International Journal of Business Management and Processes (IJBMP)
Vol 6. Issue No.1. October, 2023. PP 20-31. ISSN 2616-3209

FIRM-LEVEL DETERMINANTS OF INVESTMENT ON CASH FLOW SENSITIVITY OF NON-FINANCIAL FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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Abstract

Firm level factors are important determinants of investment cash flow sensitivity of firms in both developed and developing economies. Nonetheless, the effect remains unclear, and how the firm level characteristics of Kenyan non-financial firms influence their investment cash flow sensitivities is unexamined and unknown. Various firm level factors affect the investment cash flow sensitivity of non-financial firms. This study sought to determine the effect of firm level determinants and investment cash flow sensitivity of Non-financial firms listed at NSE. The study was guided by the Agency Theory, the pecking order theory and the free cash flow theory and adopted the descriptive research design with a target population of 48 Non-financial firms listed on the NSE as at 31 December 2021. Secondary data was collected by use of data collection sheet from the financial statements and annual reports of the listed companies. The data was analyzed with the aid of the SPSS (Version 23) software and by use of descriptive statistics, correlation and regression analysis. The study revealed that firm level determinants have a significant effect on investment cash flow sensitivity of Non-Financial firms listed on the NSE. It recommends that the board of management of the listed firms should ensure that proper risk management strategies are put in place to guide financial investment decision. Additionally, the Capital Market Authority (CMA) as a regulatory body of the listed firms at NSE should put in place effective regulatory frameworks that outline business risk practices of the listed firms.

Keywords: *cash flow sensitivity, firm-level determinants, non- financial firms*

Introduction

Investment cash flow sensitivity has comprehensively been used to measure the degree of financial constrains that firms face, referring to the variability of capital investment decisions depending on the internally generated cash flows. Financial constraints broadly define the inability of the firm to access external finance to fund its investments. Notably, investment cash flow sensitivity is largely defined by firm level determinants (Pacheco, 2017). Determinants of investment cash flow sensitivity are both from within and without the organization classified as firm level and industry factors (Makina & Wale, 2016)

According to Virlics (2013), every investment decision involves some level of risk. Risk plays a significant role and uncertainty in the course of making decision on a particular investment. In business, the proprietor considers the expected returns, availability of investments and cost of acquiring them, length of time before returns can be expected and the expected riskiness of

such an investment project including changes in market value through inflation and depreciation (Virlics, 2013). Uncertainty is one of the risks that decision makers have to analyze and deliberate upon before making a conclusive decision. This then implies that accurate information has to be collected to decrease the level of uncertainty of the markets (Pacheco, 2017). Firms are faced with financial constraints in the respective firms to finance their capital needs (Kimuyu & Omiti, 2010). However, firms can use affordable short-term bank financing or equity to finance their investment. Organization decision on whether to use total debt as opposed to long term or short-term debt as leverage for investment decision is a critical process that most organizations have to go through (Tenai & Mutwol, 2011). This decision helps organizations to avoid the contradictory relations between debt and leverage as mostly experienced in the banking firms of the financial sector.

Internal cash flow of a firm may have an impact on the investment decisions due to the hierarchy in financing that makes internal capital advantageous over the external capital. From this reasoning, a firm that maximizes on the values it obtains will not issue new shares or debts until all the internal capital is exhausted (Kimuyu & Omiti, 2010). Conversely, firms that are not constrained tend to invest more even if they do not have sufficient cash flow because the cost differential between external and internal capital is minimal. In principle, financially constrained firms should display greater sensitivity of investment to cash flow than unconstrained firms. However, internal funding could be relevant for investment because it also provides information about future investment opportunities (Bond, 2004). This therefore leaves the unconstrained firms to exhibit low investment cash flow sensitivity. Normally, the investment cash flow sensitivity plays the role of bringing the gap between some interrelated variables that are related to cash flow. Investment cash flow sensitivity changes proportionately depending on the financial constraint in a firm (Okumu, 2014).

Various corporate firms in Kenya are listed in the Nairobi Security Exchange (NSE). The firms listed here are expected to raise funds that will be used in the investments in either bonds or equity form. The funds raised in form of equity aim at providing the source of investment funds whereas, the investments in form of bonds are not embraced by many. In some literature, the new investments in Kenya done by listed firms receive their financing through the loans from banks as well as overdraft facilities (Ngugi & Maana, 2006). This idea poses very high risks of bankruptcy situations when taken from the investors' angle as well as the managerial position (Ngugi & Maana, 2006).

High cash flow sensitivity is experienced in the firms listed in NSE, depending on the size of dependability, institutional ownership, and liquidity (Okumu, 2014). This is same case in Sub-Saharan Africa in that, in most cases severe financial constraints are experienced because of information asymmetry existing between the managerial positions and the investors (Elie, 2013). This makes most African firms highly constrained financially which leads to a high cash flow investment sensitivity (Wale, 2014).

Firms listed at the NSE raise funds to finance new investments in form of equity and/or bonds (Kayo & Kimura, 2011). Lack of adequate and relevant legal and regulatory framework to enforce financial contracts has led to credit rationing and high collateralization, which leads to financial constraints, hence under investment (Wale, 2014). Furthermore, these firms have consistently shunned the bonds market leaving financial banks as the key sources of funds for new investments (Kayo & Kimura, 2011). This happens despite the recognition of the stock market as the most pragmatic and effective method of raising capital (Gezici et al., 2019) While this leads to increased financial risks in terms of bankruptcy and other related distress costs, Kenyan managers imprudently continue financing new investments through bank loans and overdraft facilities at the expense of more profitable long term funds which otherwise increase firm performance and value (Okumu, 2014). The literature reviewed indicated that though the studies tackled importance of financial management, the studies fail to indicate the factors that affect cash flow. Few studies focus on the firm level determinants on investment cash flow sensitivity among Non-financial NSE listed firms (Almida et al.,2004; George & Qian,2010; Makina & Wale,2016). This study seeks to remove ambiguity and explains the effect of firm-level determinants on the investment cash flow sensitivity and hence the hierarchical structure to choose of sourcing funds for investments.

Research Objective

To determine the effect of firm-level determinants of investments on cash flow sensitivity of non-financial firms listed at the Nairobi Securities exchange.

Research Hypothesis

Firm level determinants of investments have no significant effect on cash flow sensitivity of non-financial firms listed at the NSE

Methodology

The study adopted a descriptive research design to analyze the effect of firm level determinants of investment cash flow sensitivity of non-financial firms listed in the NSE. Descriptive design endeavors to establish a causal relationship between study variables and is ideal where the researcher has no control over variables since they have already occurred but only observes and measures them. The population of all firms, both financial and non-financial, listed firms at the NSE was 63. However, financial firms were eliminated from the study as most previous research papers focused on these firms. The target population for this study was therefore the 48 non-financial companies listed at the NSE as at 31st December 2022. A census survey was applicable considering that this population was small and therefore no sampling was conducted. Listed non-financial firms are preferred because they are required by the Capital markets Authority (CMA) to publish their interim and yearly financial statements and thus this information will be available at the NSE. The study employed census survey.

Secondary data was used in this study, the researcher extracted data from the annual audited financial reports of the firms under study and the annual supervision reports from the NSE. Secondary data was obtained from respective firm's websites and a data collection sheet was used to collect the data. The study period 2017-2021 was considered sufficient and adequate to provide data that yield reliable findings. Data extracted included leverage, liquidity, ownership structure, total sales, asset tangibility, industry growth, capital expenditure.

The collected data was analyzed with the aid of the SPSS (version 23) software. Data was analyzed by use of both descriptive and inferential statistics. The descriptive statistics show the measure of central tendencies and dispersion using the mean, standard deviation, maximum and minimum. A detailed explanation was provided to interpret the data, draw conclusions and make recommendations. The inferential statistics was used to provide the relationship between the variables. Pearson correlation was used to establish the stretch of the independent variable on the dependent variable. Regression analysis was conducted to establish the effect of the independent variable over the dependent variable. The regression analysis was used to test the hypothesis at 95% confidence level (level of significance = .05). To determine the accuracy of the statistics in the regression and models of best fit, the study performed test for multi-collinearity, test for autocorrelation and normality of residuals.

Results and Discussion

The main objective of the study was to determine the effect of firm-level determinants and investment cash flow sensitivity of non-financial firms listed at the Nairobi Securities exchange. The variables that constituted the firm level determinants were the financial constraints, ownership structure and firms size. The descriptive statistics used are mean, standard deviation, minimum and maximum. Trend analysis was also used to show the pattern of change in variables among the firms through the study period of 2017-2021.

Investment cash flow sensitivity

The study assessed the investment cash flow sensitivity by doing an average of cash holding and capital expenditure. The cash holding was determined by doing a ratio of cash and cash equivalent to total assets and capital expenditure was determined by depreciation to total assets. Asset revaluation involves updating the carrying value of assets in the balance sheet to reflect their current fair market value. This has an impact on the asset's depreciation in that if revaluation increases or decreases the asset's value. Increasing the value leads to a higher depreciation expense since there is spreading the higher value over the asset's remaining useful life. Conversely, if the revaluation lowers the asset's value, depreciation may decrease. If a company frequently invests in new assets or asset upgrades, Capital expenditure will be high, resulting in higher depreciation expenses in subsequent periods as these assets are gradually expensed. On the other hand, a company that doesn't invest much in assets will have lower Capital expenditure and lower depreciation expenses. The findings depict steady investment cash flow sensitivity among the firms.

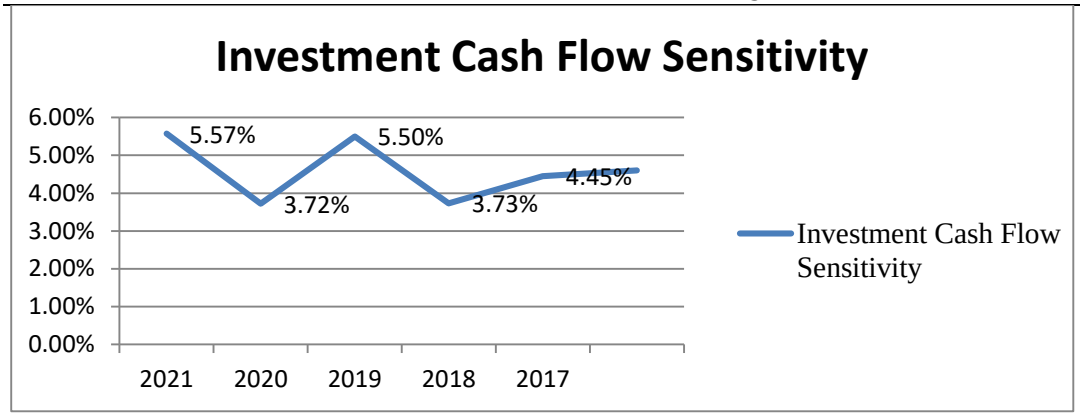

Figure 1.1 Trend Analyses for Investment Cash Flow Sensitivity

The study assessed the trend of investment cash flow sensitivity for the 5 years which data was collected, in 2021 the mean investment cash flow sensitivity was 5.57% which was highest compared to the 2019 which was 5.50%, there was decline of mean investment cash flow sensitivity in 2020 from 5.57% in 2021 to 3.72% in 2020. There was a decline of investment cash flow sensitivity from 4.45% in 2017 to 3.73% in 2018. This finding depicts that investment cash flow sensitivity was not steady for the five years.

Financial constraint

The study assessed the financial constrain as doing an average of leverage and liquidity. The leverage was determined by doing a ratio of Total Debt to Total Assets while liquidity is a ratio of Current Assets to Current Liabilities. The findings depict financial constraint among the firms. The trend analysis is summarized in figure 1.2

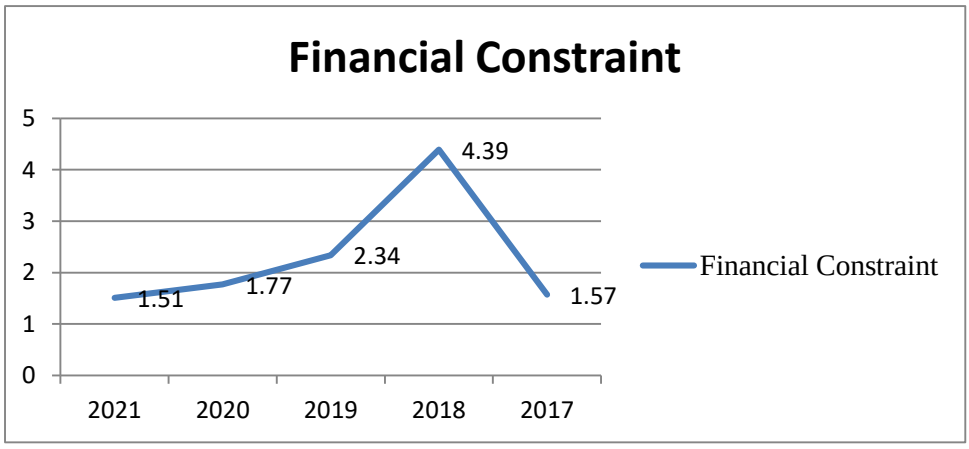

Figure 1.2 Financial Constraint

The trend analysis for financial constraint, in 2017 the financial constrain was 1.57 and there was a steady increase in 2018 to 4.39 and a continuous decline for the three years from 2.34 in 2019 to 1.51 in year 2021. The findings depicts that financial constraint was not constant since there was an increase and later decline.

Ownership structure

The study also assessed the ownership structure as a firm level determinant. This was measured by doing a ratio of ordinary shares held by each category of the stakeholders. This includes the inside equity (held by managers), the outside equity, and debt.

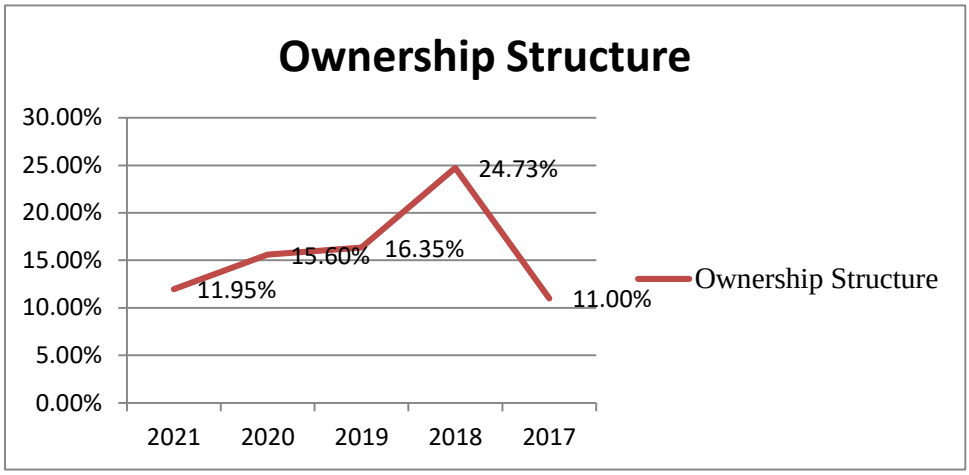

Figure 1.3 Ownership Structure

The trend analysis in figure 1.3, revealed a fluctuation of ownership structure, in 2017 the mean ownership structure was 11% and in 2018 there was an increase to 24.73% then a steady decline of ownership structure was recorded for the three years from 16.35% in 2019 than 15.60% in 2020 and 11.95% in the year 2021.This implies that the ownership structure of the firms was not steady but it keeps on changing based on the corporate governance of the firms. Ownership structure affects cash sensitivity by shaping its decision-making processes, risk tolerance, and priorities. From the trend analysis, the shareholders were more aggressive with investments leading to a steady increase in cash flow between 2017 and 2018 (11% to 24.73%). Then there was a decline from 2018 – 2021 (24.73% - 11.95%) an indication of being cautious with the investments. Shareholders with large equity ownership tend to monitor management, prevent empire-building managers from raising too much capital and improve corporate decisions related to rights issues.

Firm size

The study also assessed the firm size determined by doing an average of Natural log of total assets and Natural log of total sales. The findings depicts firm size among the firms as postulated by the standard deviation is steady.

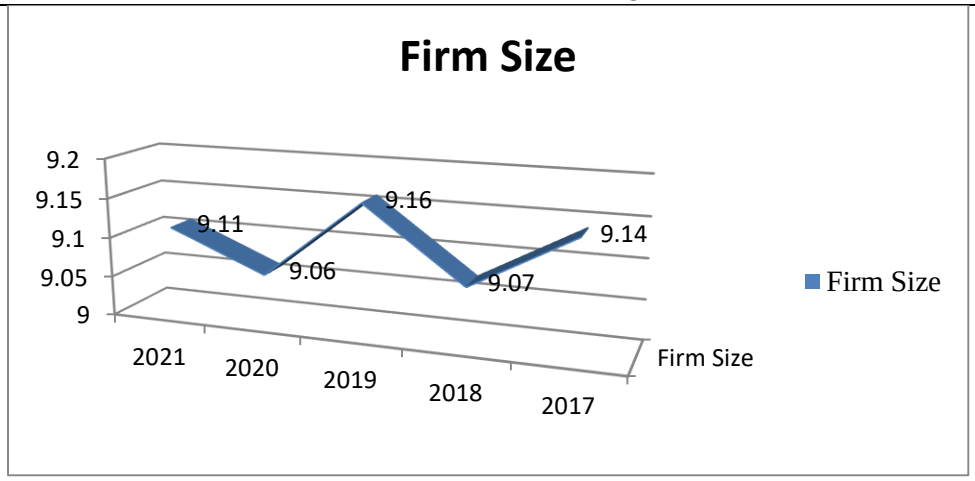

Figure 1.4 Firm Size

In figure 1.4 the study assessed the firm size, there was a fluctuation in the firm size for the 5 years, in 2017 the mean of firm size was 9.14 then there was a drop in the mean of firm size to 9.07 in 2018, then an increase to 9.16 in 2019, then a decline to 9.06 in 2020 and also an increase of mean firm size to 9.11 in 2021, the findings implies a fluctuation of firm size.

Correlation analysis

Table 1.1 Correlation Coefficient Matrix

		Investment Cash Flow Sensitivity	Financial Constraint	Ownership Structure	Firm Size
Investment Cash Flow Sensitivity	Pearson Correlation	1	.357*	.662**	-.586**
	Sig. (2-tailed)		.020	.000	.000
	N	42	42	42	42
Financial Constraint	Pearson Correlation	.357*	1	.553**	-.297
	Sig. (2-tailed)	.020		.000	.056
	N	42	42	42	42
Ownership Structure	Pearson Correlation	.662**	.553**	1	-.199
	Sig. (2-tailed)	.000	.000		.207
	N	42	42	42	42
Firm Size	Pearson Correlation	-.586**	-.297	-.199	1
	Sig. (2-tailed)	.000	.056	.207	
	N	42	42	42	42

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation results showed that relationship between Financial Constraint and Investment Cash Flow Sensitivity was positive and insignificant (r=0.357, p>0.05), Ownership Structure and Investment Cash Flow Sensitivity was positive and insignificant (r=0.662, p>0.05), Firm Size and Investment Cash Flow Sensitivity was negative and insignificant (r=-0.586, p>0.05). The correlation between the three variables was weak. If two predictor variables indicate a correlation coefficient of more than 0.70, then the problem of multi-collinearity exists and in the table 1.1, none exceeds 0.7 and hence none of them are highly correlated with each other and thus none of them was to be dropped hence.

Hypothesis testing

Under the regression outputs the beta coefficient may be negative or positive; beta indicates each variable's level of influence on the dependent variable. P-value indicates at what percentage or precession level of each variable is significant. R^2 value indicates the explanatory power of the model and in this study adjusted R^2 value which takes into account the loss of degrees of freedom associated with adding extra variables were inferred to see the explanatory powers of the models.

Table 1.2 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.817[a]	.668	.641	.495992

a. Predictors: (Constant), Firm Size, Ownership Structure, Financial Constraint

b. Dependent Variable: Investment Cash Flow Sensitivity

Model summary in table 1.2 shows the output for model fitness and value of R squared was 0.668. This shows that the variables (Firm Size, Ownership Structure, Financial Constraint) tested had a variation 66.8% on the Investment Cash Flow Sensitivity at 95% confidence interval. The above independent variables that were studied, explain only 64.1% of the effect of firm-level determinants and investment cash flow sensitivity of non-financial firms listed at the Nairobi Securities exchange as represented by the adjusted R^2. This therefore means that other factors not accounted in this study contribute 35.9%. R is the correlation coefficient which shows the relationship between the study variables. The findings show that there was a strong positive relationship between the study variables as shown by R which is the correlation coefficient of 0.817.

Table 1.3 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.771	3	6.257	25.434	.000[b]
	Residual	9.348	38	.246		
	Total	28.119	41			

a. Dependent Variable: Investment Cash Flow Sensitivity

b. Predictors: (Constant), Firm Size, Ownership Structure, Financial Constraint

The ANOVA (Analysis of Variance) results on table 1.3 above shows that the F value of 25.434 was statistically significant at 0.000, which was lower than 0.05. This depicts a linear relationship among the variables under study and also that the model had lower than 0.05 likelihood of giving a wrong prediction. The above results also show that the independent variables (firm size, ownership structure, financial constraint) used was statistically significant in predicting the investment cash flow sensitivity at 95% significance level. As it presented in table 1.2, ownership structure, firm financial constraint and firm size have positive and significant effect on investment cash flow sensitivity (p=0.000) at a minimum of 95% confidence level. The above results the hypothesis that states that firms level determinants of investmaned have no significant effect on cash flow sensitivity of non-financial firms listed at the NSE was rejected.

1.4 Coefficients

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
(Constant)	3.307	.509		6.496	.000
Ownership Structure	.552	.096	.644	5.735	.000
Financial Constraint	.153	.118	-.149	-1.292	.204
Firm Size	-.273	.053	-.502	-5.121	.000

a. Dependent Variable: Investment Cash Flow Sensitivity

The coefficients or beta weights for each variable allowed the researcher to compare the relative importance of each independent variable. The beta values indicate the direction of the relationship. A positive sign indicates a positive relationship while a negative sign indicates a negative relationship. In this study the unstandardized coefficients and standardized coefficients are given for the multiple regression equations. However discussions are based on the unstandardized coefficients. In testing the hypothesis, a regression equation model was used in the form of:

$$\mathbf{Y = 3.307 + 0.552X1 + 0.153X2 - 0.273X3}$$

The regression equation above has established that holding independent variables (ownership structure, financial constraint and firm size) to be constant investment cash flow sensitivity will be 3.307. Ownership Structure had positive coefficients of 0.552 with a significant p=.000 which was lower than .05, Financial Constraint had a positive beta coefficient of 0.153, p= .204 which was higher than.05 and firm size had a negative coefficient of 0.273, p=.000 which was lower than.05. This means ownership structure, financial constraint positively influences investment cash flow sensitivity while firm size negatively affects the investment cash flow sensitivity. Wahome (2017) in a study of the effect of free cash flow on investment in the insurance companies in Kenya ascertained that size of the firm as a determinant of investment in insurance companies. Correlation analysis conducted established positive correlation between size of the insurance company and profitability as well as between liquidity and size of the firm. It was evident that large insurance firms i.e. those with higher value in assets make

more profits and more liquid than those with small asset base and have adequate cash to invest. The study also established that free cash flow has a significant effect on investment.

Conclusions

Firm level determinants have strong relationship with cash flow sensitivity in firms. The study concluded; firm size, ownership structure and firm financial constraint have a positive and significant effect on investment cash flow sensitivity at 95% confidence level. It was evident that listed firms, those with higher value in assets make more profits and are more liquid than those with small asset base and have adequate cash to invest. Free cash flow has a significant effect on investment.

The size of the firm is a determinant of profitability and that total assets and turn over are commonly used as a substitute for size. There is a strong relationship between the free cash flow and profitability of listed firms with size being a determinant of profitability. Karuga (2017) in the study on the relationship between firm size and financial performance of deposit taking SACCOs in Kenya concluded that there exists a positive relationship between firm size and financial performance of deposit taking SACCOs in Kenya. This conclusion can therefore be generalized to other institutions and studies. . However as the firms grow bigger they need to keep less cash based on the argument that as they get bigger they get better access to other sources of funds such as loans (Mureithi ,2013).

The study also concluded that ownership structure has a significant effect on cash flow sensitivity on non-financial listed firms on the NSE. Okumu (2014) from over a 5-year study period observed that listed firms changed their institutional ownership and therefore institutional ownership, as a capital market imperfection attribute significantly influence the investment- cash flow sensitivity of listed firms. Shareholders with large equity ownership tend to monitor management, prevent empire-building managers from raising too much capital and improve corporate decisions related to rights issues and therefore has a positive effect on cash flow sensitivity (Wanjiru, 2009).This conclusion can therefore be generalized to other institutions and studies

Finally, financial constraint has a significant effect on cash flow sensitivity on non-financial firms listed on the NSE. This is in line with the existing literature by other scholars. Koech (2011) agrees that capital market and capital access had the highest contribution to constraining the growth of business. The dependence on donor funds affects the capacity to advance loans to potential customer. Such dependence affects the local organizations whenever there are changes in the donor country-operating environment (Mwendwa, 2012). . Access to finance plays a big part in determining the level of investment growth. Cash flow has a positive effect on firm investment and this effect is higher the higher the level of dependence of external capital (Mwangi, 2017). The conclusion can be generalized in other institutions

Recommendations

The listed companies did not have credit policies which managers must ensure compliance with the terms of the credit agreement. Revenue and debt are two important factors that companies should consider when making investment decisions. The study recommends that managers of companies listed on the NSE strengthen their goal of expanding the stock market so that investors can benefit from the services offered by the company

The study also recommends that the board of management of the listed firms should ensure that proper risk management strategies are put in place to guide financial investment decision. The Capital Market Authority (CMA) as a regulatory body of the listed firms at NSE should put in place effective regulatory frameworks that outline business risk practices of the listed firms. Risk management should be made compulsory among all listed firms and they should set board committees to address risks of the businesses.

Finally, the NSE and CMA officials work together to ensure the investor have access to credible financial experts and analysts to help in shaping their financial investment decisions. The credit rating and maximum prices of the listed firm should inform the management decisions. The financial structure of Kenyan-owned companies should be a balance between the debt reduction rate and the debt.

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