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Idiosyncratic Volatility and Corporate External Financing Decision by Listed Companies in Kenya

Fredrick Olanga Wafula
Lecturer, Faculty of Business and Law, Department of Finance and Accounting,
Multimedia University of Kenya, Nairobi, Kenya

Abstract:
There is a massive evidence of irrationality and repeated errors in judgement by both investors and corporations in their quest to invest and access external financing respectively. Economic and finance theories for decades assumed that individuals are rational and optimal utility seekers, however the influence of this rationality of corporate external financing has not been well documented. Investor rationality assumes that when investors receive new information, they update their behaviour correctly and immediately in accordance to Bayes law. This study sought to establish the influence of idiosyncratic volatility on corporate external financing decisions by companies listed companies in Kenya. A sample of 53 listed companies was purposively drawn and data derived from Nairobi Security Exchange share indices and sampled companies' financial statements for a period of 10 years, from 2007 to 2016. The study used three proxies to measure external financing decision; Common equity offered (C.E), Straight Debt (S.D) and Covered Debt (C.D). Idiosyncratic volatility was measured by decomposing firms' stock return into three components the market wide volatility an industry specific, residual return volatility and a firm specific volatility. The Campbell, Lettau, Malkiel and Xu(CLMX) specification implicitly assumes that systematic risks are captured by industry returns and that firms have unit betas with respect to industry, this is relatively in agreement with CAPM framework. The study therefore followed the CAPM volatility decomposition framework where daily stock returns was used to construct the aggregate monthly idiosyncratic volatility time series. The results established that equity financing decision is influence negatively by one unit increase in idiosyncratic volatility relative to covered debt financing. Similarly straight debt financing is influenced positively by a single unit increase inidiosyncratic volatility relative to covered debt financing. Therefore as the idiosyncratic volatility increases by a unitary magnitude this has a significant influence on corporate external financing decision. The study therefore recommends that the managements of institutions wishing to source for financing externally should consider idiosyncratic volatility while making corporate external financing decision. This will enhance optimum corporate financing decision and solve most liquidity and financing issues faced by corporations in Kenya.

Keywords: *Idiosyncratic volatility, external financing decisions, listed companies*

1. Introduction

Inter-temporal trends in idiosyncratic volatility has been actively researched by many economists and finance practitioners, however the implications of idiosyncratic volatility for stock selection and asset allocation strategies have not been widely investigated. Portfolio managers even though they have little control over idiosyncratic volatility, they are critically affected by these trends because the efficacy of the factors used in their investment strategies varies with changes in idiosyncratic volatility(Brandt, Graham, Brav, & Kumar, 2009). The assumptions of investor rationality have been the predominant view within financial economics for the last two decades, however more recent studies from the field of behavioural finance suggested that information plays little or no role at all in many financial decisions making both at individual and corporate level (Elsas, Flannery, & Garfinkel, 2006).

Scholars have asserted that standard finance body of knowledge is built on the main pillars of the arbitrage principles of Miller and Modigliani, the Portfolio Principles of Markowitz, the Capital Asset Pricing theory of Sharpe, Lintner and Black, and the Option-Pricing theory of Black, Scholes and Merton. These approaches consider markets to be efficient, highly analytical and normative contrary to the reality. There are cases of irrationality in terms of investors' behaviour (Shefrin & Statman, 2011).The maintenance of an optimal external financing ratio is considered as one area where decision makers can influence the company's value and risk.

Maintaining optimal levels of debt and equity requires decision maker to constantly be in control of factors influencing external financing (Kamoto, 2014). However, even after decades of active theoretical and empirical research, idiosyncratic volatility influence on companies' external financing decision remains an elusive empirical question in corporate finance. The agency costs of risky debt includes asset substitution problem to the borrowers and under-investment problem. These two issues are enhanced when corporations are not acquainted with the investors' unmet demands and therefore having adverse effects on both the interest rate spread and corporations' investment opportunities (Landsman & Peasnell, 2008).

Kenyan companies in the last quarter of the decade have been experiencing financing and liquidity challenges. Listed companies like Kenya airways, Uchumi supermarket, Transcentury limited, Mumias Sugar Company, and Nakumatt Holdings once considered the largest retail store in sub-Saharan Africa, are among institutions facing financing and liquidity difficulties lately. The banking sector in Kenya traditionally over relied on customer deposits to finance their operations. This led to increased trend of high interest rate spread, leading to high cost of debt that resulted into enactment of legislation to cap the interest rate. The action of capping the interest charged has led to reduced profitability and decline in performance by the banking industry leading to an upsurge of branch closure(Olaka, 2017).

Momentous efforts to revive the ailing institutions in Kenyan has focused mostly on financial restructuring. However studies have shown that managers and practitioners lack adequate guidance on attaining optimal corporate financing decisions making(Wambui & Muturi, 2014). Behavioural finance and external financing issues have received substantial attention in developed economies, most of these behavioural finance empirical work however focuses on data derived from developed economies. These markets have many institutional similarities with developing economies however studies' applicability in developing markets such as Kenya has not been established. Studies done in Kenya have focused on the role of behavioural finance on investment decision making, little has been done on influence of investors behaviours on external financing decision in developing markets(Albring, Banyi, Dhaliwal, & Pereira, 2016).

Recent study by Nyamute, Lishenga, and Oloko (2015), considered investors' behaviour by looking at the effect of investor behaviour, demographic characteristic and investment style on portfolio performance, they however failed to consider whether these behaviour affects corporate external financing decision. There is limited studies addressing the idiosyncratic volatility and its influence on corporate external financing decision by listed companies in Kenya, hence this study sought to fill the existing gap. Consequently the following hypothesis was tested.

H_0: Idiosyncratic volatility does not significantly influence corporate external financing decision by listed companies in Kenya.

The paper is organized as follows: the next section (2) presents a literature review. Section 3 discusses the methodology. The empirical analysis and results are presented in section 4. Section 5 concludes the study and provides recommendation.

2. Literature Review

Portfolio theory posits that only systematic risk should be priced in equities because, in equilibrium, investors are expected to hold a portfolio of stocks to diversify away idiosyncratic risk. However, research shows that investors do not hold a diversified portfolio. Goetzmann and Kumar in 2008 surveyed more than 62,000 households and found that over 25% of them held only one stock and fewer than 10% held more than 10 stocks. Thus, investors are likely to demand a premium (compensation) for being under-diversified(Alexeev & Tapon, 2012). Merton in 1987indicated that, if the investor is not aware that diversifying assets exist, then the investor will require compensation for having "incomplete information." Therefore both under-diversification and the lack of knowledge of diversifying assets result in IVol being priced in the market(Khisa, 2015).

There are many reasons to expect aggregate volatility to be important in pricing, both for individual arbitrageurs who hedge individual stock risk as well in macro-modeling, where an increase in industry-level volatility has implications for productivity in a financial institution. (Campbell, 2014). Given the robustness of the evidence that investors are under-diversified, neither investors nor researchers can ignore the value-relevance of idiosyncratic risk. The traditional finance models describe rationality as a situation where investors' behaviour are correct and they make choices that are normatively acceptable and are consistent with the market trends. This is supported by standard finance theories that consider markets to be highly analytical as represented by the theoretical framework of efficient market hypothesis EMH, portfolio theory, the arbitrage principle, the capital asset pricing model and the Black-Scholes and Merton Option Pricing Model (Dempsey, 2014)

Thiagarajan and Li (2010), in their empirical study of idiosyncratic volatility in Asian markets looked at the implications of idiosyncratic volatility for stock selection and asset allocation strategies. They posits that portfolio managers, even though they have little control over idiosyncratic volatility, in aggregate they are critically affected by these trends. This is because the efficacy of the factors used in their investment strategies varies with changes in idiosyncratic volatility. Cross-sectional variations in idiosyncratic volatility (IVol) makes economically and statistically significant difference to the efficacy of the factors used in stock selection, thereby influencing the investment behaviour of both corporate and individual investors (Brandt et al., 2009)

Considering the temporal trends, Thiagarajan and Li, (2010) analysis posits that stock selection factors, particularly mean reversion, work much better during periods of low aggregate idiosyncratic volatility. The investors' heterogeneous behaviour can therefore be illustrated through idiosyncratic volatility. Studies done in developed and developing markets especially in European and Asian market posits that aggregate idiosyncratic volatility (IVol) and, more importantly, its impact on cross-sectional returns is a critical feature in financial economics and most investment analysts conjecture that IVol is an appropriate measure of investors heterogeneous behaviour in the market (Brandt et al., 2009).

3. Methodology

The study employed data derived from listed companies trading at Nairobi Security Exchange for 10 years. The period under study was 2007 to 2016 and the choice of the period was informed by the demutualization period that began in the year 2005. The data for IVol measurement was extracted from NSE database and published company financial reports. This study was anchored on a descriptive survey research design, whose objective is to portray an accurate profile of situation. Descriptive research design is usually structured and specifically designed to measure the characteristics described by the research questions of the study (Saunders, Lewis, & Thornhill, 2009).

The population size of the research was 67 companies, however some companies had been delisted, suspended, while others had been listed for less than five year. To enhance comparability, companies listed for less than 5 (five) years and those delisted and suspended from trading during the study period (2007-2016) were eliminated. The total number of firms eliminated was 14 companies, this accordingly resulted to a population of fifty three (53) companies. Secondary data on share prices and all share index returns (market return) was collected from trading counters at NSE.

3.1. Data Measurements

In measuring idiosyncratic volatility CLMX in 2001 built a simple insightful volatility decomposition framework where the volatility of the firm stock returns could be decomposed into three components the market wide volatility, an industry specific and residual return volatility and a firm specific IVol (Brandt et al., 2009). The CLMX specification implicitly assumes that systematic risks are captured by industry returns and that firms have unit betas with respect to industry, this is relatively in agreement with CAPM framework (Thiagarajan & Li, 2010). The study followed the CAPM volatility decomposition framework where daily stock returns was used to construct the aggregate monthly idiosyncratic volatility time series as shown in Table 1. The study endeavoured to calculate the stock's beta because studies have shown that it is only systematic risk that is rewarded, therefore need to test its relationship with the return of the same stocks.

This was based on the following CAPM formulae: $Rj=Rf + (Rm-Rf)\ \beta j$

Panel 1:- $\varepsilon jf = (R_s - R_f)$

Panel 2:- $\varepsilon mf = (Rm - R_f)$

Panel 3:- $\beta_j = \varepsilon jf / \varepsilon mf$

Variable	Proxy Definition	Measurement
	Input Measures	
Return on Industry Stock	$X_1 = R_S$	((Present Year Stock Price -Previous Year Stock Price)/Prev. Year Stock Price) + Dividend Yield
All Share Index Return	$X_2 = R_m$	(Present year Average Market Index-Previous year Average market Index)/Previous year Average Index
	Output Measures	
Market Deviation	$Y_1 = R_s - R_f$	Return on the Industry Stock -Risk Free rate of Return
Risk Premium	$Y_2 = R_m - R_f$	All Share Index Return – Risk Free Rate of Return
Beta coefficient	Y3 = Y1/Y2	(Market Deviation/Risk Premium)

Table 1: Idiosyncratic Volatility Measures

Source: (Brandt et al., 2009), (Thiagarajan & Li, 2010), and (Kirui, Wawire, & Onono, 2014)

Note: Where (Rs) is the return on the individual stock, the return of the individual stock was obtained by subtracting the previous year average stock price (P0) from the present year's average stock price (P_1) and dividing this with the previous year average stock price (Po) and adding the dividend yield (D_t) to obtain the percentage of the return. Similarly (Rm) is the return on the Nairobi Securities Exchange market all share index. The return of the Nairobi Securities Exchange market index was obtained by subtracting the previous year average market index (I_0) from the present year's average market index (I_1) and dividing this with the previous year's average market index (I_0) to obtain the percentage return. The results of the values determined above were used to determine idiosyncratic volatility(Beta) (β_j) as shown in panel 3.

3.2. Model Volatility

This study employed a multinomial logistic regression model in determining the influence of idiosyncratic volatility on corporate external financing decision. There is a continual emphasis among different scholars that regression methods have become integral component of any data analysis concerned with describing the relationship between a response variable and one or more explanatory variables (Landsman & Peasnell, 2008).

The study sought to make sure that during data analysis, non-violation of assumptions of the classical linear regression model (CLRM) was uphold before employing the multinomial logit model. Therefore the following diagnostic tests were conducted in order to ensure proper specification of models, these tests included: Factor Analysis, Hausman McFadden test for independence, test for correlation, test for normality, test for serial correlation, and test for stationarity (Guggenberger, 2010). The second section of the study sought to determine the likelihood of issuing covered debt versus common stocks and straight debt by running the multinomial logistic regression using the study models as shown below.

$$\Pr.(y = j) = \frac{exp(Zij)}{\sum_{j=i}^{n} \exp(zjk)} \quad \ldots\ldots (1)$$

Typically the normalization $\beta i = 0$ was made and this incorporated the independent variables used in the study. The regression coefficients β was interpreted as reflecting the effects of the covariates on the odds of making a given choice or on the underlying utilities of the various choices.

$$\Pr.(y = j) = \frac{exp(\theta Zi)}{\sum_{j=i}^{n} \exp(\theta zjk)} = \frac{1}{\sum_{j=1}^{n} (e^{(ST\beta 1+MPS\beta 2+IVol\beta 3+MC\beta 4.....\sigma)})} \quad \text{..... (2)}$$

The above model clearly satisfied the condition that Pi1 + Pi2 + _ + PiJ = 1 for all i = 1…….n.

$$Pr.(y = j) = \frac{1}{\sum_{j=1}^{n} e^{((\beta 1ST+\beta 2MPS+\beta 3EPS+\beta 4MC.....\sigma)+ \beta 6LR)}} \quad \text{..... (3)}$$

Where j = 1, 2, 3 stands for unordered choices for convertible offerings, straight bond offerings, and seasoned stock offerings, respectively. The vector of independent variables are proxies for the investor behaviours $\mathbf{Z_1}$ Idiosyncratic volatility (Beta), while controlling for other independent variables that included, Market Price per Share = $\mathbf{Z_2}$, Stock Turnover = $\mathbf{Z_3}$, Earnings per Share = $\mathbf{Z_4}$, Total Assets = $\mathbf{Z_5}$Market Capitalization = $\mathbf{Z_6}$ and Firm Leverage = Z_7, $\boldsymbol{\beta}$ = the constants for the independent variables.

4. Results and Discussion

Nairobi Security Exchange has a total of 11 sectors trading as shown in Table 2. The NSE's liquidity, market capitalization, and market turnover influenced its classification as both an emerging market and a frontier market in sub-Sahara Africa (Ayako, Kungu, & Githui, 2015). Three sectors dominates the NSE in terms of the number of companies listed at the NSE this includes the Commercial and Services, Banking and Manufacturing and Allied. Commercial and Services sector has the highest number of trading companies totalling twelve, data from seven companies under this sector was collected. Banking sector had 11 listed banks that had been listed for more than 5 years, therefore 100% response rate.

Sector at NSE	Data Collection		
	Target	Actual	Percentage (%)
Banking	11	11	100
Manufacturing and Allied	10	8	80
Insurance	6	5	83.33
Commercial and Services	12	7	83.33
Energy and Petroleum	5	4	80
Construction and Allied	5	5	100
Agricultural	6	6	100
Investment	5	3	60
Automobile and Accessories	3	3	100
Telecommunication and Technology	1	1	100
Real Estate Investment Trust	1	0	0
Investment Services	1	0	0
Exchange Traded Funds	1	0	0
Total	67	53	79.10

Table 2: Secondary Data Actual Response

Manufacturing sector has 10 listed companies and 80% were included in the study due to shorter listing period of two companies in this sector. Insurance sector has 6 listed companies one was excluded leaving 5 companies that formed 83% followed by Energy and Petroleum sector that has 5 trading companies. The Stanlib Fahari is the only trading company in REITs sector.

Real Estate Investment Trust was introduced in 2015 this was excluded from the study due to unavailability of data for more than five years. Financial and non-financial companies in Kenya have embraced equity external financing by floating common equity through IPO or by private introduction this has led to growth of the market for the last 10 years (CMA, 2017). The research focused on the secondary data collected from these institutions for a period of ten years (2007-2016).

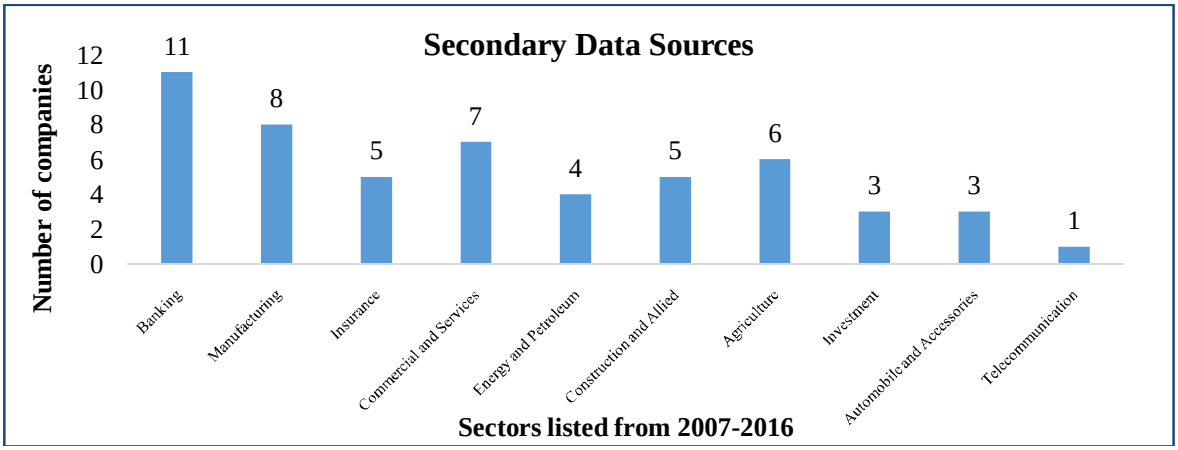

Figure 1: Corporates in sectors listed from 2007-2016

4.1. Descriptive Statistics

The overall average idiosyncratic volatility for the study period was 1.831098 with an overall standard deviation of 2.395529 and between the firms' standard deviation of 0.1342168 and within the firm's standard deviation of 2.39183 as shown in Table 4. High dispersion is attributed to stock volatility, influenced by investors' behaviour attributed to different economic and political situation. The year 2007/2008, 2012/2013 and 2016 experienced heightened political activities compounded by post-election violence in the year 2008 and drought that could have caused the high volatility rates (Ngumi, 2013). Individual investors tend to demonstrate herd behaviour because they follow the decisions of a large group or noise traders. Analysts may herd their past experiences/ decisions or imitate others to protect their reputational or compensation concern, this behaviours influence the idiosyncratic volatility leading to a huge dispersion as shown in Table 3.

Proxy Variable	Obs	Sum of Wgt	Mean	Std. Dev.	Variance
Idiosyncratic Volatility	530	530	1.831098	2.395529	5.738559

Table 3: Descriptive statistics for Heterogeneity of Investor Behaviours

Table 4 shows IVol. Interaction within the institution between institutions and overall market mean and standard deviations. This explains the extent to which IVol varies in overall in the market, within institution and between institutions. The high variance is attributed to fluctuation in the investors' behaviour during the study period. Barber and Odean, (2011) explained that investors with discount brokerage accounts become overconfident and engage in excess trading thereby leading to increased IVol. Overconfidence is a well-established and common bias that makes people too confident about their knowledge and skills and ignore the risk associated to investment.

Variable		Mean	Std. Dev.	Min	Max	Observations	
Idiosyncratic Volatility	Overall	1.831098	2.395529	6.920000	15.27000	N	530
	Between		.1342168	10.68400	11.25400	n	53
	Within		2.39183	7.133328	15.49913	T	10

Table 4: Panel Data Summary Statistics

4.2. Visual Plot

Figure 2 plots shows the shape of the idiosyncratic volatility curves over the study periods. The plots have a trend that is moving upwards, indicating that the idiosyncratic volatility had an upward trend over the study period 2007 to 2016. The peaks and troughs as indicated by the detrended plot gives an indication of investors Behaviours under varied economic and political conditions during the study period (Kumar & Goyal, 2016).

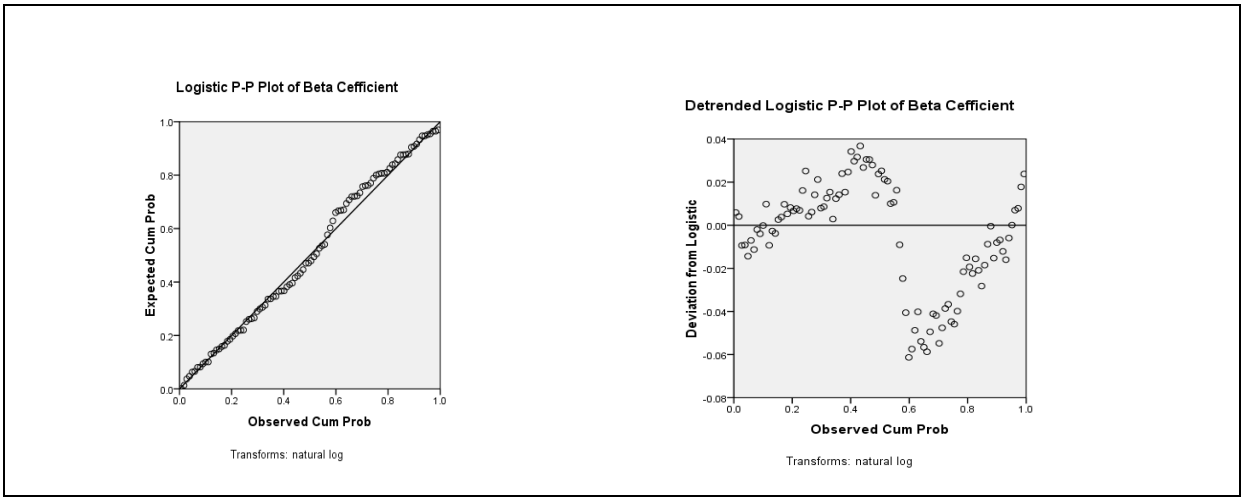

Figure 2: Idiosyncratic Volatility Visual Plots

4.3. Hausman Fixed-Random Effect Test

Hausman fixed-random effect test used tested the null hypothesis (H_o) that the preferred model is random effects and the alternative hypothesis (H_a) that the preferred model was fixed effects test. It was established as shown in Table 5 that the fixed effect was consistent and null hypothesis was rejected leading to acceptance of alternative hypothesis as shown in Table 5

Based on the rule of the thumb the Hausman-McFadden test probability > chi2 is less than 0.05 (significant) therefore fixed effect model was appropriate. This is because the chi square was determined as 0.0354indicating P<0.05 as shown in the Table 5. To test for IIA, Hausman and McFadden provide the following test statisticas shown in Table 5. The HM statistic confirmed the presence of IIA, therefore the disturbances are independent and homoscedastic. This was determined statistically using HM = chi^2 (N) = (b-B)'[(V_b-V_B)^(-1)](b-B). The guiding principle was that should the HM statistic indicate a rejection of the null hypothesis of IIA, then the

disturbances may not be independent and homoscedastic. Two-tail P-values test the hypothesis that each coefficient is different from 0. To reject this, the P-value has to be greater than 0.05.The higher the P-value the higher the relevance of the variable, therefore all the six independent variables were significant having their P> 0.05.All the independent variables were statistically significant with P ≥ 0.05

	Coefficients			
	(b) fixed	**(B) Random**	**(b-B) Difference**	**Sqrt(diag(v_b-v_B)) S.E**
Stock Turnover	-.0983643	-.0487824	-.049582	.0447153
Market Price Per Share	-.0008787	-.000098	-.0007808	.0003649
Earnings Per Share	.0028967	.0013602	.0015365	.0020304
Idiosyncratic Volatility	-.0037986	-.0046082	.0008096	.0017199
Total Assets	-.0239849	-.0612455	.0372607	.0817449
Market Capitalization	.0803126	.0720866	.008226	.0310631
LTDebt	.0236555	.0173968	.006259	.0269935
LTDebt:Equity Ratio	.0001447	-.0000771	.0002218	.0001682
chi2 (8) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 21.25 Prob > chi2 = 0.0354 If the Prob > chi2 is less than 0.05 (significant) then fixed effect model is used.				

Table 5: Hausman Fixed and Random Effect

4.4. Fixed Effect Test

Table 6 shows that the Prob > F is 0.000 indicating that the model is appropriate. This is an F test to see whether all the coefficients in the model are different than zero. The overall R-square of the fixed effect model was 0.0045 this indicates the amount of variance of Y explained by X. The coefficients of the regressors (coef.), varies across the independent variables as shown in Table 6. This indicated how much external financing decision changes when independent variable increases by one unit. Thet-values of the variables as shown in the table varies from -1.37 to 1.67. This tested the null hypothesis that each coefficient was different from 0. Table 6 indicates that the null hypothesis was accepted since to reject the null hypothesis the t-value had to be higher than 1.96 (for a 95% confidence).

			Number of Obs	= 530
Group variable: Company			Number of groups	= 53
R-Squared	Within	0.0379	Obs. Per group	Min = 10.0
	Between	0.0000		Avg = 10.0
	Overall	0.0045		Max = 10.0
			F(14, 52)	= 384.89
Corr (u_i, xb)	= -0.7454		Prob > F	= 0.000

External Financing Decision	Coef.	Std. Err	t	P > |t|	(95% Conf. Interval)	
Stock Turnover	-.0983643	.0593647	-1.37	0.475	-.215022	.0182933
Market Price Per Share	-.0008787	.0005249	-0.90	0.617	-.0019101	.0001526
Earnings Per Share	.0028967	.0025399	1.17	0.524	-.0020944	.0078878
Idiosyncratic Volatility	-.0037986	.0055422	-0.68	0.501	-.0146896	.0070924
Total Assets	-.0239849	.0985208	-0.22	0.829	-.2175883	.1696185
Market Capitalization	.0803126	.0493902	1.24	0.622	-.0167441	.1773693
LTDebt	.0236555	.0363077	0.76	0.548	-.0476928	.0950037
LTDebt:Equity	.0001447	.0002689	1.37	0.675	-.0003836	.0006731
_cons	4.918993	2.811487	1.67	0.102	-.6058616	10.44385
Sigma _ u	.42807465					
Sigma_ e	.74275771					
rho	.01564196					

Table 6: Fixed Effect (Within) Regression

4.5. Test for Correlation

The findings of the correlation analysis presented in the Table 7 indicates that the correlation coefficients were all significant with P-value less than 0.05. The findings indicates that idiosyncratic volatility was positively correlated to Market Price per Share with a correlation coefficient of 0.2147, signifying a weak correlation. Idiosyncratic volatility was positively correlated to Stock Turnover with a correlation coefficient of 0.0060. Idiosyncratic volatility was positively correlated to Earnings per Share with a correlation coefficient of 0.0579. The results also indicates that idiosyncratic volatility was positively correlated to Total Assets with a correlation coefficient of 0.0904. The correlation between Market capitalization and idiosyncratic volatility was positive with a correlation

coefficient 0.0641. The presence of a positive correlation coefficient indicates that as one variable gets larger the other also gets larger and a negative correlation coefficient indicates that as one variable gets smaller the other also gets small. The existence of a correlation coefficient of more than 0.8 between two independent variables, indicates the likelihood of occurrence of Multi-collinearity problem. Therefore from the findings in Table 7 there was no multicollinearity because all the independent variables had a correlation coefficient of less than 0.8 (Williams & Dame, 2015).

	Market Price per Share	Stock Turnover	Earnings Per Share	Total Assets	Idiosyncratic Volatility	Market Capitalization
Market Price per Share	1.0000 (0.0000)					
Stock Turnover	-0.1436 (0.0007)	1.0000 (0.0000)				
Earnings per Share	0.3495 (0.0310)	-0.1362 (0.0102)	1.0000 (0.0000)			
Total Assets	0.0601 (0.0022)	0.3669 (0.0011)	0.0092 (0.0061)	1.0000 (0.0013)		
Idiosyncratic Volatility	0.2147 (0.0000)	0.0060 (0.0000)	0.0579 (0.0000)	0.0904 (0.0000)	1.0000 (0.0000)	
Market Capitalization	0.2550 (0.0000)	0.2374 (0.0011)	0.1672 (0.0000)	0.3038 (0.0000)	0.0641 (0.0000)	1.0000 (0.0000)

Table 7: Correlation Coefficient Matrix for Independent Variables (P-value in parenthesis)

4.6. Test for Normality

Inferential statistics are meant to infer whether there is underlying relationship within the respective variables for purposes of sequential analysis. The dependent variable was subjected to normality to check whether the data provided was normally distributed or not. This was evaluated to test how far the data was normal to test for one sample Shapiro-Francia test (Garson, 2012).

For a linear model to fit to some given data, the dependent variable (heterogeneity of investors' behaviour) has to be normally distributed. Shapiro-Francia test is appropriate test for normality. The coefficient value W closer to 1 indicates that the data is normal. According to the findings in Table 9 the distribution of the correlation was strong as indicated by the clustering of **W** coefficient values just under 1.000. Indicating that the data is normally distributed.

Variable	Obs.	W	V	Z	Prob>z
Beta	530	0.85725	54.044	6.746	0.00001

Table 8: Shapiro-Francia W' Test for Normal Data

4.7. Test for Stationarity

The study employed Levin-Lin-Chu test, Harris-Tzavalis and Fisher-type based Dickey-Fuller test to test for stationarity of the panel data, the advantage of this tests is that it allows for unbalanced panels. The model was solved on the basis of Monte Carlo simulations in 1st difference.

$$Y_{i,t} = \alpha + piY_{i,t-1} \pm u_{i,t}$$

Where:

t = 1, 2. . . . . 10 years

i = 1, 2 . . . . . 53 Listed Companies

The null hypothesis (H0): pi = 1 was tested against the alternative hypothesis (H1): pi <1. If p = 1 this means the random observation y at time t is determined by the previous t -1 observation, if so a unit root exist and the data under consideration is nonstationary.

If pi < 1 this meant that the current observation of Yi,t was not dependent on the previous observation Yi,t-1 and the data is stationary. The tests on Table 10 are based Levin-Lin-Chu test, Harris-Tzavalis and Augmented Dickey and Fuller (ADF) tests. All these methods tested the same null hypothesis of non-stationarity [(H0): pi = 1;]. The results shown on Table 9 are based on Levin, Lin & Chu t (LLC), Harris-Tzavalis (HT) and Augmented Dickey and Fuller (ADF).However, irrespective of the test used, the analysis on Table 9 shows that the null hypothesis (the data is non-stationary and has a unit root) is strongly rejected. This means individually each company variable observation over 2007-2016 period is stationary and does not require any adjustments.

VARIABLE	TEST	STATISTICS (Adjusted)		Z	P - Value
Idiosyncratic Volatility	Levin-Lin-Chu	t	-29.9215		0.0000
	Harris-Tzavalis	Rho	-0.1970	-11.6602	0.0000
	Fisher type Based on Augmented Dickey-Fuller tests	P	256.5631		0.0000
		Z	-7.8883		0.0000
		L*	-8.9682		0.0000
		Pm	10.3407		0.0000

Table 9: Panel Unit Root Test Summary

Where P indicates the Inverse chi-squared (106), Z indicates the Inverse normal, L* indicates the Inverse logit t (269) and Pm indicates the Modified Inverse chi – squared.

4.8. Model Fit

To assess the model fit, goodness of fit statistics used included overall model chi-square, log-likelihood values, and pseudo- r2 values. These statistics provided evidence of a good model fit. The probability of the model chi-square of this study was 189.882 with a significant value of 0.009, less than the statistical level of significance of 0.05. These statistics provided evidence of a good model fit (Idowu, 2016).The maximum likelihood was used to find the function that maximizes the ability to predict the probability of external financing decision based on heterogeneity of investors' behaviour. The maximum likelihood determined the best values for multinomial logistic regression (Starkweather & Moske, 2005).

The study logistic regression, two hypotheses were of interest: the null hypothesis, which was that, all the coefficients in the regression equation take the value zero, and the alternate hypothesis that, the model with predictors currently under consideration is accurate and differs significantly from the null of zero, in other words gives significantly better than the chance or random prediction level of the null hypothesis. Model converge at $\chi^2 = 189.882$, P = 0.009 and a likelihood ratio of 906.016 as shown in Table 10.The Cox and Snell, Nagelkerke and McFadden Pseudo R square were determined and all gave an indication that the model was fit as shown in Table 10. The Cox and Snell coefficient was 0.406, Nagelkerke coefficient was 0.551 and McFadden Pseudo R square was found to be 0.377 as shown in Table 12 this indicates that the model is good fit.

Model	**Model Fitting Criteria**	**Likelihood Ratio Tests**		
	-2 Log Likelihood	Chi-Square	d.f	Sig.
Intercept Only	1.096E3			
Final	906.016	189.882	5	.009
Pseudo R-Squared				
Cox and Snell			.406	
Nagelkerke			.551	
McFadden			.377	

Table 10: Model Fitting Information

4.9. Hausman and Lemeshow Test for goodness of fit.

Hausman & Lemeshow test is an alternative to chi-square model used in logistic regression for testing the goodness of fit. A well-fitting model is one where the test statistic is greater than 0.05, the case where we fail to reject the null hypothesis that there is no difference between observed and model predicted values. Hausman and Lemeshow Test for goodness of fit performed to ascertain the model fit. Logistic regression uses the test as an alternative to chi-square for test of model significance. The model was deemed to have a good fit because the post estimation likelihood results were non-significant (Guggenberger, 2010). The results of this analysis show non-significance at a computed p-value of 0.536 hence greater than statistical p<0.05 as shown in Table 11. This indicates that the study failed to reject the null hypothesis H_0: There is no difference between observed and model predicted values. Therefore it was concluded that the research model has a good fit.

Post Estimation Likelihood Test		
Likelihood-ratio test	LR chi 2 (4) =	9.32
Assumption: - nested in full)	Prob > chi 2 =	0.536

Table 11: Hausman and Lemeshow test

4.10. Multinomial Regression Results

The regression result on the influence of Idiosyncratic Volatility on Corporate Equity Financing Decision by Listed Companies in Kenya had an Exp (B) value of 0.975which implies that a one unit increase in idiosyncratic volatilitydecreases the odds for equity financing decision relative to covered debt financing decision. The corporate common Equity financing decision is therefore influenced negatively by a factor of 0.975. The results show that the variable has an un-standardized coefficient of 0.019 with a significant outcome of 0.048 where the statistical P-value ≤ 0.05. This variable is significant since it has a computed P-value of 0.048 that is less than the statistical P≤0.05 as shown in Table 12. The findings have shown that idiosyncratic volatility influence negatively corporate equity financing decision relative to covered debt financing (Brandt et al., 2009).

The influence of Idiosyncratic Volatility on Corporate Straight Debt Financing Decisionhad an Exp (B) value of 1.125which implies that a one unit increase in the Idiosyncratic Volatility (Beta)increases the odds for corporate Straight debt financing decision relative to covered debt financing. The corporate straight debt financing decision was influenced positively by a factor of 1.125. The results indicates that the variable has an un-standardized coefficient of 0.009 with a significant outcome of 0.015 where the statistical P-value ≤ 0.05. This variable is significant since it has a computed P-value of 0.015 that is less than the statistical P≤0.05

External Financing Decisionsa		B	Std. Error	Wald	d.f	Sig.	Exp. (B)	95% Confidence Interval for Exp. (B)	
								Lower Bound	Upper Bound
Equity Financing	Intercept	-3.100	1.594	.031	1	.036			
	Idiosyncratic volatility	.019	.031	.360	1	.048	.975	.959	1.083
Straight Debt Financing	Intercept	7.275	17.923	.165	1	.044			
	Idiosyncratic volatility	.009	.034	.064	1	.015	1.125	.944	1.077

Table 12: Heterogeneity of investors behaviour and corporate external Financing Decision

4.11. Hypothesis Testing

The nested model fit was significant with a final -2 likelihood ratio of 906.016, a chi2 of 189.882, and a significant value of 0.009 which is less that statistically $P < 0.05$. This indicates that full model predicts significantly better, or more accurately the influence of heterogeneity of investors behaviour on corporate external financing decision. To get the expected β values, the 'Exp' function applied to the coefficients was used. The Exp (β) was the odds ratio associated with each predictor. Predictors that increased the logit displayed Exp (β) greater than 1.0, while those predictors that did not have an effect on the logit displayed Exp (β) of 1.0. Predictors that decreased the logit had Exp (β) values less than 1.0. The results of this study as depicted in Table 17 was used to decide whether to accept or reject the study null hypotheses (H0). The covered debt financing was used as the base category.

- Ho: The Idiosyncratic Volatility does not significantly influence the corporate External financing decision.

The parameter estimation result for the fixed model shows influence of idiosyncratic volatility on equity financing has a P-value of 0.048 which is lower than Statistical P-value< 0.05. Therefore idiosyncratic volatility significantly influences equity financing decision. The influence of idiosyncratic volatility on straight debt financing has a P-value of 0.015 which is lower than Statistical P-value < 0.05. Therefore Idiosyncratic Volatility significantly influence straight debt financing. Consequently there is evidence to reject the null hypothesis and accept the alternative hypothesis that Idiosyncratic Volatility significantly influence corporate external financing decision by listed companies in Kenya.

5. Conclusion and Recommendations

According to empirical evidence idiosyncratic volatility is a phenomenon that manifests itself more strongly among low-priced stocks held proportionally by retail investors than institutions. Not only do many institutions shy away from holding low-priced stocks for prudence reasons but also trading costs increase affects the transaction costs associated with actively trading large positions in low-priced stocks. Price changes influence idiosyncratic volatility through the trading activities of retail investors in ways that are consistent empirical evidences obtained in developed economies. Idiosyncratic volatility therefore influences significantly corporate external financing decision by listed companies at NSE.

The Nairobi Security Exchange is an important market in Africa, because of the big roles it plays in the financial system. A country is only as strong as its financial system. The success of the market influences the Kenyan economy positively such that it will boost the local commerce and be relevant and competitive in global financial market. Financial innovative adoption is a central issue, its growth, process, acceptance and patronage must be continually monitored and upgraded to encourage both individual and institutional investors to trade. The study recommends minimisation of market volatility due to investors' biases that may result to negatively influencing corporate external financing decision.

From these research findings there is need to enhance investment knowledge of both corporate investors and investment trusts in Kenya in order to allow them to invest wisely while at the same time avoiding adverse selection. Players at the NSE need to be able to make informed investment decision without relying on incorrect information or investors herd behaviour. Therefore availability of all market information and elimination of information biases will encourage both corporate and individual investors thus enhancing growth of the market. The study also recommends that corporations should understand, under what circumstance it's optimal to issue debt and or equity. This will enable the institutions in their quest for external financing to improve on their liquidity.

The study recommends empowering of individual investors by offered them right investment vehicle thereby enhancing optimism, confidence and transparency in the market. A market that can be able to attract more individual investors, will enhances liquidity capability of the organizations, and therefore inspire economic growth. Therefore understanding the significance of the influence of investors heterogeneous behaviour on corporate external financing decision making will enlighten and encourage individual investors to invest wisely. The government as the policy formulator and enforcer through various institutions, the study recommend that the government should come up with legislation that discourages information asymmetry that may affect investment opportunities to small investors. When markets are doing well government expects increased income through taxation and consequently growth of GDP. Therefore this study will be of much benefit to the Kenyan government.

6. References

i. Albring, S., Banyi, M., Dhaliwal, D., & Pereira, R. (2016). Does the Firm Information Environment Influence Financing Decisions? A Test Using Disclosure Regulation. Management Science, 62(2), 456–478. https://doi.org/10.1287/mnsc.2014.2123

ii. Alexeev, V. V., & Tapon, F. (2012). Equity Portfolio Diversification: How Many Stocks are Enough? Evidence from Five Developed Markets. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2182295

iii. Ayako, A., Kungu, G., & Githui, T. (2015). Determinants of the Performance of Firms Listed At the Nairobi Securities Exchange. Research Journal of Finance and Accounting, 6(12), 157–165.

iv. Barber, B. M., & Odean, T. (2011). Behaviour of Individual Investors. JEL Classification, D12(G11), 1–54.

v. Brandt, M. W., Graham, J. R., Brav, A., & Kumar, A. (2009). The Idiosyncratic Volatility Puzzle : Time Trend or Speculative Episodes ? The Review of Financial Studies, 23(919). https://doi.org/10.1093/rfs/hhp087

vi. CMA Kenya. (2017). Quarterly Statistical Bulletin (QSB) Issue 29 / 2017 A QSB for the Quarter ended December 2016.

vii. Dempsey, M. (2014). The modigliani and miller propositions: The history of a failed foundation for corporate finance? Abacus, 50(3), 279–295. https://doi.org/10.1111/abac.12030

viii. Elsas, R., Flannery, M. J., & Garfinkel, J. A. (2006). Major Investments, Firm Financing Decisions, and Long-run Performance. JEL Classification, (February), 1–43.

ix. Guggenberger, P. (2010). The impact of a Hausman pretest on the size of a hypothesis test: The panel data case. Journal of Econometrics. https://doi.org/10.1016/j.jeconom.2009.11.003

x. Idowu, A. A. (2016). Determinants of Financial Technological Innovation Adoption by Customers of Deposit Money Banks in Naigeria. Jomo Kenyatta University of Agriculture and Technology.

xi. John Y. Campbell. (2014). Empirical Asset Pricing : Eugene Fama , Lars Peter Hansen , and Robert Shiller. The Scandinavian Journal of Economics, 116(3)(3), 593–634. https://doi.org/10.1111/sjoe.12070

xii. Kamoto, S. (2014). Impacts of Internal Financing on Investment Decisions by Optimistic. European Financial Management, 20(1), 107–125. https://doi.org/10.1111/j.1468-036X.2011.00624.x

xiii. Khisa, K. E. (2015). The Effect of Behavioral Fiance Factors on Stock Investment Decision in Kenya. South Eastern Kenya University Repository.

xiv. Kirui, E., Wawire, N. H. W., & Onono, P. O. (2014). Macroeconomic Variables , Volatility and Stock Market Returns : A Case of Nairobi Securities Exchange , Kenya. International Journal of Economics and Finance, 6(8), 214–228. https://doi.org/10.5539/ijef.v6n8p214

xv. Kumar, S., & Goyal, N. (2016). Evidence on rationality and behavioural biases in investment decision making. Qualitative Research in Financial Markets, 8(4), 1–30.

xvi. Landsman, W. R., & Peasnell, K. V. (2008). Are Asset Securitizations Sales or Loans ? The Accounting Review, 83(5), 1251–1272. https://doi.org/10.2308/accr.2008.83.5.1251

xvii. Ngumi, P. M. (2013). Effect of Bank Innovations on Financial Performance of Commercial Banks in Kenya. Jomo Kenyatta University of Agriculture and Technology.

xviii. Nyamute, W., Lishenga, J., & Oloko, M. (2015). The Relationship between Investor Behavior and Portfolio Performance at the Nairobi Securities Exchange. International Journal of Multidisplinary Research and Development, 2(5), 548–551.

xix. Olaka, H. (2017). The Capping Interest Rates Debate : Market Failure or Necessary.

xx. Saunders, M., Lewis, P., & Thornhill, A. (2009). Research Methods for Business Students 5th Edition.

xxi. Starkweather, J., & Moske, A. K. (2005). Multinomial Logistic Regression.

xxii. Thiagarajan, S. R., & Li, Y. (2010). What ' s Idiosyncratic Volatility Got to Do With It ? Journal of Investing, 20–33.

xxiii. Wambui, D., & Muturi, W. (2014). Effect of Financing Decisions on Liquidity of Listed Commercial Banks in Kenya. International Journal of Science and Research, 3(11), 2012–2015.