

# Factors Influencing the Capital Structure of Micro and Small Enterprises in Kapenguria Town, West Pokot County in Kenya

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**Abstract:** The purpose of this project was to investigate the factors that influence the capital structure of micro and small enterprises (MSEs) operating in Kapenguria Town. The capital structure that an enterprise chooses is bound to determine their operationalization and performance. Therefore the objective of this study was directed at identifying the factors that influence the choice of capital structure of micro and small enterprises, establish the level to which the factors determine their capital structure and to analyse extent to which enterprise use borrowed funds. The study employed a descriptive survey research design through the use of self-administered questionnaires with both open ended and closed ended questions directly collecting raw data from selected MSEs in Kapenguria Town. The study target population was 61 registered business enterprises in the town and census sampling was employed. Findings the null hypothesis,  $H_0$ , There is no significant relationship between age of a firm and its capital structure. The study rejected the hypothesis ( $\beta = 0.521$ ,  $P = 0.000$ ). The study concluded that the age of the firm influenced the capital structure of the firm. This is attributed to the fact that how old a firm is plays a role in determining its grounding in the market place and its ability to have found a niche for itself. The firm is therefore able to have more finances to inject into the business as equity as a result of being well established.

**Keywords:** Age of a firm, borrowed funds, capital structure, micro and small enterprises, operationalization, performance.

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## 1. INTRODUCTION

### 1.1 Background of the Study

Capital structure refers to how businesses choose to finance their assets through a combination of equity and debt. The mix of debt and equity financing forms the capital structure of a firm. The capital structure is used to finance investments, expansion or building the seed capital for the firm. The capital structure decisions provide firms with the most effective tool of minimizing their overall cost of capital. Capital structure is the composition of firm's liabilities which encompass owned capital that include equity, reserves and surplus while borrowed capital include debentures, loans from financial institutions or hybrid securities. The major objective of the management of organizations is to maximize the owners' wealth. Therefore firms tend to balance the sources of financing its assets. According to intermediate approach (Pandey, 1997), an optimum capital structure exists and occurs when the cost of capital is minimum or the value of the firm is maximum. The cost of capital declines with leverage because debt capital is cheaper than equity capital within reasonable or acceptable limit of debt and presumes the weighted average cost of capital decreases with the use of debt. Determining the optimal capital structure for a firm and especially the MSEs is a challenge. In an article Kandie (2015) has asserted that the concept of optimum capital structure has drawn a great deal of attention both in finance theory and practice although it remains one of the greatest unsolved problems. Al-Najjar and Hussainey (2011) emphasizes that it is still

unclear what drives capital structure decisions particularly for small and medium enterprises. Therefore this paper tries to assess the factors that influence the capital structure by MSEs in West Pokot.

The financial structure of an enterprise is represented by the left hand side of the (liabilities and equity) of the balance sheet. The capital structure represents the proportionate relationship between debt and equity. The firm's capital structure is considered optimum when the market value of shares is maximized (Pandey, 1990). But for small business enterprises, it means that the capital should be structured in a way that maximizes the return on investment in form of profits. A firm's capital structure can be made optimal through minimizing the use of debt as means of financing small businesses since debt is acquired at a cost in form of interest to be paid. The capital structure of a business enterprise is the mix of debt and equity. In equity capital, the shareholders or investors are the partners in the firm while the debt capital involves acquisition of extra capital from sources outside the firm (Nyanamba *et al*, 2013). The capital structure influences the shareholders returns and risks and also affects the market value of the shares. A good capital structure is one that results in a low overall cost of capital for the firm, which implies a low overall rate of return that needs to be paid on the funds provided by funders. Firms can either borrow from intermediaries such as banks or venture capital providers or borrow from the shareholders. A firm will be considered to be highly geared if it has a large proportion of the borrowed funds from intermediaries in relation to its share capital. The higher the level of capital gearing, the higher the risk associated with the firm or business.

This research aims to investigate the factors that influence the capital structure of selected MSEs operating within Kapenguria Town. It is an investigation on the optimal debt-equity ratio by testing their relationship with size, profitability and age. Kapenguria Municipality has witnessed fast growth in business in the last three years after the 2013 elections that brought in devolved system of government. It has also witnessed enormous growth in terms of population growth.

## 1.2 Statement of the Problem

Despite the field on capital structure being studied widely, little or no information has been documented on capital structure of MSEs in Kapenguria Town of West Pokot County and the factors that determines the choice of their capital. There is a general view that the MSEs businesses have been on an upward rise with rapid growth for last few years. This growth may be attributed to the choice of capital structure of the business units. The specific balance of equity and debt for most of this MSEs is however unknown and the factors influencing it. This possesses a contextual gap for MSEs in Kapenguria and therefore this study therefore aims to fill this gap by focusing on the area.

### 1.3.1 General objective

The main objective of the study was to determine the factors influencing the capital structure of micro and small enterprises in Kapenguria town, West Pokot County in Kenya.

### 1.3.2 Specific Objective

To assess the influence of the age of a business on its capital structure

## 1.4 Hypotheses of the Study

**H<sub>0</sub>** There is no significant relationship between the age of a business and its capital structure.

## 2. LITERATURE REVIEW

### 2.1 The trade-off theory

The purpose of the trade-off theory (TOT) is to explain why firms are financed partly by debt and partly equity. The optimal capital structure of a firm is often explained as a trade-off between the cost and merits of debt. Optimal capital structure occurs when the merit and cost of debt is equal. According to Jensen and Meckling (1976) the cost in trade-off theory is represented by the agency cost arising among creditors and owners and the cost of financial distress while the merit is measured by the tax shield of debt. This theory refers to the equilibrium between debt and equity financing after taking into account the cost of financial distress due to bankruptcy and tax benefit of borrowing (Kraus & Litzenberger, 1973). A profit reduces costs and improves financial distress by increasing the tax benefits of debt financing. Firms tend to use debt financing up to that level that that the cost of financial distress starts. The level of assets that a firm owns will

influence the financial distress to the shareholders. High valued fixed assets and other tangible assets will ensure cushion against financial distress unlike firms that rely on intangible assets since they are required to provide collateral in debt financing. Micro and small enterprises have higher risks in debt financing because they have less tangible assets and low profits. Hence tangibility of assets has positive correlation in relation to firms leverage while taxes have negative correlation with firms leverage. According to Nyanamba *et al* (2013), many companies allow their leverage ratios to drift away from their targets for a time due to information asymmetries, market imperfections and transaction costs and when the distance becomes large enough, managers then take steps to move their companies back towards the targets. According to Chandra (2015), managers often look at the trade-off between the tax shelter provided by debt and the cost of financial distress when choosing debt-equity ratio. Firms with stable, tangible assets will likely have higher debt-equity ratio, while those firms with risky, intangible assets will likely have lower debt-equity ratio. Therefore higher profitable firms use more of debt to finance their activities while low profit making firms use less of debt to finance their activities because of the presumed risks. Optimal capital structure is said to exist when the marginal cost of debt is equal to the marginal benefit of debt. When a firm adjusts its leverage higher, the cost of financial distress would exceed the tax shield benefit. The cost of debt is the cost of financial distress and bankruptcy. However financial distress cannot be zero, even for unlevered firms. Financial distress probability increases with the level of debt the firm employs, since debt payments are periodic fixed payment.

## 2.2 Conceptual Framework

The framework in this study focuses on three variables that probably influence capital structure of micro, small and medium enterprises. The variables under study are: Size, profitability and age effect on the capital structure of a business. For the purpose of this paper, the age of the firm is considered.

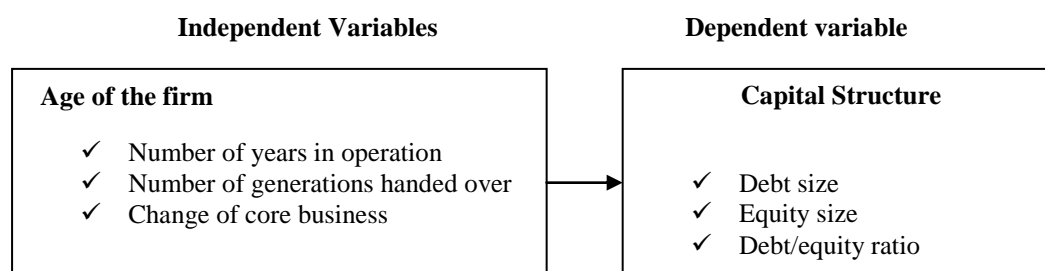


Figure 2.1 Conceptual framework

## 2.3 The Age of a Firm

Small start-up or young business ventures need capital injection for growth and expansion. Ezeoha and Botha (2011) notes that young firms are typically less creditworthy, less profitable and less diversified than older firms. They have higher probabilities of financial distress or bankruptcy. Trade off theory envisages use of less debt by small or young firms compared to larger firms. The relationship between age and leverage is positive. On the other hand Pecking order theory says small firms should prefer internal equity to external debt implying a positive relation between age of a firm and capital structure. The Age of a business is fundamental in the study of capital structure of companies (Bhaird, 2010). Financial providers evaluate creditworthiness and reputation of a business entity over a certain period. They require business firms to provide them with their banking history and financial statements over a period of time when they apply for credit facilities. Small businesses mostly source their financing needs through own savings, friends and relatives (Faridah & Madeline, 2004). Zare, Farzanfar, and Boroumand (2013) carried out a study examining the firm age, size and asset structure effects on financial leverage in the firms listed in Tehran Stock Exchange This study examined the firm size, asset structure and age effects on financial leverage; in line with this and by virtue of the most known theories presented in field of capital structure (Pecking Order Theory and Tradeoff Theory) three factors namely firm size, asset structure and age have been defined as the variables influencing financial leverage. In the next step the influence of these factors was examined on financial leverage by virtue of different life cycles (Growth, maturity and decline steps). That is why the data necessary for the study were gathered from 69 firms member of Tehran stock exchange in 2001–2010. The gained evidences indicated that the firms' financial leverage is influenced by the three variables namely the firm age, size and asset structure in the firms listed in Tehran stock exchange. Also the firms' life cycle influences the managers' decisions to secure finance.

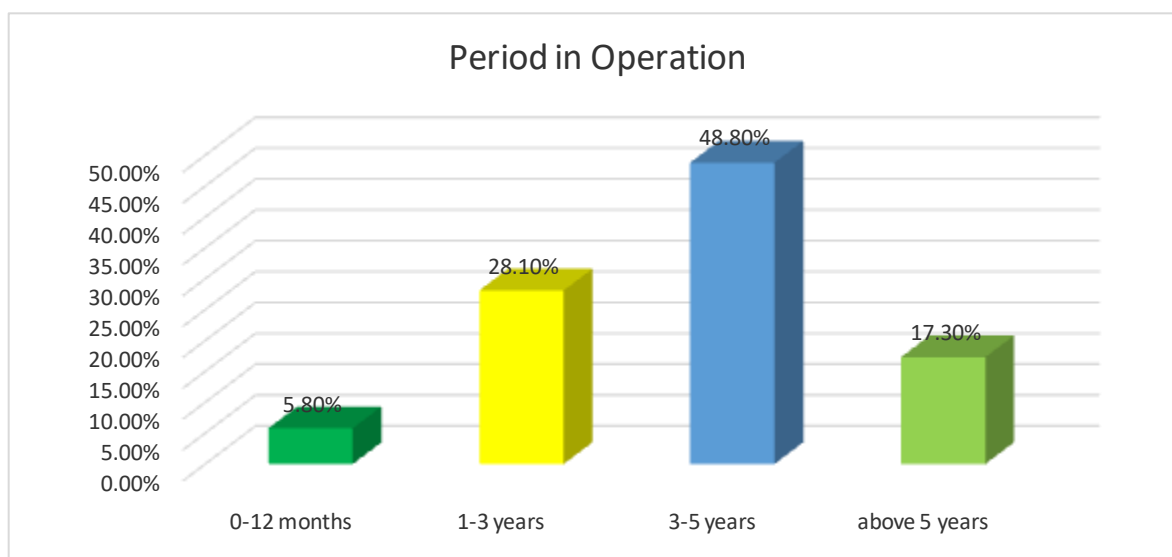
### 3. RESEARCH METHODOLOGY

The study adopted a descriptive survey research design. The target population was 61 respondents from the licenced micro-business owners within Kapenguria Township. Since the population was small (61), census was used to collect data from the entire population. Primary was gathered by use of closed and open ended questionnaires which were self-administered. Data from questionnaires was analyzed using the descriptive statistics with the help of data analysis software - Statistical Package for Social Sciences (SPSS) package. The researcher conducted regression analysis using the following analytical model,  $Y = \beta_0 + \beta_1 X_1 + \epsilon$ , Where: Y= Capital Structure,  $X_1$ = Age of the firm and  $\epsilon$ - Margin Error. In order to test the significance of the model in measuring the factors influencing the capital structure of MSEs in Kapenguria town, West Pokot County in Kenya, the study conducted a correlation and regression analysis.

### 4. RESEARCH FINDINGS AND DISCUSSION

#### 4.1 Age of the Business on its Capital Structure

The study sought to determine the effect of age of the business on the capital structure of the business. The study first sought to determine the period of time the business has been in operation. The findings are presented in figure 4.1



**Fig 4.1 Period of Business in Operation**

The findings on the period the businesses had been in operation indicate that 48.80% of the businesses had been in operation between 3-5 years, 28.10% between 1-3 years, 17.30% above 5 years, while 5.8% between 0-12 months. These findings indicate that the businesses had been in operation for different lengths of time. This is crucial in providing information on the effect that the age of the business has on the capital structure of the business.

The study sought to determine the respondents' opinion on the effect that the age of the business had on its capital structure the findings are presented in table 4.1

**Table 4.1 Age of the Business on its Capital Structure**

Statement on age		1	2	3	4	5	T	M
The firm has been handed down over 2 generations	F	0	0	10	33	9	52	3.98
	%	0	0	19.2	63.5	17.3	100	79.6
The firm is over 5 years old	F	0	0	5	22	25	52	4.38
	%	0	0	9.6	42.3	48.1	100	86.0
The firm has changed its core businesses since inception	F	0	0	19	31	2	52	3.67
	%	0	0	36.5	59.6	3.8	100	73.4

The findings on the effect of age of business on the capital structure indicate that 86% of the respondents held that the firm is over 5 years old, 79.6% said the firm has been handed down over 2 generations while 73.4% said the firm has changed its core business since inception. These findings indicate that a majority of the businesses were more than 5 years old. The findings therefore imply that the businesses had been operation for more than five years. The businesses therefore had had time to ground their businesses in the market place and curved a niche for themselves. This enabled them to effectively plan their operations and financing of the businesses their affecting the capital structure of the business. The businesses were also in a position to have started seeing the businesses give back and to plough back the profits back to the businesses therefore affecting the capital structure of the business. These findings concur with Manase, and Namusonge (2015) who carried out study on the influence of age of the firm on capital structure of insurance companies in Kenya. The study focused on the entire population of the registered insurance companies listed in the Nairobi Securities Exchange in Kenya. This study employed univariate analysis to measure the impact of this factor on the company's capital structure. The findings established a coefficient of correlation of 0.809 and a regression of 0.65 indicating a strong relation between age and the capital structure of insurance companies. These findings also concur with Ellili and Farouk, (2011) who found out the age of a firm seems not to affect the short term leverage of the company while it negatively affects the long term leverage. Their findings therefore suggest that, the mature companies are no longer interested in accumulating more long term debt in their capital structure

#### 4.2 Capital Structure

The study sought to determine if the respondents borrowed funds for their businesses. The findings are presented in figure 4.2

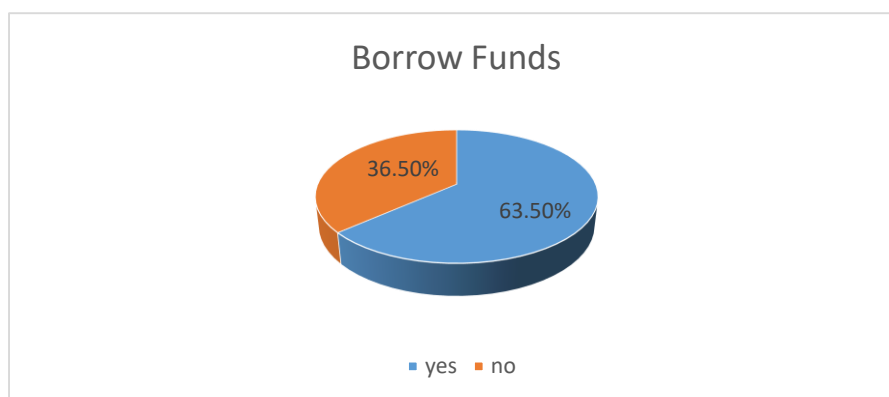


Figure 4.2 Borrowing Funds

The findings on whether the businesses borrowed funds indicate that 63.50% borrowed while 36.50% did not. These findings indicate that a majority of the businesses borrowed funds in order to finance their operations.

The study sought to determine the sources of credit for those businesses that borrowed funds. The findings are presented in figure 4.3

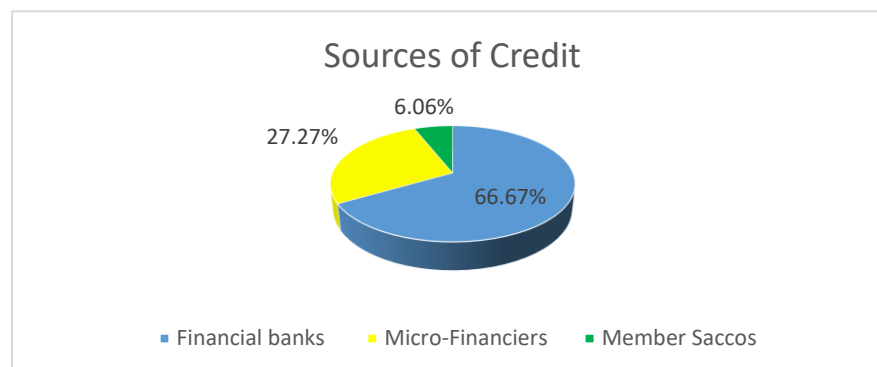


Figure 4.3 Sources of Credit for the Business

The findings from the businesses that borrowed funds on their sources of credit indicate that 66.67% were financed by banks, 22.7% by micro-financiers while 6.06% by member Sacco's. These findings therefore indicate that the businesses got their finances from different sources; however a majority were financed by commercial banks.

The study sought to determine the capital structure of the business. The findings are presented in table 4.3

**Table 4.2 Capital Structure of the Business**

Statement on capital structure		1	2	3	4	5	T	M
The firm has a big debt to repay	F	0	0	7	39	6	52	3.98
	%	0	0	13.5	75.0	11.5	100	79.6
The firm's equity has been constantly used to finance its projects	F	0	0	4	38	10	52	4.12
	%	0	0	7.7	73.1	19.2	100	82.4
The firm capital structure ratio is stable	F	0	0	3	37	12	52	4.17
	%	0	0	5.8	71.2	23.1	100	83.4

The findings on the capital structure of the business indicate that 83.4% of the respondents held that the firm's capital structure ratio is stable, 82.4% said the firm's equity has been constantly used to finance its projects while 79.6% said the firm has a big debt to repay. These findings indicate that the firm's capital structure ratio was stable. This was a result of balancing the debt and equity sources of financing the business. The businesses therefore used both equity and debt to finance their projects therefore attaining stability. They did not solely rely on profitability or debt. These findings concur with Munene, (2006) who studied the impact of profitability on capital structure of companies listed at the Nairobi Stock Exchange. The study is carried out over a period of six years from 1999 to 2004 and the data collected is analyzed using regression. This study established that profitability on its own does not exclusively account for variability in capital structure. The study revealed that there are more variables that could be in play to determine a firm's capital structure. The study therefore revealed that relying on equity alone is not sufficient to finance a business endeavour.

#### 4.3 Correlation

The study sought to determine the relationship between the independent and dependent variable. This was done through a correlation analysis. The findings are presented in table 4.8

**Table 4.8 Correlation Analysis**

		Capital structure
Age of the firm	Pearson Correlation	.382**
	Sig. (2-tailed)	0.004
	N	52

The findings on the correlation between the independent and dependent variable indicate that there was a significant correlation between age of the firm and capital structure ( $P=0.004$ ), between the size of the firm and capital structure ( $p=0.000$ ) and between profitability of the firm and capital structure ( $0.000$ ).

#### 4.4 Regression Analysis

The study carried out a regression analysis to determine the relationship between the independent and dependent variable. The findings are presented in table 4.9

Table 4.9 Regression Analysis

Model Summary						
Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	
	1	.918 <sup>a</sup>	0.842	0.833	0.11498	
a. Predictors: (Constant), Profitability, Size Age						
ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.391	3	1.13	85.494	.000 <sup>a</sup>
	Residual	0.635	48	0.013		
	Total	4.026	51			
a. Predictors: (Constant), Profitability, Size Age						
b. Dependent Variable: Capital Structure						
Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.244	0.246		0.992	0.326
	Age of the firm	0.299	0.036	0.521	8.218	0
a. Dependent Variable: D						

The model summary indicated that about 84.2% of the regression model could be accounted for in the study. As shown from the table 4.7,  $F = 85.494$ ,  $p < 0.000$ , The F test provides an overall test of significance of the fitted regression model. The F value of 85.494 indicates that all the variables in the equation are important hence the overall regression is significant. The ANOVA table for the regression indicated that the results computed using the regression model were significant meaning that the regression model had been computed well and not by chance. Capital Structure =  $0.244 + 0.299$  (Age of the firm) Therefore capital structure can be summarized as the sum total of age of the firm plus size of the firm plus profitability of the firm plus the error margin.

#### 4.5 Hypothesis Testing

From the regression model computed in table 4.9 the research hypotheses were tested using the significance level of the coefficients. The research aimed to test the hypothesis with an aim of accepting or rejecting the relationship between factors influencing the capital structure of micro- enterprises in Kapenguria town, West Pokot County in Kenya. The research hypothesis for the study included;

**H<sub>01</sub>** There is no significant relationship between age of a firm and its capital structure.

The study rejected the hypothesis ( $\beta = 0.521$ ,  $P = 0.000$ ).

These results indicate that the age of the firm has a direct effect on the capital structure of the firm with a  $\beta$  coefficient of 0.521, and p value of 0.000. These results therefore imply that the age of the firm influenced the capital structure of the firm. This is attributed to the fact that how old a firm is plays a role in determining its grounding in the market place and



its ability to have found a niche for itself. A firm has been in the market for a while has learnt how to weather the storms of the market and know how to attain success despite the prevailing times in the market.

## 5. SUMMARY CONCLUSION AND RECOMMENDATIONS

### 5.1 Age of the Business on its Capital Structure

The findings on the period the businesses had been in operation indicate that the businesses had been in operation for different lengths of time. This is crucial in providing information on the effect that the age of the business has on the capital structure of the business. The findings on the effect of age of business on the capital structure indicate that a majority of the businesses were more than 5 years old. The findings therefore imply that the businesses had been operation for more than five years. The businesses therefore had had time to ground their businesses in the market place and curved a niche for themselves. This enabled them to effectively plan their operations and financing of the businesses therefore affecting the capital structure of the business. The businesses were also in a position to have started seeing the businesses give back and to plough back the profits back to the businesses therefore affecting the capital structure of the business. The age of the firm influenced the capital structure of the firm. This is attributed to the fact that how old a firm is plays a role in determining its grounding in the market place and its ability to have found a niche for itself. A firm has been in the market for a while has learnt how to weather the storms of the market and know how to attain success despite the prevailing times in the market.

### 5.2 Conclusions

The study concluded that the age of the firm influenced the capital structure of the firm. This is attributed to the fact that how old a firm is plays a role in determining its grounding in the market place and its ability to have found a niche for itself. A firm that has been in the market for a while has learnt how to weather the storms of the market and know how to attain success despite the prevailing times in the market. The firm is therefore able to have more finances to inject into the business as equity as a result of being well established

### 5.3 Recommendations

The firms should work on expanding and increasing the number of branches they have in order to increasing their operations and resources trickling back to the businesses.

## REFERENCES

- [1] Arimi, J.K., (2010). 'The relationship between capital structure and financial performance', A study of the firms listed under industrial and allied sector at the Nairobi Stock Exchange: A Management Research Paper, School of Business; University of Nairobi.
- [2] Asmawi, N S. Faridah, S.(2013). The Determinant of Capital Structure of SMEs in Bauer P, (2004). Determinants of capital structure. Empirical evidence from the Czech Republic. Finance a Uver- Czech Journal of Economics and Finance, Vol 54 p. 1-2.
- [3] Boateng A, (2004). Determinants of capital structure. International Journal of Social Economics, Vol. 31 Iss 1-2 pp.56-66.
- [4] Champion, D. (2009). Finance: The joy of leverage. Harvard Business Review, July/August, 19-22.
- [5] Chandra, P. (2015). Fundamentals of Financial Management. McGraw Hill Education (India) Private Limited, 6<sup>th</sup> Edition
- [6] Ellili N. O. D., & Farouk S. (2011). 'Examining the capital structure determinants: empirical analysis of companies traded on Abu Dhabi Stock Exchange', International Research Journal of Finance and Economics, ISSN 1450-2887 Issue 67 (2011) 16
- [7] Frielinghaus, A., Mostert B. & Firer C., (2005). 'Capital structure and the firm's life stage'. Graduate School of Business, University of Cape Town.
- [8] Grasmuck, S., and Rosario E. (2000). Market Success or Female Autonomy? Income, Ideology, and Empowerment among Microentrepreneurs in the Dominican Republic. Gender and Society 14 (2):231-255



- [9] Kamau, J.N., (2010). 'The relationship between capital structure and financial performance of insurance companies in Kenya': A Management Research Paper, School of Business; University of Nairobi.
- [10] Kandie, K. (2015). The Role of Capital Structure in KQ's Performance. The Star, Business Commentary, pp 41
- [11] Keshar J. B., (2004). 'Determinants of capital structure: A case study of listed companies of Nepal'. The Journal of Nepalese Business Studies. 1 (1). 18
- [12] Kinyua, J.M., (2005). 'An empirical investigation of capital structure determinants for small and medium-sized enterprises in Kenya': A Management Research Paper, School of Business; University of Nairobi.
- [13] Kuria, R.W., (2010). 'Determinants of capital structure of companies quoted in the Nairobi Stock Exchange': A Management Research Paper, School of Business; University of Nairobi.
- [14] Manase, G. W. and .Namusonge, G.S. (2015) Influence of age of the firm on capital structure of insurance companies in Kenya. Unpublished thesis Jomo Kenyatta University of Agriculture and Technology
- [15] Martina H. (2015). The effect of firm size on SME's capital structure. Croatian Academy of Sciences and Arts Institute for Scientific research and Artistic Work in Osijek
- [16] Mohammad Alipour Mir Farhad Seddigh Mohammadi Hojjatollah Derakhshan, (2015). Determinants of capital structure. An empirical study of Firms in Iran. International Journal of Law and Management, Vol.57 Iss 1 pp. 53-83.
- [17] Mudida, R. Ngene G.(2010). Financial Management, Focus Publishers Limited.
- [18] Mugenda, O. M. & Mugenda, A. G., (2012), *Research Methods; Quantitative and Qualitative Approaches*, Acts Press, Nairobi, Kenya.
- [19] Muhammad Khaliq Nick Bontis Jamal Abdul Nassir bin Shaari Abu Hassan Md. Isa, (2015). Intellectual Capital in Small and Medium Enterprises in Pakistan. Journal of Intellectual Capital, Vol. 16 Iss 1 pp 224-238
- [20] Muiro, M. Kamau, SM.(2014). An Assessment of Capital Structure Decisions by Small and Medium Enterprises in Kenya. Research Journal of Finance and Accounting, Vol5, no. 15
- [21] Munene, K.H., (2006). 'Impact of profitability on capital structure of companies listed at the Nairobi Stock Exchange': A Management Research Paper, School of Business; University of Nairobi.
- [22] Nyanamba, S O. Nyangweso, G N. Omar, S M (Dr), (2013). Factors that Determine the Capital Structure among Micro-Enterprises: A Case Study of Micro-Enterprises in Kisii Town, Kenya. American International Journal of Contemporary Research, Vol. 3, No. 7
- [23] Odinga, G.O., (2003). 'Determinants of capital structure of companies listed at Nairobi Stock Exchange (NSE)': A Management Research Paper, School of Business; University of Nairobi. 20
- [24] Ondiek, B., (2010). 'The relationship between capital structure and financial performance of firms listed at the Nairobi Stock Exchange': A Management Research Paper, School of Business; University of Nairobi.
- [25] Pandey, I.M.(1997). Financial Management, Vikas Publishing Hse PVT Limited.
- [26] Prasanna, Chandra (2015). Fundamentals of Financial Management, McGraw Hill Education (India) Private Limited
- [27] Saeed A, Mohamood I, (2008). The Determinants of capital structure: Evidence from an Emerging Market.
- [28] Zare, R. Farzanfar, F. and Boroumand, M. (2013). Examining the Firm Age, Size and Asset Structure Effects on Financial Leverage in the Firms Listed in Tehran Stock Exchange International Journal of Economy, Management and Social Sciences, 2(6) June 2013, Pages: 256-264