs, often to maintain investor confidence. Several studies such as Shubita, 2015; Manukaji, 2018; Ronen and Yauri, 2008 suggest firms' smooth earnings to stabilize perceived performance and enhance share value, increasing market return expectations. The primary motivation for this practice is risk reduction. Alexandri and Anjani (2014), and later Markarian and Albornoz (2017), found that income smoothing, particularly through managerial discretion, is positively associated with idiosyncratic volatility, affecting stock return risk and job security.





Visaltanachoti and Pukthuanthong (2009) analyzed data from 38 countries using capital asset pricing model (CAPM) to evaluate the pricing of idiosyncratic risk. Only two countries showed a positive link between idiosyncratic risk and stock returns, suggesting that such risk is generally not priced into markets. Batram (2011) concluded that CAPM fails to account for a significant portion of stock return volatility, which may be due to private information or irrational market behavior.

The foregoing theoretical and empirical literature review culminates in a conceptual framework as shown in figure 1 below:

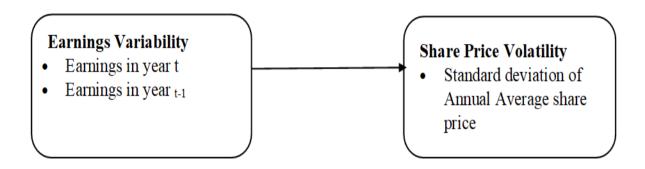


Figure 1: Conceptual Framework (Source, Author, 2025)

RESEARCH METHODOLOGY

The study was guided by pragmatic research philosophy and adopted a quantitative research design to evaluate earnings variability and share price annualized volatility among quoted non-financial firms at Nairobi securities exchange. A census study of 39 non-financial companies quoted at the NSE was employed, of which 33 met data requirements. The study used secondary data from audited annual financial reports of the quoted firms for twenty years, from January 2003 through December 2022. The data collected using a data collection schedule was analysed using descriptive and inferential statistics.

A panel regression model was employed to test the effect of earnings variability on share price annualized volatility among quoted non-financial companies at Nairobi Securities Exchange as follows:

$$SPAV_{i,t} = \alpha_{i,t} + \beta_1 X_{1i,t} + \varepsilon_{i,t}$$

Where: SPAV i,t = Share price annualized volatility, α = Constant term; $X_{1i,t}$ = Earnings variability for firm i at time t; β_1 = Regression coefficient; i = 1,2,3....33 Firms listed at Nairobi Securities Exchange; t = Refers to the time in years from the year 2003 to 2022 and $\varepsilon_{i,t}$ = Error term.

The study tested the hypothesis that earnings variability had no significant effect on share price annualized volatility among quoted non-financial companies at Nairobi Securities Exchange at a 95% confidence interval using t-statistic and p-value.

FINDINGS AND DISCUSSIONS

The study examined the effect of earnings variability on share price annualized volatility for non-financial firms quoted on NSE.

Summary of Descriptive Statistics for Earnings Variability

The table 1 below shows summary statistics for earnings variability. It contains the basic features of the data trends which comprised the means, standard deviation, standard errors, maximum and minimum values computed for earnings variability variable.



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Table 1: Summary Statistics for Earnings Variability

EAR	EARNINGS VARIABILITY									
Year	Mean	Std	Min	25%	50%	75%	Max			
2003	407519.37	769181.91	-18961.00	17959.00	88174.00	293795.75	3584465.00			
2004	260451.63	843382.25	-1629316.00	-11163.50	47949.50	292664.25	3912000.00			
2005	179751.23	456848.21	-329404.00	-25342.50	63663.00	276198.25	1694000.00			
2006	52123.27	627208.87	-2600851.00	-13463.00	47218.00	171043.00	1536000.00			
2007	-127412.88	2044651.72	-9829444.00	-162858.00	9888.00	204317.00	3783578.00			
2008	91994.18	816601.60	-1151737.00	-65121.00	6277.00	155004.00	3646000.00			
2009	-279984.94	3157418.50	-16530998.00	-32326.00	54894.50	360603.75	6435337.00			
2010	717621.79	3018129.38	-4875992.00	24464.00	154865.00	563625.00	15716428.00			
2011	-97555.65	5318801.86	-18175687.00	-267105.25	10120.50	153635.25	20579935.00			
2012	-410775.29	2867152.15	-10318000.00	-112582.50	34296.00	225088.00	6948837.00			
2013	604610.00	2106665.46	-1117038.00	-142045.50	-57399.00	76084.00	8055873.00			
2014	-240865.15	3346373.36	-13612000.00	-618662.00	3048.00	191604.50	10464933.00			
2015	1888817.24	5897243.45	-1466466.00	-170159.50	5463.00	618102.00	31156179.00			
2016	-336182.38	3634095.20	-8646873.00	-581378.75	-83983.00	70922.50	15251661.00			
2017	-127120.00	2053335.31	-4601443.00	-446635.00	-18566.00	131656.00	8890612.00			
2018	767857.85	2261717.47	-1384837.00	-210027.75	50655.50	386805.25	9707000.00			
2019	37158.49	1941273.18	-4280058.44	-48675.75	0.00	6123.50	8982128.67			
2020	-843726.43	3433264.60	-13362021.75	-776002.15	0.00	131290.42	4868343.67			
2021	408547.24	6532273.85	-12416988.19	-426846.00	0.00	433485.50	30774294.37			
2022	-3376130.60	16954877.01	-88973000.00	-1058895.65	-301867.00	489525.47	15390634.89			

Earn	Earnings Variability									
Year	Skewness	Kurtosis	Variance	CI Lower	CI Upper	Range				
2003	2.7707	8.0151	5.9164	120302.12	694736.61	3603426.00				
2004	2.5688	10.6221	7.1129	-54472.48	575375.74	5541316.00				
2005	1.9208	3.4447	2.0871	9161.31	350341.16	2023404.00				
2006	-1.6000	9.3472	3.9339	-170275.33	274521.86	4136851.00				
2007	-3.2153	14.0704	4.1806	-852414.85	597589.10	13613022.00				
2008	2.8828	10.1985	6.6684	-197560.16	381548.52	4797737.00				
2009	-3.9013	19.5613	9.9693	-1381660.34	821690.46	22966335.00				



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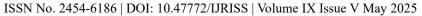
2010	3.7393	17.1168	9.1091	-352560.36	1787803.93	20592420.00
2011	0.5040	8.6932	2.8290	-1953373.35	1758262.05	38755622.00
2012	-1.3248	4.7783	8.2206	-1395676.51	574125.94	17266837.00
2013	2.4885	5.0032	4.4380	-119054.90	1328274.90	9172911.00
2014	-0.9654	8.2439	1.1198	-1390384.62	908654.32	24076933.00
2015	3.8687	15.7883	3.4777	-136956.76	3914591.24	32622645.00
2016	1.8499	9.0733	1.3207	-1604178.14	931813.38	23898534.00
2017	2.1300	10.0705	4.2162	-855201.04	600961.04	13492055.00
2018	2.5842	6.5721	5.1154	-47578.25	1583293.96	11091837.00
2019	2.7706	13.6628	3.7685	-674906.26	749223.24	13262187.11
2020	-2.3300	5.9975	1.1787	-2125728.50	438275.64	18230365.42
2021	3.0105	13.8515	4.2671	-1987510.15	2804604.64	43191282.56
2022	-4.3151	19.4729	2.8747	-9595229.70	2842968.49	104363634.89

Summary of Descriptive Statistics for Share Price Annualized Volatility

Table 2 below shows the summary statistics for share price annualized volatility.

Table 2: Summary Statistics for share price annualized volatility

	SPAV						
Year	Mean	Std	Min	25%	50%	75%	Max
2003	0.51079	0.42960	0.01935	0.10258	0.50326	0.80027	1.44322
2004	0.42069	0.29949	0.02175	0.12882	0.44186	0.61810	1.02317
2005	0.31817	0.26333	0.01596	0.09658	0.25868	0.49196	0.92264
2006	0.44519	0.40200	0.02057	0.12891	0.37022	0.53812	1.72132
2007	0.46142	0.30541	0.01917	0.25494	0.45565	0.63679	1.31712
2008	0.49539	0.31721	0.01478	0.22553	0.42484	0.63668	1.22734
2009	0.50284	0.29012	0.01011	0.30251	0.49628	0.67814	1.10638
2010	0.34483	0.38112	0.01482	0.04845	0.12492	0.53562	1.14286
2011	0.34288	0.36474	0.00448	0.04226	0.09924	0.67758	1.14081
2012	0.31280	0.33343	0.01401	0.03397	0.11446	0.53435	1.05688
2013	0.29824	0.33293	0.00889	0.03976	0.10491	0.49810	1.09795
2014	0.33843	0.36334	0.01650	0.05145	0.11602	0.53460	1.09672
2015	0.32643	0.35045	0.01334	0.04054	0.09029	0.61156	1.09987
2016	0.30039	0.37816	0.00771	0.02328	0.04836	0.51269	1.16667
2017	0.28125	0.31492	0.00639	0.02321	0.07038	0.56757	1.09571





SPA	V			<u>I</u>			
2022	0.342609	0.25405	0.011041	0.175837	0.345358	0.471737	1.380282
2021	0.389653	0.328384	0.004826	0.234259	0.298429	0.436355	1.68932
2020	0.67484	0.37005	0.07249	0.48036	0.59959	0.79027	1.68932
2019	0.25544	0.35982	0.00265	0.01497	0.04701	0.39503	1.68860
2018	0.24304	0.38863	0.00265	0.02604	0.07784	0.22010	1.85779

Skewness	Kurtosis	Variance	CI Lower	CI Upper	Range
0.5753	-0.8238	0.1846	0.3504	0.6712	1.4239
0.2632	-1.0471	0.0897	0.3089	0.5325	1.0014
0.7065	-0.5129	0.0693	0.2198	0.4165	0.9067
1.6142	2.6229	0.1616	0.3026	0.5877	1.7008
0.5967	0.3821	0.0933	0.3531	0.5697	1.2980
0.4877	-0.5350	0.1006	0.3829	0.6079	1.2126
0.1859	-0.4655	0.0842	0.4016	0.6041	1.0963
0.9600	-0.4741	0.1453	0.2097	0.4800	1.1280
0.7271	-0.9093	0.1330	0.2156	0.4701	1.1363
0.8458	-0.5760	0.1112	0.1983	0.4273	1.0429
0.9605	-0.4423	0.1108	0.1839	0.4126	1.0891
0.8867	-0.6698	0.1320	0.2136	0.4632	1.0802
0.7671	-0.8584	0.1228	0.2060	0.4468	1.0865
1.0535	-0.2645	0.1430	0.1684	0.4323	1.1590
0.8619	-0.4162	0.0992	0.1696	0.3929	1.0893
2.6429	7.5806	0.1510	0.1029	0.3832	1.8551
2.2617	6.1492	0.1295	0.1235	0.3874	1.6860
0.9490	1.0626	0.1369	0.5367	0.8130	1.6168
2.4056	6.5312	0.1078	0.2692	0.5101	1.6845
2.1284	6.9874	0.0645	0.2494	0.4358	1.3692
	0.5753 0.2632 0.7065 1.6142 0.5967 0.4877 0.1859 0.9600 0.7271 0.8458 0.9605 0.8867 0.7671 1.0535 0.8619 2.6429 2.2617 0.9490 2.4056	0.5753 -0.8238 0.2632 -1.0471 0.7065 -0.5129 1.6142 2.6229 0.5967 0.3821 0.4877 -0.5350 0.1859 -0.4655 0.9600 -0.4741 0.7271 -0.9093 0.8458 -0.5760 0.9605 -0.4423 0.8867 -0.6698 0.7671 -0.8584 1.0535 -0.2645 0.8619 -0.4162 2.6429 7.5806 2.2617 6.1492 0.9490 1.0626 2.4056 6.5312	0.5753 -0.8238 0.1846 0.2632 -1.0471 0.0897 0.7065 -0.5129 0.0693 1.6142 2.6229 0.1616 0.5967 0.3821 0.0933 0.4877 -0.5350 0.1006 0.1859 -0.4655 0.0842 0.9600 -0.4741 0.1453 0.7271 -0.9093 0.1330 0.8458 -0.5760 0.1112 0.9605 -0.4423 0.1108 0.8867 -0.6698 0.1320 0.7671 -0.8584 0.1228 1.0535 -0.2645 0.1430 0.8619 -0.4162 0.0992 2.6429 7.5806 0.1510 2.2617 6.1492 0.1295 0.9490 1.0626 0.1369 2.4056 6.5312 0.1078	Skewness Kurtosis Variance Lower 0.5753 -0.8238 0.1846 0.3504 0.2632 -1.0471 0.0897 0.3089 0.7065 -0.5129 0.0693 0.2198 1.6142 2.6229 0.1616 0.3026 0.5967 0.3821 0.0933 0.3531 0.4877 -0.5350 0.1006 0.3829 0.1859 -0.4655 0.0842 0.4016 0.9600 -0.4741 0.1453 0.2097 0.7271 -0.9093 0.1330 0.2156 0.8458 -0.5760 0.1112 0.1983 0.9605 -0.4423 0.1108 0.1839 0.8867 -0.6698 0.1320 0.2136 0.7671 -0.8584 0.1228 0.2060 1.0535 -0.2645 0.1430 0.1684 0.8619 -0.4162 0.0992 0.1696 2.6429 7.5806 0.1510 0.1029 2.2617 6.1492 0.1295	Skewness Rurtosis Variance Lower Upper 0.5753 -0.8238 0.1846 0.3504 0.6712 0.2632 -1.0471 0.0897 0.3089 0.5325 0.7065 -0.5129 0.0693 0.2198 0.4165 1.6142 2.6229 0.1616 0.3026 0.5877 0.5967 0.3821 0.0933 0.3531 0.5697 0.4877 -0.5350 0.1006 0.3829 0.6079 0.1859 -0.4655 0.0842 0.4016 0.6041 0.9600 -0.4741 0.1453 0.2097 0.4800 0.7271 -0.9093 0.1330 0.2156 0.4701 0.8458 -0.5760 0.1112 0.1983 0.4273 0.9605 -0.4423 0.1108 0.1839 0.4126 0.8867 -0.6698 0.1320 0.2136 0.4632 0.7671 -0.8584 0.1228 0.2060 0.4468 1.0535 -0.2645 0.1430 0.1684

Correlation Analysis

The data was subjected to correlation analysis to test for highly correlated variables. Table 3 below shows correlation coefficients results.

Table 3: Correlation coefficients results

	SPAV	Earnings Variability
SPAV	1.0000	0.0078
Earnings Variability	0.0078	1.0000

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The results in Table 3 show that earnings variability had a correlation coefficient of 0.0078 which was significant and indicates that there was a weak or negligible correlation between earnings variability on share price annualized volatility among quoted non-financial companies at Nairobi Securities Exchange. This meant that a decrease in earnings variability would lead to a decreased share price annualized volatility meaning that earnings variability has almost no relationship with share price annualized volatility.

Diagnostic Tests

Test of Normality

Table 4 Normality Test

ADF TEST RESULTS (MEASURE OF UNIT ROOT TEST)								
	ADF Statistic	p- value	1% Critical Value	5% Critical Value	10% Critical Value	Stationary		
Earnings Variability	-7.6605	0.0000	-3.4407	-2.8661	-2.5692	Yes		
SPAV	-4.8996	0.0000	-3.4408	-2.8661	-2.5692	Yes		

Table 4 shows the results of the Augmented Dickey-Fuller (ADF) test which indicate whether the data in each column is stationary or non-stationary. For earnings variability the ADF Statistic was -7.6605, while the p-value was $1.69\times10-111.69$ \times $10^{4}-11$ 1. It suggests strong evidence of stationarity meaning earnings variability is consistent over time. The share price annualized volatility ADF Statistic value was -4.8996, while the p-value was $3.49\times10-53.49$ \times $10^{4}-53.49\times10-5$, implying that the data was stationary at all significance levels, meaning that the variable is consistent over time.

Multicollinearity Test

The tolerance and variance inflation factor (VIF) values were calculated to assess the multicollinearity among the independent variables. Table 5 below presents the results of the analysis.

Table 5: Bivariate Regression

Bivariate Regression Results with SPAV as the Dependent Variable:							
Independent Variable Coefficient Intercept R-squared P-value							
Earnings Variability 5.6800 0.3784 0.0001 0.8426							

Earnings Variability show weak correlations with share price annualized volatility because of the (high p-values).

Test for Stationarity - Unit Root Test

The study tested stationarity to establish whether the models contained spurious regression.

Table 6: Unit Root Test

ADF TEST RESULTS (MEASURE OF UNIT ROOT TEST)								
	ADF Statistic	p- value	1% Critical Value	5% Critical Value	10% Critical Value	Stationary		
Earnings Variability	-7.6605	0.0000	-3.4407	-2.8661	-2.5692	Yes		
SPAV	-4.8996	0.0000	-3.4408	-2.8661	-2.5692	Yes		





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Table 6 shows earnings variability ADF Statistic is -7.6605, with a p-value of 1.69×10⁻¹¹. This indicates strong evidence of stationarity, meaning that earnings variability remains consistent over time. Share Price Annualized Volatility ADF Statistic is -4.8996, with a p-value of 3.49×10⁻⁵. This indicates that the data is stationary across all significance levels, meaning it remains stable over time.

Table 7: Granger causality test

	Lag 1 P-value		Granger Causal?
Earnings Variability	0.4556	0.7674	False

Table 7 shows that the Granger causality test results for earnings variability can predict SPV because p-values are greater than 0.05). This means that looking at past values of these variables does not help in forecasting future SPAV.

Co-integration Test

Table 8: Co-integration test Engle-Granger Test

Cointegration Test Results (Engle-Granger Test)							
Independent Variable	Independent Variable Test Statistic P-value 10% Critical Value 5% Critical Value 1% Critical Value						
Earnings Variability -4.90 0.00025 -3.051 -3.346 -3.913							

The test statistics indicate values that are more negative than the critical thresholds at both the 5% and 1% significance levels. In addition, the P-values are notably low (<0.001), which provides strong evidence of cointegration. This finding suggests that long-term equilibrium relationships exist between SPAV and each of the independent variables. Long-term effects are examined using the Vector Error Correction Model (VECM) to identify the equilibrium relationship, while short-term effects are analysed through the Error Correction Model (ECM) to evaluate how SPV adjusts to deviations from the long-run equilibrium. Earnings Variability coefficient of -4.91e-06 with a p-value less than 0.001 signifies a significant negative long-term impact on SPAV. Earnings Variability shows a significant short-term influence on the moderating variable, with a p-value of less than 0.001. Earnings Variability significantly impact SPAV in the long term.

Hausman Test for Model Suitability

The study used panel data to carry out the research analysis for 20 years starting from 2003 to 2022. Based on the outcome of the Hausman specification test, the study therefore used the random effects model. Table 9 summarizes the results of the Hausman test:

Table 9: Hausman Test – effect of earnings quality on share price annualized volatility

HAUSMAN STATISTIC (HHH):			
	Fixed Effects Coefficients	Std. Error	P-Value
Intercept	0.28104313	0.028839928	5.00063E-21
Earnings Variability	5.51277E-10	2.83168E-09	0.845703089

Homoscedasticity Test Results

To test for homoscedasticity (variance of the error term is expected to be constant), Breusch-Pagan-Godfrey heteroscedasticity test type was employed for detecting heteroscedasticity. The null hypothesis for the test is: There is homoscedasticity and the alternative hypothesis is: There is heteroscedasticity. The significance level



of 5% is commonly used for this test. The outcome of the test as shown in Table 10 was based on the pooled unstructured/undated data loading option (of Python).

Table 10: Homoscedasticity Test Results

Model	Adjusted R ²	Earnings Variability (p-value)	Condition Number
Robust Standard Errors (HC3)	0.03	0.00	531067928.7
Weighted Least Squares (WLS)	0.74	0.00	267244260.3

Homoscedasticity test results for the Breusch-pagan test p-value = 0.0037, therefore since the p-value is less than 0.05, we reject the null hypothesis of homoscedasticity. This suggests that heteroscedasticity is present in the data. The results of the white's test p-value = 1.0. Since the p-value is very high (greater than 0.05), we fail to reject the null hypothesis of homoscedasticity. This suggests no strong evidence of heteroscedasticity under white's test. The Breusch-Pagan test suggests heteroscedasticity (variance of residuals is not constant). However, White's test does not confirm this, indicating mixed evidence. If heteroscedasticity is a concern, potential solutions include log transformation of variables, weighted least squares (WLS), and using robust standard errors. Robust standard errors were applied to correct for heteroscedasticity in the regression model. For the robust standard errors (HC3) model, the adjusted R² was 0.032, indicating that the model explains only 3.2% of the variance in the dependent variable. Earnings variability values were not significant. This suggests that while the model corrects for heteroscedasticity, it does not improve explanatory power. Additionally, the presence of multicollinearity (condition number = 5.31e+08) could be affecting the results. The WLS model, with an adjusted R² of 0.739, explains 73.9% of the variance in the dependent variable. This indicates that WLS significantly improves model fit. The weights adjusted for heteroscedasticity, leading to more reliable coefficient estimates.

Testing for Autocorrelation

The Durbin-Watson

Table 11: The Durbin-Watson results presented in a Data Frame:

Change in Reported Net Earnings Variable 2 (Earnings Variability)	1.797753
SPAV	0.374503

Table 11 shows that earnings variable results 0.37450 indicate strong positive autocorrelation, suggesting that residuals are not independent.

Panel Regression Results and Test for Hypothesis

Multivariate regression analysis was used to determine the influence of the earnings variability as specified by multiple regression model specified.

Table 12: Multi Regression Analysis

OLS Regression Result	s		
Dep. Variable:	SPAV	R-squared:	0.039
Model:	OLS	Adj.R-squared:	0.032
Method:	Least Squares	F-statistic:	5.236
Date:	Wed, 05 Mar 2025	Prob (F-statistic):	0.000101
Time:	19:58:25	Log-Likelihood:	-235.78

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No. Observations:	652	AIC:	483.6
Df Residuals:	646	BIC:	510.4
Df Model:	5		
Covariance Type:	nonrobust		
Coef	Std	Err	P> t
Const	0.2810	0.029	0.000
Earnings Variability	5.513e-10	2.83e-09	0.846
Omnibus:	96.140	Durbin-Watson:	
Prob (Omnibus):	0.000	Jarque-Bera (JB):	
Skew:	1.017	Prob (JB):	
Kurtosis:	4.012	Cond.No.	

Notes:

- [1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
- [2] The condition number is large, 5.31e+08. This might indicate that there are strong multicollinearity or other numerical problems.

The multivariate linear regression analysis in Table 12 shows that the model R- was 0.O39, which suggests that approximately 3.9% of the variance in share price annualized volatility among quoted non-financial companies at Nairobi Securities Exchange can be explained by the earnings variability. Adjusted R-Square: 0.039, meaning the model explains only 3.9% of the variance in share price annualized volatility and accounts for the number of predictors and indicates that the model is reasonably fit for prediction. The F-statistic = 5.236 (p = 0.000101), indicating the overall model is statistically significant, indicating that the variance explained by the model is not due to random chance and that the model is statistically significant, therefore, the model fits. This finding, therefore, confirms that the predictive power of the model and, therefore, valid interpretations can be obtained from it showing the relationships between the variables. Earnings variability is not a significant predictor in this model.

Hypothesis Testing of Earnings Variability on Share Price Annualized Volatility

Table 13: Regression Analysis

Variable	R-squared	Adj R-squared	p-value (Overall)
Earnings Variability	0.000	-0.001	0.843
Multivariate Model	0.0389514	0.031512944	0.000100883

The hypothesis of this study H_{01} stated that there is no significant effect of earnings variability on share price annualized volatility among quoted non-financial companies at the Nairobi securities exchange. The results in Table show that earnings variability had no significant effect (p = 0.843, $r^2 \approx 0.000$). This means that earnings variability had an $R^2 \approx 0.000$ signaling that there was no meaningful relationship while the p-value = 0.843 implied that there was no significant association with share prices annualized volatility among quoted non-financial companies at Nairobi securities exchange during the 20 years under investigation implying that the second hypothesis

CONCLUSIONS AND RECOMMENDATIONS

This study sought to establish the effect of earnings variability on share price annualized volatility among quoted





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non-financial firms at the Nairobi Securities Exchange. The study found no significant associations between earnings variability and share price annualized volatility among quoted non-financial companies at Nairobi Securities Exchange. In this study context it signifies that earnings variability has no significant influence on share price annualized volatility among quoted non-financial firms at the Nairobi Securities Exchange.

Therefore, the Nairobi Securities Exchange should develop earning variability reporting mechanisms which when listed in their websites and other publications, can aid the investors to tract the earnings variability of firms prior to making decisions about engagements with the firms' assets. An assessment of the reasons for variability should also be made available to the investors and the firms alike for improving decision-making.

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APPENDICES

1. Ethical Considerations

Ethical Approval: The study did not use any human subjects or animals hence ethical approval was not needed.

2. Conflict of Interest

There are no potential conflicts of interest present in this study.

3. Data Availability

All references have been provided.