FIRM CHARACTERISTICS AND FINANCING OF WORKING CAPITAL REQUIREMENT IN ORGANISATIONS: A CASE OF NON-FINANCIAL FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE (NSE)

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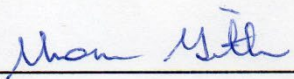**OCTOBER, 2018**

DECLARATION

DECLARATION BY STUDENT

I, the undersigned declare that this thesis is my original work and has not been presented in any other university for any award.

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APPROVAL BY SUPERVISORS

I confirm that this study has been presented for evaluation with my endorsement as the University Supervisor.

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DEDICATION

I dedicate this thesis to my beloved family for their moral support and immense encouragement during my study.

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I wish to express my sincere gratitude to the people who in one way or the other contributed to the preparation of this thesis. Special thanks to my supervisors for their valuable guidance and advice. While acknowledging all the support and assistance given, I am solely responsible for any errors of omission which may be found in this study.

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ABBREVIATIONS AND ACRONYMS

CBK - Central Bank of Kenya

CMA - Capital Markets Authority

GMM - Generalized Methods of Moments

KSH - Kenya Shillings

NSE - Nairobi Securities Exchange

OLS - Ordinary Least Squares

ROA - Return on Assets

SME - Small and Medium Enterprises

UK - United Kingdom

USA - United States of America

USD - United States Dollar

VIF - Variance Inflation Factor

WCR - Working Capital Requirement

ABSTRACT

Decisions on financing of working capital requirement are very important because of their impact on the profitability and liquidity of a firm. The firm, therefore, has to maintain an optimal strategy for financing working capital requirement that will enable it to maximize its value. The optimal strategy varies across firms and it depends on firm characteristics. The key goal of this research was to assess whether firm features are considered by managers of non-financial firms itemized at the Nairobi Securities Exchange in making decisions on how to fund their working capital requirement. The particular intents were to find out the bearing firm size, profitability, current assets and sales growth have on the financing of the working capital requirement of non-financial firms listed at the Nairobi Securities Exchange. The study adopted a panel research design. The target population was 38 Nairobi Securities Exchange-listed non-financial firms as of 31st December 2016 and 27 of these firms formed the accessible population for this study. The sample consisted of all the members of the accessible population and the sample period was from 2010-2016. Secondary data extracted from the published annual financial statements were used to compute the relevant measures of the variables and the data was imported into the Eviews software for data analysis. Panel diagnostics tests were done on the data to test for normality, stationarity, multicollinearity and to determine whether to adopt a fixed effects or a random effects panel regression model. The results of the diagnostic tests suggested that a fixed effects panel regression model was the most appropriate to estimate the effect of the explanatory variables on the dependent variable, and the test was conducted at 5% significance level. From the results of the aforesaid model, firm size was established to have positive and a significant impact on financing of working capital requirement of non-financial firms listed at the Nairobi Securities Exchange while profitability and current assets had a significant negative effect. The results also established that the relationship between sales growth and financing of the working capital requirement of Nairobi Securities Exchange-listed non-financial firms was positive but insignificant. From the findings, it was concluded that firm size, profitability, and current assets are significant factors in determining how to finance the working capital requirement of non-financial firms listed at the Nairobi Securities Exchange. The research, for that reason, recommends that as Nairobi Securities Exchange-listed non-financial firms increase in size, they should use more short-term debt to finance their working capital requirement. It is also recommended that highly profitable firms and those with huge amounts of current assets in their asset structure should use less short-term debt to finance their working capital requirement. Finally, Nairobi Securities Exchange-listed non-financial firms do not need to consider sales growth as an important factor when making decisions on how to finance their working capital requirement. The results of this study are very important because they will assist firms in making decisions on the optimal working capital requirement financing strategy that maximizes the value of the firm.

CHAPTER ONE

INTRODUCTION

The chapter is an introduction to the research project and it includes the background of the study, the problem statement, followed further by a brief statement of the objectives of the study. The chapter correspondingly proffers the hypotheses guiding the study, significance of the study, along with its scope.

1.1 Background of the Study

The objective of financial management is to ensure firms maximize profits at the lowest possible risk (Watson & Head, 2016). Finance managers will, therefore, be concerned by issues that affect the profitability and risk of a company. Since working capital management was highlighted by Smith (1980) as having a significant impact on profitability and risk, it has been considered as one of the important areas of financial management that are responsible for the success or failure of a company (Al Dalayeen, 2017). Working capital management consists of two main components. The first component involves determining working capital requirement (WCR), where, WCR is delineated as the difference between current assets and accounts payable (Dincergok, 2018; Panda & Nanda, 2018; Banos-Caballero, Garcia-Teruel & Martinez-Solano, 2016). The second component relates to the financing of WCR, which involves determining optimal proportions of short-term debt and long-term financing (long-term debt and equity) required to finance WCR (Oseifuah, 2016). This research concentrated on financing of WCR.

Decisions on the financing of WCR generally involve determining the proportion of WCR that will be financed by short-term debt (Panda & Nanda, 2018). A firm is said to be adopting an aggressive strategy for financing WCR if a high proportion of its WCR is financed by short-term debt while a firm that finances a small proportion of its WCR with short-term debt is said to be adopting a conservative strategy for financing WCR. An aggressive strategy for financing WCR leads to lower financing costs but at the expense of a higher liquidity risk. On other the hand, a conservative strategy for financing WCR

attracts a higher financing cost but benefits from a lower liquidity risk. It is therefore important for firms to determine an optimal strategy for financing WCR that balances profitability and risk in a manner that maximizes the value of the firm.

1.1.1 Emerging Issues Relating to Financing of WCR

Developments at the global, regional and local level highlight the importance of having an optimal strategy for financing WCR. In the United States of America (USA), Moody's report on the retail sector (Moody's, 2017a) shows that 13% of firms in the retail sector are financially distressed and may not be able to generate enough cash flows from their operations to settle their short-term debts. In addition, due to rising interest rates and tighter credit markets, they face the risk of not being able to refinance the maturing short-term debt and this can lead to bankruptcy. A similar situation is also manifested in the United Kingdom (UK) where a report by Begbies Traynor, a leading insolvency firm, reveals that about 500,000 firms were in a state of financial distress as at end of 2017 due to unsustainable levels of short-term debt in relation to their operating cash flows, and this has exposed them to high default risk (Begbies Traynor, 2018). Firms can solve these problems by maintaining an optimal strategy for financing WCR that takes into account the uncertainty of cash flows arising from working capital items.

In Africa, the creditworthiness of a number of countries like Nigeria, South Africa, Gabon, Mozambique, and Zambia faced an overall negative outlook in 2017 and this trend was expected to continue until mid-2019 (Moody's 2017b). This is due to slow economic growth and high political risk. The implication of this is that countries will struggle to borrow cheaply from developed markets and may be forced to borrow more from the local market, thus, resulting into a dearth of liquidity. This will make it grim for firms to access debt cheaply to fund their operations. Firms in these countries will, therefore, need to design an optimal strategy for financing WCR that minimizes the need to frequently seek financing from financial institutions. In addition, PWC working capital survey shows that African firms are increasing their use of short-term financing despite a deterioration in the time it takes to convert inventories and accounts receivable into cash

(PWC, 2017). They argue that firms need to find an optimal balance between their WCR and short-term debt before the borrowing reaches unsustainable levels.

In Kenya, a number of companies have been faced with huge losses and serious liquidity problems largely caused by poor strategies for financing WCR. Kenya Airways recorded the worst ever loss of Kenya Shillings (Ksh) 26 billion in 2015 and had to seek a bailout from Government to fund their operations (The Senate, 2015). According to the Senate report (The Senate, 2015), other than corporate governance issues, the leading cause of their problems was the accumulation of too much short-term debt than their operating revenues could sustain. They have since taken measures to reduce their short-term debt exposure to optimal levels by converting 72% of their United States Dollar (USD) 484 million debt to equity (Aglionby, 2017).

Other examples of Kenyan firms faced with serious liquidity problems are Uchumi and Nakumatt who are among the leading retailers in Kenya. Nakumatt went into administration in January 2018 due to its inability to meet short-term obligations to bankers, suppliers, and landlords (Fayo, 2018). According to a report by Cytonn investments (Cytonn, 2018), their main problem was the unsustainable use of short-term debt to finance their operations. As at December 2017, they owed creditors Ksh. 19 billion yet their total assets was only Ksh. 5 billion. Uchumi Supermarket was ranked as the third worst performing firm at the Nairobi Securities Exchange (NSE) in 2017 (Otieno, 2017). They also had to seek a Ksh. 1.8 billion bailout from the government so as to enable them to pay suppliers, staff salaries and other short-term debts (Njanja, 2018). Similar to Nakumatt, their liquidity problems have been largely caused by too much use of short-term financing to fund their operations (State Department of Trade, 2017).

The introduction of the law on interest rate capping in Kenya is also expected to influence the optimal strategy for financing WCR. According to a report by Central Bank of Kenya (CBK), the introduction of this law has led to a number of borrowers especially the small and less established firms to be ignored by the banks (Central Bank of Kenya, 2018). Such firms will be forced to use more equity to finance their WCR.

Most empirical studies on the financing of WCR assume that firms are homogeneous such that there is one optimal strategy that is suitable for all of them. There are studies which consider an aggressive strategy for financing WCR to be the optimal strategy that all firms should adopt (Adam, Quansah & Kawor, 2017; Kaur & Singh, 2014; Mwangi, Muathe & Kosimbei, 2014). Others are of the view that a conservative strategy for financing WCR is the ideal strategy for all firms (Thakur and Muktadir-Al-Mukit, 2017; Charitou, Lois & Christoforou, 2016; Kioko, 2015; Toby, 2014). The main limitation of these studies is the assumption of homogeneity among firms. In reality, firms are generally heterogeneous and are not expected to have one optimal strategy for financing WCR. This heterogeneity suggests the need to consider individual firm characteristics in determining the optimal strategy for financing WCR.

Most studies relating firm characteristics to the financing of WCR focus on how firm-level factors influence short-term debt. This is based on the assumption that when short-term debt is acquired it is first directed towards financing WCR (Hawawini & Viallet, 2015; Padachi, Howorth, Narasimhan & Durbarry, 2010). Therefore, an increase/decrease in short-term debt leads to an increase/decrease in the proportion of it that is financing WCR. In this regard, firm characteristics that lead to an increase in short-term debt will also lead to an increase in the amount of short-term debt financing WCR and the reverse is true for firm characteristics that lead to a decrease in short-term debt. For instance, Tayem (2018) in Jordan suggested a positive relationship between current assets and short-term debt while Kinyua and Muriu (2017) in Kenya found a negative relationship between firm size and short-term debt. This implies that a positive relationship is also expected between current assets and the amount of short-term debt financing WCR while a negative relationship is expected between firm size and the amount of short-term debt financing WCR.

One major limitation of the aforementioned studies is the fact that the dependent variable used is the ratio of short-term debt to total assets which is not a measure of WCR financing. Financing of WCR is measured by the proportion of WCR financed by short-term debt (Dincergok, 2018; Panda & Nanda, 2018; Banos-Caballero, et al., 2016). Using the measure of short-term debt to total assets, two firms with the same amount of total

assets and short-term debt will be assumed to be having the same strategy for financing WCR, however, if they have different levels of WCR then their strategies for financing WCR will be different. In addition, the measure assumes that all firms with short-term debt have a positive WCR that has to be financed. In reality, there are firms with short-term debt but have a negative WCR, which implies that their operating cycle is a source of cash. Such firms do not need to finance their WCR and any short-term debt acquired is used to finance fixed assets.

In addition studies on the link between firm features and short-term debt have led to ambiguous and conflicting results. For instance, Cevheroglu-Acar (2018) in Turkey found a positive linkage between firm size and both short-term debt and long-term financing. With this result, it is difficult to tell how firm size will affect financing of WCR. This is because as firm size increases it is not clear whether more short-term debt or long-term debt will be used to finance WCR. Kwenda and Holden (2014) in South Africa found a positive relationship between growth and short-term debt while Fosberg (2012) found a negative relationship. With this conflicting results, it is difficult to tell how growth influences the financing of WCR.

To address the limitations highlighted in the preceding paragraphs, recent studies have focused on the relationship between firm characteristics and financing of WCR. Dincergok (2018) and Banos-Caballero, et al. (2016) in Turkey and Spain respectively found that financially flexible firms tend to adopt a more aggressive strategy to finance their WCR while firms with low financial flexibility tend to be more conservative. In India, Panda and Nanda (2018) found that in addition to financial flexibility, price-cost margin also has an influence on the optimal strategy for financing WCR. These studies are however very limited and have only focused on two aspects of firm characteristics, that is, financial flexibility and price-cost margin. There is a need, therefore, for additional studies that will provide more insights on the relationship between firm characteristics and financing of WCR.

1.1.2 Nairobi Securities Exchange (NSE)

NSE was founded in 1954 and is the largest securities exchange in East and Central Africa with a market capitalization of USD 20 billion (Nairobi Securities Exchange, 2017). The NSE currently has 65 listed firms spread across 13 sectors. These sectors are; Agricultural, Automobiles and Accessories, Banking, Commercial and Services, Construction and Allied, Energy and Petroleum, Insurance, Investment, Investment services, Manufacturing and Allied, Telecommunication and Technology, Real Estate Investment Trust and Exchange Traded Funds (Nairobi Securities Exchange, 2018a). The NSE firms, therefore, provide a good representation of the Kenyan economy and this enhances the generalizability of studies conducted on NSE listed firms.

NSE plays a vital role in the growth of the Kenyan economy by encouraging savings and investments by the public and also enabling companies to access cost-effective capital to fund their activities (Nairobi Securities Exchange, 2018b). NSE provides opportunities for large and small investors to save and invest in the listed firms in exchange for a return in the form of capital gains and dividends. It also provides an avenue where firms can easily access large amounts of long-term funds to finance big projects that are key to economic growth.

For the NSE to be able to achieve its mandate, the listed firms must be able to generate sufficient value for its investors, that is, they must focus on profitability and risk. This will encourage more investors to participate in the securities market and in turn attract more firms seeking to raise capital from the NSE. The consequence of this will be increased economic growth. Having an optimal strategy for financing WCR is therefore important to listed firms because of its contribution to profitability and risk which in turn affects the value of the firm.

1.2 Statement of the Problem

Decisions relating to financing of WCR are very important because of their impact on profitability and risk (Panda & Nanda, 2018). In the recent past, a number of NSE listed non-financial firms such as Kenya Airways and Uchumi have been faced with serious

liquidity problems arising from poor strategies for financing WCR (Makori, 2017), and this has led to poor performances and a high risk of bankruptcy. These problems highlight the need for firms to maintain an optimal strategy for financing WCR. The enquiry at this juncture ensues "What is the optimal strategy for financing WCR?" Several studies assume that firms are homogeneous such that one optimal strategy for financing WCR can apply to all of them (Adam, Quansah & Kawor, 2017; Thakur and Muktadir-Al-Mukit, 2017; Charitou, Lois & Christoforou, 2016; Kioko, 2015; Kaur & Singh, 2014; Mwangi, Muathe & Kosimbei, 2014; Toby, 2014). However, in reality, firms are generally heterogeneous and it is expected that firm characteristics will influence the financing of WCR.

Most studies relating firm characteristics to the financing of WCR have looked at the firm level factors influencing short-term debt (Cevheroglu-Acar, 2018; Tayem, 2018; Kinyua & Muriu, 2017; Kwenda & Holden, 2014; Fosberg, 2012). However, in these studies, the dependent variable used is the ratio of short-term debt to total assets. This is not a reflection of WCR financing which is measured by the proportion of WCR financed by short-term debt (Panda & Nanda, 2018). The measure also leads to an inclusion of firms with negative WCR that do not need to finance their working capital. In addition, the results have been ambiguous and conflicting which leads to inconclusive results on the relationship between firm characteristics and financing of WCR. To address these limitations, recent studies have focused on the relationship between firm characteristics and financing of WCR (Dincergok, 2018, Panda & Nanda, 2018, Banos-Caballero et al., 2016). However, such studies are limited and have focused on only two aspects of firm characteristics, that is, financial flexibility and price-cost margin. This creates a need for additional studies that focus on other aspects of firm characteristics so as to provide more insights into this relationship. This study attempted to address this knowledge gap by studying the relationship between firm characteristics and financing of WCR of non-financial firms enumerated at the NSE.

1.3 Objectives of the Study

The general objective of this research was to examine the connection between firm characteristics and financing of WCR of non-financial firms listed at the NSE. This study had four specific objectives which are listed below:

i. To establish the effect of firm size on the financing of WCR of non-financial firms listed at the NSE.

ii. To establish the effect of profitability on the financing of WCR of non-financial firms listed at the NSE.

iii. To establish the effect of current assets on the financing of WCR of non-financial firms listed at the NSE.

iv. To establish the effect of sales growth on the financing of WCR of non-financial firms listed at the NSE.

1.4 Research Hypotheses

This study tested the hypotheses given below.

H_{O1}: Firm size has no statistically significant effect on financing of WCR of non-financial firms listed at the NSE.

H_{O2}: Profitability has no statistically significant effect on financing of WCR of non-financial firms listed at the NSE.

H_{O3}: Current Assets have no statistically significant effect on financing of the WCR of non-financial firms listed at the NSE.

H_{O4}: Sales growth has no statistically significant effect on financing of the WCR of non-financial firms listed at the NSE.

1.5 Significance of the Study

The study is expected to be of benefit to managers of listed non-financial firms, investors at the NSE, lenders, and students and scholars.

Managers of Listed Non-Financial Firms

The managers of listed non-financial firms have a duty to make sound financial decisions that will maximize the value of the firm. Having an optimal strategy for financing WCR is one of the ways that a firm can increase its value. The study will possibly help managers in designing an appropriate strategy for financing WCR that takes into consideration the context of the firm.

Investors in Stocks

Those who invest in stock are interested in firms that make sound financial decisions that maximize the value of the firm. An optimal strategy for financing WCR has a positive influence on the value of the firm. The study will equip investors with the knowledge to determine which firms are adopting the right WCR financing strategies given their circumstances. This information may then be used to make decisions on which firms to invest in.

Lenders

Lenders to listed firms are interested in ensuring that they will be paid back their money. They have to be sure that they are lending to firms with sound WCR financing strategies. The information obtained from this study can be used as a basis for assessing the firms and determining the amount and type of debt to advance to them.

Students and Scholars

This study is expected to increase the body of knowledge to students/scholars on the relationship between firm characteristics and financing of WCR as it is an area where little research has been done.

1.6 Scope and Delimitation of the Study

This study focused on the relationship between firm characteristics and financing of WCR of non-financial firms listed at the NSE in Kenya. The motivation for studying non-financial firms was due to the fact that a couple of them, for example; Kenya

Airways, Nakumatt, and Uchumi have had problems caused by poor strategies for financing WCR (Makori, 2017). NSE listed non-financial firms have been selected because of the availability and reliability of their financial data which is subjected to audit by reputable audit firms. In addition, the NSE listed firms play a very important role in economic growth and it is important they perform well so as to attract more investors and firms. The study also omits listed financial firms (Banks, Insurance firms, and Investment firms) because the nature of their working capital differs from that of non-financial firms and their capital requirements are largely determined by regulatory bodies (Oloo & Mwangi, 2014; Mathuva, 2010; Deloof, 2003).

In line with Banos-Caballero, et al. (2016) non-financial firms with negative WCR were excluded since they do not have a WCR that requires financing. In addition, to minimize biased and inconsistent results, firms with missing observations during the study period were also omitted. This is consistent with studies done by Kwenda and Holden (2014) and Kuhnhausen and Stieber (2014). The study was limited to a seven-year period from 2010 to 2016 because this was the period a number of non-financial firms reported losses due to poor strategies for financing WCR. It was also the period after the global financial crisis which led to renewed emphasis on the importance of optimal strategies for financing WCR. The seven-year period was also considered an adequate time to observe any significant changes (Abbas, 2016). The aspects of firm characteristics covered were firm size, profitability, current assets, and sales growth which were identified as the major variables that can influence the financing of WCR.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter engenders as well as discourses the literature appraisal of this study. The section first discusses financing of WCR and the firm characteristics that influence it. It is then followed by a discussion of the theories guiding the study, and a review of the relevant empirical literature. Details of the research gap and the conceptual framework are also discussed in this chapter.

2.2 Financing of WCR

According to Panigrahi (2014), a firm can either adopt an aggressive strategy, a conservative strategy or a matching strategy to finance its WCR. An aggressive strategy involves financing most of the WCR with short-term debt. This approach presents the highest risk because the use of more short-term debt requires frequent renewal due to its short maturity period. This exposes the firm to a high refinancing risk because in the event there are difficulties facing it in the short run, the lender might fail to renew the loan and the firm might not have sufficient cash flows to retire the loan and to run its operations (Panigrahi, 2014). Recurrent renewal also exposes the firm to interest rate risk. Short-term interest rates fluctuate more than long-term interest rates and there is a risk that the firm might pay higher interest rates at the time of renewal, especially in periods of rising interest rates. On the contrary, this approach offers higher profitability due to low financing costs. In accordance with the liquidity preference theory (Pandey, 2015), short-term interest rates are lower than long-term interest rates due to an upward sloping yield curve. Short-term debt is also flexible since it can be easily terminated in the event the funds are not required thus avoiding situations where interest is paid on idle funds.

A conservative strategy involves financing a large proportion of WCR with long-term financing (Panigrahi, 2014). The long-term financing consists of long-term debt and equity. This approach presents the lowest risk due to a longer maturity period associated with long-term financing, which leads to less frequent renewals. Long-term interest rates

are also considered stable in the long run thus lowering interest rate risk. In terms of costs, it is considered the most expensive option since long-term financing attracts higher interest rates. Additionally, in situations where the asset matures earlier, the firm will pay interest on idle funds.

A matching strategy is a moderate approach that lies between aggressive and conservative strategies. This strategy classifies WCR into two categories, namely: Permanent WCR and Temporary WCR. Permanent WCR is the minimum amount of working capital a firm requires and it stays constant regardless of time and level of activity while temporary WCR is one that is required in the short periods when WCR is above the minimum level (Panigrahi, 2014). With a matching strategy, temporary WCR is financed by short-term debt while permanent WCR is financed by long-term financing. Profitability and risk are moderate with this strategy.

In general, financing of WCR is assessed based on the proportion of WCR financed by short-term debt. The higher the proportion, the more aggressive is the WCR financing strategy. In this study financing of WCR means the amount of short-term debt financing WCR. An increase in financing of WCR means the use of more short-term debt in the WCR financing structure while a decrease means the use of less short-term debt.

2.3 Firm Characteristics Influencing Financing of WCR

It is generally assumed that when short-term debt is obtained, it is first directed towards financing WCR (Hawawini & Viallet, 2015; Padachi, Howorth, Narasimhan & Durbarry, 2010). Firms with high levels of short-term debt are expected to have a high proportion of their WCR financed by short-term debt while firms with lower levels will have a small proportion of their WCR financed by short-term debt. Consequently, firm characteristics that lead to an increase in short-term debt will also lead to an increase in the amount of short-term debt financing WCR while those that result to a decrease in short-term debt will contribute to a decrease in the amount of short-term debt financing WCR.

According to empirical studies by Kinyua and Muriu (2017); Nunes and Serrasqueiro (2017); Ohman and Yazdanfar (2017); Nyang'oro (2016); Kuhnhausen and Stieber

(2014); Kwenda and Holden (2014); Fosberg (2012); Padachi, et al. (2010); Achy (2009); and Garcia-Teruel and Martinez-Solano (2007), Firm size, profitability, current assets and sales growth were identified as the major firm characteristics that influence short-term debt. This study sought to find out how the four-firm characteristics influence the financing of WCR of non-financial firms listed in the NSE.

2.4 Review of Theories

This study is guided by three theories, namely: matching theory, trade-off theory, and the pecking order theory, and are discussed below.

2.4.1 Matching Theory

According to this theory, a firm's financing decision is determined by the life of the asset (Stohs & Mauer, 1996), that is, the maturity of the financing source should be matched with the life of the asset. The justification for this approach is that since financing is sourced to fund assets, it makes sense to align its maturity with the life of the asset.

This theory implies that short-term assets should be funded by short-term financing while long-term assets should be funded by long-term financing. If the firm uses short-term financing to fund long-term assets, it will be exposed to a high refinancing and interest rate risk which can lead to bankruptcy. On the other hand, the use of long-term financing to fund short-term assets leads to higher interest rates and less flexibility which in turn contributes to a higher financing cost (Stohs & Mauer, 1996).

Short-term assets within the context of working capital management refer to temporary WCR while short-term financing is the short-term debt. Long-term assets consist of permanent WCR while long-term financing is made up of long-term debt and equity (Watson & Head, 2016). Permanent WCR is considered long-term in nature because it is the minimum amount that must be continuously invested in operations. Temporary WCR will, therefore, be funded by short-term debt while permanent WCR will be funded by long-term financing.

This theory explains the impact of current assets on the financing of WCR (Fosberg, 2012). If a firm has small amounts of current assets, it is likely that it will be operating around its minimum capacity. When a firm is at this level it is expected to be operating mostly with permanent WCR which financed by long-term financing. As the current assets increase, the amount of temporary WCR increases and so too is the amount of short-term debt financing WCR. A positive relationship is therefore expected between current assets and financing of WCR.

2.4.2 Trade-off Theory

According to this theory, the amount of short-term debt and long-term financing that will be used to finance WCR is guided by the risk-return trade-off (Pandey, 2015). Firms would generally prefer to use short-term debt since it enjoys a cost advantage over long-term financing but at the same time, it has significant risks which can cause high financial distress costs (Jun & Jen, 2003). The firm should, therefore, balance the risk and rewards of short-term debt by using it up to an optimal point where its benefits are maximized. According to liquidity preference theory (Pandey, 2015), short-term debt is generally cheaper than long-term financing and this is due to the fact that lenders attach a higher risk to a longer financing period thus leading to an upward sloping yield curve. Another advantage of short-term debt is its flexibility, it can be retired when the firm has no need for them and be quickly obtained at lower floatation costs in the event a need arises (Jun & Jen, 2003). This flexibility saves the firm from paying interest on idle funds. According to Barclay and Smith (1996), Short-term debt has few covenants which reduce loan design and monitoring costs. It also sends positive signals to the market about the quality of the firm's investments (Flannery, 1986).

On the contrary, from a borrower's point of view, short-term debt is considered to have a greater risk than long-term financing. The risk associated with short-term debt mainly relate to refinancing risk and interest rate risk which are cumulatively referred to liquidity risk (Fosberg, 2012). Refinancing risk arises due to the fact that short-term debt requires frequent renewal due to its short duration. In periods of economic shocks, for example, the global financial crisis (Brigham & Houston, 2012) or in situations where the firm is in

a poor financial position, the lender might not renew the debt and the firm might not have enough cash flows or other sources where they can raise capital to retire the debt. This leads to a high risk of default.

Short-term debt is also considered riskier because of the interest rate risk (Hawawini & Viallet, 2015). Short-term interest rates tend to fluctuate a lot compared to long-term interest rates. Because of frequent refinancing, there can be situations where the renewals are happening in periods of rising interest rates and this can in the long-run lead to high financing cost which the firm may not afford. Because of the advantages and disadvantages of short-term debt, the firm will apply it in its WCR financing structure up to the point where its benefits are maximized. This is the point where the marginal benefit of short-term debt is equal to its marginal cost in terms of risk (Jun & Jen, 2003).

This theory can be used to explain the implication of firm size on the financing of WCR. According to Castanias (1983), large firms tend to have a lower risk of failure due to the fact that they are highly diversified, therefore, they have low cash flow uncertainty. They also tend to have easier access to the capital markets since lenders tend to have more faith in them. This makes it easier for them to frequently renew their short-term debt. The implication is that large firms will have a low liquidity risk which enables them to use more short-term debt to finance their WCR and take advantage of the lower financing cost.

Another variable explained by this theory is the relationship between profitability and financing of WCR. Profitability is one of the measures used by lenders to measure the financial strength of a company (Pandey, 2015). Highly profitable companies tend to be in a stronger financial position than less profitable companies. This implies that they have a lower risk of defaulting on their obligations. Many lenders will, therefore, be willing to lend to such firms because of their low liquidity risk (Rajan & Zingales, 1995). A positive relationship is therefore expected between profitability and financing of WCR.

The relationship between current assets and financing of WCR is also explained by this theory. Firms with high levels of assets that can be used as collateral are able to obtain debt cheaply because the collateral provides a guarantee that the debt will be paid, thus

lowering their default risk (Titman & Wessels 1988). According to Achy (2009), fixed assets provide higher quality security than current assets. This implies that firms with high levels of current assets in their asset structure are likely to avoid debt because of its high default risk and use more equity to finance their WCR. The theory, therefore, expects a negative relationship between current assets and financing of WCR.

2.4.3 Pecking Order Theory

The pecking order theory was initiated by Donaldson (1961) and developed further by Myers and Majluf (1984). According to this theory, firms have a hierarchy when it comes to raising capital. They will prefer internal finance which consists of retained earnings rather than external sources of finance which consists of debt and newly issued equity shares. In the event the internal finance is insufficient the firm will prefer debt capital while newly issued equity capital will be the least preferred source. The theory implies the lack of a well-defined optimal capital structure.

A simple explanation of the rationale behind the preferences is that retained earnings incur no floatation costs and saves the firm from a lot of disclosure requirements that may lead to competitive disadvantage (Kishore, 2009). Retained earnings are also easily accessible and do not involve a lot of negotiations with third parties such as banks (Watson & Head, 2016). When it comes to external finance, the costs of issuing new debt is relatively lower than the cost of issuing new equity (Brigham & Houston, 2012). According to Watson and Head (2016) debt is more flexible since one can easily raise small amounts of debt and the issue of debt avoids the potential ownership problems associated with the issue of new equity.

A more complex explanation of the pecking order theory is provided by Myers and Majluf (1984) and it is based on the concept of asymmetric information. Asymmetric information refers to a situation in which the firm managers have more information about the company operations and future prospects than investors or lenders do (Gitman & Zutter, 2013). The higher the level of information asymmetry the higher the uncertainty which leads to a higher cost of financing. Retained earnings have the least level of information asymmetry as they are under the control of managers thus will be the

cheapest financing source. Debt-holders have less information asymmetry than providers of new equity, the debt will, therefore, be cheaper than equity. The implication is that based on the cost of financing, managers will initially rely on retained earnings and in the event, it is not enough they will turn to debt and then issue equity as a last option.

This theory mainly explains the impact of profitability on the financing decisions made by managers. According to Myers and Majluf (1984), profitable firms are able to generate more retained earnings which they can use to finance their operations thus reducing their need for debt. The implication is that due to the low levels of debt, a higher proportion of WCR will also be financed by retained earnings which form part of the long-term financing. The theory, therefore, suggests a negative relationship between profitability and financing of WCR.

The influence of sales growth on financing WCR can also be elucidated through this theory. High growth firms are expected to exhaust their retained earnings and seek additional capital through debt, which is the second best financing option in the pecking order (Cevheroglu-Acar, 2018). The firm can either choose between short-term debt and long-term debt. Short-term debt is considered to have lower information costs due to the fact that its use sends positive signals to the market about a firm's growth prospects (Frank & Goyal, 2003). This situation will lead to high growth firms to use more short-term debt to finance their WCR. It is therefore expected that a positive rapport subsists between sales growth and financing of WCR.

2.5 Criticism of the Theories

The Matching theory assumes certainty about the amount and timing of cash flows that will be derived from the assets (Van Horne & Wachowicz, 2009). In reality, there is always some uncertainty about the amount and timing of cash flows. For example, a debtor might pay later than expected or sales might be slower than expected. As a risk management technique to address these uncertainties, a firm will opt to finance some of its temporary working capital with long-term funds.

Trade-off theory assumes that profitable firms will tend to use more short-term debt because they face lower default risks. However, the theory fails to explain why most profitable firms tend to use less short-term debt despite the fact that they face less refinancing risks (Graham, 2000). Trade-off theory also fails to explain why similar firms with the same risk would have different ratios of debt and equity (Myers & Majluf, 1984).

Pecking order theory is limited on the basis that it only considers returns as a basis for the choice of financing sources and ignores the impact of risk (Quan, 2002). According to this theory, firms will prefer short-term debt over long-term debt due to its lower cost but in the event, there is a high liquidity risk, firms will prefer long-term debt over short-term debt. The theory also ignores the agency problems that arise with managers holding too much-retained earnings which they can misappropriate for their own personal interests (Jensen & Meckling, 1976).

2.6 Review of Empirical Studies

This section reviews past empirical studies that are relevant to this research. It identifies the studies, gives the objectives of the studies, discusses the methodology and summarizes the findings.

2.6.1 Firm Size and Financing of WCR

The connection between firm size and financing of WCR, is illuminated by the trade-off theory. This theory predicts a positive relationship between firm size and financing of WCR. The empirical literature shows mixed results regarding this relationship.

Cevheroglu-Acar (2018) examined the implication of firm characteristics offered by financial theories and previous empirical studies on the capital structure of listed non-financial firms in Turkey. The sample consisted of a balanced panel of 111 firms studied over a period of 8 years from 2009-2016. The relationship between the variables was estimated using the panel regression model. Firm size was found to one of the core contributing factors of debt. A significant positive relationship was observed between firm size and both long-term and short-term debt. In this case, the impact of firm size on

the financing of WCR is inconclusive because when firm size increases, both short-term and long-term debt are increasing and it is not clear which one will be used more to finance WCR.

Lourenco and Oliveira (2017) studied the determinants of debt for firms in the Santarem district of Portugal. A sample of 6,184 non-financial firms listed in the Iberian balance sheet analysis system (SABI) was investigated for the period 2008 to 2012. The regression model was estimated using the generalized least squares method. The outcomes exhibited that the relationship between firm size and short-term debt depends on the proxy used to measure firm size. Firm size, when measured using the natural log of assets, was significantly and negatively related to both short-term debt and long-term debt. Thus using this measure it is expected that large firms will use more equity to finance their WCR. When the natural log of turnover is used as a measure of firm size, the results showed a positive relationship with short-term debt. Hence, this measure predicts that firms with high turnover will use more short-term debt to finance their WCR.

Abbas (2016) studied firm-specific and macroeconomic factors influencing capital structure decisions of listed firms in Norway for the period 2010 to 2015. The sample consisted of 26 domestic and 33 foreign firms. The study used an unbalanced panel dataset and the estimation method used was the panel data fixed effects regression technique. The results showed that firm size did not have any significant relationship with short-term debt, thus, it is not expected to have an effect on the financing of WCR.

Nyang'oro (2016) analyzed the capital structure determinants of firms listed at the NSE from 2003 to 2012. Data were collected from a sample of 32 non-financial firms. Conditional quantile regression approach was used at five quantile levels; 10th, 25th, 50th, 75th, and 95th quantiles. These quantiles represented the level of debt a firm holds. Firm size was found to be significantly and positively related to short-term debt at all quantile levels. It is therefore expected that as the NSE listed non-financial firms increase in size they will use more short-term debt to finance their WCR.

Koksal and Orman (2015) conducted a comparative test of the trade-off and pecking order theories using a comprehensive firm-level dataset that covered manufacturing, non-manufacturing, small, large, publicly traded and private firms in Turkey. The study period covered the years 1996 to 2009. The sample contained an unbalanced panel data of 11,726 firms. The estimation model used was the panel data fixed effects regression model. The results showed a significant and positive relationship between firm size and both long-term and short-term debt. This result fails to provide clarity on the relationship between firm size and financing of WCR since both short-term debt and long-term debt have the same relationship with firm size and it is not clear which one will be used more to finance WCR.

2.6.2 Profitability and Financing of WCR

According to the pecking order theory, a negative relationship is expected between profitability and financing of WCR while the trade-off theory predicts a positive relationship. The expected impact of profitability on the financing of WCR is therefore not clear from a theoretical perspective. Most empirical studies seem to support the pecking order theory.

Kinyua and Muriu (2017) investigated the determinants of capital structure of agricultural firms listed at the NSE. The period of study was from 2010 to 2015. The capital structure determinants were estimated using the panel regression model. The results showed a positive relationship between profitability and short-term debt. This implies that consistent with the trade-off theory, more profitable agricultural firms will use more short-term debt to finance their WCR.

Serrasqueiro, Matias, and Salsa (2016) analyzed the determinants of debt for a sample of 2,329 small Portuguese firms. This study covered the period from 2007 to 2011. The relationship between the determinants of debt was estimated using fixed effects panel model. The results revealed a significant contrasting relationship between profitability and both short-term and long-term debt. This means that as profitability increases, firms tend to use more equity to finance their operations. It is therefore expected that

profitability will have a negative association with the amount of short-term debt used to finance WCR.

Alipour, Mohammadi, and Derakhshan (2015) investigated the significant determinants of capital structure of manufacturing firms listed at the Tehran stock exchange in Iran for the period 2003 to 2007. The sample contained unbalanced panel data of 1,562 firm-year observations. The study employed pooled ordinary least squares (OLS) method and panel data analysis to estimate the capital structure determinants. From the results of the study, profitability had a significant negative connection with both short-term debt and long-term debt. In this case, it is expected that as firms increase their profitability they will use less debt (more equity) to finance their operations. A negative relationship is therefore expected between profitability and financing of WCR.

Saarani and Shahadan (2013) analyzed the determinants of the capital structure of firms in Malaysia by comparing the Small and Medium Enterprises (SMEs) with large firms for the period 2004 to 2011. They evaluated 91 SMEs and 194 large firms that had won the enterprise 50 award. Panel data analysis was used to estimate the model. The results showed that profitability is a critical factor in determining the short-term debt of both SMEs and large firms. A significant negative relationship was observed between profitability and short-term debt. The results imply that more profitable firms tend to adopt a more conservative strategy for financing their WCR.

Andani and Al-hassan (2012) studied the financing decisions of 19 companies listed at the Ghana Stock Exchange and 16 non-listed companies in Ghana. The aim was to test the determinants of capital structure and debt maturity for the firms. The period covered was from 2000 to 2006 and panel data econometric regression technique was employed to estimate the linear relationship between the dependent and independent variables. The study revealed that profitability was significantly and negatively related to short-term debt for both listed and non-listed firms. The results suggest that more profitable firms in Ghana are expected to use less short-term debt to finance their WCR.

2.6.3 Current Assets and Financing of WCR

The relationship between current assets and financing of WCR is explained by the matching theory and the trade-off theory. Matching theory expects a positive relationship between current assets and financing of WCR while trade-off theory expects a negative relationship. The empirical literature on this relationship is also mixed.

Tayem (2018) studied the firm-specific factors that influence the debt maturity structure of non-financial firms listed at the Amman Stock Exchange in Jordan. This study covered the period 2005-2013. Using the 2 stage least squares and random effects regression model, the study revealed that asset structure has a substantial influence on the amount of short-term debt a firm uses. Firms with a high proportion of fixed assets tend to use less short-term debt while those with high proportions current assets tend to use more short-term debt. This result, therefore, implies that consistent with the matching theory, a positive relationship is expected between currents assets and financing of WCR.

Kazmierska-Jozwiak, Marszalek, and Sekula (2017) analyzed the determinants of debt for a group of 111 non-financial firms listed at the Warsaw Stock Exchange in Poland. The analysis covered the period 2002 to 2012. The study used balanced panel data and the variables were estimated using a fixed effects model. In this study, the asset structure was found to be an important factor in determining the type of debt a firm uses. Firms with high levels of current assets in their asset structure tend to use more short-term debt while those with high levels of fixed assets will use more long-term debt. This result, therefore, predicts that as per the matching theory polish firms with higher levels of current assets will be expected to use more short-term debt to finance their WCR.

Hossain and Hossain (2015) evaluated significant capital structure determinants of listed manufacturing firms in Bangladesh. The study used a panel data set of 74 manufacturing companies listed under 8 industries at the Dhaka Stock Exchange for the period 2002 to 2011. The model was estimated using standard error regression model and random effects Tobit regression model. Firms with higher levels of fixed assets in their asset structure were found to have a significant negative relationship with short-term debt while those with higher levels of current assets were using more short-term debt. This implies that

Bangladeshi manufacturing firms with higher proportions of current assets will have a more aggressive strategy for financing WCR.

Bassey, Arene, and Okpukpara (2014) analyzed the determinants of capital structure of listed agro firms in Nigeria. The study involved a sample of 28 agro-allied firms listed at the Nigeria Stock Exchange from 2005 to 2010. The firm-specific variables affecting short-term debt were estimated using OLS multiple regression model. The results showed that firms with high levels of fixed assets used higher levels of short-term debt and long-term debt while firms with higher levels of current assets used less debt in their capital structure. From this result, it was concluded that firms with higher levels of current assets in their asset structure will have less collateral which lenders require for debt issuance. This makes it very expensive to obtain debt compared to equity. It is therefore expected that firms with high levels of current assets in their asset structure will use the more long-term financing to fund their WCR thus leading to a negative relationship between current assets and financing of WCR.

Handoo and Sharma (2014) analyzed the capital structure determinants of a sample of 870 firms (809 private companies and 61 government companies) listed at the national stock exchange in India. The study covered the period 2001 to 2010. The research methodology used was the multiple regression analysis. The results showed that the relationship between fixed assets and both long-term and short-term debt was positive and significant while firms with high current asset levels preferred equity to debt. In this case, it expected that current assets will have a negative effect on the financing of WCR since firms with higher levels of current assets will find it cheaper to use more equity to finance their WCR.

In the study by Fosberg (2012) the aim was to empirically examine factors that determine the amount of short-term debt financing used by firms. The study was conducted in the USA using data from COMPUSTAT database of listed firms. The data used covered the period starting 2001 through to 2007. The research utilized regression analysis. The results showed a positive relationship between current assets and short-term debt. However, the study also found a positive relationship between fixed assets and short-term

debt which as a substitute for current assets, it is expected to have an opposite relationship. With this ambiguity, it is difficult to predict how current assets will influence the financing of WCR of USA firms.

2.6.4 Sales Growth and Financing of WCR

According to the pecking order theory, sales growth is expected to have a positive relationship with the financing of WCR. Most empirical studies also predict a positive relationship.

Ohman and Yazdanfar (2017) investigated the capital structure determinants of SMEs in Sweden. The study analyzed a sample of 15,897 SMEs over a four year period from 2009 to 2012. The estimation methods used were OLS and fixed effects regression model. The results from both the OLS and fixed effects model showed a statistically significant positive relationship between sales growth and both short-term debt and long-term debt. From this result, it is not possible to predict the impact of sales growth on the financing of WCR since it is not clear whether an increase in sales growth will lead to the use of more short-term debt or long-term debt.

Kuhnhausen and Stieber (2014) evaluated firm, industry and country-specific factors determining a firm's capital structure. The analysis covered listed and non-listed non-financial firms in Europe, Japan and USA captured in the ORBIS database. The period of study was from 2003 to 2012. The sample was an unbalanced panel of 1,189,708 firms. The study conducted a series of panel data analysis to determine the most important factors influencing debt ratios. The results showed that sales growth is significantly and positively related to short-term debt. This implies that as per predictions of the pecking order theory firms with high sales growth are expected to finance most of their WCR with short-term debt.

A study conducted by Kwenda and Holden (2014) assessed the determinants of short-term debt financing of listed firms at the Johannesburg Securities Exchange. The study was conducted on 92 listed firms for a ten year period between 2001 and 2010. The study used the Generalized Methods of Moments (GMM) estimation method. Their Analysis

indicated that sales growth played an important role when firms were making a decision on short-term debt financing. Sales growth were found to have a positive relationship with short-term debt and it is expected that most of it will be used to finance WCR as sales grow.

Padachi, Howorth, Narasimhan, and Durbarry (2010) studied the firm-specific determinants of short-term debt of Mauritian SMEs. The study involved a sample of 101 small manufacturing firms over the period 1998 – 2003. Using the panel data regression model, it was concluded that a negative and statistically significant relationship exists between sales growth and short-term debt. Consequently, a negative relationship is expected between sales growth and proportion of short-term debt used to finance WCR. These findings contradict the pecking order theory which expects a positive relationship between sales growth and WCR financing strategy.

In Spain, Garcia-Teruel and Martinez-Solano (2007) analyzed the debt maturity structure of a sample of 11,533 Spanish SMEs from the year 1997-2001. Using panel data methodology, the results identified sales growth as one of the major firm characteristics that influence short-term debt. Firms with greater sales growth were also found to be major users of short-term debt. This indicates that a positive relationship is expected between sales growth and financing of WCR.

2.7 Research Gap

From the results of the empirical review, the studies have focused on the firm-specific factors that influence short-term debt and dependent variable used in these studies is the ratio of short-term debt to total assets. This is not considered a measure of WCR financing which is measured by the proportion of WCR financed by short-term debt. The measure of short-term debt to total assets ratio can provide misleading results on the WCR financing strategy a firm is adopting. For example, two companies with the same amount of short-term debt and total assets will be considered to be having the same WCR financing strategy yet if one of them has low portions of current assets in its asset structure then they are not expected to have the same strategy for financing WCR.

Another limitation of previous empirical literature is the assumption that all firms with short-term debt have a WCR that must be financed, therefore, their analysis of WCR financing includes all firms with short-term debt. In reality, there are firms with a negative WCR who do not require financing yet they have short-term debt which is used for financing fixed assets. Such firms need to be excluded from the analysis. In addition, the results from the various empirical studies provide ambiguous and conflicting results on how firm characteristics of firm size, profitability, current assets and sales growth influence the financing of WCR.

Studies done that specifically focus on firm characteristics and financing of WCR are virtually few and have only focused on financial flexibility and price-cost margin (Dincergok, 2018; Panda & Nanda, 2018; Banos-Caballero, et al., 2016). To provide further insights into this area, there is a need for additional studies that focus on other aspects of firm characteristics. This study attempted to contribute to this knowledge gap by studying how the firm characteristics of firm size, profitability, current assets and sales growth influence the financing of WCR of non-financial firms listed in the NSE.

2.8 Conceptual Framework

A conceptual framework is the researcher's synthesis of literature on how a phenomenon is explained. It is a map in a written or graphical form that shows the logical relationship of ideas in a research (Creswell, 2014). Figure 2.1 illustrates the theoretical outline of the research. As shown, the study had four independent variables and one dependent variable. The independent variables were firm size, profitability, current assets and sales growth. Each independent variable had a relationship with the dependent variable which is Financing of WCR.

Independent Variable   **Dependent Variable**

| Firm Size |
| • Natural log of total assets |

| Profitability |
| • Earnings After Tax/ Total Assets |

| Current Assets |
| • Current Assets/Total Assets |

| Sales Growth |
| • Rate of change in sales |

| Financing of WCR |
| • Short-term debt/WCR |
| WCR = Current Assets – Accounts Payable |
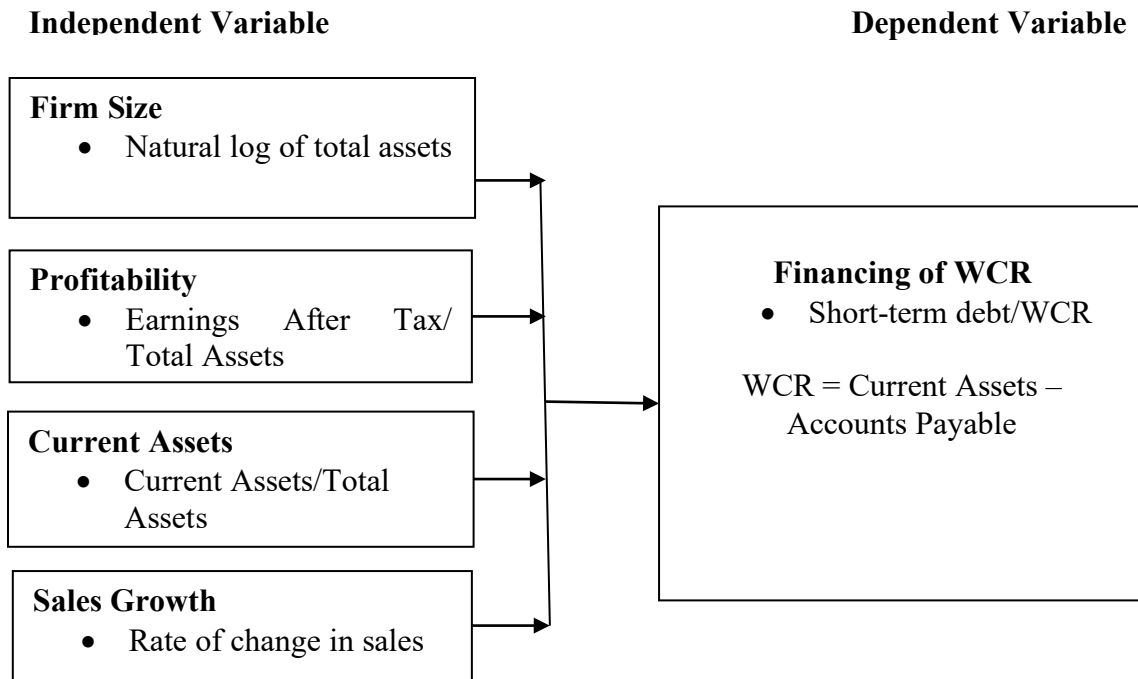
Source: Adapted from, Ohman and Yazdanfar (2017); and Kwenda and Holden

Figure 2.1: Conceptual Framework

2.8.1   Operationalization of Variables

Trade-off theory suggests a positive relationship between firm size and financing WCR. However, the results of the empirical review are inconclusive. For example, Cevheroglu-Acar (2018) and Koksal and Orman (2015) did not provide clarity on which type of debt will be used more as firm size increases since both short-term debt and long-term debt are increasing as firm size increases. A study by Abbas (2016) showed no relationship between firm size and short-term debt thus leading to an expectation of a similar relationship with the financing of WCR. These outcomes make it difficult to predict how the financing of WCR will be influenced by firm size. It is therefore hypothesized that a positive/negative relationship exists between firm size and financing of WCR. Firm size was measured by the formula below:

$$Firm\ size = Natural \log of\ Total\ assets(\ln TA)$$

Pecking order theory predicts a negative relationship between profitability and financing of WCR while trade-off theory predicts a positive relationship. Most of the empirical studies reviewed (Serrasqueiro, et al., 2016; Alipour, et al., 2015; Saarani & Shahadan,

2013; Andani & Al-hassan, 2012) envisage a negative relationship which is in line with the pecking order theory. This trend was also assumed in this study where it was hypothesized that there will be a negative relationship between profitability and financing of WCR. The proxy for profitability in this study is a return on assets (ROA) which is measured by the formula below:

$$ROA = \frac{Earning\ Afer\ Tax\ (EAT)}{Total\ Assets(TA)}$$

According to the matching theory a positive relationship is expected between investment in current assets and financing of WCR while trade-off theory expects a negative relationship. From the review of the empirical studies relating to current assets, there was no clarity on how this variable will influence the financing of WCR. For example, the work of Tayem (2018) and Kazmierska, et al. (2017) show that a positive relationship is expected between current assets and short-term debt thus inferring a similar relationship with the financing of WCR. The results of Bassey, et al. (2014) and Handoo and Sharma (2014) infer a negative relationship between current assets and short-term debt thus leading to an expectation of a similar relationship with the financing of WCR. A positive/negative relationship between current assets and financing of WCR was therefore hypothesized in this case. The variable was measured by the formula below:

$$Size\ of\ Current\ Assets = \frac{Current\ Assets(CA)}{Total\ Assets(TA)}$$

Pecking order theory implies a positive relationship between sales growth and financing of WCR. This view was also implied from most of the related empirical studies reviewed (Kuhnhausen & Stieber, 2014; Kwenda & Holden, 2014; Padachi, et al., 2010; Garcia-Teruel & Martinez-Solano, 2007). From these results, it was hypothesized that a positive relationship exists between sales growth and financing of WCR. Sales growth was measured by the annual rate of change in sales using the formula below:

$$Sales\ Growth = \frac{S_t - S_{t-1}}{S_{t-1}}$$

Where: S_t = Current year sales; and S_{t-1}= Prior year sales

Operationalization of the variables together with their hypothesized relationships is summarized in the table below:

Table 2.1: Summary of variables and predicted effects on the dependent variable

Variable Type	Variable	Definition	Measure	Adopted From	Hypothesized Direction
Dependent	Financing of WCR (WCF)	The proportion of WCR financed by short-term debt	Short-term debt/WCR	Dincergok (2018), Panda & Nanda (2018); Banos-Caballero et. al (2016)	N/A
Independent	Firm Size (SIZE)	Natural log of total Assets	In (TA)	Cevheroglu-Acar (2018); Lourenco & Oliveira (2017)	Positive/Negative
	Profitability (ROA)	Return on Assets	EAT/TA	Kinyua & Muriu (2017); Saarani & Shahadan (2013)	Negative
	Current Assets (CA)	Size of Current Assets	CA/TA	Kwenda & Holden (2014); Fosberg (2012)	Positive/Negative
	Sales Growth (SG)	The rate of change in sales	$S_t - S_{t-1}/ S_{t-1}$	Ohman & Yazdanfar (2017); Padachi, et al. (2010)	Positive

Source: Author (2018)

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter presents the research philosophy, research design, target and accessible population, sampling design and sample size, and data collection methods. Further, issues relating to data processing and analysis are also discussed in this chapter.

3.2 Research Philosophy

A research philosophy refers to a set of beliefs and assumptions about how a researcher views the world (Creswell, 2014). According to Blumberg, Cooper, and Schindler (2014), research philosophy helps to determine the appropriate research design and methodology that the researcher will apply in his study. The study was guided by post-positivist philosophy.

According to post-positivists, any outcome or event in the society is caused by something (Creswell, 2014). Researches done by post-positivists are therefore causal in nature, that is, they focus on the cause and effect relationships. According to Engel and Schutt (2014), this philosophical approach believes that there is an objective reality that can explain the cause and effect relationships, this reality is external to the perceptions of those who observe it and can be carefully observed and measured. In conducting their studies, post-positivists adopt a deductive approach, where, they first begin with a theory from which a hypothesis is deduced and numeric measures of the variables determined (Bryman, 2008). Data on the variables are then collected and statistically analyzed to test the hypothesis. The results would lead to a rejection or a failure to reject the hypothesis. The research is therefore quantitative in nature.

This study involved establishing how firm facets influence the financing of WCR. This implies a causal research. In addition, the research was deductive in nature since hypotheses were first deduced from theory, numerical data collected, and statistically

analyzed to test the hypothesis. This study, therefore, conforms to the post-positivist philosophy.

3.3 Research Design

As per Sekaran and Bougie (2016), research design is a plan of how data will be collected, measured and analyzed in a manner that responds to the study queries. This study adopted a panel research design. This is a type of quantitative research that involves studying the same cross-sectional units across a given time period (Kumar, 2014). This study involved a research on the influence of firm characteristics on the financing of WCR. According to Flick (2015), for studies on cause and effect relationships such as this, a panel research design provides the best results. A similar research design was adopted by Kinyua and Muriu (2017) and Majumdar (2010) in their study of cause and effect relationships between variables.

3.4 Target and Accessible Population

According to Sekaran and Bougie (2016), target population refers to an entire group of people or items of interest that a researcher wishes to investigate and make inferences from. Accessible population denotes members of the target population who can be pragmatically included in the sample (Gall, Gall & Borg, 2007). The target population for this research encompassed all non-financial companies catalogued at the NSE as at 31st December 2016. There were 38 non-financial firms listed at the NSE as at that time (See: Appendix I). However, consistent with Banos-Caballero, et al. (2016), firms with negative WCR were omitted since they do not have a need to finance their working capital. In addition, firms with missing observations were excluded so as to achieve a balanced panel and therefore minimize the inconsistencies and biases caused by having an unbalanced panel (Laird, 1988). This is consistent with studies done by Kwenda and Holden (2014) and Kuhnhausen & Stieber, 2014. Based on these two criteria, this study arrived at an accessible population of 27 NSE listed non-financial firms (See: Appendix II). The figure represents 71% of the target population. This is considered a sufficient representative of the target population since according to Gay, Mills, and Airasian

(2006), for small populations of less than 1000 units, a minimum threshold of 20% of the target population is deemed appropriate.

3.5 Sampling Design and Sample Size

The sampling frame for this study was made up of the 27 firms which form the accessible population (See: Appendix II). A census survey was conducted on all the firms in the sampling frame due to their small size. According to Blumberg, et al. (2014), a census approach is preferred when the population is small. In addition, this approach enhances the validity of the information as it studies all the population elements (Saunders, Lewis & Thornhill, 2009). The study focused on a seven-year period from 2010 to 2016. This period was considered relevant because it was after the 2008-2009 global financial crisis which highlighted the importance of having an optimal strategy for financing WCR (Kwenda & Holden, 2014). In addition, within this period some listed and non-listed non-financial firms, for example, Uchumi (Michira, 2016), Kenya Airways (Olingo, 2015) and Nakumatt (Mutegi, 2018) have had problems largely caused by poor strategies for financing WCR. The seven-year period was also considered an adequate time to observe any significant changes (Abbas, 2016).

3.6 Data and Data Collection Procedure

This study utilized panel data which involves obtaining information on the same cross-sectional units across multiple time periods (Hsiao, 2003). Panel data was selected because it is considered the most appropriate for studying causal relationships, and this is due to the fact that it provides the most comprehensive information about variables (Kumar, 2014). It also allows for control of individual or group heterogeneity thus reducing the risk of obtaining biased results (Baltagi, Bratberg & Holmas, 2005).The cross-sectional element of the data comprised of non-financial firms listed in the NSE while time series element was data collected from each of the selected firms from the year 2010 to 2016.

Secondary data for all the variables in the study was extracted from the published annual financial statements of the selected non-financial firms and recorded in a data collection

template (See: Appendix III). Each firm had its own template which had a column for each of the variables and a row for each year of study. The financial statements from which the data was extracted included the income statement, statement of financial position and notes to the accounts. The data was obtained from the NSE handbooks, Capital Markets Authority (CMA) and the firms' websites.

3.7 Data Processing and Analysis

Using the information in the data collection template, the relevant measures of the variables were computed in the Microsoft Excel spreadsheets and imported into the Eviews software for data analysis. The data were analyzed using descriptive statistics and panel least squares regression model. Descriptive statistics involves summarizing and describing data in a manner that provides useful information (Vogt, 2007). In this study, it involved providing information about the number of observations, the mean, median, maximum and minimum values, standard deviation, skewness, kurtosis, and the Jarque – Bera test for normality. These measures were also relevant for parametric tests that were conducted in this study (Keller, 2005).

Panel least squares regression model was used to estimate the relationship between the explanatory variables and the dependent variable. This model was considered appropriate because of the panel nature of the data (Abu Mouamer, 2011). The statistical significance of each regression coefficient was tested using the t-test while the joint significance of the coefficients was tested using the F-test. The tests were done at a 5% significance level which is considered a rule of thumb by most statisticians (Engel & Schutt, 2014). The strength of the relationship, that is, the proportion of the dependent variable explained by the independent variables were also tested using the adjusted coefficient of determination (Adjusted R^2).

3.7.1 Panel Diagnostic Tests

The panel regression model is based on certain assumptions which if violated will lead to spurious results. It is therefore important that before estimating the model, diagnostic tests need to be done to check for any violation and corrective action taken. The tests conducted in this study were; Hausman test, Normality test, Stationarity test and

Multicollinearity test. The tests for cross-section dependence and autocorrelation were not done since they are considered to be a major problem only when dealing with large macro panels with long time series of over 20 years (Torres-Reyna, 2007).

3.7.1.1 Hausman Test

In this study, a decision had to be made on whether to adopt a fixed effects or a random effects panel regression model. The choice depends on the assumptions regarding the individual cross-section effects, that is, the individual differences across firms (Greene, 2008). A fixed effects model assumes that the individual effects are correlated with the independent variables and are fixed across time while a random effects model assumes the individual effects are randomly distributed across firms and are uncorrelated with the independent variables. Hausman test was conducted to determine the appropriate estimation model (Hausman, 1978). This is a chi-square test with the null hypothesis that individual effects are uncorrelated with the independent variables thus a random effects model is preferred. The test was done on Eviews software at a 5% significance level.

3.7.1.2 Normality Tests

Most statistical procedures are based on the assumption that the residuals follow a normal distribution (Ghasemi & Zahediasl, 2012). The assumption of normality is very important as it enables one to make accurate statistical inferences from a test of the hypothesis (Field, 2009). This study used the Jarque-Bera test statistic (Bera & Jarque, 1982) to test for the normality of the residuals. This is a chi-square test that was calculated from the Eviews software at 5% significant level with the null hypothesis is that the data is normally distributed.

3.7.1.3 Stationarity Test

When using panel data, it is assumed that the data series is stationary, that is, it has a constant mean, variance, and auto-covariance at various points across time (Gujarati, 2003). There is need to test if this assumption holds as tests done on non-stationary data lead to invalid test results where the test statistic imply that there is a significant relationship between the variables yet no relationship exists (Wooldridge, 2013).

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This study employed Levin, Lin & Chu unit root test to check for the stationarity of the panel data. This is a chi-square test with the null hypothesis that the panels contain unit roots, that is, they are non-stationary. The test was done on Eviews software at 5% significant level.

3.7.1.4 Multicollinearity

Multicollinearity refers to a situation where there is a high degree of correlation between the independent variables (Keller, 2005). Presence of multicollinearity violates the assumptions of the linear regression model and leads to large standard errors that distort the regression coefficients (Thompson, Kim, Aloe and Becker, 2017). In this study, multicollinearity was tested using the Variance Inflation Factor (VIF). VIF measures the extent to which the standard error of each regression coefficient has been inflated due to multicollinearity (Craney & Surles, 2002). The most commonly used cut-off point for severe multicollinearity and one that was adopted in this study is a VIF value of 10 (O'Brien, 2007). A VIF value that is at least 10 indicates the presence of multicollinearity. The VIF values were generated from the Eviews software for each independent variable.

3.7.2 Empirical Model

Consistent with the conceptual framework, the empirical model is formulated as follows;

$$WCF_{it} = \propto + \beta_1 SIZE_{it} + \beta_2 ROA_{it} + \beta_3 CA_{it} + \beta_4 SG_{it} + \varepsilon_{it}$$

Where;

WCF_{it} = Financing of WCR for firm i at time I

$\propto$ = the Intercept term.

$\beta_1, \beta_2, \beta_3, \beta_4$ = Regression coefficients of the variables

$SIZE_{it}$ = Size of firm i at time t

ROA_{it} = Profitability of firm i at time I

CA_{it} = Current Assets of firm i at time t

SG_{it} = Sales growth of firm i at time t

ε_{it} = Error term

CHAPTER FOUR

PRESENTATION, DISCUSSION, AND INTERPRETATION OF FINDINGS

4.1 Introduction

This chapter deals with analysis and presentation of data on the relationship between firm characteristics and financing of WCR. It starts by covering the descriptive statistics and the panel diagnostic tests. This is followed by specification and estimation of the model, and finally, a discussion and interpretation of the research findings.

4.2 Descriptive Statistics

This section provides a synopsis of the data obtained for each of the variables in this research. The descriptive statistics employed were; mean, median, maximum and minimum values, standard deviation, skewness, kurtosis, and the results of the Jarque-Bera test for normality. These statistics are discussed in Figures 4.1 to 4.5.
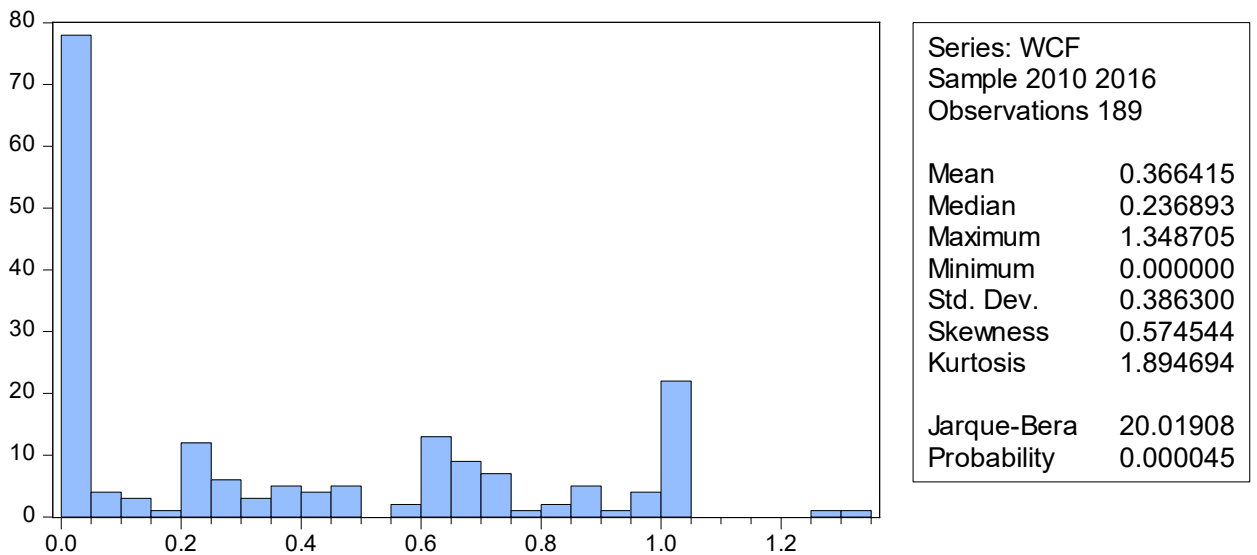
Figure 4.1: WCF Series Descriptive Statistics

Figure 4.1 shows that the minimum and maximum values of the WCF series were 0.0000 and 1.3487 respectively. This implies that there were firms who financed all their WCR with long-term financing while others financed all of their WCR with short-term debt.

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However a mean and a median of 0.3664 and 0.2369 respectively infer that most of the non-financial firms financed their WCR with large proportions of long-term financing. A standard deviation of 0.3863 show variations in the WCF during the study period. The Jarque-Bera test had a probability value of 0.000045 which imply that at 5% significance level the null hypothesis of normality of the data is rejected and the data is considered to be significantly different from normal. However, the data has a degree of skewness of 0.5745 and Kurtosis of 1.8947 which according to Kline (2011) is considered to be approximately normal. Kline (2011) suggests that skewness and kurtosis values that lie within a range of ≤ 3and ≤10 respectively are considered to be approximately normal. This data can, therefore, be subjected to parametric statistical analysis.

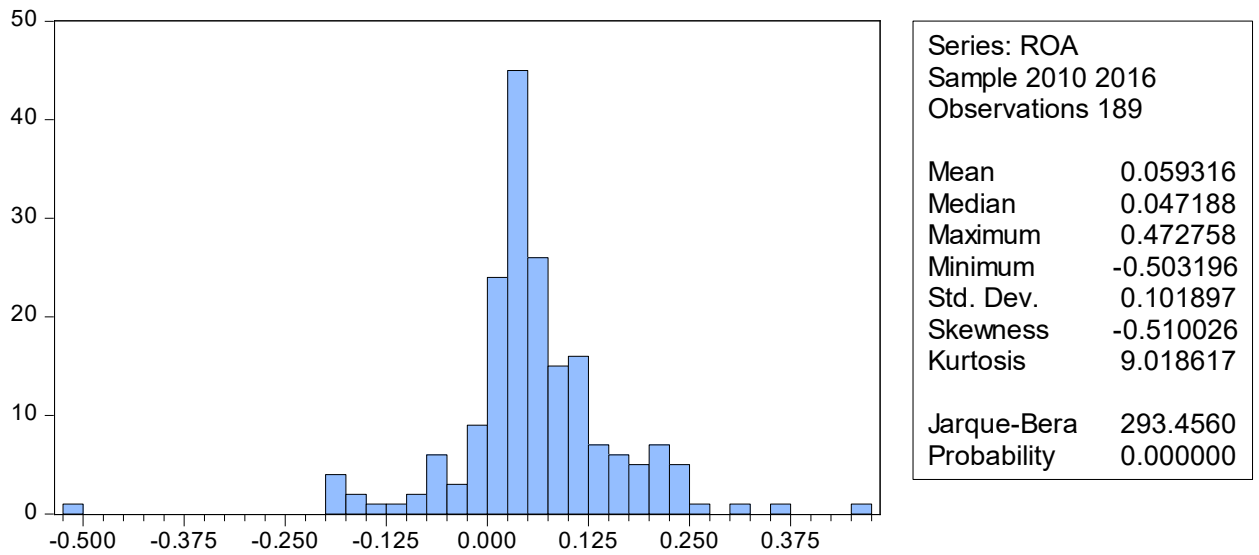| Series: SIZE	
Sample 2010 2016	
Observations 189	
Mean	6.928840
Median	6.928905
Maximum	8.576568
Minimum	4.700723
Std. Dev.	0.796009
Skewness	-0.354105
Kurtosis	3.485204
Jarque-Bera	5.803753
Probability	0.054920
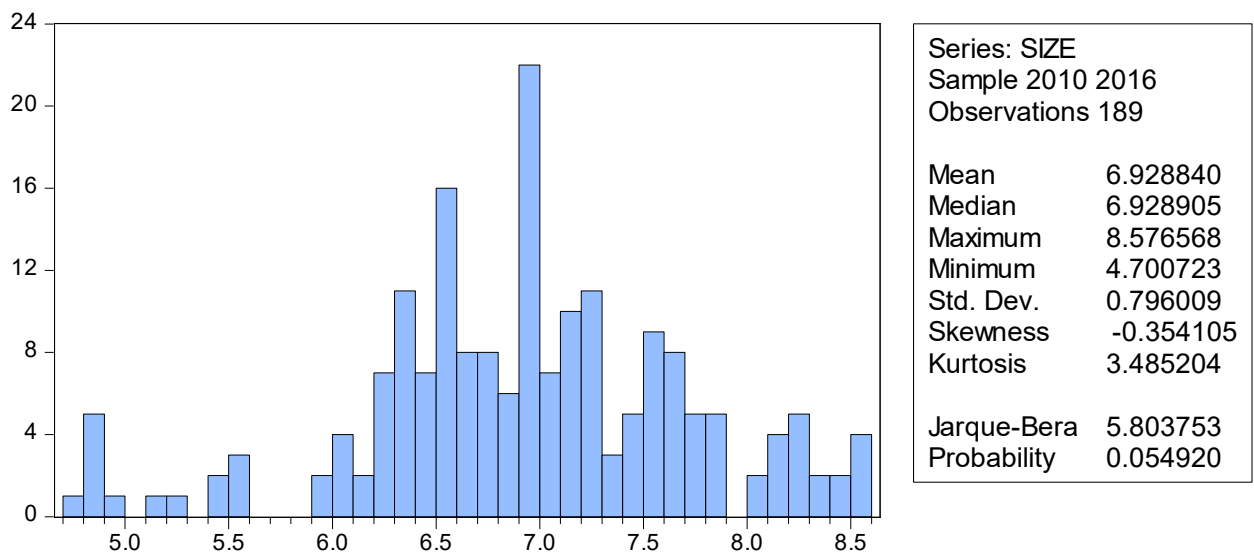
Figure 4.2: SIZE Series Descriptive Statistics

From Figure 4.2, the maximum and minimum values for SIZE series was 8.5766 and 4.7007 respectively while the mean and the median was 6.9288 and 6.9289 respectively. The Jarque-Bera test had a probability of 0.05492 which at 5% significance level imply that the data was not significantly different from normal and can be subjected to parametric tests. This fact is also supported by an almost equal value for the mean and the median. A standard deviation of 0.7960 shows variabilities in firm size during the measurement period.

Series: ROA	
Sample 2010 2016	
Observations 189	
Mean	0.059316
Median	0.047188
Maximum	0.472758
Minimum	-0.503196
Std. Dev.	0.101897
Skewness	-0.510026
Kurtosis	9.018617
Jarque-Bera	293.4560
Probability	0.000000

Figure 4.3: ROA Series Descriptive Statistics

In Figure 4.3, the maximum and the minimum values of the ROA series were 0.4728 and -0.5032 respectively. This shows a huge range between the most profitable NSE listed non-financial firm and the least profitable ones. In addition, some firms reported a negative return on investment for their shareholders. The mean and the median is at 0.05933 and 0.04719 respectively, which suggests that most firms averaged a return on investment of about 5% during the study period. This compared with the maximum value of 0.4728 show that highly profitable non-financial firms are generally outliers and most firms are faced with low profitability, which could be due to low economic growth. The standard deviation of 0.1019 confirm the variation in profitability of the firms during the study period. The Jarque-Bera test for normality showed a probability value of 0.0000 which results in a rejection of the null hypothesis of normality and a conclusion that the data is significantly different from normal at 5% significance level. However, a skewness value of -0.5100 and Kurtosis of 9.01862 falls below the minimum threshold for approximate normality set by Kline (2011) which is ≤ 3 and ≤ 10 for skewness and kurtosis respectively. This implies that the ROA data series can be subjected to parametric statistical analysis.
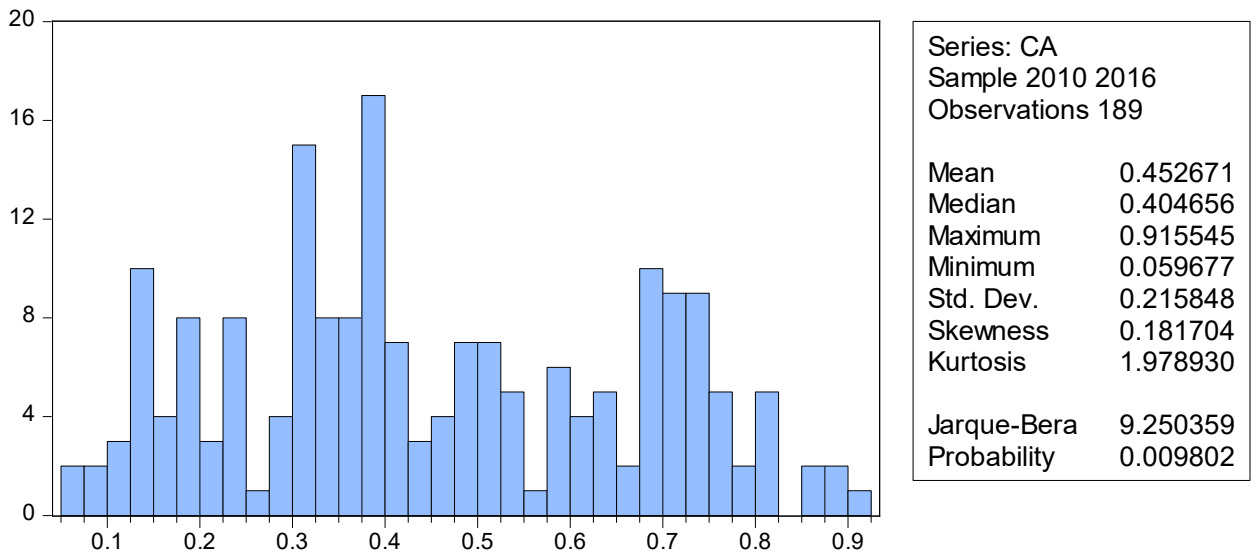
Figure 4.4: CA Series Descriptive Statistics

Figure 4.4 shows that the maximum and minimum values for the CA series were 0.9155 and 0.05968 respectively. This shows that there were some firms whose asset structure consisted almost entirely of current assets while others had almost all their assets being fixed. This variation is demonstrated by the standard deviation of 0.2158. Given the mean of 0.4527 and a median of 0.4047 most firms appeared to have an almost equal proportion of both current assets and fixed assets with the latter being slightly more. The Jarque-Bera test with a probability of 0.009802 suggested that the data was significantly different from normal but since the Skewness and Kurtosis of 0.1817 and 1.9790 respectively falls with the range of ≤ 3 and ≤ 10 respectively then the data is approximately normal as suggested by Kline (2011) and can be subjected to parametric tests.

Series: SG	
Sample 2010 2016	
Observations 189	
Mean	0.079702
Median	0.053085
Maximum	1.186948
Minimum	-0.507985
Std. Dev.	0.202566
Skewness	1.580158
Kurtosis	9.749737
Jarque-Bera	437.4290
Probability	0.000000
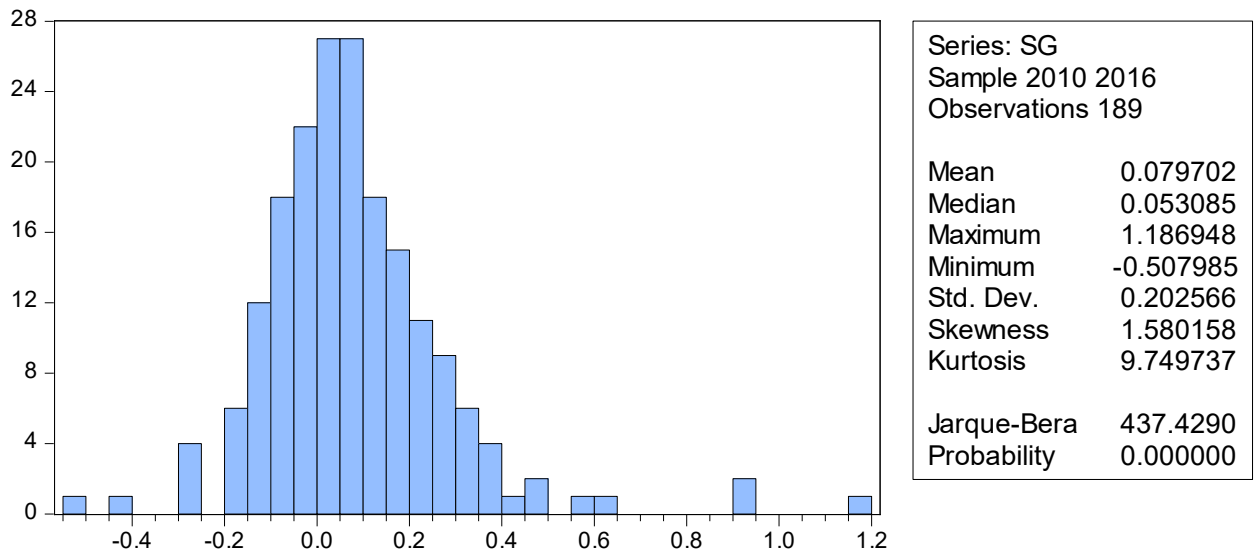
Figure 4.5: SG Series Descriptive Statistics

The SG series presented in Figure 4.5 shows that the maximum sales growth was 1.1869 while the minimum was -0.5080. The mean growth rate was 0.07970 with most firms managing a growth rate of 0.05309 for the seven-year period as shown by the median. The low sales growth could perhaps explain the low levels of profitability as seen in figure 4.3, where the median ROA is 4.7188%. A standard deviation of 0.2026 is further evidence of the variability of sales growth during the study period. The Jarque-Bera test suggests that the data is significantly different from normal but the degree of skewness and kurtosis is within the acceptable normality range of ≤ 3 and ≤ 10 set by Kline (2011) for skewness and kurtosis respectively which allows for parametric tests to be done on this data.

4.3 Panel Diagnostic Tests

Panel diagnostic tests were done to check for any violations of the assumptions underlying the panel regression model and to select the appropriate estimation model based on the results of the diagnostic tests. The foremost intent of these tests is to avoid spurious regression results.

4.3.1 Hausman Test

The test was done to determine whether a random or fixed effects model is suitable for the data. It tests the null hypothesis of a random effects model against an alternative hypothesis of a fixed effects model.

Table 4.1: Hausman Test

Correlated Random Effects - Hausman Test
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	12.461751	4	0.0142

The Hausman test in Table 4.1 reveals a chi-square value of 12.4618 with a p-value of 0.0142 which is statistically significant at 5% significance level. The researcher, therefore, rejects the null hypothesis of a random effects model and adopts a fixed effects model.

4.3.2 Normality Test

This is a test of the normality of the residuals obtained from the fixed effects panel regression model.
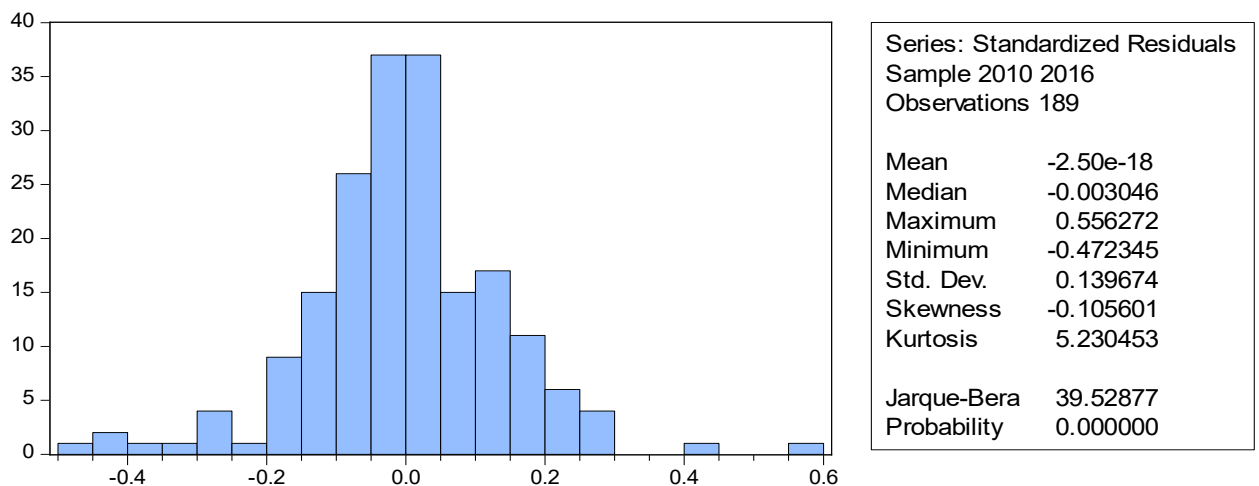
Figure 4.6: Residuals Normality Test

Figure 4.6 shows that the Jarque-Bera test for normality had a p-value of 0.0000 which is significant at 5% significance level. In this case, the null hypothesis of normality is rejected and the residues are considered to be significantly different from normal. However, according to Kline (2011), if the data has a skewness of ≤ 3 and kurtosis of $\leq$ 10 then it can be considered to be approximately normal. In this case the skewness of -0.1056 and kurtosis of 5.2304 falls within the range of approximate normality, therefore, the data can be considered not to be violating the normality assumption and is appropriate for linear regression.

4.3.3 Stationarity Test

This test was done to check for violation of the assumption of stationarity of the data. It was conducted using the Levin, Lin & Chu test where the null hypothesis is the presence of a unit root which implies that the data is not stationary.

Table 4.2: WCF Unit Root Test

Panel unit root test: Summary
Series: WCF
Sample: 2010 2016

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.53932	0.0002	19	95

From the results in Table 4.2, the Levin, Lin, and Chu test had a p-value of 0.0002 which is statistically significant at the 5% significance level. This leads to a rejection of the null hypothesis and a conclusion that the data is stationary at level.

Table 4.3: SIZE Unit Root Test

Panel unit root test: Summary
Series: SIZE
Sample: 2010 2016

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-11.2251	0.0000	27	135

Table 4.3 shows a p-value of 0.0000 for the Levin, Lin & Chu test done on the series SIZE. This implies a rejection of the null hypothesis at 5% significance level in favour of the alternative hypothesis that the firm size data is stationary at level.

Table 4.4: ROA Unit Root Test

Panel unit root test: Summary
Series: ROA
Sample: 2010 2016

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-18.1673	0.0000	27	135

From the results of the Levin, Lin & Chu test on the series ROA, the p-value obtained was 0.0000. This indicates that at 5% significance level, the null hypothesis of non-stationarity is rejected and the alternative hypothesis of the data being stationary at level is accepted.

Table 4.5: CA Unit Root Test

Panel unit root test: Summary
Series: CA
Sample: 2010 2016

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root 0(assumes common unit root process)				
Levin, Lin & Chu t*	-4.89591	0.0000	27	135

The Levin, Lin & Chu test performed on the data representing current assets as shown in table 4.5 shows a p-value of 0.0000. In this case, the null hypothesis of non-stationarity is rejected at 5% significance level and it is, therefore, concluded that the series is stationary at level.

Table 4.6: SG Unit Root Test

Panel unit root test: Summary
Series: SG
Sample: 2010 2016

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-15.1234	0.0000	27	135

Consistent with all the other variables, the result of the Levin, Lin & Chu test suggests that the data series for sales growth is stationary at a level as seen in Table 4.6. This is due to the fact that the test showed a p-value of 0.0000 which is statistically significant at a 5% significance level, thus leading to a rejection of the null hypothesis of non-stationarity of the data.

4.3.4 Multicollinearity Test

The test for multicollinearity was done to check for the degree of correlation between the independent variables. This assessment was done using the VIF test on Eviews, where, VIF values were generated for each independent variable and compared with the critical VIF value of 10 as suggested by O'Brien (2007). If the generated VIF value is greater than the critical value of 10, the variable is considered to be suffering from a problem of multicollinearity.

Table 4.7: Multicollinearity Test

Variance Inflation Factors
Sample: 2010 2016
Included observations: 189

Variable	VIF
SIZE	1.067856
ROA	1.087209
CA	1.108231
SG	1.131551

As of Table 4.7, it can be seen that the VIF values for all the variables were less than 10 thus implying that no variable had a problem of multicollinearity.

4.4 Model Specification and Output

From the panel diagnostic tests done, a fixed effects panel regression model was found to be the most suitable estimation model and it is specified as;

$$WCF_{it} = C + \beta_1 SIZE_{it} + \beta_2 ROA_{it} + \beta_3 CA_{it} + \beta_4 SG_{it} + \alpha_i + \mu_{it}$$

Where,

$C=$ Regression intercept

$\beta_1, \beta_2, \beta_3, \beta_4 =$ Regression coefficients of the variables

$WCF_{it}=$ Financing of WCR of firm i at time t

$SIZE_{it}=$ Size of firm i at time t

$ROA_{it}=$ Profitability of firm i at time I

$CA_{it}=$ Current Assets of firm i at time t

$SG_{it}=$ Sales growth of firm i at time t

$\alpha_i=$ Unknown intercepts for each of the firms (i=1 to 27, number of firms in the sample)

$\mu_{it}=$ Error term for firm i the at time t the

The model was estimated on the Eviews software and the results are shown in Table 4.8.

Table 4.8: Panel Least Squares Regression Output

Dependent Variable: WCF
Sample: 2010 2016

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.195228	0.824727	-1.449242	0.1493
SIZE	0.281396	0.116800	2.409215	0.0171
ROA	-0.312795	0.155539	-2.011039	0.0460
CA	-0.822691	0.194598	-4.227650	0.0000
SG	0.035854	0.062333	0.575203	0.5660

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.869267	Mean dependent var	0.366415
Adjusted R-squared	0.844444	S.D. dependent var	0.386300
S.E. of regression	0.152359	Akaike info criterion	-0.776267

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Sum squared resid	3.667685	Schwarz criterion	-0.244552
F-statistic	35.01901	Durbin-Watson stat	1.639228
Prob (F-statistic)	0.000000		

4.5 Research Findings and Discussion

This section discusses the results of the regression output shown in Table 4.8. It involves explaining the relationship between the variables based on the research findings and also discussing the overall validity of the model.

4.5.1 Firm Size and Financing of WCR

The initial objective of this research was to find out the influence of firm size on financing of WCR of non-financial firms listed at the NSE. From the results presented in Table 4.8 firm size (SIZE) had a positive coefficient of 0.2814 and t-statistic of 2.4092. The calculated p-value of 0.0171 was lower than the critical p-value of 0.05 which imply that at 5% significance level the relationship is statistically significant. It was therefore concluded that firm size had a significant positive effect on financing of WCR of non-financial firms listed at the NSE. From the results, it is expected that consistent with the trade-off theory, larger NSE listed non-financial firms will use more short-term debt to finance their WCR. This finding is consistent with empirical studies done by Cevheroglu-Acar (2018); Nyang'oro (2016); and Koksal and Orman (2015) who found a positive relationship between firm size and short-term debt and therefore an expectation of a similar relationship with the financing of WCR. The result differs from that of Lourenco and Oliveira (2017) who while using log of assets as a measure of firm size, found a negative relationship with short-term debt thus an expectation of a negative relationship between firm size and financing of WCR.

4.5.2 Profitability and Financing of WCR

The second objective of this study was to establish the influence of profitability (ROA) on the financing of WCR of non-financial firms listed at the NSE. The outcomes from Table 4.8 showed that ROA had a negative coefficient of -0.3128 and a t-statistic of -2.0110. The p-value of 0.046 suggests that the relationship is statistically significant at

5% significant level since the value is lower than the critical p-value of 0.05. The study, therefore, concluded that a significant negative relationship exists between profitability and financing of WCR of non-financial firms listed at the NSE. The relationship follows the pecking-order theory where it is expected that more profitable firms will use less short-term debt to finance their WCR. These findings are consistent with most studies done on the relationship between profitability and short-term debt (Serrasqueiro, et al., 2016; Alipour, et al., 2015; Saarani & Shahadan, 2013; Andani & Al-hassan, 2012). These studies found that more profitable firms tend to use less short-term debt and it is also expected that they will use less short-term debt to finance their WCR. However, this result was contradicted by Kinyua and Muriu (2017) who found a positive relationship between profitability and short-term debt of Agricultural firms listed at the NSE.

4.5.3 Current Assets and Financing of WCR

The relationship between current assets (CA) and financing of WCR was the third objective of this study. Table 4.8 shows that the variable CA had a coefficient of -0.8227 and a t-statistic of -4.2277. A p-value of 0.0000 was less than the critical p-value of 0.05, which showed that the coefficient was significantly different from zero at a 5% significance level. From the results, a significant negative relationship is expected between current assets and financing of WCR of non-financial firms listed at the NSE. These findings are consistent with the expectations of the trade-off theory where an inverse relationship is expected between current assets and financing of WCR.

The results were consistent with studies done by Bassey, et al. (2014) and Handoo and Sharma (2014) whose findings suggest a negative relationship between current assets and short-term debt thus implying that a negative relationship is also expected with the financing of WCR. The findings contradict studies done by Tayem (2018), Kazmierska-Jozwiak, et al. (2017) and Hossain and Hossain (2015) who suggested a positive relationship between current assets and short-term debt, therefore, implying a positive relationship between current assets and financing of WCR.

4.5.4 Sales Growth and Financing of WCR

The fourth objective of this study was to establish the relationship between sales growth (SG) and financing of WCR. In Table 4.8, sales growth (SG) had a positive coefficient of 0.03585 with a t-statistic of 0.5752. The p-value was 0.5660 which is higher than the critical value of 0.05. This implies that at 5% significance level, the coefficient is not significantly different from zero, therefore, the study did not reject the null hypothesis that sales growth did not have a statistically significant effect on the financing of WCR of non-financial firms listed at the NSE.

Despite the finding not being significant, the direction of the relationship is consistent with the pecking order theory which suggests a positive relationship between sales growth and financing of WCR. The positive relationship arrived at in this result is consistent with that of the majority of the studies that relate sales growth to short-term debt (Ohman & Yazdanfar, 2017; Kuhnhausen & Stieber, 2014; Kwenda & Holden, 2014; Garcia-Teruel & Martinez-Solano, 2007). These studies show that high growth firms tend to use more short-term debt thus implying that most of it will also be used to finance WCR. The point of divergence is that the studies have found a statistically significant relationship.

4.5.5 Overall Validity of the Model

Table 4.8 shows that the model was a good fit for the data. The adjusted R-squared of 0.8444 shows that 84.44% of the deviations in the reliant variable would be elucidated by changes in the explanatory variables. Thus the model had a high explanatory power. The model had an F-statistic of 35.0190 with a p-value of 0.0000 showing that the model as a whole was significant and that at least one coefficient was different from zero. The Durbin-Watson statistic of 1.6392 was within the acceptable range of 1.5 to 2.5 (Field, 2009) for the absence or near absence of the problem of serial correlation in the data.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This chapter outlines the synopsis, inference, and commendations of the research. Limitations and suggested areas for further research are also covered in this section.

5.2 Summary

The main objective of this study was to investigate the influence of firm characteristics on the financing of WCR of non-financial firms listed at the NSE. The following were the specific objectives: to establish the effect of firm size on financing of WCR of non-financial firms listed at the NSE, to establish the effect of profitability on financing of WCR of non-financial firms listed at the NSE, to establish the effect of current assets on financing of WCR of non-financial corporations enumerated at the NSE as well as to establish the effect of sales growth on financing of WCR of non-financial firms listed at the NSE. The effect of the explanatory variables on the dependent variable was estimated using fixed effects panel regression model at 5% significance level.

Based on the results of the regression output presented in chapter four, firm size had a positive coefficient of 0.2814 and a p-value of 0.0171. This implies that firm size had a positive and a significant relationship with the financing of WCR of non-financial firms listed at the NSE. This finding is consistent with the trade-off theory which expects that as firms increase in size, they will use more short-term debt to finance their WCR. The result is also consistent with empirical studies done by Cevheroglu-Acar (2018); Nyang'oro (2016); and Koksal and Orman (2015) who found a positive relationship between firm size and short-term debt leading to an expectation of a similar relationship with the financing of WCR. The findings, however, differ from that of Lourenco and Oliveira (2017) who while using log of assets as a measure of firm size, found a negative relationship with short-term debt, therefore, suggesting an inverse relationship with the financing of WCR.

Profitability had a significant negative effect on the financing of WCR of non-financial firms listed at the NSE. This finding was arrived at based on the results of the regression model which showed a coefficient of -0.3128 and a p-value of 0.046. This relationship follows the pecking order theory where it is expected that more profitable firms will use less short-term debt to finance their WCR. The outcome is consistent with most studies done on the relationship between profitability and short-term debt (Serrasqueiro, et al., 2016; Alipour, et al., 2015; Saarani & Shahadan, 2013; Andani & Al-hassan, 2012). These studies suggest that highly profitable firms will have less short-term debt in their financing structure thus leading to minimal amounts being used to finance WCR. The results are contradicted by Kinyua and Muriu (2017) who found a positive relationship between profitability and short-term debt of Agricultural firms listed at the NSE.

The results of the estimation model also showed that current assets had a coefficient of -0.8227 and a p-value of 0.0000, which denotes a negative and significant relationship between current assets and financing of WCR of NSE listed non-financial firms. This relationship is in line with the trade-off theory, where a negative relationship is expected between current assets and financing of WCR. The empirical studies consistent with this outcome include studies done by Bassey, et al. (2014) and Handoo and Sharma (2014) who suggested a negative relationship between current assets and short-term debt thus implying that firms with high levels of current assets will have less short-term debt which they can use to finance their WCR. The finding contradicts studies done by Tayem (2018), Kazmierska-Jozwiak, et al. (2017) and Hossain and Hossain (2015) who suggest a positive relationship between current assets and short-term debt, therefore, implying a positive relationship between current assets and financing of WCR.

Sales growth with a positive coefficient of 0.03585 and a p-value of 0.5660 was found to have a positive and inconsequential bearing on the financing of WCR of non-financial firms listed at the NSE. Despite the finding not being significant, the direction of the relationship is consistent with the pecking order theory which suggests a positive relationship between sales growth and financing of WCR. The positive relationship arrived at in this result is consistent with that of the majority of the studies that relate sales growth to short-term debt (Ohman & Yazdanfar, 2017; Kuhnhausen & Stieber,

2014; Kwenda & Holden, 2014; Garcia-Teruel & Martinez-Solano, 2007). These studies show that high growth firms tend to acquire more short-term debt which they can use to finance most of its WCR. The point of divergence is that the studies have found a statistically significant relationship.

5.3 Conclusion

From the findings of the study, firm size, profitability and current assets were found to be important aspects of firm characteristics that influence the financing of WCR of non-financial firms listed at the NSE. A significant positive relationship between firm size and financing of WCR imply that in accordance with the trade-off theory large firms face lower risks due to their diversity and low cash flow uncertainties, therefore, they can use more short-term debt to finance their WCR and take advantage of its lower cost.

A significant negative relationship between profitability and financing of WCR shows that in accordance with the pecking order theory NSE listed non-financial firms find retained earnings to be the cheapest financing source and will tend to first utilize it to finance their WCR before seeking other sources of financing. More profitable firms are therefore expected to be more conservative and use less debt to finance their WCR.

Current assets were also considered to be an important variable because of its significant negative effect on the financing of WCR of non-financial firms listed at the NSE. This inverse relationship is in line with predictions of the trade-off theory and there could be two possible reasons for this. First, Most firms were facing uncertainties regarding cash flows generated from current assets and to manage this risk, firms with high levels of current assets opted for more long-term financing. Secondly, firms with high levels of current assets do not have enough fixed assets that they can use as collateral for debt and are therefore forced to use more equity (which is a form of long-term financing) to finance their WCR.

The insignificant relationship between sales growth and financing of WCR imply that the NSE listed non-financial firms do not consider it to be an important aspect in making decisions on the financing of WCR.

5.4 Recommendations of the Study

From the significant positive relationship between firm size and financing of WCR, this study recommends that larger non-financial firms listed at the NSE should take advantage of their lower default risk that arises from their diversity and goodwill from lenders and use more short-term debt to finance their WCR. This will lead to lower financing costs which will improve profitability. For smaller firms, it will be prudent to adopt a more conservative strategy for financing WCR because the higher cash flow uncertainty and refinancing risk that they face outweighs the benefits that can be derived from using more short-term debt to finance WCR.

The significant negative relationship between profitability and financing of WCR implies that according to the pecking order theory, retained earnings offer the cheapest source of financing. It is therefore recommended that firms should take measures to improve their profitability by growing their revenues and minimizing their expenses so as to enable them to generate sufficient internal resources that they can use to finance their WCR.

From the significant negative relationship between current assets and financing of WCR, this study recommends that NSE listed non-financial firms with high levels of current assets should consider using more equity to finance their WCR since their lack of collateral makes it very expensive and risky to acquire any type of debt. Firms with lower levels of current assets (which implies high levels of fixed assets) should use more short-term debt to finance its WCR since they have more fixed assets that they can use as collateral to get cheaper short-term debt.

5.5 Limitations and areas for further research

This study focused on non-financial firms listed at the NSE, therefore, the findings were limited to these firms and may not be applicable to other types of firms. Future studies should be done on listed financial firms, non-listed firms, SMEs and public corporations. The study also considered only four aspects of firm characteristics, namely; firm size, profitability, current assets and sales growth. There is a need for additional studies that incorporate other aspects of firm characteristics so as to provide more insights into its

relationship with the financing of WCR. Further, the study was limited to quantitative data despite strategy is both a quantitative and a qualitative aspect of management. Future research should incorporate these two approaches.

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APPENDICES

APPENDIX 1: Non-Financial Firms Listed at the NSE

Sector/Segment	Firm
Agricultural	1. Eaagads Ltd
	2. Kakuzi Ltd
	3. Kapchorua Tea Co. Ltd
	4. The Limuru Tea Co. Ltd
	5. Sasini Ltd
	6. Williamson Tea Kenya Ltd
Automobiles & Accessories	7. Car & General (K) Ltd
Commercial and Services	8. Deacons (East Africa) Plc
	9. Eveready East Africa Ltd
	10. Express Kenya Ltd
	11. Kenya Airways Ltd
	12. Longhorn Publishers Ltd
	13. Nairobi Business Ventures Ltd
	14. Nation Media Group
	15. Sameer Africa Ltd
	16. Standard Group Ltd
	17. TPS Eastern Africa (Serena) Ltd
	18. Uchumi Supermarket Ltd
	19. WPP Scangroup Ltd
Construction and Allied	20. ARM Cement Ltd
	21. Bamburi Cement Ltd
	22. Crown Paints Kenya Ltd
	23. E.A. Cables Ltd
	24. E.A. Portland Cement Co. Ltd
Energy and Petroleum	25. KenGen Co. Ltd
	26. Kenol Kobil Ltd
	27. Kenya Power & Lighting Co Ltd
	28. Total Kenya Ltd
	29. Umeme Ltd
Manufacturing and Allied	30. B.O.C Kenya Ltd
	31. B A T Kenya Ltd
	32. Carbacid Investments Ltd
	33. East African Breweries Ltd
	34. Flame Tree Group
	35. Kenya Orchards Ltd
	36. Mumias Sugar Co. Ltd
	37. Unga Group Ltd
Telecommunications & Technology	38. Safaricom Ltd

(Source: NSE Investor Handbook, 2016-2017)

APPENDIX 1I: List of Selected Firms

Sector/Segment	Firm
	1. Kakuzi Ltd
	2. Kapchorua Tea Co. Ltd
	3. The Limuru Tea Co. Ltd
	4. Sasini Ltd
	5. Williamson Tea Kenya Ltd
Automobiles & Accessories	6. Car & General (K) Ltd
	7. Eveready East Africa Ltd
	8. Kenya Airways Ltd
	9. Nation Media Group
	10. Sameer Africa Ltd
	11. Standard Group Ltd
	12. TPS Eastern Africa (Serena) Ltd
	13. WPP Scangroup Ltd
Construction and Allied	14. ARM Cement Ltd
	15. Bamburi Cement Ltd
	16. Crown Paints Kenya Ltd
	17. E.A. Cables Ltd
Energy and Petroleum	18. KenGen Co. Ltd
	19. Kenol Kobil Ltd
	20. Kenya Power & Lighting Co Ltd
	21. Total Kenya Ltd
Manufacturing and Allied	22. B.O.C Kenya Ltd
	23. B A T Kenya Ltd
	24. Carbacid Investments Ltd
	25. East African Breweries Ltd
	26. Kenya Orchards Ltd
	27. Unga Group Ltd

(Source: NSE Investor Handbook, 2016-2017).

APPENDIX III: Secondary Data Collection Template

NAME -   Safaricom Limited

YEAR	TOTAL ASSETS	EARNINGS AFTER TAX	CURRENT ASSETS	SHORT-TERM DEBT	ACCOUNTS PAYABLE	SALES
2010						
2011						
2012						
2013						
2014						
2015						
2016						