THE RELATIONSHIP BETWEEN FREE CASH FLOWS AND CAPITAL EXPENDITURE OF MANUFACTURING FIRMS QUOTED AT THE NAIROBI SECURITIES EXCHANGE

BY

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREEOF MASTER OF SCIENCE IN FINANCE, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

DECEMBER 2018

DECLARATION

This research project is my original work and has not been presented for an award in any institution of higher learning.

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This research project has been submitted for examination with my approval as the University Supervisor.

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ACKNOWLEDGEMENT

I would like to extend my gratitude to God Almighty who ensured I never lacked by providing resources to me throughout my studies.

I acknowledge with much appreciation the support, advice and effort of my supervisor Mr. Abdullatif Essajee in the supervision during my research work and in writing of this research project.

My sincere appreciation to my close friends and family for providing the much needed moral support during my study and accepting my being away from many activities in order to complete my research.

Finally I thank my fellow students who encouraged me and contributed positively towards my study and my colleagues for sharing their vast knowledge on the study and encouraging me to expand and convert my professional experience and knowledge into this research project.

This project paper is an expression of my learning and no criticism is intended towards any person and organization mentioned in this paper.

DEDICATION

This paper is dedicated to my parents, John Ilia and Regina Mueni for their support and encouragement, and to my siblings for their support throughout the course.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

CAPEX	Capital Expenditure
CMA	Capital Markets Authority
FCF	Free Cash Flow
MM	Modigliani and Miller
NPV	Net Present Value
NSE	Nairobi Securities Exchange

ABSTRACT

FCF has continuously raised more arguments especially in the capex determinants theory. Empirically, cash flow and investment are certainly related but much of the debate arises on the strength and its cause. Much of the studies have been done for developed countries while there have been limited studies relating to capex decisions that have been completed in developing countries which this study aims to address. A study of relationship between investments and FCFs for companies listed at the NSE by Kinyanjui revealed a positive relationship between the two. Most of the recent theory opines a negligible impact of cash flow on investment although the disagreement on why cash flow and investment are linked still exists. The aim of this study was to determine the effect of FCFs on capital expenditure of manufacturing firms quoted at the NSE. The period under study covered five years between 2013 and 2017 and the population for the study was all the fourteen manufacturing companies quoted at the NSE. The independent variables for the study were FCFs, leverage, dividend payout ratio, firm size and liquidity. Capital expenditure was the dependent variable in the study.

The study revealed that the five independent variables considered explained 64.6% of the variation in capital expenditure of manufacturing firms quoted at the NSE while 35.4% was explained by other factors not considered in the study. A correlation coefficient of 0.804 indicated that the independent variables had a strong correlation with capital expenditure of manufacturing firms listed at the NSE. The model's F statistic was significant at 5% level with a p=0.000 thus the model was fit to explain the association between the selected variables.

The study concluded that firm size produced positive and statistically significant values for the period under study. FCFs produced negative but statistically insignificant values while liquidity, leverage and dividend payout ratio asset were also found to be a statistically insignificant determinants of capital expenditure among manufacturing and allied firms' quoted at the NSE. Normally, firms with higher FCFs should invest more on capital expenditure, however the negative relationship noted could be explained by the decline in the growth rate of manufacturing sector as a contributor to GDP growth from 5.6% in 2013 to 0.2% in 2017 (2018 Economic Survey) attributable to a myriad of economic challenges hence companies invested less.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Companies with high FCF stand a higher chance of attracting investors seeking efficient opportunities to invest resources. The analysis of the correlation between FCF and capital expenditure outlay is however highly debatable. Based on the perfect capital markets' assumption, Modigliani and Miller (1958) opined that financing decisions or the firm's capital structure should not affect investment spending since investment finance will be availed to firms equally at an exogenously determined cost. Instead, the major determinant of investment spending should be the cost of capital given by the market. The conclusion was that under these assumptions, the essence of liquidity variables including FCF lost meaning unless they implied future profitability. However, the empirical findings opposed this notion and argued that liquidity variables such as FCF were significant determinants of fixed investment spending (Mairesse, Hall & Mulkay 1999; Carpenter & Guariglia, 2008).

This study is anchored on several theories. The FCF hypothesis by Jensen (1986) asserts that companies increase shareholder wealth by undertaking projects where the PV of future cash flows exceeds the cash outlay. The pecking order theory states that firms follow a hierarchy in sourcing for various financing sources. Companies will favor internal financing when available, and when not available, borrowing is favored over equity if external financing is necessary (Myers, 1984). Modigliani and Miller (1958, 1961), advanced the irrelevance theorems whereby they concluded that a firm's current and future expected FCF will affect a firm's value and that a firm value is independent

of its dividend policy since firms maximize their value through the investments they undertake.

Most manufacturing firms listed at the NSE have been forced to diversify their portfolios due to the dynamism of the business environment so as to remain competitive in the market (Hann,Ozbas & Ogneva, 2010). Diversification has enabled firms to experience assets growth, expansion of portfolios and increase shareholders' wealth. This has been attained through corporate governance and proper investment decisions. This has however prevented firms from accessing FCF and thus more investments. Manufacturing and associated companies listed at the NSE are accumulating massive debts in their capital structure as a way of raising fresh finance to fund operations and execute development projects through capital market (Anyanzwa, 2015).

1.1.1 Free Cash Flow

Cash flow is defined as the movement of cash into and out of a business. FCF is defined as the additional cash flow required to finance all positive NPV projects when discounted at given cost of capital (Jensen, 1986). Richardson (2006) describes FCFs as cash flows in excess of what is required to preserve the firm's existing assets and to finance new investments. Dechow and Ge (2006) states that FCF are the cash flows originating from operational activities and from financial investments. FCFs are vital as they allow a company to go after opportunities that shall lead to the enhancement of the shareholders' value. Vogt (1997) defines FCF, as operating income before depreciation, minus interest expense on borrowings, minus income taxes, minus dividends on common and preferred stock.

FCF have a direct impact on the general worth of a firm therefore investors will be on the lookout for firms that have improving or high FCFs. Strong/huge cash flows gives

a company more flexibility whereas weak/low cash flows puts a company on the defensive by discouraging it in engaging in risk taking and aggressive exploitation of market opportunities (Christy, 2009). According to Bhundia (2012) and Jensen (2006), allocation of FCFs represents the greatest agency challenges. According to Jensen (2006), when an organization is able to generate huge volumes of FCF, then there will be a conflict of interest between managers and shareholders regarding the dividend payout policy.

Copland (1968) stated that corporate FCF constitutes operating income after tax plus non-cash expenses after removal of the investments on plant, property, equipment and other assets. While Lehn and Poulsen (1989) measure FCF as operating net income prior to depreciation expense and after tax, interest expense, preferred and common dividend. This measurement has been widely used in studies (Chalak & Mohammadnezhad, 2012; Galogah, Pouraghajan & Makrani ,2013; Wang, 2010) and shall be adopted in the study.

1.1.2 Capital Expenditure

Capital expenditure (Capex) refers to resources utilized by a company to purchase or upgrade tangible assets including machinery, buildings or execute new projects (McConnell &Muscarella, 1985). Griner and Gordon (1995) defined capex as the funds utilized by management to purchase property, plant and equipment. Capex has been shown to be significantly and positively linked to the level of FCF. This positive relationship can be interpreted in two ways. First, it is an indication of an agency problem where managers in firms with FCF undertake investments that do not increase shareholder wealth (Stulz, 1990; Jensen, 1986). Second, capital market imperfections which lead to external capital being more expensive than internal capital make it

feasible for managers to utilize internal funds to finance new investment opportunities (Fazzari, Hubbard & Petersen, 1988).

Capital investments are of two types. One relates to outlays expended to obtain or manufacture new non-current assets which focuses on increasing a company's range of operations. The other category deals with spending incurred to sustain the already existing assets effectively, maintaining the current scope of the organization's operations and is often called sustaining capital outlay. Any outlay is required to generate a gainful return on investment for shareholders to deem it a necessary expense for an organization (Vogt, 1997).

According to Pandey (1995), capex includes all those expenditure which are expected to produce benefits to the firm for a period extending one year, and this includes both tangible and intangible assets. Accordingly, investment in fixed assets by an entity is determined as net capital expenditure as presented in the statement of cash flows. Chau and Hirth (2010) notes that computation based on this definition shown satisfying results and empirical significance through the years and as a matter of fact, it has been used by most of the researchers covering the association between capital expenditure and cash flow. The current study will apply this definition in computation of capital expenditure in a given period.

1.1.3 Free Cash Flow and Capital Expenditure

Vogt (1997) states that the more FCFs a company has, the higher the profitability of capital expenditure projects and that FCFs impact on capital expenditure rises as firm size declines and when there is a reduction in ownership. The firms' value is maximized through investment which motivates the company's shareholders. This reduces the agency problem since the firm will invest in long-term projects that increase the firm's

value as opposed to issuing dividends to shareholders since investing in positive NPV projects will increase the shareholders' wealth in future.

Various theories have been directed to unfold the relationship between FCF and Capex and their arguments have been different. Jensen (1986) in his FCF hypothesis, concluded that executives have a personal motivation towards developing the firm's assets through value destroying investments rather than distributing the excess funds as dividends to the shareholders. In their irrelevance theory, Modigliani and Miller (1958) state that a firm's investment is not correlated to its internally generated retained earnings under the assumption of perfect capital markets where firms are not exposed to any constraints when obtaining external finance. In reality, external funds are more costly to firms and as such cannot simply substitute retained earnings.

Under the agency cost theory as developed by Jensen and Meckling (1976), when a firm's FCFs exceed the resources needed to fund value adding projects, managers have the opportunity to engage in lavish spending by accepting projects that destroy shareholders' wealth since they can benefit from increasing firm size. As a result, by increasing dividend disbursements, FCFs under a manager's control can be reduced which precludes them from investing in projects that destroy shareholders' wealth. High agency costs can be mitigated by a firm maintaining a lower level of FCF.

Tobin Q Theory as developed by Tobin (1969) states that when a firm's Tobin Q ratio is greater than one, a firm is inclined to increase its level of investment since the cash flows generated would exceed the cost of the firm's assets. It can therefore be concluded, that if growth opportunities are available to a firm, managers should undertake them. When a firm's Tobin Q ratio is less than 1, then they have a smaller

market value than the assets' book value. According to this theory, availability of FCFs would not influence capital expenditure unless the firm's Tobin Q is greater than one.

1.1.4 Manufacturing Firms Listed at the Nairobi Securities Exchange

Nairobi Securities Exchange was established in 1953 and is the sole securities exchange licensed by the Capital Markets Authority to promote, develop, support and carry on the business of a securities exchange and to discharge all the functions of a securities exchange in Kenya. The exchange has sixty five companies listed under fourteen sectors namely: - agriculture, automobiles & accessories, commercial, banking, construction, energy & petroleum, manufacturing & allied, telecommunication & technology industry, insurance, investment, investment services, growth enterprise market segment, Exchange traded funds and Real estate investment trust (NSE 2017). There are nine manufacturing companies listed at the Nairobi Securities Exchange as at 31st December 2017 and they will form the population of interest for the current study.

According to the 2016-2017 budget, Kenya has set out to enhance the economic growth by double digits by the year 2030 and this is through prioritizing key industries in the manufacturing sector as the vehicles to deliver these goals (Wakiaga, 2016). Due to the capital intensive nature of this sector, they are required to determine their optimal FCF in order to realize gains from their investments. Manufacturing firms have a more frequent and higher need of raising cash for investment purposes and this can be observed from the fact that the overall credit to the manufacturing sector increased from KSh 237,422 million in 2015 to KSh 290,069 million in 2016 (Economic Survey, 2017).

1.2 Research Problem

Researchers have argued that there exists a correlation between FCF and capex. Alti (2003) opined that the association between cash flow and investments is more significant in companies at growth stage reflecting the company's growth prospects. Cash flow is often viewed to be a superior forecaster than other methods of measuring investment prospects or other measures of user cost of capital (Stein 2003, Caballero 1999). Bo Becker (2006)'s failed to concur with the above findings and asserted that investments in volatile financial markets, do not hinge on the firm's internally generated resources. The study revealed that firms on average invest more when they possess higher cash flows.

FCF has continuously raised more controversies especially in the capex determinants theory. Empirically, cash flow and investment are certainly related. Much of the debate arises on the strength and its cause. A study of manufacturing companies from 1970 to 1984 by Fazzari, Petersen and Hubbard (1988) and Zingales and Kaplan (1997) found out that the relation was significant for firms without financial challenges. Most of the recent theory opines a negligible impact of cash flow on investment although the disagreement on why cash flow and investment are linked still exists.

Majority of the studies on the factors that explain capital expenditure investment decisions have been done in the developed nations such as the US, UK, Europe and China hence it would be misleading to generalize the findings to the Kenyan environment due to market differences. In Kenya, majority of the studies conducted have not examined the relationship between Capex and FCF. The only study conducted on this relationship was by Kinyanjui (2014) who sought to establish the connection between FCF and investments of firms enlisted at the NSE. The regression model

results of his study point out that FCF have a positive influence on net capital expenditure. He recommended the necessity to conduct more research with other different variables so as to determine if there are other key factors that have a connection with investments at NSE. The current study intends to fulfill this research gap by concentrating on manufacturing firms listed at the NSE. The study will also factor in additional factors such as firm size, company liquidity and financial leverage that are likely to influence capital expenditure among listed manufacturing firms. This study will seek to establish the effect of FCF on Capex among manufacturing companies enlisted at the NSE?

1.3 Objective of the Study

To determine the effect of FCFs on capital expenditure of manufacturing firms quoted at the Nairobi Securities Exchange.

1.4 Value of the Study

This study's findings will be used as a reference by scholars, students and researchers who might want to undertake studies in the same field. The study will also help both researchers and scholars in identifying research gaps in this field which will prompt and guide them in executing further studies.

The study shall also be of benefit to various managers who are tasked with the management of manufacturing firms listed on the NSE; this study shall provide useful information and recommendations to assist them in making more informed management decisions leading to shareholders' wealth maximization. The study increases the pool of knowledge available to assist both NSE listed companies and firms seeking to list in future to improve their performance and ensure sustainability.

The outcome of this study will also aid the various regulatory agencies when developing legislation and regulatory framework around companies' FCFs. The regulators will thus consider this study as they formulate policies that will create a favorable environment for investors.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter examines the literature relating to this research. It begins with a review of related theories followed by a discussion on the determinants of capital expenditure, global and local related researches and concludes with the development of a conceptual framework for the study.

2.2 Theoretical Framework

This section reviews the relevant theories that explain the associations between FCFs and capital expenditure. The theoretical reviews covered are; pecking order theory, agency theory and the bird in hand theory.

2.2.1 Pecking Order Theory

The Pecking Order theory by Myers (1984) argues that firms rank their financing sources as per the law of least resistance or least effort favoring to finance their activities through equity when left with no alternative. Thus the firm only issues debt after its internal financing sources are exhausted and upon reaching its maximum debt issuance level, equity is issued. The pecking order theory holds that businesses follow this protocol of financing sources with preference ranging from, internal financing followed by debt with equity being the least preferred source of financing. This shows that the free internal funds can first be used to finance the investment needs of the firm.

From an outside investor's perspective, equity is more risky than debt. Both financing sources have an adverse risk premium with equity having the largest risk premium. An external investor will require a higher rate of ROE than on debt. Managers will therefore

prefer retained earnings to debt and debt to equity. Thus, for a company in normal operations, any financing deficit will match the net debt issues.

The theory also discusses how a debt's maturity and priority should be structured. Debt with the lowest information costs is preferred before a company issues a security with higher information costs thus current debt opportunities should be finished before any noncurrent debt is issued. Finance leases and guaranteed debt should be utilized before any unsecured debt. The concept adds that firms with high growth rates with big financing outflows will culminate to high debt to equity percentages due to managers being unwilling to issue share capital (Myers, 1984).

2.2.2 Agency Costs and FCF Hypothesis

One assumption of MM's theory is that no conflict exists between managers and the shareholders which do not hold in reality. To mitigate against this, equity owners may incur agency costs to mitigate the risk (Jensen & Meckling, 1976). The theory identified monitoring, bonding costs and residual wealth loss bared by the principal when the actions of the agent fail to maximize his interests as the sources of agency costs. Monitoring expenses are as a result of activities implemented by the principal towards reducing the manager's value destroying actions. Bonding expenditures arise from the manager's activities that guarantee the owners that they will not undertake specific activities. There will still be a loss referred as residual resulting from divergent decisions taken by managers that would maximize the owner's wealth regardless of optimal bonding and monitoring costs (Aliu, 2010).

The FCF theory by Jensen (1986) argues that surplus cash flow is diminished on value-destroying expenditure since managers are motivated more if they are allowed to use cash to raise the firm's asset base rather than to disburse it to the shareholders as

dividends. Firms endowed with a lot of FCF are likely to misuse it through venturing into unprofitable enterprises. Devereux and Schiantarelli (1990) opine that some firms, especially the larger ones, are more sensitive to the agency problems arising due to FCF which gives them a more assorted ownership formation.

The theory argues that greater debt lead to an increase in the manager's motivation to assume risk and the extra risk costs which can be assumed to be agency costs. These expenses are borne by the company in the form of higher borrowing costs. The theory however states that debt reduces the FCF in managers' control limiting their choices leading to higher valuations as compared to their assets than companies with low debt percentages, although debt holders will incur agency costs for increased use of debt. Ownership structure and managerial shareholding have been proposed as some of the ways the agency conflict can be mitigated (Calabrese, 2011).

2.2.3 Bird in Hand Theory

This theory opines that a positive relationship exists between dividend policy and a firm's worth since investors view dividends to be less risky than capital gains (Gordon,1959; Lintner, 1962). Firms should therefore place a higher dividend payout ratio so as to attain a higher share price. Under conditions of certainty, the share price movements relate to the firm's profitability and not the dividend policy. Under uncertainty, the equity capitalization is variable but an increasing function of the dividend payments timing since investors mark down dividends (capital gains) expected longer in the future at a higher rate than they discount dividends expected in the near future. Increasing the retention rate leads to an increase in the discount rate. Graham and Dodd opined that a unit of dividend has four times the stock prices effect as compared to a unit of retained earnings (Robinson, 2006).

In fact, the firm's risk level can be established from its FCF risk, which is not influenced by the dividend policy. In summary, increasing the dividend payment does not decrease the firm's risk (Bhattacharya, 1979). The theory also does not account for the risk variation for firms in diverse industry hence may lead to an upward bias in the dividend coefficient. It also assumes that growth comes from investments financed by retained earnings ignoring growth that may be as a result of external financing. Short term income fluctuations will be mainly reflected in retained earnings changes indicating dividends are more stable than retained earnings. Finally dividends can be measured more accurately than retained earnings due to accounting assumptions. Therefore, the dividend relevance view in the bird in hand theory has been rejected by most financial literatures (Itiri, 2014).

2.3 Determinants of Capital Expenditure

Capital expenditure is a matter of great interest to the stock market investors especially in manufacturing firms, in that it directly affects the wealth they hold. Key factors that are believed to play a part in determination of capital expenditure are as follows:

2.3.1 Financial Leverage

Firms use financial leverage as a corporate financing means to raise both short term and long term funds. Financial leverage negatively influences a firm's investments decisions. Zwiebel (1996) and Myers (1977) study on financial leverage and the investment rate of a firm found a negative connection between financial leverage and the investment rate of the firm. Highly geared firms have smaller reserves and will be constrained in borrowing to finance investments. Cantor (1990) found out that a firm with huge cash flows can accumulate huge reserves with ease which could be used to

invest in a less profitable year. Highly leveraged firm's investments are more sensitive to cash flow which is an indication of investment variability as time goes.

The association between the firm's debt and its capital expenditure decisions was examined by various authors including Myers (1977); Titman and Wessel (1988), Stulz (1990); Jensen (1986); Servaes (1995); Lang, Stulz and Ofek (1996); Aivazian et al.,(2005); Ahn et al.,(2006); Firth and Wong (2008) and Lee et al.,(2008). All these studies established a negative link between corporate rate of investment and financial leverage for a firm with low growth opportunity in already developed nations.

2.3.2 Company Size

The subject of company size has been widely reviewed in various countries over many years and nearly each study recognizes the great role of firm size on firms' corporate investment decisions. The Resource-Based View holds that large firms are endowed with more resources since their accessibility to funds in the financial market is a bit easier (Myers & Turnbull, 1977). Myers and Turnbull (1977) further state that the level of investment and age of the firm both greatly influence a company's investment decisions.

According to Lawrence (2004), the production capacity of a firm increases in proportion to the increase in the size of the business leading to higher returns accrued from more investments. He established a positive link between company size and profitability. The link is however considered as insignificant in real estate, property and construction industry due to weak associations. Yu (2003) study of listed companies in Philippines found that company size has a positive effect on capital structure and that due to diversification by bigger firms; they are able to access capital markets with ease and achieve higher credit ratings.

2.3.3 Company Liquidity

Liquidity refers to the extent by which a company meets its immediate obligations in full and in a timely way. Excessive liquidity lead to building up of idle resources that does not create any profits for the firm unless they are used to finance capital expenditure while low levels of liquidity on the other hand, lead to damage of company goodwill, reduce credit standings and it can also lead to compulsory liquidation of a company's assets. It cannot be doubted that every firm desires to maximize value by maintaining appropriate level of liquidity. However, magnifying value at the expense of liquidity can cause serious trouble to the company, which can lead to financial insolvency as well. As a result, a firm should properly manage their liquidity in order to maximize their value (Vieira, 2010).

2.3.4 Dividend Policy and Retention policy

Companies often dedicate their cash resources to invest in viable projects and pay out dividends from the balance (Jensen, 1986). Interest and dividend payment reduces the FCF meant for the management of the business and this little is left for investment in profitable projects. From the company's perspective, the money acquired through firm operations greatly determines the dividend payout level of the firm as firms with positive operating cash flows easily pay dividends whereas those whose operating cash flows are negative experience challenges in dividend payments.

The higher the cash flow volatility of a firm the higher the likelihood of agency costs. Variable cash flows make it difficult for investors to trace the cause of deviations in cash flows which could either be as a result of managers' actions or actions that are now within management control. Therefore, the higher the cash flows variations, the greater the probability of agency costs, and the more the reliance on dividend

distributions. The dividend payout value as a guarantee against non-value maximizing investments should be higher for firms with the greatest uncertainty with regard to cash flow. Thus, the agency cost theory argues that companies with unstable income often pay out a significant percentage of income as dividends (Bradley et al, 1998).

2.4 Empirical Review

Many empirical studies both locally and globally support the relationship between FCFs and capital expenditure, but these studies have produced mixed results while some have covered either FCFs and another variable or capital expenditure and a different variable.

2.4.1 Global Studies

Qandhari et al., (2016) study on the association between FCF and capital expenditure among 27 sugar millers enlisted in the Karachi Stock Exchange for the period between 2000 and 2011 and established a positive association between FCFs and capex. The study showed that FCF in the Pakistan sugar industry was used for capital expenditure among other things. The study further concluded that the FCFs could also be used to pay dividends to shareholders or retained in the firm as retained earnings.

Sigeng's (2016) study on the correlation between FCF and capital expenditure in 90 companies listed in the Canadian exchange over a time frame of 6 years between 2010 and 2015 concluded that there was a negative link between FCFs and capital expenditure. Canadian listed firms decreased their investments although their FCFs increased. The study inferred that the Canadian economy was performing dismally between 2010 and 2015, and thus more companies did not aggressively invest at that period.

Saffarizadeh (2014) in his study of the association between FCF and capital expenditure on the German Automobile Sector between 1994 to 2012, concluded that the correlation between FCF and capital investment was negative and could shift up or down depending on the size of the capital expenditure. The study therefore established a negative association between FCF and capital expenditure in the automobile sector. These findings were however different from those of Vogt (1997) who used 421 firms to examine the association between FCF and capital expenditure. He noted a strong and significant association between capital expenditure and the FCF level.

Zurigat, Sarwati and Aleassa (2014) investigated the FCF hypothesis in the Jordanian capital markets. Data was gathered from 102 non-financial firms at the Amman Stock exchange (ASE) listing for the time frame 1998–2009. Both panel and pooled data methods were employed for the analysis. The study found that dividend and debt are not alternative techniques for mitigating FCF agency costs in the Jordanian capital market contrary to the FCF theory and rather, they are 20 complementary to each other. The findings also revealed that low growth firms in the Jordanian market use debt more than dividends.

2.4.2 Local Studies

Mundia (2016) conducted a study to investigate the association between FCFs and stock prices of non-financial firms enlisted at the NSE. The study focused at determining the association between levels of FCFs and stock price that measure the value of stocks of non-financial financial companies enlisted at the NSE. The population focused on all forty two non-financial firms enlisted in the years 2011 to 2015. Data was obtained from annual statements of non-financial listed firms, journal articles, publications and reports published by the institution under study (Nairobi Security Exchange). Multiple

linear regression was applied to identify the existence of the association. The regression model portrayed that FCF has a positive effect on stock prices.

Kinyanjui (2014) conducted a study covering a five year period between 2009 and 2013 on the correlation between FCFs and firm investments of 30 firms listed at the NSE and found a fairly significant positive association between FCFs and investment, that is, as the level of FCFs increase, the level of investments increases. The study showed that the capital expenditure financed by the FCF generate little returns for firms. The findings also indicate that the growth of the firm is greatly boosted by FCF whereas low dividends are harmful to the firm. The study also confirmed the contribution of dividends as a means of reducing the agency costs associated with FCFs. These study findings were generalized on all listed firms without taking into account the differences that exist among different segments. The current study will fill this research gap by focusing on listed manufacturing firms.

Muchiri (2014) explored the effect of cash flows on investments in fixed assets for companies listed at the NSE. This was achieved by performing a regression analysis of the various variables considered to have an impact on investments: cash flows, sales growth and Tobin's Q. The study covered the ten year period between 2003 and 2012. Secondary data on financial position, performance and cash flows was obtained mainly from the published audited financial statements of the companies and handbooks prepared by the Nairobi Securities Exchange between year 2003 and 2012. The findings of this study suggest that cash flows have a negative effect on capital investments. A firm's investment is likely to be affected by cash flows if it is young, small and is in agricultural, manufacturing & allied, construction & allied, automobile & accessories or energy & petroleum industry groups, after controlling for political risks. The

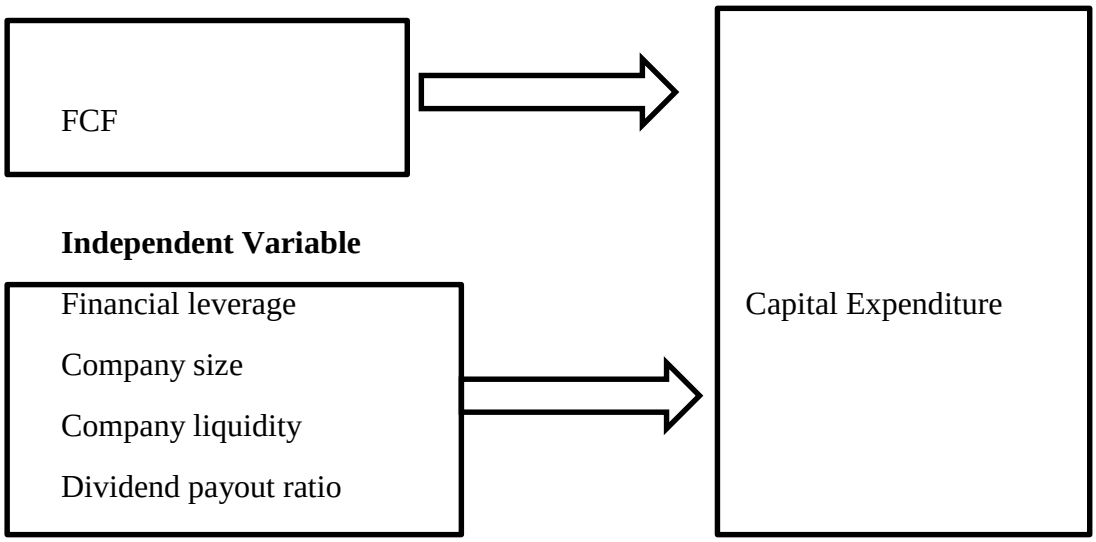
relationship does not hold for companies under commercial & services industry group, largely because the nature of business and operations for companies categorized under this industry group are unrelated.

Ojode (2014) explored the impact of FCF on the profitability of firms enlisted at the NSE. The study's objective was to determine the extent to which FCF affect the profitability of firms enlisted at the NSE. A descriptive survey was employed to analyze the impact of FCF on the listed firm's profitability. For the purposes of the study, all the sixty one (61) companies at the NSE listing as at June 2014 were factored in after which a sample of 30 companies was selected for the purposes of the study. Secondary data was acquired from financial statements and audited annual reports of both CMA and NSE firms' for a five year time frame (2009 –2013). The study found out that there exists an inverse association between FCFs and firms' profitability at the NSE listing.

Chepkwony (2014) did a study to establish the connection between FCFs and stock returns at the NSE. The descriptive research design was employed in the study and all the 62 listed companies at the NSE listing between the time frame 2009 to 2013 was used as the population. Secondary data was obtained from the published audited financial statements and stock price data obtained from NSE. Both correlation analysis and multiple linear regressions were employed for data analysis with the aid of SPSS software Version 21.0. The study's findings revealed a significant positive association between FCFs and stock returns at the NSE for the entire market and in four out of the nine sectors explored as opposed to FCF theory. This study focused on stock returns while the current study will focus on capital expenditure.

2.5 Conceptual Framework

Figure 2.1: The Conceptual Model



Source: Researcher (2018)

2.6 Summary of the Literature Review

In explaining the influence of FCFs on capital expenditure decisions, the pecking order hypothesis assumes the shareholders' wealth superiority concept. Therefore, the extent of insider ownership has no influence on the managerial capital expenditure decisions. The hypothesis argues that agency problems have no effect on the firm's decision making with regard to capital expenditure (Gordon &Griner 1995; Sartono 2001). Since the main concern of the management is shareholder wealth, the capital expenditure investments levels will increase as more investment opportunities are realized. The effect is more evident when the managers and owners operate in cohesion.

The agency cost hypothesis is different from the pecking order theory in that it emphasizes the conflict of interest between the stockholders and managers when

making decisions regarding capital expenditure which are also referred to agency costs (Meckling& Jensen, 1976). This view argues that the decisions of the managers are influenced by profit maximization and self-interests (Scott, 2003). Capital expenditure entails risk financing which put the survival of the firm at stake and reduce the control of the managers over the firm. Large managerial stockholdings therefore leads to under-investment. This theory shows a negative association between insider ownership and capital expenditure. The agency theory further argues that capital expenditure decision is not affected by availability of investment opportunities but the aggressiveness of the managers.

In Kenya, there are a few research studies done relating to FCFs and capital expenditure and their findings contradict. Kinyajui (2014) found a fairly significant positive association between FCFs and investment, that is, as the level of FCFs increase, the level of investments increases while Muchiri (2014) suggest that cash flows have a negative effect on capital investments. In addition, it appears there is no research study on the association between FCFs and capital expenditure among listed manufacturing companies in Kenya. This research seeks to fill the gap by studying the same within the context of manufacturing companies listed at the NSE.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The core objective of this study was to identify the correlation between FCFs and capital expenditure investment choices of manufacturing companies listed at the NSE. This chapter provides discusses the research design, the population, sampling design, data collection and analysis so as to achieve the research objectives.

3.2 Research Design

Research design is the arrangement of conditions for gathering and studying data with an intention to combine relevance to the research objective with economy in the procedure (Kothari, 2012).

A descriptive research design was applied. Mugenda and Mugenda (2003) define descriptive research as an organized and realistic probing where the investigator holds no control of independent variable since its occurrence has already happened and cannot be influenced. This approach was relevant for the study as it explained the extent and effect that FCFs have on capital expenditure decisions. The design also ensured that the evidence acquired from the study answered the research question clearly. Regression analysis was employed to determine the relationship between FCFs and capital expenditure decisions. Secondary quantitative data was acquired from the financial reports of the manufacturing firms enlisted at the NSE.

3.3 Population

The target population for the study comprised of all manufacturing companies listed at the NSE as at 31st December 2017 (See Appendix I). There are fourteen manufacturing

companies listed, therefore our population size was the fourteen manufacturing companies. Since the population of the study is finite, a census was conducted.

3.4 Data Collection

The data was acquired from the audited financial statements of the manufacturing cfirms enlisted at the NSE obtained from the respective companies' websites, the NSE and CMA. Data covering five years between 2013 and 2017 was obtained with the objective of establishing the association between FCFs and capital expenditure among manufacturing companies listed at the NSE. The data was extracted from the statement of profit or loss and other comprehensive income, statement of financial position, statement of cash flows and the notes to the financial statements.

3.5 Diagnostic Tests

Linearity reveals that two variables X and Y are conected by a mathematical equation Y=bX in which c is a constant number. The F-statistic in ANOVA provided the results of the linearity test. Normality is a test for the assumption that the residual of the response variable are normally distributed around the mean. This was determined by Shapiro-walk test or Kolmogorov-Smirnov test. Autocorrelation is the measurement of the similarity between a certain time series and a lagged value of the same time series over successive time intervals. It was tested using Durbin-Watson statistic (Khan, 2008).

Multicollinearity is said to occur when there is a nearly exact or exact linear relation among two or more of the independent variables. This was tested by the determinant of the correlation matrices, which varies from zero to one. Orthogonal independent variable is an indication that the determinant is one while it is zero if there is a complete

linear dependence between them and as it approaches to zero then the multicollinearity becomes more intense (Burns & Burns, 2008).

3.6 Data Analysis

A multiple linear regression model was used for purposes of this study since it allowed multiple independent variables to be considered and impacts of various simultaneous effects on a dependent variable can be quantified. Descriptive statistics was applied in analyzing the data collected on the various variables within the period covered by the study.

The study investigated the effect of FCFs on capital expenditure among NSE listed manufacturing firms hence the regression model used is shown below. Other variables which were considered in the model are financial leverage, company size, liquidity and dividend pay-out ratio since they could have a major influence on capex and they are independent of FCF.

$$Y = B0 + B1X1 + B2X2 + B3X3 + B4X4 + B5X5 + et$$

In which:

Y = Capital Expenditure

B0 – constant

B1, B2, B3, B4 and B5, – regression coefficients

X1 = Free Cash Flows (FCF)

X2 = Financial leverage

X3 = Company size

X4 = Company liquidity

X5 = Dividend pay-out ratio

et = Error term/Disturbance term

3.6.1 Measurement of Variables

Capital Expenditure	Natural logarithm of current year capital expenditure
FCF	Operating Income + Depreciation – Interest expense – Income Taxes – Dividends– Loan repayment
Financial Leverage	Total liabilities/ Total assets
Company Size	Natural logarithm of total assets
Dividend Payout Ratio	Dividend per Share / Earnings per Share
Company Liquidity	Current ratio

3.6.2 Tests of Significance

In the testing of the statistical significance, the F- test and the t – test were applied at 95% confidence level. The F statistic was used to determine a statistical significance of regression equation whereas the t statistic was applied in testing statistical significance of individual parameters.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

The chapter presents the analysis performed, the findings and interpretation of data collected with regards to the study. The study examined the influence of FCFs on capital expenditure investment choices of manufacturing companies listed at the NSE. The independent variables under consideration were; FCFs, leverage, liquidity, firm size and dividend payout ratio. Regression analysis was applied in testing the correlation between the variables according to the set objectives. ANOVA was applied to test the goodness of fit of the analytical model.

4.2 Diagnostic Tests

The researcher carried out diagnostic tests on the collected data. The research assumed 5 percent significance level (both leading to identical conclusions) for the data used. These values helped to verify the truth or the falsity of the data.

The researcher sought to establish whether the independent variables had a strong correlation with each other. For multiple regressions to be valid, the independent variables should not be correlated. Tolerance and Variance inflation factor (VIF) were used to measure multicollinearity in the study. From the findings, all the variables had tolerance values greater than 0.2 and VIF values of less than 10 as indicated in table 4.4 below indicating that multicollinearity among the independent variables does not exist.

Table 4.1: Multicollinearity Test for Tolerance and VIF

Variable	Collinearity Statistics Tolerance	VIF
FCFs	0.310	1.326
Firm Leverage	0.380	1.367
Firm Liquidity	0.706	1.417
Firm Size	0.503	1.99
Dividend Payout Ratio	0.683	1.403

Source: Research Findings (2018)

To test for normality, the researcher used the Shapiro-Wilk test and Kolmogorov-Smirnov tests. The null and alternative hypotheses are as shown below.

H0: the secondary data was not normal.

H1 the secondary data is normal

A p-value greater than 0.05, would lead the researcher to reject the null hypothesis and vice versa. The test results are summarized in table 4.2.

Table 4.2: Normality Test

Capital expenditure	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
FCFs	.149	70	.300	.857	70	.853
Firm Leverage	.156	70	.300	.906	70	.822
Firm Liquidity	.172	70	.300	.869	70	.723

Firm Size	.165	70	.300	.880	70	.784
Payout ratio	.168	70	.300	.862	70	.716
a. Lilliefors Significance Correction						

Source: Research Findings (2018)

The data revealed a p- value of greater than 0.05 hence the researcher rejected the null hypothesis, accepted the alternative hypothesis and concluded that the data used in the research was normally distributed. This data was therefore appropriate for use to conduct parametric tests such as Pearson's correlation, regression analysis and analysis of variance.

To test for autocorrelation in the regression model whether positive or negative, the researcher employed the Durbin Watson test. The null and alternative hypotheses were as follows:

H0: the residuals from the regression model are not auto correlated
H1: the residuals follow an AR1 process

The model returned a Durbin-Watson statistic of 1.874 which was within the acceptable range of between 1.5 and 2.5 hence the null hypothesis of no serial correlation could not be rejected. The researcher therefore concluded that the variable residuals were not serially correlated.

Table 4.3: Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.804[a]	.646	.618	1.084581	1.874

a. Predictors: (Constant), Company liquidity, FCFs, Dividend payout ratio, Company size, Financial leverage

b. Dependent Variable: Capital expenditure

Source: Research Findings (2018)

4.3 Descriptive Analysis

This sub section highlights the mean and standard deviation of the independent variables - FCFs, leverage, liquidity, firm size and dividend payout ratio - for the period between January 2013 and December 2017. The study found out that capital expenditure recorded a mean of 12.5106 million with a standard deviation of standard deviation of 1.7554, FCFs had a mean of -17.04021 million with a standard deviation of 134.411134, Financial leverage had a mean of 0.50543 million with a standard deviation of 0.205917, company size had a mean of 15.93586 million with a standard deviation of 1.325132, dividend pay-out ratio had a mean of 0.49657 million with a standard deviation of 0.849426 and company liquidity had a mean of 1.75571 million with a standard deviation of 1.689605. FCFs recorded the highest standard deviation of 134.411 while financial leverage had the smallest standard deviation of 0.205917.

Table 4.4: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Capital expenditure	70	8.040	15.760	12.51057	1.755351
FCFs	70	-1,123.343	28.583	-17.04021	134.411134
Financial leverage	70	.120	.970	.50543	.205917
Company size	70	13.560	18.020	15.93586	1.325132
Dividend payout ratio	70	.000	6.250	.49657	.849426
Company liquidity	70	.110	10.090	1.75571	1.689605
Valid N (listwise)	70				

Source: Research Findings (2018)

4.4 Correlation Analysis

Correlation analysis was used to test the relationship that exists between two variables. A negative and positive correlation coefficient indicates a negative and positive correlation respectively. Pearson correlation test was employed to evaluate the correlation between the capital expenditure of manufacturing firms quoted at the NSE and the independent variables under study.

FCFs and dividend payout ratio exhibited a positive and insignificant association with capital expenditure as indicated by a high p value. Leverage exhibited a positive and statistically significant correlation with capital expenditure and this implies that an increase in leverage has a significant positive relationship with capital expenditure. Liquidity exhibited a significant negative association with capital expenditure implying

that an increase in liquidity of a firm has a significant negative association with capital expenditure. The results are summarized in Table 4.5 below.

Table 4.5: Correlation Analysis

		Capex	FCF	Leverage	Size	DPR	Liquidity
Capex	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	70					
FCF	Pearson Correlation	.017	1				
	Sig. (2-tailed)	.890					
	N	70	70				
Leverage	Pearson Correlation	.241*	.087	1			
	Sig. (2-tailed)	.044	.471				
	N	70	70	70			
Size	Pearson Correlation	.789**	.069	.313**	1		
	Sig. (2-tailed)	.000	.569	.008			
	N	70	70	70	70		
DPR	Pearson Correlation	.166	.077	-.029	.027	1	
	Sig. (2-tailed)	.170	.525	.811	.824		
	N	70	70	70	70	70	
Liquidity	Pearson Correlation	-.246*	-.034	-.703**	-.339**	.052	1
	Sig. (2-tailed)	.040	.779	.000	.004	.666	
	N	70	70	70	70	70	70

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

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

Source: Research Findings (2018)

4.5 Regression Analysis

Regression analysis was run to establish the explanatory power of the explaining variables on the dependent variable. The analysis was conducted at 5% significance level. The model summary statistics obtained from the analysis are displayed below

Table 4.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.804[a]	.646	.618	1.084581	1.374

a. Predictors: (Constant), Company liquidity, FCFs, Dividend payout ratio, Company size, Financial leverage

b. Dependent Variable: Capital expenditure

Source: Research Findings (2018)

To determine the influence of selected predictor variables on capital expenditure of listed manufacturing firms, the research employed the coefficient of determination- R-squared. The study findings indicate that the value of the R-square was 0.646 implying that the selected predictor variables explain 64.6% of changes in the capital expenditure. The R column highlights the quality of prediction by the dependent variable. The study revealed that the independent variables have a significant relationship with the dependent variable as shown by an R value of 80.4%.

Table 4.7: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	137.323	5	27.465	23.348	.000[b]
	Residual	75.284	64	1.176		
	Total	212.607	69			

a. Dependent Variable: Capital expenditure

b. Predictors: (Constant), Company liquidity, FCFs, Dividend pay-out ratio, Company size, Financial leverage

Source: Research findings (2018)

The F- test had a value of 23.348 which was greater than the critical value from the table implying the model was statistically significant in predicting how the independent variables affect capital expenditure of manufacturing companies listed at the NSE.

T-tests were used in determining the significance of every variable used as a predictor of capital expenditure of manufacturing firms listed at the NSE. The p-value under sig. column was used to indicate the significance of the association between the dependent and the independent variables. At 95% level of confidence, a p-value of less than 0.05 was interpreted as a statistical significance measure. As such, a p-value above 0.05 shows that a statistically insignificant association between the dependent and the independent variables. The summarized outcomes are as displayed in table 4.8 below. The t- test hypotheses are shown below:

H0: Independent variable has no relationship with capital expenditure.

H1: Independent variable has relationship with capital expenditure.

Table 4.8: Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.496	1.780		-2.526	.014
	FCFs	-.001	.001	-.050	-.670	.505
	Financial leverage	.192	.900	.023	.213	.832
	Company size	1.048	.106	.791	9.916	.000
	Dividend pay-out ratio	.305	.155	.148	1.973	.053
	Company liquidity	.030	.111	.028	.267	.790

a. Dependent Variable: Capital expenditure

Source: Research Findings (2018)

The results indicated that FCFs generated a p value that is greater than 5% hence we failed to reject the null hypothesis and concluded that FCFs produced a negative but statistically insignificant values for this study In addition, firm size produced positive and statistically significant values for this study as shown by a low p value while leverage, liquidity and dividend payout ratio produced positive but insignificant values for this study as shown by high p values.

The following regression equation was estimated:

$Y = -4.496 - 0.001X_1 + 0.192X_2 + 1.048X_3 + 0.305X_4 + 0.030X_5$.

Where,
Y = Capital Expenditure

X1 = FCFs (FCF)

X2 = Financial leverage

X3 = Company size

X4 = Company liquidity

X5 = Dividend pay-out ratio

From the regression model above, we can denote that if FCFs, financial leverage, company size, liquidity and dividend pay-out ratio were zero, capital expenditure of manufacturing firms' listed at the NSE would decrease by 4.496. A unit increase in firm size would cause an increase in capital expenditure of manufacturing companies enlisted at the NSE by 1.048. The rest of the variables were found to have an insignificant effect on capital expenditure of manufacturing firms.

4.6 Discussion of Research Findings

In summary, the Pearson correlation coefficients between the variables revealed that FCFs which were the primary independent variable produced negative but statistically insignificant association with capital expenditure while a strong positive correlation was exhibited between firm size and capital expenditure of manufacturing firms quoted at the NSE. The association between liquidity and capital expenditure of manufacturing firms quoted at the NSE was found to be weak and positive. The study also showed that there exists a weak positive association between both leverage and dividend payout ratio and capital expenditure of manufacturing firms quoted at the NSE.

An R^2 value of 0.646 indicated that the independent variables: FCFs, financial leverage, company size, liquidity and dividend pay-out ratio explained 64.6% of variation in the dependent variable while other variables not considered in the model accounted for 35.4% of the changes capital expenditure of manufacturing companies listed at the

NSE. Since the significance value was less than 0.05, it can be concluded that the model was statistically significant in explaining capital expenditure of listed manufacturing firms. The results further revealed that individually, only firm size has a significant effect on capital expenditure of manufacturing firms.

The outcomes concur with Saffarizadeh (2014) who in his study of the association between FCF and capital expenditure on the German Automobile Sector between 1994 to 2012, concluded that the correlation between FCF and capital expenditure was negative and could shift up or down depending on the size of the capital expenditure. The study therefore established a negative association between FCF and capital expenditure in the automobile sector.

This study is also in agreement with Sigeng (2016) who carried out a study on the correlation between FCF and capital expenditure in 90 companies listed in the Canadian exchange over a time frame of 6 years between 2010 and 2015 and concluded that there was a negative link between FCFs and capital expenditure. Canadian listed firms decreased their investments although their FCFs increased. The study inferred that the Canadian economy was performing dismally between 2010 and 2015, and thus more companies did not aggressively invest at that period.

This study however differs with Qandhari et al., (2016) who conducted a study on the connection between FCF and capital expenditure among 27 sugar millers enlisted in the Karachi Stock Exchange for the period between 2000 and 2011 and concluded that there is a positive association between FCFs and capex. The study showed that FCF in the Pakistan sugar industry was used for capital expenditure among other things. The study further concluded that the FCFs could also be used to pay dividends to shareholders or retained in the firm as retained earnings.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This section provides a recap of the study's findings, conclusions, policy recommendations, limitations of the study and suggestions for further research.

5.2 Summary of Findings

The aim of the research was to examine the influence of FCFs on capital expenditure of manufacturing companies enlisted at NSE. The independent variables examined were FCFs, financial leverage, company size, liquidity and dividend pay-out ratio. A descriptive cross-sectional research design was employed in the study. Annual reports for the companies under consideration were used to retrieve secondary data which was analyzed using SPSS software version 21. The study used annual data for the 14 manufacturing firms listed at the NSE covering a five year time frame from January 2013 to December 2017.

The study established that FCFs have a weak and insignificant negative relationship with capital expenditure of manufacturing companies listed at the NSE implying an increase in FCFs would lead to a decrease in capital expenditure however this association is not significant. Firm size exhibited a strong positive correlation exists with capital expenditure of manufacturing firms quoted at the NSE. The association between liquidity and capital expenditure of manufacturing firms quoted at the NSE was found to be weak and positive. The study also showed that there exists a weak positive association between both leverage and dividend payout and capital expenditure of manufacturing firms quoted at the NSE.

The model's R square value of 0.646 implied that the predictor variables selected for this study explained 64.6% of changes in the dependent variable while other factors not included in this model that accounted for 35.6% of changes in capital expenditure of manufacturing companies quoted at the NSE. The overall multiple regression model was statistically significant as indicated by the F- test results and thus was suitable in explaining how the capital expenditure of the manufacturing companies quoted at the NSE is affected by the selected independent variables.

The study found that of the five selected independent variables, only firm size produced positive and statistically significant results as indicated by a p value less than 0.05. FCF exhibited a negative but insignificant effect on capital expenditure while liquidity, leverage and dividend payout ratio exhibited positive but insignificant effects on capital expenditure of quoted manufacturing firms at the NSE.

5.3 Conclusion

Based on the findings of the study, a conclusion can be drawn that capital expenditure of manufacturing companies listed at the NSE is significantly affected by FCFs, financial leverage, company size, liquidity and dividend pay-out ratio. FCFs was however noted to have a negative but statistically insignificant association with capital expenditure of manufacturing companies listed at the NSE and this implies that a rise in FCFs causes a drop in capital expenditure though not to a significant extent. Leverage was found to have a positive but insignificant impact on manufacturing firms' capital expenditure quoted at the NSE. The study therefore concludes that leverage leads to an increase in capital expenditure of manufacturing companies listed at the NSE but not to a significant extent.

The study established that firm size had a desirable and notable influence on capital expenditure of manufacturing firms quoted at the NSE and therefore it is concluded that higher levels of firm size leads to an increase in capital expenditure. Liquidity and dividend payout ratio were found to be statistically insignificant determinants of capital expenditure of manufacturing companies quoted at the NSE and therefore this study concludes that liquidity and dividend payout ratio do not significantly influence capital expenditure of manufacturing companies quoted at the NSE.

This study concludes that independent variables chosen for this study; FCFs, financial leverage, company size, liquidity and dividend pay-out ratio affect to a large extent capital expenditure of manufacturing firms quoted at the NSE. It could therefore be concluded that these variables significantly affect capital expenditure as depicted by the p value of ANOVA summary.

5.4 Recommendations

FCFs were found to have an insignificant negative impact on capital expenditure of manufacturing companies quoted at the NSE. This implies that even when the FCFs of manufacturing firms are increasing, the capital expenditure may be declining. It's recommended that managers of manufacturing companies ought to utilize their FCFs in development projects while at the same time maintaining adequate liquidity.

The study established that there was a positive control of firm size on capital expenditure of manufacturing firms quoted at the NSE though not significant. This study recommends sufficient plans ought to be put in place by managers of these firms to improve and grow their capital expenditure by increasing their company sizes.

The study found out that a positive relationship exists between capital expenditure and liquidity position. This study recommends that a comprehensive assessment of listed manufacturing firm's immediate liquidity position should be undertaken to ensure the company is operating at sufficient levels of liquidity that will lead to improved capital expenditure of firms. This is because a firm's liquidity position is of high importance since it influences the firm's current operations.

5.5 Limitations of the Study

The study significantly depended on the data acquired from the NSE implying that data accuracy depended on the information given. The researcher did not have any control over this accuracy. This is usually a general problem when dealing with secondary data. In order to handle this challenge, the researcher had to counter check the data from both NSE and individual firms annual reports for any inconsistencies.

The study was limited to selected determinants of capital expenditure. Given that the capital expenditure of the listed manufacturing firms could be attributable to other factors that were not covered in this research, then the results of the study wouldn't necessarily be generalizable to the entire population of quoted manufacturing firms in Kenya.

Another limitations faced in the study is the period and companies covered by the study. It has not been determined if the results would still hold for a longer study period and furthermore it is uncertain whether similar findings would hold for periods beyond 2017 and for non-listed manufacturing companies. A longer study period is more reliable as it will take into account major happenings not accounted for in this study.

5.6 Suggestions for Further Research

The research was seeking to determine the influence of FCFs on the capital expenditure of quoted manufacturing firms at the NSE. The chosen predictor variables were FCFs, leverage, firm size, liquidity and dividend payout ratio. These variables could only account for 64.6% of the total variance in capital expenditure of listed manufacturing firms. This implies that there are other key predictor variables that determine the capital expenditure. In future, researchers should seek to know the other determinants since this will enable them to make more adequate conclusions in regard to the determinants of capital expenditure in the manufacturing sector.

This study relied purely on secondary data from companies' financial reports and NSE's annual publications. Due to the limitations associated with secondary data this study recommends that future studies should combine both primary and secondary data in determining the influence of cash flows on capital expenditure. The primary data will enable the researcher obtain firsthand information on the study variables.

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APPENDICES

Appendix I: Manufacturing firms listed at the Nairobi Securities Exchange as at 31 December 2017

1.	British American Tobacco Kenya Ltd
2	Carbacid Investments Ltd
3.	East African Breweries Ltd
4.	Mumias Sugar Co. Ltd
5.	Unga Group Ltd
6.	Eveready East Africa Ltd
7.	Flame Tree Group Holdings Ltd
8.	B.O.C Kenya Ltd
9.	Athi river Mining Limited
10.	Bamburi Cement Limited
11.	Crown Berger Limited
12.	East African Cables Limited
13.	East African Portland Cement Limited
14.	Sameer Africa Limited

Appendix II: Data on determinants that influence Capital expenditure

Year	Company name	FCF	Capital expenditure (ln Capex)	Financial leverage	Company size (ln Size)	Dividend payout ratio	Company liquidity
2017	British American Tobacco Kenya Ltd	(677,470)	12.88	0.56	16.70	0.78	1.32
2016	British American Tobacco Kenya Ltd	(250,732)	13.24	0.52	16.73	1.02	1.41
2015	British American Tobacco Kenya Ltd	941,929	13.24	0.53	16.74	0.99	1.45
2014	British American Tobacco Kenya Ltd	964,282	14.24	0.55	16.72	1.01	1.25
2013	British American Tobacco Kenya Ltd	1,116,878	13.89	0.55	16.65	0.99	1.26
2017	Carbacid Investments Ltd	255,572	11.18	0.12	15.01	0.51	6.80
2016	Carbacid Investments Ltd	257,366	11.18	0.13	14.94	0.48	7.09
2015	Carbacid Investments Ltd	382,737	11.64	0.17	14.90	0.45	4.51
2014	Carbacid Investments Ltd	358,205	12.58	0.15	14.74	0.36	6.30
2013	Carbacid Investments Ltd	372,532	9.79	0.13	14.61	0.43	10.09
2017	East African Breweries Ltd	11,020,737	15.56	0.82	18.02	0.77	1.01
2016	East African Breweries Ltd	(6,669,508)	15.43	0.83	18.00	1.43	0.77
2015	East African Breweries Ltd	2,434,946	15.41	0.80	18.02	0.66	1.02
2014	East African Breweries Ltd	15,014,363	15.75	0.86	17.96	0.67	0.72
2013	East African Breweries Ltd	3,190,841	15.72	0.86	17.89	0.62	0.70
2017	Mumias Sugar Co. Ltd	(883,618)	9.90	0.97	17.00	-	0.11
2016	Mumias Sugar Co. Ltd	75,113	11.88	0.72	17.10	-	0.18
2015	Mumias Sugar Co. Ltd	(3,332,554)	10.86	0.70	16.84	-	0.19
2014	Mumias Sugar Co. Ltd	(1,914,467)	13.20	0.55	16.98	-	0.41
2013	Mumias Sugar Co. Ltd	229,199	14.03	0.51	17.12	-	0.84
2017	Unga Group Ltd	225,951	13.61	0.47	16.14	0.54	1.64
2016	Unga Group Ltd	486,447	13.07	0.38	16.03	0.23	2.30
2015	Unga Group Ltd	289,297	12.71	0.38	15.98	0.27	2.37
2014	Unga Group Ltd	659,425	13.16	0.42	15.90	0.25	2.27
2013	Unga Group Ltd	703,527	12.80	0.46	15.93	0.18	1.84

Year	Company name	FCF	Capital expenditure (ln Capex)	Financial leverage	Company size (ln Size)	Dividend payout ratio	Company liquidity
2017	Eveready East Africa Ltd	(309,753)	8.24	0.29	13.56	0.79	2.69
2016	Eveready East Africa Ltd	208,034	8.04	0.55	13.90	-	0.45
2015	Eveready East Africa Ltd	(234,956)	8.99	0.49	14.10	-	0.87
2014	Eveready East Africa Ltd	(154,490)	9.37	0.77	13.74	-	1.33
2013	Eveready East Africa Ltd	(24,999)	10.85	0.58	13.76	-	1.54
2017	Flame Tree Group Holdings Ltd	(33,865)	11.49	0.56	14.33	-	1.29
2016	Flame Tree Group Holdings Ltd	159,828	11.74	0.53	14.24	-	1.53
2015	Flame Tree Group Holdings Ltd	181,446	11.48	0.54	14.13	-	1.64
2014	Flame Tree Group Holdings Ltd	88,548	11.18	0.61	13.87	0.80	1.55
2013	Flame Tree Group Holdings Ltd	84,952	9.19	0.77	13.68	-	1.21
2017	B.O.C Kenya Ltd	16,384	11.61	0.28	14.62	2.57	1.95
2016	B.O.C Kenya Ltd	95,634	11.36	0.24	14.61	0.80	2.26
2015	B.O.C Kenya Ltd	118,545	11.61	0.26	14.66	0.68	2.06
2014	B.O.C Kenya Ltd	185,013	11.76	0.24	14.65	0.44	2.14
2013	B.O.C Kenya Ltd	157,489	10.96	0.21	14.78	0.50	2.23
2017	Athi river Mining Limited	(5,343,788)	12.35	0.51	17.57	-	0.22
2016	Athi river Mining Limited	(11,944,123)	12.40	0.46	17.75	-	0.59
2015	Athi river Mining Limited	(1,284,323)	14.91	0.68	17.77	-	0.38
2014	Athi river Mining Limited	6,696,939	15.75	0.75	17.43	0.20	0.47
2013	Athi river Mining Limited	1,459,348	15.30	0.72	17.21	0.22	0.95
2017	Bamburi Cement Limited	79,000	15.76	0.30	17.67	0.88	1.72
2016	Bamburi Cement Limited	2,114,000	13.00	0.27	17.52	0.83	2.70
2015	Bamburi Cement Limited	3,061,000	13.72	0.29	17.55	0.90	2.36
2014	Bamburi Cement Limited	(698,000)	13.63	0.29	17.53	1.22	2.30
2013	Bamburi Cement Limited	997,000	13.70	0.27	17.58	1.10	2.68
2017	Crown Berger Limited	559,824	12.23	0.70	15.59	0.19	1.19
2016	Crown Berger Limited	316,599	12.44	0.69	15.44	0.32	1.16

Year	Company name	FCF	Capital expenditure (ln Capex)	Financial leverage	Company size (ln Size)	Dividend payout ratio	Company liquidity
2015	Crown Berger Limited	437,623	12.89	0.70	15.33	1.40	1.11
2014	Crown Berger Limited	535,570	12.74	0.65	15.16	6.25	1.15
2013	Crown Berger Limited	510,946	12.26	0.54	14.90	0.19	1.38
2017	East African Cables Limited	(183,722)	11.14	0.73	15.77	-	0.44
2016	East African Cables Limited	(172,440)	12.92	0.66	15.84	-	0.60
2015	East African Cables Limited	(205,699)	12.22	0.62	15.94	-	0.93
2014	East African Cables Limited	814,101	13.78	0.61	15.88	0.86	1.17
2013	East African Cables Limited	1,092,629	12.15	0.55	15.74	0.73	1.30
2017	East African Portland Cement Limited	(2,826,119)	13.25	0.36	17.14	-	0.43
2016	East African Portland Cement Limited	521,029	13.77	0.40	16.96	-	0.84
2015	East African Portland Cement Limited	680,796	13.35	0.57	16.57	-	0.90
2014	East African Portland Cement Limited	1,521,354	11.98	0.56	16.60	0.04	1.09
2013	East African Portland Cement Limited	(619,262)	12.85	0.67	16.45	-	1.02
2017	Sameer Africa Limited	117,084	12.73	0.38	14.90	-	1.55
2016	Sameer Africa Limited	(325,099)	11.46	0.44	15.01	-	1.58
2015	Sameer Africa Limited	163,182	11.74	0.34	15.14	-	2.21
2014	Sameer Africa Limited	(379)	12.35	0.34	15.17	-	2.52
2013	Sameer Africa Limited	425,368	12.15	0.27	15.12	0.21	3.37