**EFFECT OF HEURISTIC BIASES ON CAPITAL STRUCTURE OF FIRMS LISTED AT NAIROBI SECURITIES EXCHANGE, KENYA**

**Authors: Margret Andayi, MBA, University of Nairobi, Dept of Financial and Accounting.**

**Dr. Onsomu N.Z., University of Nairobi, Department of Finance and Accounting.**

# ABSTRACT

The study sought to find out the effect of heuristic biases on capital structure of firms listed at Nairobi Securities Exchange, Kenya. The study used firm size, profitability, tangibility and growth opportunities as control variables. Regression analysis revealed the following: 59.8% of capital structure could be explained using heuristic bias, firm size, profitability, and tangibility and growth opportunities. The regression coefficient showed that heuristic biases had a negative and significant effect on capital structure (β= -2.814, p < 0.05). Firm size had a negative and significant effect on capital structure (β=-0.413, p<0.05). Tangibility had a positive and significant effect on capital structure (β=3.962, p<0.05). However, growth opportunities and profitability had a positive and insignificant effect on capital structure. The F-test depicted that the model was significant (p<0.05) in explaining changes in capital structure. The study concluded that capital structure of firms is affected by irrational behavior of the managers.

*Key words: Heuristics, capital structure, firm size, profitability, tangibility, growth opportunities.*

**1.0 INTRODUCTION**

Heuristics are rules of thumb. They simplify decision making process by substituting a difficult question with an easier one (Kahneman, 2011). Heuristic bias can be a source of cognitive biases. According to Huang and Liu (2007), heuristics can be a good source of faster decision making while at the same time they can lead to systematic errors. Tversky and Kahneman(1974) identified three heuristics as representative bias, availability bias, anchoring and adjustment. Practically it is not possible to have a decision maker who is capable of processing all relevant information and come up with a choice under limited time and constrained conditions. The need to ease processing information leads to heuristics or shortcuts (Riyazahmed & Saravanaraj, 2016).

There are many studies which indicate that people cannot be relied upon to make accurate probability assessments in many contexts. One such explanation is the use of heuristics (Tversky & Kahneman, 1973, 1974). In a world where knowledge is limited coupled with time and resource constraint, human beings are bound to use shortcuts in arriving at financing decisions (Vetschera, Campo, Pauser & Steiner, 2016). Traditional finance theory relies on fundamental principles in arriving at capital structure. For instance an optimal capital structure should be informed by a reasonable and proportional application of debt and equity to support balance sheet strength in terms of asset base (Loth, 2017). However Modern reviews on determinant of capital structure argue that heuristic bias can affect financing decisions of companies. Heuristics may reduce the cognitive biases associated with decision making in so many aspects: they give the user an opportunity to careful examine signals and/ or alternative choices in decision making; additionally they reduce the work in storing and retrieving information, heuristics are significant in minimizing the cost and time associated with complex decisions making (Shah and Opphhenheimer, 2008).

A few studies have attempted to bring into perspective the role played by heuristic bias on capital structure of firms. Esghaier (2017) in the study capital structure choices and behavioral biases concluded that there was a positive impact of manager’s overconfidence on their pecking order preferences as there was for optimism and overconfidence on leverage levels. Bellouma and Belaid (2016) show that loss aversion, self-serving biases, overconfidence, anchoring bias and representative bias have a positive relationship with the manager’s decision on working capital structure. Abdin, Farooq, Sulatana and Farooq (2017) also demonstrated that availability and representativeness is the strongest predictor of investment performance followed by overconfidence. Kimeu, Anyango and Rotich (2016) indicated that behavioral factors which included heuristics positively influenced investment decisions at Nairobi securities exchange. The study concentrated on herding, heuristics and rationality. Kungu (2016) findings indicated that anchoring bias, excessive optimism and random walk bias had a significant impact on investor decisions. This observation leads to a conclusion that while international reviews have attempted to look at heuristics in relation to capital structure, local studies (Kenya) have concentrated on investments and heuristic bias with very limited research in capital structure and heuristics. This is the research gap that this study seeks to fill.

# 2.0 LITERATURE REVIEW

## 2.1 Theoretical Review

This study adopted three theories where heuristics and capital structure are anchored. The theories discussed were Heuristic theory (Kahneman & Tversky, 1974), Trade Off theory (Kraus & Litzberger, 1974) and Pecking Order theory (Myers &Majluf, 1984).

### 2.1.1 Heuristic Theory

Tversky and Kahneman (1974) when developing the theory defined heuristics as simple rules of the thumb. They are usually adopted in order to assist break down a complex problem into a simpler one. Typically people employ them when faced with complex situations coupled with time constraint and other factors like insufficient information. These rules may work well in some situations but under certain circumstances they may lead to systematic errors (Kahneman & Perikh, 2011). According to Tversky and Kahneman (1981) heuristics are strategies that could be used to solve a number of problems. However they do not usually yield the right solutions. People often use heuristics to solve complex problems in uncertain environment (Brabazon, 2000). The original heuristics developed were named representativeness, availability, anchoring and adjustment.

Availability heuristic is a mental shortcut which makes individuals to solve problems by considering how easy it is to bring it to mind. The biases with availability heuristics are recent events, relevant events and dramatic events. It can have a positive outcome when it makes people careful about dangerous situations. Representativeness is a mental shortcut that helps us in making decisions comparing to our mental prototypes. It believes that small numbers are representative of whole in similar settings. Anchoring bias is where people arrive at a judgment by focusing from a starting point and adjust upwards or downwards until a final decision is reached. Heuristic theory looks at managerial decisions from cognitive and emotional perspective. This theory presupposes that judgments and reasoning are made possible by the actualization of intelligent mental models which are usually brought to mind by preconscious heuristics. This process brings into context the problem so that relevant goals at hand are maximized. At the very least models undergo processing so as to infer or make judgments applicable to the current instructions; however a much more active intervention may result into improvement or substitution of failed models initiated by the heuristic systems.

### 

### 2.1.2 Trade off Theory

Fronted by Kraus and Litzenberger (1973), the study looks at a balance between the tax advantage derived from debt and the dead weight costs associated with bankruptcy. It states that there exist an optimal capital structure which comprise of debt and equity. With this ratio there is a tax benefit advantage of financing with debt and also a disadvantage of the cost of debt which includes bankruptcy cost of debt and non-bankruptcy costs like high staff turnover. Another gain of financing by debt is the mitigation of the managers-shareholders agency conflicts because it restricts managers’ access to free cash flow. However agency costs inflicted by shareholders and debtors conflicts may result (Jensen & Meckling, 1976). According to Modigliani and Miller (1963) there are other costs as a result of issuing more debt and they include financial distress.

According to Myers (2001), trade off theory holds that a firm would continue to acquire debt up to a level where the tax shield gain from extra debt is cancelled by the inherent costs of financial distress from the additional debt. The theory brings out the fact that managers prefer more debt financing to equity due to tax benefit on debt, (Myers, 2001). It is important to point out that bankruptcy cost, agency conflicts, taxes and adverse selection have been emphasized as the main reason for use of debt and equity financing by corporate firms. However heuristic bias has been left out as a factor to explain the same.

### 2.1.3 Pecking Order Theory

Fronted by Majluf and Myers (1984), the theory postulates that there is always asymmetric information exhibited by firms. This is where insiders who include managers have more information about shares than the other stakeholders. This then implies that the cost associated with financing the firm’s operation increases with information asymmetry. Therefore firms choose to follow a certain hierarchy of financing. They begin by internal financing then if internal financing is not enough debt issue is the next option and when no other option is available, equity finance is considered last. This is because existence of information asymmetry makes outsiders to think that managers would issue equity at a time when the firm is overvalued and hope to have an edge over it. At this point, equity therefore becomes a less desirable way of raising finance. Outside investors take this as an incentive to lower new equity. The form of financing that a company chooses is usually interpreted as a signal that it needs external finance. This signaling effect can send a message to outside investors on how they ought to view the firms as a hub for investment.

Empirical reviews have shown that pecking order theory may not be prioritized when determining a firm’s financing decisions. Nonetheless a number of researches show that there could be a good level of approximation of truth. Consider a case in point by Myers and Shyan-Sunder (1999), Fama and French (2015) who showed that some areas of data could be better explained by pecking order than trade off. On the other hand Goyal and Frank (2009) show that, pecking order, among other things does not hold especially for small firms due to information asymmetry. Grinblatt(2005); Holmes ( 1991) and Quan (2002) observes that pecking order theory is appropriate for medium sized firms’ financing choices since debt is the main source of finance for small and medium enterprise where owners tend to be the managers of businesses that do not want to dilute ownership. They too agree that companies opt for internal financing of any sort and incase of any external then debt is considered over equity.

This theory links the heuristic biases of managers to the financing options as it relates to the presence pecking order choice. Managers might possess the heuristic biases when choosing the financing options in terms of debt and equity. This theory has been used to conceptualize the dependent variable, which is a capital structure decision. Depending on the biases managers’ posses, they may be influence by heuristic bias biases in their financing decisions.

## 2.2 Empirical Review

Azouzi (2012) carried out a research on how CEO’s emotional bias affect financing decisions using Bayesian network method. The study examined the behavioural aspects in the determinants of firms’ capital structure. Questionnaires were issued to 100 Tunisian managers. It was concluded that the CEO’s financing choice analysis was influenced by behavior bias. For instance CEO’s behavior bias was consistence with pecking order theory where they preferred internally generated resource to finance their assets. Optimism, loss aversion and overconfidence were exercised when the CEOs financed their projects by first internal resource followed by debt last equity.

Barros and Da Silveira (2007) employed panel data estimation technique to examine 153 non-financial Brazilian firms on the Sao Paulo stock exchange. The study period was between 1998 and 2003. Over-confidence and optimistic managers were found to have a tendency of choosing more levered financing choices than other managers. Profitability, dividend payment, size and tangibility as well as corporate government were found to be other variables explaining capital structure. The entrepreneurial nature of managers determined the proxies adopted for managerial overconfidence and optimism, specifically where the manager was a founder or a hired executive. It was argued that despite the difference in overconfidence and optimism, they had a close relationship and that owner managers would display such cognitive biases more often than non-owners (employees)

Filbeck, Gorman and Preece (1996) hypothesized that firms make financial choices based on the capital structure decisions of their industry leader. The study period was 1981 to 1990. They tested the Patel, Zeckhuser and Hendricks (1996) whose hypothesis was that firms tended to align their capital structure with the industry and they did not find any agreement in firms’ herding behavior and then they tested the hypothesis that firms base their financing choices on following some industry leader. They found a mild support for this hypothesis.

Li, Lin, and Tse (2017) carried out a research to find out whether CEOs exhibit anchoring bias when arriving at corporate financing decisions. The measure of anchoring bias was based on 52-week share price high. The study period was between 1996 and 2012. Data for CEO insider selling was collected from four filings in Thomson Reuters Insider Filing database. The target population was 10486 firms with a sample of 7149 firms. The findings were that the CEOs carry their own anchoring bias to the firms they manage. It was concluded that CEOs anchoring bias is an essential determinant in corporate financing decisions. The paper proposed future research on the managerial behavior in the area.

Hovakimian and Hu (2016) did study looked at The Impact of Reference Point Prices on Seasoned Equity Offering. COMPUSTAT data between1974 to 2014 was used with a sample of 2871 SEO. The study’s findings were consistence with the hypothesis that managers use historical high prices as a reference point when they make Secondary Equity Offering decisions. They concluded that financing decisions were affected by historical high prices.

Khan, Naz, Quresh and Ghafoor (2017) carried a research on Heuristics and Stock buying decisions on Malaysian and Pakistan Stock market. The heuristics under study were representative, availability, anchoring and adjustment. The study used 1000 questionnaires to sample out Malaysian and Pakistani investors in stock market. Convenient sampling was used. 300 respondents were received, out of which 240 had valid data. Descriptive statistics was adopted. The results showed that there is influence of heuristics in stock buying decisions.

A study carried by Murithi (2014) on anchoring bias and investment decision making by individuals in Kenya used a sample of 102 investors. The study employed two sub-samples of 51 each. Investors were also categorized according to age and experience. Those who were 30 years and above and at least 7 years investing experience were put in one category while those below 30 years with less than 7 years experience were put in another category. The sample and sub-sample were processed and the analysis was done using Statistical Package for the Social Sciences Software and Microsoft excel. The outcome revealed that investors were influenced by anchoring bias in their investment choics. It could however not be established if a given group of investors was affected more than the other.

Obara (2015) carried out a research on the effects of heuristic biases on investment returns by unit trusts in Kenya. Descriptive research design was employed with a census survey of 56 different funds operated by the 18 unit trust companies. Questionnaires were used to collect data and analyzed used Statistical Package for the Social Sciences computer software. It was established that unit trusts returns were affected by representative bias, overconfidence and anchoring bias.

Athur (2014) examined how behavior biases affect investment decisions of individual investors in Kenya. The study looked at herd Instinct, overconfidence and anchoring biases. The study used a descriptive research design. The population consisted of all individual investors in Kenya. A snowball sampling technique with a convenient sample of 30 respondents was used. The study use primary and secondary data. The findings showed a significant correlation between individual investors’ herd instinct, cognitive dissonance, representativeness, hindsight bias and illusion of control bias.

## 

## 2.5 Summary of Empirical Review

The empirical review has shown that heuristic bias has an effect on investment decisions. A nascent of evidence also indicates that heuristic bias has an effect on financing decisions. However this evidence is only limited to a few heuristics namely anchoring bias, herding behavior, managerial optimism and overconfidence. Equally local studies have very little evidence on heuristic bias and capital structure. This study therefore concluded that there was need to carry out research on the effect of heuristic biases on capital structure of firms listed on Nairobi security exchange.

## 2.6 Conceptual Framework

The independent variable for this study was heuristic biases. It is a composite variable of anchoring bias, representative bias and availability bias. When manipulated, they have an effect on the dependent variable which is capital structure. Control variables chosen were firm size, profitability tangibility and growth opportunities. This is meant to mitigate the unexplained variations in capital structure and heuristic biases. The diagrammatic representation of the conceptual framework is shown in figure 2.1 below.

**Figure 2.1: Conceptual Framework**

**Independent Variables Dependent Variable**

**Heuristic biases**

* Anchoring Bias
* Representative Bias
* Availability Bias

**Capital Structure**

* Debt to equity

**Control Variables**

* Size
* Profitability
* Tangibility
* Growth opportunities

# 3.0 RESEARCH METHODOLOGY

## 3.1 Research Design

Descriptive research design was adopted for this study. It is defined as the process where data is collected with an aim of testing a hypothesis and respond to questions concerning the subject status of the study at that moment. Descriptive research design would endeavor to determine and report the way things are. It describes such things as possible behavior, values, attitudes and characteristics. Using this design ensured in depth analysis and description of a variety of phenomena being investigated hence it was appropriate for this study (Churchil, 1991)

## 3.2 Population of the Study

The population for the research consisted of 44 companies listed at Nairobi securities exchange (NSE 2017). A census survey was adopted to collect data from these 44 firms listed at Nairobi Securities Exchange. 11 firms from the banking sector and 6 from the insurance sector were excluded because they are regulated.

## 3.3 Data Collection

Data to test the biases was collected using a semi-structured questionnaire and Likert scale tables. 44 questionnaires were administered to 44 financial managers who are in charge of financing decisions. Drop and pick procedure was adopted. These questions were meant to enhance production of relevant evident upon which information for analysis and thereafter conclusions was drawn. Secondary data was used for capital structure and control variables. The secondary data to be collected included total debt to equity ratio to measure capital structure, total sales to measure size of the firm, return on assets ratio to measure profitability of assets, fixed assets to total assets ratio to measure tangibility and finally ratio of fixed assets for current year to total assets previous year to measure growth opportunities was used. This data was collected from published financial statements from online sources and past newspapers. The study period was 2015, 2016, 2017 and 2018 financial years.

## 3.4 Validity and Reliability

Validity refers the accuracy with which a test measures what it is intended to measure (Mason & Bramble, 1989). Three basic approaches are construct validity, content validity and criterion related validity. The study ensured validity by pilot questionnaires so that any response that was out of context could be re-evaluated and proper questions asked.

Research instruments are said to be reliable if they consistently yield similar results on repeated trials. It should give consistence results when using different instruments (Carmine and Zeller, 1979). In order to ensure reliability the study used (Cronchbach’s coefficient of alpha, Cronchbach, 1946). The coefficient is considered better the closer it gets to 1.0. In general α<0.6 are considered to be poor while 0.7 ≤ α ≤ 0.8 is considered desirable.

## 3.5 Data analysis

Data was analyzed using statistical tools which are ANOVA and regression model in order to know the relationship and effect of heuristics on capital structure. Data collected from the questionnaires and published financial reports were tabulated, coded and processed using a computer Statistical Package for Social Science (SPSS). The analytic model was:

Y = βo + β1 X1+ β2 X2+ β3 X3 + β4X4 +β5X5 +€

Where:

Y = Capital Structure, X1 = Heuristic biasX2 = size of the firm, X3 = profitability, X4 = tangibility, X5 = growth opportunities,€ = Error term, β0= Constant term, β1, β2, β3, β4, and β5,are the regression co-efficient of independent variables.

### 

### 3.5.1 Operationalization of the Variables

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Indicator** | **Measurement** | **Literature** |
| Capital structure | * Debt to equity | Total debt/equity | Azouzi and Jarboui (2012) |
| Anchoring Bias | * Insufficient adjustment process * Attitude change * The selective accessibility approach | Mean score | Nyakundi (2017) |
| Representative bias | * Insensitivity to sample size * Base rate neglect * Insensitivity to predictability | Mean score | Nyakundi (2017) |
| Availability bias | * Relevant events * Recent events * Dramatic events * Disproportionate risk assessment | Mean score | Nyakundi (2017) |
| Size of the Firm | * Level of sales turnover | Ln. total sales. (ln= natural logarithms) | Oliver (2005) |
| Profitability | * Return on Assets(ROA) | ROA= NetIncome/AverageTotalAssets or EBIT/TOTAL SALES | Bauer (2004),Baker and Wurgler (2002) |
| Tangibility | * Fixed assets/total assets | TotalAssets – CurrentAssets)/TotalAssets | Bauer (2004) |
| Growth Opportunities | * Fixed assets/total assets | (TotalAssett–TotalAssetst-1 )/Total Assetst-1 | Bauer (2004) |

### 

### 3.5.2 Test of Significance

This study used a t-test statistics and was tested at 5% level of significance. The co-efficient of determination (r2) was used to measure the proportion of the total variation that could be explained by the independent variable. The higher the r2 the more reliable it will be

# 

# 4.0 DATA ANALYSIS, RESULTS AND DISCUSSIONS

## 4.1 Descriptive Analysis

This study analyzed the data collected and tabulated the mean, median, mode and standard deviation of the independent variables heuristic bias (Anchoring Bias, Representative Bias and Availability Bias) and the dependent variable (capital structure). Control variables included in the model are firm size, profitability, tangibility and growth opportunities. From the results of the descriptive statistics, heuristic bias had a mean of 3.8191, median of 3.6700, mode of 3.67 and standard deviation of 0.39497. Firm size had a mean of 13.6386, a median of 13.200, mode of 13.20 and standard deviation of 2.86355. Profitability had a mean of 0.3374, median of 0.100, mode of 0.1, and standard deviation of 1.84562. Tangibility had a mean of 0.6883, median of 0.6, mode of 0.8 and a standard deviation of 1.15462. Growth opportunity had a mean of 3.9698, median of 0.35, mode of 0.1 and standard deviation of 5.74388. Capital structure had a mean of 2.6675, median of 0.8, mode of 0.1 and standard deviation of 5.00586.The table 4.1 below shows the findings summary of the descriptive statistics?

**Table 4.1: Descriptive Statistics**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Descriptive Statistics** | | | | | | | |
|  | | capital structure | Heuristic bias | firm size | Profitability | Tangibility | Growth opportunities |
| N | Valid | 53 | 46 | 57 | 58 | 46 | 46 |
| Mean | | 2.6675 | 3.8191 | 13.6386 | .3374 | .6883 | 3.9698 |
| Median | | .8000 | 3.6700 | 13.2000 | .1000 | .6000 | .3500 |
| Mode | | .10 | 3.67 | 13.20 | .10 | .80 | .10 |
| Std. Deviation | | 5.00586 | .39497 | 2.86355 | 1.84562 | 1.15462 | 5.74388 |

Source: research data 2018

## 4.2 Correlation Analysis

From Table 4.2, heuristic bias has a weak positive correlation with capital structure of 0.024 with p value of 0.872. Firm size had a weak negative correlation of -0.036 with a p value of 0.798, profitability had a weak positive correlation of 0.016 with a p value of 0.911, tangibility had a strong positive correlation of 0.749 with a p <0.001 and growth opportunities had a weak negative correlation -0.021 with a p value of 0.892. Only tangibility is statistically significant in explaining variations in capital structure. All other independent variables are statistically insignificant in explaining changes in capital structure.

**Table 4.2: Pearson Correlation**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Correlations** | | | | | | | |
|  | | Capital structure | Heuristic Bias | Firm Size | Profitability | Tangibility | Growth opportunities |
| Capital Structure | Pearson Correlation | 1 |  |  |  |  |  |
| Heuristic Bias | Pearson Correlation | .024 | 1 |  |  |  |  |
| Sig. (2-tailed) | .872 |  |  |  |  |  |
| Firm Size | Pearson Correlation | -.036 | -.074 | 1 |  |  |  |
| Sig. (2-tailed) | .798 | .623 |  |  |  |  |
| Profitability | Pearson Correlation | .016 | -.173 | .152 | 1 |  |  |
| Sig. (2-tailed) | .911 | .249 | .259 |  |  |  |
| Tangibility | Pearson Correlation | .749\*\* | .254 | .211 | .018 | 1 |  |
| Sig. (2-tailed) | .000 | .088 | .159 | .906 |  |  |
| Growth opportunities | Pearson Correlation | -.021 | -.014 | .167 | -.094 | -.076 | 1 |
| Sig. (2-tailed) | .892 | .925 | .267 | .533 | .616 |  |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | |

**Source: Research data 2018**

|  |
| --- |
| **4.3 Regression Analysis** |

In order to establish the overall effect of heuristic bias on capital structure of firms, an average score for all the three heuristic biases was computed and the spss statistics gave the following results. The coefficient of determination was found to be 0.598 which implies that 59.8% of independent variables (heuristic biases, firm size, profitability, tangibility and growth opportunities) explain variations in capital structure. The remaining 40.2% can be explained by other variables not considered in this study.

The regression model was as follows:

|  |
| --- |
| Y =16.272 – 2.814X1 - 0.413X2 + 0.029X3 + 3.962X4+ 0.077X5  (p=0.08) (p=0.043)  Where X1= heuristic biases, X2= firm size, X3= profitability, X4, = tangibility,  X5 = Growth opportunities.  Heuristics had a statistically significant relationship with capital structure (β = 0.08, p<0.05). Among the control variables, size and tangibility had a statistically significant relationship with capital structure (p<0.05). However, profitability had an insignificant relationship with capital structure (p>0.05). This is summarized in below: |
|  |

**Table 4.3: Coefficient of Independent Variables.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Coefficients** | | | | | | |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| B | Std. Error | Beta |
|  | (Constant) | 16.272 | 5.803 |  | 2.804 | .008 |
| Heuristic bias | -2.814 | 1.349 | -.209 | -2.086 | .043 |
| Firm size | -.413 | .173 | -.241 | -2.385 | .022 |
| Profitability | .029 | .263 | .011 | .111 | .912 |
| Tangibility | 3.962 | .468 | .859 | 8.471 | .000 |
| Growth opportunities | .077 | .090 | .083 | .852 | .399 |
|  | | | | | | |

## 5.0 CONCLUSION

The study revealed that heuristic biases had a negative effect on capital structure. This had an implication that a unit increase in any of the heuristic biases would lead to a decrease in leverage levels. The study therefore concludes that heuristic biases have a negative effect on capital structure of firms listed at Nairobi securities exchange.

The study results also showed that firm size had a negative effect on capital structure. This implies that has the size of the firm increases, leverage levels decrease. As such, larger firms have lower leverage levels. Profitability had a positive effect on capital structure. This depicts that firms with high profitability levels employed high debt levels which contradicts the pecking order theory. Tangibility was found to have a positive effect on capital structure. This may be attributed to availability of assets which can be used as collateral to obtain debt. Lastly, growth opportunities showed a positive effect on capital structure. This implies that firms with potential investments tend to borrow more debt to finance their projects.

## 6.0 Recommendation of the Study

The study found that heuristic biases had a negative influence on capital structure. This means firms that are influenced by heuristics end up having less leverage levels. This will be acceptable for small firms but firms that have an eye for growth will not find this attractive to them. The study therefore recommends that managers be educated on both the positive influence and negative effects of heuristic biases so that they can use it selectively and consciously when making financing decisions. They can also choose to avoid heuristics when it will have an adverse effect on their capital structure. The research further recommends that firm managers be able to draw a balance between proportion of debt and equity to finance activities of the firms based on valid fundamental principles as opposed to heuristics.

# REFERENCES

Abdin, Z., S. Farooq, O., Sultana, N. & Farooq, M. (2017). The impact of heuristics on investment decisions and performance: Exploring multiple mediation mechanism. *Research in international business and finance.42* (2017), 674-688

Abor, J. (2005). The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana. *Journal of Risk Finance*, *6*(5), 438-445.

Al-Sakram, A. S. (2001). Leverage determinants in the absence of corporate tax system: the case of non‐financial publicly traded corporations in Saudi Arabia. *Managerial Finance,* *27*(10/11), 58-86.

Athur, A. D. (2014). Effect of behavioral biases on investment decisions of individual investors in Kenya. *Unpublished Student's Work UoN* .

Azouzi, M. J. (2012). CEO emotional bias and capital structure choice, Bayesian Network Method. *Journal of Business Exellence and Management, 2*(2) , 47-70.

Baker, M. & Wurgler, J. (2002). Market timing and capital structure. *The Journal of the American Finance Association 57*(1) , 1-32.

Barber, M. & Odean T. (2000). Trading is hazardous to your wealth: The common stock investment performance of individual investors. *The Journal of Finance 55*(2), 773-806. , 773-806.

Bauer, P. (2004), “Determinants of Capital Structure: Empirical Evidence from the Czech Republic.”*Finance a úvěr – Czech Journal of Economics and Finance*, *54* (1-2), 2-21.

Bellouma, M. & Belaid F. (2016). Decision making of working capita managers: Behavioral approach. *Journal of business studies quarterly. 7* (4).

Bilgehan T. (2014). Psychological biases and the capital structure decisions. *Theoretical and applied economics, 12*(601) , 123-145.

Campo C., Pauser S., Steiner E., & Vetschera R. (2016). Decision making styles and the use of heuristics in decision making. *Journal of business economics*. *86* (4), 389-412.

Chung, P., Y. Na, H. S., & Smith, R. (2013). How Important is Capital Structure Policy to Firm Survival?. *Journal of Corporate Finance*. *22*(1)

Churchill Jr., G. A. (1991). Marketing *Research: Methodological Foundations* (5th ed.) Chicago IL: Dryden Press.

Cuong, N. (2014). Threshold Effect of Capital Structure on Firm Value: Evidence from Seafood Processing enterprise in South and Central Region of Vietnam. *Internal Journal of Banking and Finance 3*(3), 14-29.

Esghaier, R. (2017) Capital structure choices and behavioral biases: An application to a panel of US industrial companies. *International journal of economics and financial issues. 7(*4), 608-622.

Fama, E. F., & French, K. R. (2015). Testing trade-off and pecking order predictions about dividends and debt. *Review of Financial Studies 15*(1) , 1–33.

Flom, P. (2018, march 13). The Advantages of Using an Independent Group T-Test. *sciencing* , pp. -8647277.html.

Folkes, V. S. (1988). Recent Attribution Research in Consumer Behaviour. A review and New Direction. *Journal of Consumer research*. *13*(4), 534-539

Frank, Z. M., and Goyal, K. V.(2009). *Profits and capital structure*. (San francisco meetingspaper)

Grinblatt, M. A. (2005). Prospect Theory, Mental Accounting and Momentum. *Journal of Financial Economics*. *78*(2),311-339.

Henao, S. B., & Borrero, H. S. (2017). Can Managers Be Really Objective? *Academy of Strategic Management Journal.16*(1) , 244-245.

Holmes, S. (1991). An Empirical Ananalysis of Financial Structure of Small and Large Australian Manufacturing Enterprise. *Journal of Small Business Finance*.*1*(2), 141-154.

Hovakimian, A. & Hu, H. (2016). *The Impact of Reference Point Prices on Seasoned Equity Offerings.* (Working paper.)

Huang, L. & Liu, H. (2007). Rational Inattention and Portfolio Selection. *The Journal of Finance. 62*(4) , 1999–2040.

Kimeu, M.C., Anyango, W., & Rotich, G. Behavioural factors influencing investment decisions among individual investors in Nairobi Securities exchange .*Journal of management. 3*(4), 65.

Irshad, S. Badsha, W. & Hakam, U.(2016). Effect of Representativeness Bias on Investment Decision. *Management and Admnistrative Science Review. 5*(1), 26-30.

Jensen, M. (1986). Agency costs of free cash flow, corporate finance and takeovers. *American Economic Review. 76*(2) , 323-339.

Kahneman, D & Tversky, A. (1974). Judgment under Uncertainty: Heuristics and Biases. *Science, 185*(4157) , 1124-1131.

Kahneman, D. (2011). *Thinking, Fast and Slow.* New York: Farrar, Straus & Giroux.

Kahneman, P. & Tversky A. (1982). *Judgement under uncertainty: Heuristics and biases.* Cambridge, UK : Cambridge University Press.

Karaa, I. E. (2011). Impact of Anchoring Bias on Corporate Profits and Shareholders Wealth. *International Journal of Economics and Finance Studies. 3* (2) , 309-315.

Karanja, M. M.(2017) Effects of behavioural finance factors on investment decisions at the nairobi securities exchange in Nairobi county.( *A masters student, Kenya college of accountant university)*

Kaustia,M. Alho, E. Puttonen, V. (2008). How much does Expert reduce behavioural Bias?The case of Anchoring effects on Stock Returns estimates. *Financial Management. 37*(3) , 391-412.

Khan, H. Naz, I. Qureshi, F. & Ghafoor, A.(2017). Heuristics and stock buying decision: Evidence from Malaysian and Pakistan stock Market. *Borsa,Instabul Review*. 17(2) , 97-110.

Kraus, A., & Litzenberger, R. H. (1973). A State Preference Model of Optimal Financial Leverage. *The Journal of Finance, 28*(4) *,* 911-922.

Kungu, W. B.(2016). The effect of cognitive biases on individual investment decisions at the Nairobi securities exchange. (*MBA student’s work. University of Nairobi)*

Kuria, M., M. (2015) Dynamic capability and competitiveness of Safaricom limited Kenya.(MBA student University of Nairobi)

Lai, L. (2011). *Behavioural Bias in Corporate Financial Decision Making.* Tilburg University .

Li, F. Lin, C. Lin, T. (2017). Do *CEOs imprint Anchoring on Corporate Financing Decisions*? (PHD dessertation paper at Hong Kong University ).

Makokha, C. K. (2015). Effect of overconfidence bias on capital structure of firms listed at the Nairobi security exchange. *Unpublished MBA work University of Nairobi.*

Marsden, A. Veeraraghavan, M. & Ye, M. (2008). Heuristics of Representativeness, Anchoring and Adjustment, and Liniency: Impact of Earnings'Forecasts by Australian Analyst. *Quarterly Journal of Finance and Accounting. 47*(2) *,* 83-102.

Murithi, D. K. (2014). The *Effect Of Anchoring on Investment Decisions Making by individual investors in Kenya.* Unpublished MBA Reseach paper University of Nairobi .

Mwikya, N. K. (2013). *Relational Factors Influencing On-time Service Delivery at Kenya Airways* (Doctoral dissertation, University of Nairobi).

Myers, S., C. & Majluf, S. N. (1984). Corporate Financing and Investment When Firms have Information that Investors do not have. *Journal of financial economics. 13*(2) , 187-221.

Myers, S. (2001). Capital Structure. *Journal of Economic Perspectives. 15*(2) , 81-102.

Myers, S. (1977). Determinants of Corporate Borrowing. *Journal of Financial Economics, 5*(2), 147-175.

Nyakundi, J. Njuguna, A. & Omboi, B. (2017). Effect of managerial overconfidence on ranking of financing decisions by financial managers of firms listed at NSE.*European Journal of Business and Strategic Management*. 2(7), 1 – 20.

Nyakundi, J. (2017). *Behavioural Bias and Ranking of Financial institutions in Kenya*. ( doctorial dissertation, JKUAT)

Obara, C. (2015). *The Effect of Heuristic Biases on Investment Returns by Unit Trusts in Kenya.*

(Unpublished student’s work, University of Nairobi)

Oliver, B. (2005). *The Impact of Management Confidence on Capital Structure.* Working Paper .

Onalopo, A., A. Kajola, S. O. (2010). Capital Structure and Firm Performance: Evidence from Nigeria. *European Journal of Economics, Finance and Admnistrative Scinces, 25 ,* 70-82.

Pandey, I. M., Chotigeat, T. & Ranjit, M. K. (2000). Capital Structure Choices in an Emerging Capital Market: Case of Thailand. *Management and Change, 4*(1), 1-14.

Parikh, P. (2011). *Value Investing and Behavioral Finance.* New Delhi: Tata Mcgraw Hill.

Patel, J. Zeckhauser, R. & Hendricks, D. (1991). The Rationality Struggle: Illustrations from Financial Markets. *American Economic Review Papers and Proceedings* , *8*(2), 232-236.

Quan, V. (2002). A Rational justification of pecking order hypothesis to the choice of source of financing. *Management Research News, 25*(12), 74-90.

Rahman H. & Ramos I. (2013). *Research and practices on operation innovation; Perspectives on SMEs.* University of Minho, Portugal.

Rajab,R.G., & Zingale, L. (1995). What do we know about capital strucyure?Some evidence from international data. *Journal of Finance. 50*(5), 1421-1460.

Riyazahmed, G. & Saravanaraj, M. (2016, August). Implications of heuristics in financial decision making . *Asian Journal of Research in Social science and Humanities* , *6*(7),1245-1251.

Ross, S. A., Westerfield, R. W., Jaffe, J. F., & Jordan, B. D. (2009). *Corporate Finance: Core principles and applications*. 2nd ed. New York, McGraw-Hill Irwin.

Sewell, M. (2005). *Behavioural Finance*. University of Cambridge

Shiller, R. J. (2000). *Irrational Exuberance.* Princeton University Press.

Taylor, P. & Mike, S.G. (2004*). Financial Risk Taking: An Introduction to the Psychology of Trading and Behavioural Finance.* (T. W. Mike, Ed.) Cambridge: Cambridge University Press.

Titman,S.& Wessel, R. (1988). The Determinant of Capital Structure Choice. *Journal of Finance. 43*( 1), 1-19.

Wario, B. D. (2012). *The Effect of Managerial Overconfidence on Capital Structurefor Firms Listed on the Nairobi Security Exchange*. (Unpublished MBA Project UoN ).

# APPENDICES

Appendix I: Questionnaire:

I am a student at the University of Nairobi, writing my Master in Business Administration research project on the effect of heuristic biases on capital structure of firms listed on Nairobi securities exchange. I kindly request you to take part of your time to complete this questionnaire. Your honest feedback is of highest importance in the course of my academic research. This information will not be used to serve any other purpose. Tick your answer in the brackets (✓) provided**.**

**Section A: Demographics**

1. How long has this company been in existence? (kindly tick ✓ where applicable)
2. 10 years and below ( )
3. 11-20 years ( )
4. 21-30 years ( )
5. 31-40 years ( )
6. 41 years and above ( )
7. How long has this company been trading at Nairobi securities exchange? Kindly tick ۷ where applicable.
8. Five years and below ( )
9. 5-10 years ( )
10. 11-15 years ( )
11. 16-20 years ( )
12. 21 years and above ( )
13. What factors do you consider when deciding on whether to issue equity stocks) or debts (debenture or long term debt)?

**Section B: Anchoring Bias**

1. Please tick the appropriate box where 1-Strongly Disagree, 2-Disagree, 3-Neutral, 4- Agree, 5- Strongly Agree

**Anchoring bias**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Statement on indicators of anchoring bias | 1 | 2 | 3 | 4 | 5 |
| 1 | I frequently rely on recent information when making decisions on debt/equity issue |  |  |  |  |  |
| 2 | When issuing debt or equity to finance the operations of the firm I consider the price of the previous period as a reference then adjust either upwards or downwards |  |  |  |  |  |
| 3 | I usually make purchase decisions using the initial purchase price of the previous period. |  |  |  |  |  |
| 4 | The choice between debt and external equity is based on 52-week high. |  |  |  |  |  |

**SECTION C: Representative bias**

1. Please tick the appropriate box where 1-Strongly Disagree, 2-Disagree, 3-Neutral, 4- Agree, 5- Strongly Agree

**Representative bias**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Statement on indicators of representative bias | 1 | 2 | 3 | 4 | 5 |
| 1 | I am keen on choosing capital structure of recently posted results of performing companies. |  |  |  |  |  |
| 2 | I try to avoid choosing capital structure of companies with a history of poor earnings. |  |  |  |  |  |
| 3 | I rely on past performance to make capital structure decisions |  |  |  |  |  |
| 4 | I believe a good capital structure is from firms with good performance. |  |  |  |  |  |
| 5 | In my opinion, the last five years have seen my company adopt the capital structure of the best performed year. |  |  |  |  |  |

**SECTION D: Availability Bias**

1. Please tick the appropriate box where 1-Strongly Disagree, 2-Disagree, 3-Neutral, 4- Agree, 5- Strongly Agree

**Availability bias**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Statement on indicators of availability bias | 1 | 2 | 3 | 4 | 5 |
| 1 | I am keen on choosing capital structure of recently posted results of performing companies. |  |  |  |  |  |
| 2 | My capital structure decisions depend on new and favorable information regarding debt and equity |  |  |  |  |  |
| 3 | I usually avoid duplicating capital structure of the year that posted poor results. |  |  |  |  |  |

Thank you for your participation.