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Onyango Collins OMONDI

Prof. Nixon Oluoch OMORO

Dr. Luther OTIENO

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Interest Rate Sensitivity and Market Value of Non - Financial Firms Listed at the Nairobi Securities Exchange

By: Onyango Collins OMONDI ¹, Prof. Nixon Oluoch OMORO (PhD, CPA)² and Luther OTIENO (PhD) ³

Abstract

This study sought to examine the relationship between interest rate sensitivity and the market value of non-financial firms listed on the Nairobi Securities Exchange (NSE) in Kenya. This study was motivated by the recognition that changes in interest rates can influence firms' financing costs, investment decisions, profitability, cash flows, capital structures, and ultimately their market valuation. The study adopted a quantitative research approach and utilized panel data obtained from non-financial firms listed on the NSE. The target population comprised 32 non-financial firms, generating 320 firm-year observations over a ten-year period from 2012 to 2021. The study employed a quantile regression model to examine the relationship between interest rate sensitivity and firms' market value across different points of the conditional distribution of market value. The use of quantile regression enabled the study to assess whether the effect of interest rate sensitivity varied among firms with relatively low, medium, or high market values, thereby providing a more comprehensive assessment than conventional mean-based regression approaches. A quantile regression model was applied to test the hypothesis. The result of the hypothesis test confirmed an insignificant relationship between interest rate sensitivity and firms' market value. The study recommended that non-financial firms should consider interest rate conditions alongside other firm-specific and macroeconomic factors when making financing, investment and capital structure decisions rather than relying solely on interest rate movements. Managers should also maintain prudent debt and equity structures and continuously monitor interest rate developments to manage potential financing and refinancing risks. Government policymakers and capital-market regulators should strengthen policies that promote stable and transparent financial markets, while investors should consider a broader range of financial and economic indicators when evaluating listed firms. Future researchers are further encouraged to incorporate additional firm-specific and macroeconomic variables, longer study periods and alternative estimation techniques to provide deeper insights into the determinants of market value among non-financial firms listed on the NSE.

Keywords: Interest rate sensitivity; Market value; non-financial firms; Nairobi Securities Exchange; Quantile regression; Interest rates; Firm valuation; Financial risk; Capital structure.

¹PhD Candidate, Department of Finance and Accounting, Faculty of Business and Management Sciences, University of Nairobi, e-mail: omoshcolly82@gmail.com, ORCID: 0009-0002-4160-5455

²Professor, Department of Finance and Accounting, Faculty of Business and Management Sciences, University of Nairobi, e-mail: nixonono@uonbi.ac.ke, ORCID: 0009-0007-9655-9421

³Senior Lecturer, Department of Finance and Accounting, Faculty of Business and Management Sciences, University of Nairobi, e-mail: lotieno@uonbi.ac.ke, ORCID: 0000-0002-7018-7718

1. INTRODUCTION

Interest rates constitute one of the most important macroeconomic variables influencing financial and investment decisions within an economy (Waitherero, 2021). Changes in interest rates affect the cost and availability of credit, investment decisions, corporate financing structures, consumer demand, profitability and the valuation of financial assets. For companies that rely exclusively on external financing, seasonal fluctuations in interest rates may alter the cost of servicing debt and consequently affect cash flow and investment capacity. From an investor's perspective, changes in interest rates may also influence expectations regarding future corporate earnings, risk and firm valuation. Consequently, understanding how firms respond to interest rate movements is important for corporate managers, investors, policymakers and other participants in capital markets (Whittaker, 1987). The relationship between interest rate sensitivity and firm market value is closely connected to the capital structure decisions made by corporate managers. Capital structure is generally composed of debt capital and equity capital, together with internally generated funds and, in some cases, shareholders' savings, which firms combine in different proportions depending on available investment opportunities, financing costs and underlying financial risks (Modigliani & Miller, 1963). The choice of an appropriate combination of these financing sources is, however, not made in isolation from prevailing market conditions. Fluctuations in interest rates can alter the relative cost of debt and equity and consequently influence managers' decisions on whether to rely more heavily on debt financing or equity financing. When interest rates are relatively low, debt financing may provide firms with an opportunity to access funds at a comparatively lower cost, whereas rising interest rates may increase the cost of servicing existing and newly acquired debt, thereby influencing financing and investment decisions.

In liberalized financial markets like in the United States, financial managers play an important role in managing agency conflicts through strategic financing and investment decisions. One important consideration which falls under their decision-making purview is how to balance appropriately between debt and equity financing, particularly in an environment where interest rates fluctuate. Yustisiana (2020) observes that managers consider prevailing interest-rate conditions when making capital structure and investment decisions, with the objective of minimizing financing costs and enhancing firm value. However, the relationship between leverage, interest-rate movements and firm value may vary depending on the characteristics of the industry and the extent

to which managers are willing to assume financial risk. Staking and Babbel (1995) argue that excessive reliance on debt financing, particularly during periods of interest-rate volatility, can adversely affect firm value because increased borrowing exposes firms to higher financing costs and greater financial risk.

Financial managers therefore have a critical responsibility in determining an appropriate mix of debt and shareholders' equity within the firm's overall capital structure. Nadeem and Zongjun (2012) emphasize that financing decisions require careful assessment of the relative costs and risks associated with alternative sources of capital because inappropriate financing decisions may adversely affect corporate performance and market value. Although extensive research has examined the relationship between optimal capital structure and firm value, the question of how firms should balance capital structure decisions with interest-rate risk remains an area of continuing academic debate. Brealey and Myers (1988) and Nejadmalayeri (2000) recognize the importance of financing structure in determining firm value, but the optimal combination of debt and equity may differ according to firms' operating environments, financing requirements and prevailing market conditions. The unresolved nature of this relationship provides a basis for further investigation of interest-rate sensitivity and market value, particularly among non-financial firms listed at the Nairobi Securities Exchange.

This theoretical debate is also reflected in Myers' (1984) pecking order theory, which proposes that firms should generally follow a financing hierarchy when meeting their investment and operational requirements. Under this theory, firms should rely first on internally generated funds, followed by debt financing and, as a last resort, the issuance of new equity. This preference arises partly because internal funds generally involve fewer information asymmetry and transaction-cost concerns than external financing. Debt may subsequently be preferred to equity because issuing new equity can be relatively costly and may convey negative signals to the market. Nevertheless, the attractiveness of debt financing depends on its associated cost and risk, which can change with prevailing interest-rate conditions. Consequently, although debt can provide a relatively cost-effective source of financing under certain circumstances, excessive dependence on debt can expose firms to interest-rate and refinancing risks, potentially affecting their profitability and market valuation. The interaction between these financing decisions and interest-rate sensitivity

therefore remains important consideration in understanding the market value of listed firms (Mutegi, 2016).

Brealey and Myers (1988) provide a contrasting perspective to the traditional capital structure theories by arguing that changes in the composition of debt and equity do not necessarily alter the overall market value of a firm. According to this perspective, firm value is primarily determined by the firm's operating income and the level of business risk associated with its operations rather than by the combination of debt and equity used to finance those operations. From this standpoint, changes in interest rates may affect the cost of sources of financing, but such changes do not necessarily translate into proportional changes in the overall market value of the firm. The implication is that investors may place greater emphasis on the firm's underlying operating performance and risk profile when determining its market value.

The market-timing theory associated with Ross (1977), provides another useful dimension to understanding the relationship between interest rates and firm value. The theory suggests that managers may respond to prevailing market conditions by timing financing and investment decisions to take advantage of favorable market opportunities. Interest-rate movements therefore become an important consideration in determining when firms should raise additional capital, invest available resources or adjust their financing arrangements. When interest rates are relatively favorable, firms may increase investment or secure financing at lower costs, whereas unfavorable interest-rate conditions may encourage managers to postpone investment or reconsider their financing decisions. The ability of management to respond appropriately to changing market conditions can consequently influence investors' expectations and, ultimately, the market value of the firm. Jensen and Meckling (1976), on the contrary, confirm that under agency theory, managers stand a better chance to balance off capital ratio by analyzing prevailing risks as they carry out delegated investment roles on behalf of the shareholders and must ensure that such shareholders' funds are invested on profitable ventures otherwise the managers may risk losing their stewardship assignment when shareholders realize that their interests are not served well. However, the agency's role depends on how effectively shareholders supervise managers.

In line with interest rate theories underpinning this research, Keynes' (1936) in his liquidity preference theory explains interest rates in terms of the demand for and supply of money. The theory posits that individuals and firms have a preference for holding liquid assets, while the opportunity cost of holding money is influenced by the prevailing interest rate. When interest rates change, economic agents adjust their demand for liquid assets and their willingness to hold or trade financial securities such as shares and bonds. Other theories include the loanable fund theory of interest by Knut & Wiksell (1958) which provides a complementary explanation by arguing that the market interest rate is determined by the demand and supply for funds available in the market and not the available investment opportunity by potential investors. Changes in either the supply of or demand for loanable funds can consequently influence the cost of borrowing in the financial market hence affecting financing decisions, investment activities, profitability and ultimately market value.

2. METHODOLOGY

The study utilized positivist research paradigm. The study used longitudinal research design, employing secondary quantitative data for a period of ten years. The design was preferred due to its capability of detecting the behavior of the targeted population, guaranteeing accuracy at the group and individual level, besides being suitable for quantile regression analysis model for the published financial data of non-financial firms listed at Nairobi Security Exchange for the period 2012 to 2021. The population under this study was 32 non-financial firms, generating 320 firm-year observations over a ten-year period from 2012 to 2021. This research study used interest rate sensitivity as the independent variable while market value was used as the dependent variable. Interest rate sensitivity was measured using average effective interest rate on short term and long-term borrowing while market value of non-financial firms listed at the NSE was measured using the total number of outstanding shares and market price per share. The following Quantile Regression model was utilized $MV_t = \beta_0 + \beta_1 INT_t + \epsilon_t \dots H_01$

Where MV=Market Value; β_0 =intercept β_1 =Slope, CSt=Capital Structure and ϵ =Error Term t =Time (2012-2021)

β_2 =Slope; INT=Interest rate sensitivity; $INT_t = (1+i/m)^n - 1$

Where 1: Constant i : is annual nominal rate of interest; m : number of compounding period in a year; n : Total Number of Periods to maturity;

*INT= has been considered compositely by averaging both short term and long-term interest rate

3. RESULTS

Table 1: ANOVA table

Model		Sum of Squares	Df	Mean Squares	F	Sig.
1	Regression	616.696	3	205.565	0.181	0.910 ^b
	Residual	359680.35	316	1138.229		
	Total	3606297.029	319			

Dependent variable: Market value

Table 1 above indicates the regression model which was used in examining the relationship between interest rate sensitivity and the market value of non-financial firms listed at the Nairobi Securities Exchange. The model produced an F-statistic of 0.181 with a significance value of 0.910, which was greater than the conventional 0.05 significance level. This implied that the interest rate sensitivity variable included in the model did not provide a statistically significant explanation of the total variations in the market value of the sampled non-financial firms. Therefore, the null hypothesis that interest rate sensitivity has no significant effect on the market value of non-financial firms listed at the Nairobi Securities Exchange was not rejected.

Table 2: H_01 Relationship between Interest Rate Sensitivity and Market Value of non-financial firms listed at the Nairobi Securities Exchange.

	Number of obs = 320		
	Number of groups = 32		
Model Quality a, b, c			
	q=0.25	q=0.5	q=0.75
Pseudo R Squared	0.002	0.007	0.002
Mean Absolute Error (MAE)	266394.1250	230787.6906	300102.4688

a Dependent Variable: Firms Market Value

b Independent Variable: Interest Rate Sensitivity

c Method: Simplex algorithm

Table 2 presents the results of the quantile regression analysis examining the relationship between interest rate sensitivity and the market value of non-financial firms listed at the Nairobi Securities Exchange. The results indicated a weak and statistically insignificant relationship across all three quantiles. The quality of the quantile regression model was assessed using the Pseudo R-squared values and the Mean Absolute Error (MAE), with the model estimated using the simplex algorithm. The Pseudo R-squared values on the 25th, 50th and 75th quantiles ($q = 0.25$, $q = 0.50$ and $q = 0.75$) were 0.002, 0.007 and 0.002, respectively. These values are extremely low and indicate that interest rate sensitivity provided very limited explanatory power for variations in firms' market value across the different points of conditional distribution. The results further showed relatively high MAE values, ranging from 230,787.69 to 300,102.47 across the three quantiles, indicating substantial prediction errors and consequently limited predictive accuracy of the model. The combination of the very low Pseudo R-squared values and relatively high MAE values suggests that interest rate sensitivity alone does not meaningfully explain or predict variations in the market value of the sampled firms. Consequently, the findings provided no sufficient evidence to reject the null hypothesis (H_{01}), which stated that interest rate sensitivity has no significant relationship with the market value of non-financial firms listed at the Nairobi Securities Exchange.

4. DISCUSSION

The findings on the relationship between interest rate sensitivity and the market value of non-financial firms listed at the Nairobi Securities Exchange indicated that interest rate sensitivity does not have a statistically significant effect on firms' market value. From the ANOVA results in Table 1, the model had an F-statistic of 0.181 with a significance value of 0.910, which was considerably higher than the 0.05 significance level. This suggested that the regression model does not provide sufficient statistical evidence that interest rate sensitivity explains variations in the market value of the sampled firms. Consequently, the null hypothesis, H_{01} : Interest rate sensitivity has no significant relationship with the market value of non-financial firms listed at the Nairobi Securities Exchange, was not rejected. The finding implies that changes in interest rate sensitivity may not translate directly into changes in market valuation. This could be explained by the fact that non-financial firms differ considerably in their capital structures, debt exposure, cash-flow positions and financing arrangements. Notably, firms with relatively low dependence on interest-bearing

debt may be less exposed to changes in interest rates, while firms with stronger internal financing capacity may also be able to absorb changes in borrowing costs without substantial effects on their market value.

The results in Table 2 further reinforced the conclusion from the ANOVA analysis. Using quantile regression at the 25th, 50th and 75th percentiles, the Pseudo R-squared values were 0.002, 0.007 and 0.002, respectively. These values indicated that interest rate sensitivity explains only a very small proportion of the variation in firms' market value across the different points of the conditional distribution. At the median ($q = 0.5$), for example, the Pseudo R-squared of 0.007 suggests that the explanatory contribution of interest rate sensitivity is extremely limited. Similarly, the values of 0.002 at both the lower and upper quantiles demonstrated that the explanatory power remains negligible among firms with relatively lower and higher levels of market value. The consistency of these low values across the three quantiles suggested that absence of a meaningful relationship is not restricted to a particular segment of the firm's market-value distribution. The Mean Absolute Error values of 266,394.1250, 230,787.6906 and 300,102.4688 at the 25th, 50th and 75th quantiles, respectively, further indicated considerable prediction errors, suggesting that interest rate sensitivity alone is inadequate for accurately explaining or predicting market value variations among non-financial firms listed at NSE.

The findings can be understood within the broader context of how interest rates affect corporate valuation. In theory, higher interest rates can increase the cost of borrowing, reduce investment opportunities and affect the discount rate applied by investors when valuing future corporate cash flows. Such mechanisms could potentially reduce firms' market values. However, the present findings indicate that these theoretical channels did not produce a statistically significant relationship within the sampled non-financial firms. One possible explanation is that the market value of firms listed at the NSE is influenced by several other factors, including profitability, firm size, liquidity, dividend policy, exchange-rate movements, inflation, economic growth, investor expectations and firm-specific performance. Consequently, the effect of interest rate sensitivity may be relatively small when considered independently of these other determinants.

The finding also suggests that investors in the NSE may not respond to interest rate movements in a uniform manner across non-financial firms. Interest rate changes can affect firms differently depending on whether they are net borrowers or maintain substantial cash and interest-bearing investments. A firm with substantial debt may experience higher financing costs when interest rates rise, whereas a firm with significant financial assets may benefit from higher interest income. Similarly, firms may have fixed rate or long-term borrowing arrangements that insulate them from immediate changes in market interest rates. These differences may weaken the aggregate relationship between interest rate sensitivity and market value when firms are considered collectively. The results are also important from the perspective of the Kenyan capital market. The absence of a statistically significant relationship indicates that interest rate sensitivity should not be considered in isolation when explaining the market valuation of non-financial firms listed at the NSE. Particularly, the reported very low Pseudo R-squared values indicated that other factors like firm-specific and macroeconomic variables are likely to account for a substantially greater proportion of the differences in market value. This result therefore provided evidence that the valuation of non-financial firms in the Kenyan market may be relatively complex and dependent on a combination of financial, economic and market-related factors rather than interest rate sensitivity alone.

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