THE RELATIONSHIP BETWEEN FREE CASH FLOWS AND STOCK RETURNS OF FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

BY

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D61/70571/2007

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

NOVEMBER, 2014

DECLARATION

This Research project is my original work and has not been presented for the award of a degree in this or any other University.

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ACKNOWLEDGEMENT

DEDICATION

I dedicate this research paper to my parents Mr. James Chepkwony and Mrs. Lily
Chepkwony.

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ABSTRACT

The Nairobi Securities Exchange has experienced numerous agency conflicts especially among shareholders and management. Free cash flow theory proposes the reduction of free cash flows through debt and dividend payout to manage agency conflicts in a firm. The study sought to establish the relationship between free cash flows and stock returns at the Nairobi Securities Exchange (NSE). The study adopted a descriptive research design with the population of the study comprising of all 62 listed companies at the NSE in the years 2009 to 2013. The study utilized secondary data from published audited financial statements of listed companies as well as stock price data from the NSE. Data was analyzed using both correlation analysis and multiple linear regressions and utilized Statistical Package for Social Sciences (SPSS) Version 21.0. The study established a significant positive relationship between free cash flows and stock returns at the NSE for the whole market and in four out of nine sectors examined contrary to free cash flow theory. The study recommends that firms increase levels of free cash flows as they are positively correlated with financial performance and stock returns.

ABBREVIATIONS AND ACRONYMS

ANOVA   Analysis of Variance

CMA   Capital Markets Authority

FCF   Free Cash Flow

NSE   Nairobi Securities Exchange

SPSS   Statistical Package for Social Sciences

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Free cash flows are cash flows in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital (Jensen, 1986). Jensen (1986) further argued that conflicts between the owners and managers of funds are more severe in firms with large free cash flows. These conflicts primarily arise as owners and managers differ on the most advantageous usage of the free cash flows. Demsetz (1983) noted that since self interest plays a significant role in economic behavior, it is foolish to believe that the owners of valuable resources systematically relinquish control to managers who are not guided to serve their interests. The assumption that the interests of shareholders and managers are the same has led to much debate and the development of agency theories (Jensen & Meckling, 1976; Fama, 1980; Demsetz, 1983) in finance literature.

The agency problem gives rise to agency costs (Berle & Means, 1932). In order to curtail the pursuit of managers' personal interests and align managers' goals to shareholder interests, performance monitoring and bonding of management is necessary (Jensen & Meckling, 1976). The creation of such structures however leads to increased monitoring costs, bonding costs and residual loss collectively referred to as agency costs. According to Jensen (1986) the interests and incentives of managers and shareholders conflict over such issues as the optimal size of the firm and payment of cash to shareholders. The theorist proposed that managers with substantial free cash flows should increase dividend or repurchase stocks and thereby payout current cash that would otherwise be invested in low return projects or wasted. Easterbrook (1984) pointed out that payouts to shareholders reduce the resources under managers'

control thereby reducing managers' powers. Therefore managers are against dividend payout and have incentives to grow their firms beyond their optimal size (Jensen, 1986).

The Nairobi Securities Exchange (NSE) was formed in 1920 and incorporated in 1954 as a platform for trading securities in Kenya. The exchange currently has 21 broker members and lists 63 equity securities, 2 fixed income securities and a variety of fixed interest bonds (NSE, 2014). The NSE has grown exponentially since its inception and is currently the leading securities exchange in the East and Central Africa region. The NSE plays a critical role in the provision of a platform for the creation and trade of securities further facilitating movement of capital in the country.

1.1.1 Free Cash Flows

Free cash flows are net cash flows that are at the management's discretion without affecting corporate operating activities (Dittmar, 2000). Free cash flow have also been described as a measure of a company's performance and shows cash that the company possesses after spending for maintenance or development of the property (Shahmoradi, 2013). Jensen (1986) defined free cash flows as net operating cash flows less capital expenditure, inventory cost and dividend payment. Another definition by (Brush, Bromile & Hendrickx, 2000) stated that they are undistributed cash flow in excess of that needed for positive net present value projects. An advantage of free cash flows as a performance measure unlike earnings is that they are not easily subject to manipulation by firm managers (Mehrani & Baqeri, 2009).

Free cash flows signal past favorable financial performance of a firm and indicate a firm's liquidity and financial slack. Free cash flows are significant as they enable firms to pursue investment opportunities without external monitoring which applies to debt and avoids the possibility of lack of funds or highly priced funds for projects (Jensen, 1986). Investments in growth opportunities will lead to increased earnings as well as increases in firm and share values. Jensen (1986) however argued that since managers tend to waste free cash flows by either investing below the cost of capital or through organizational inefficiencies projects should not be financed through free cash flows but through debt.

Copland (1968) stated that corporate free cash flow consists of operating income after tax plus non-cash expenses after deduction of the investments on property, plant, equipment and other assets. Lehn and Poulsen (1989) measurement of free cash flows as operating net income before depreciation expense and after tax, interest expense, preferred and common dividend has been widely used in studies (Chalak & Mohammadnezhad, 2012; Galogah, Pouraghajan & Makrani ,2013; Wang, 2010) and were used for the study.

1.1.2 Stock Returns

Johnson, Natarajan and Rappaport (1985) stated that maximization of shareholder wealth is the ultimate criterion for fulfillment of the firm's economic goals. While financial statement measures have traditionally been used to evaluate financial performance, they only reflect past performance and are subject to managerial manipulation and distortions due to depreciation policies, inventory valuations (Chakravarthy, 1986). Chalak and Mohammadnezhad (2013) argued that managers

may through earnings management intentionally present favorable returns to their benefit for example staying with the firm.

A recent study shows that the NSE is informationally efficient to earnings announcements (Rono, 2013) and is of semi strong efficiency (Kiremu, Galo, Wagala and Mutegi, 2013) therefore stock prices at the NSE not only reflect historical information but also rapidly change to reflect new publicly available information including dividend payments. Rose and Hudgins (2013) stated the behavior of stock price is the best indicator of financial performance because it reflects the markets evaluation of a firm. The study therefore relied on stock returns as a measure of firm performance. Stock returns were measured as the percentage change in the stock price for a specified period.

1.1.3 Free Cash Flows and Stock Returns

Jensen (1986) predicted that except for firms with profitable unfunded investment projects, stock prices will rise with unexpected increases in payouts to shareholders such as increased dividends and that stock prices will fall with reductions in payments or new requests for funds for example the sale of debt. The theory asserts that increased free cash flows causes management misuse and organizational inefficiency therefore payment of dividend which reduces FCF leads to improved firm performance. Fama and French (2002) concurred stating that similar to debt, dividend conveys news about the firms' performance and value.

Zurigat, Sartawi and Aleassa (2014) noted that the agency problem and its costs will be more severe in the presence of free cash under management control. Brush et al.

(2000) found that sales growth does not always lead to increased returns to stockholders in the presence of FCF and weak governance as managers try to maximize their own wealth and sales growth contributes to managerial wealth. Richardson (2006) also established that over–investment is concentrated in firms with highest free cash flows. These studies concur with (Jensen, 1986) proposition that free cash flows have a negative impact with various financial performance measures.

Oler and Picconi (2005) argued that the consequences of high levels of free cash flow are not fully understood by the shareholders who believe free cash flow reflects good performance. They found that negative consequences of free cash flow are only detected by the shareholders two years after the establishment of these funds after misuse by managers and performance decreases.

1.1.4 Nairobi Securities Exchange

The Nairobi Securities Exchange has grown from a white only share trading exchange in 1954 to an unrestricted stocks and bonds exchange in 2013. The NSE in this period facilitated privatization and listing of key state corporations such as Kenya Commercial Bank, Kenya Airways, KENGEN and Safaricom. The exchange has undertaken strides to increase trading volumes and improve efficiency by launching Automated Trading System and signing agreements for cross listing of stocks in Uganda in 2006.

The NSE is licensed by the Capital Markets Authority to provide a trading platform for listed companies and to regulate its broker members. Regulations at the exchange include stringent listing requirements and rules that require declaration of conflicts of

interests. The equity securities are currently categorized into 11 different sectors. The exchange plans to list two more companies, create a derivatives market and Real Estate Investment Trusts platform in 2014. The NSE is important as it mobilizes resources for investment widening the Kenyan capital market.

1.2 Research Problem

Jensen (1986) proposed payment of dividend to reduce free cash flows under management control to deal with the agency conflict and promote organizational efficiency. Studies on the effect of free cash flows on financial performance have produced diverse results. Galogah, Pouraghajan & Makrani (2013) found a significant negative relationship between free cash flows and common stock return at the Tehran Stock exchange where a similar study (Pouraghajan, Tabari & Emamgholipour, 2013) found no significant relationship between free cash flows and accounting based financial performance measures. This implies that market financial performance measures contain information not reflected in traditional accounting financial performance measures. Mikkelson and Partch (2003) observed that high cash holdings did not represent a conflict between managers and stockholders' interests but led to greater investment in research and development expenditures and greater growth in assets. Wang (2010) found that free cash flows have a significant and positive relationship with operating performance, firm value and stock return at the Taiwan Stock exchange contrary to assumptions of free cash flow theory. These studies show that the relationship between free cash flows and stock return varies across capital markets which may be dependent on the existence and degree of agency conflicts in the specific markets.

The Business Daily published the MSCI Inc. Indices 2013 performance results ranking the NSE as the fourth best performing stock market in the world with a 43.58 per cent return (Gichiri, 2014). Despite its exceptional performance, the NSE has in the past witnessed its fair share of shareholder and management conflicts. In 2011 the board of CMC Holdings Limited was accused of awarding inflated transport contracts to a company owned by a board member and majority shareholder. The inflated transport contracts lead to a 25% decline in profits and subsequent delisting of the CMC Holdings Limited from the NSE in September 2012. Kenya Airways Limited while bearing the tag worst performing stock in 2012 with a 58.7% decline in share price, 51.4 % profit decline and 46.7% decrease in dividend payout, had in the same period awarded directors a 24% increase in remuneration (Omondi, 2012). Jensen (1986) argued that the fact that capital markets punish dividend cuts with large stock price reductions, as is the case with Kenya Airways, is consistent with the agency costs of free cash flow.

Local studies have focused on the use of cashflows and agency costs. Kamau (2007) developed a cashflow model which gave clear and precise information on the corporate health of an entity and advocated for its use in forecast firms in financial distress. Mwisywa (2007) found a strong positive correlation between agency costs and stock prices at the NSE. Njuguna and Moronge (2013) also found significant positive relationship between the components of agency cost and performance of listed firms on NSE. Wambua (2013) studied the effects of agency costs on accounting financial performance measures of companies listed at the Nairobi securities exchange and found that free cash flows were the most important factor in determining financial performance compared to other variables. According to FCF

theory a reduction of free cash flows in markets marked with agency conflicts automatically leads to improved firm performance. Further FCF theory posits that reductions in FCF can be though dividend payouts and increases in debt. The study sought to investigate the relationship between free cash flows and market financial performance measures and answer the question; what is the relationship between free cash flows and stock returns for firms listed at the NSE?

1.3 Research Objective

The objective of this study was to establish the relationship between free cash flows and stock returns at the Nairobi Securities Exchange.

1.4 Value of the Study

Study findings will reveal if the free cash flow theory can explain a firms' market financial performance at the NSE and further determine relevance of the free cash flow theory in Kenya today. The findings of this study would be important to future researchers and academicians by acting as a source of reference for future researches besides suggesting areas for further research.

Study findings will also provide insight to shareholders and management on the effect of free cash flows on stock returns at the NSE. This would aid shareholders and managers in determining levels of free cash flows that will reduce agency conflicts; enhance organizational performance and shareholders return.

The study findings will be important to the NSE as it will demonstrate the usefulness of free cash flows as a tool in detecting agency conflicts. The study will also highlight

particular industries in which free cash flows greatly impact financial performance. The NSE can then develop policies to guide its members in identification and mitigation of agency conflicts in order to guard shareholders interests.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the related literature on the subject under study presented by various researchers, scholars, analysts and authors. This chapter reviews literature with respect to the free cash flows and market performance theories guiding the study, review of empirical studies and chapter summary.

2.2 Theoretical Foundation of the Study

Agency theory and free cash flow theory have attempted to explain the agency conflict and its impact on firm performance and stock returns.

2.2.1 Agency Theory

Jensen and Meckling (1976) defined an agency relationship as a contract under which one or more persons (principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent and argued that the firm represented a pure agency relationship between stockholders and managers. They further argued that because both stockholders and agents are utility maximizers there is good reason to believe that the agent will not always act in the best interests of the principal. The principal - agent relationship and subsequent conflict of interests forms the basis of widely researched agency theory.

Demsetz (1983) observed that the stockholder experiences a loss of control over his resources because ownership is so broadly dispersed across large numbers of shareholders that the typical shareholder cannot exercise real power to oversee managerial performance in modern organizations. The disperse ownership coupled with the fact that management and ownership interests do not naturally coincide as

they are not housed in the same person creates a conflict of interest in favor of management (Berle & Means,1932)

Agency theory suggests that differing interests cause managers to pursue growth because growth guarantees employment and salary increases for managers due to the greater responsibilities of managing a larger firm (Murphy, 1985). Fama (1980) suggested that controlling managerial behavior requires that the wage revision process should be sufficient to resolve any potential problems with managerial incentives.

Jensen and Meckling (1976) proposed that firms should provide appropriate incentives for the agent to make choices which will maximize the principal's welfare such as stock options, given that uncertainty and imperfect monitoring exist. These incentives may result in agency costs which include the costs of structuring, monitoring, bonding a set of contracts among agents with conflicting interests and the value of output lost because the costs of full enforcement of contracts exceed the benefit (Fama & Jensen, 1983).

2.2.2 Free Cash Flow Theory

The free cash flow theory was advanced and researched by (Jensen, 1986) in a bid to explain the relationship between free cash flows and the role of debt in organizations, impact of diversification programs and factors influencing takeovers. Jensen (1986) argued that conflicts of interest between shareholders and managers over payout policies are especially severe when the organization generates substantial free cash flow as corporate management is for firm growth and against dividend payout as they reduce resources under their control.

Brush et al. (2000) found that sales growth was most beneficial to firms lacking free cash flows. Free cash flows are associated with increases in managers' compensation because changes in compensation are positively related to the growth in sales (Murphy, 1985). To motivate managers to disgorge the cash rather than investing it at below the cost of capital or wasting it on organization inefficiencies (Jensen, 1986) proposed increased dividend payments to shareholders, share repurchases and use of debt to promote organizational efficiency and deal with the agency conflict. The use of debt was found more suitable for firms with large free cash flows and few growth prospects than growing firms with highly profitable investments and no free cash flows. Debt was also argued to be a substitute dividend as managers are bound by debt whose holders have legal recourse on non-payment of unlike dividend.

Free cash flow theory also attempted to explain previously puzzling results on the effects of financial restructuring (Jensen, 1986). Free cash flow theory predicts that except for firms with profitable unfunded investment projects, prices will rise with unexpected increases in payouts to shareholders, and prices will fall with reductions in payments or new requests for funds. The theory argues that share price declines on the sale of debt and preferred share arises because these sales bring new cash under the control of managers. According to FCF theory most leverage-increasing transactions, including stock repurchases and exchange of debt or preferred stock for common stock, debt for preferred stock, and income bonds for preferred stock results in significant positive increases in common stock prices. On the other hand most leverage-reducing transactions such as the sale of common stock, exchange of common stock for debt or preferred stock, or preferred stock for debt as well as the

call of convertible bonds or convertible preferred forcing conversion into common results in significant decreases in stock prices.

Rubin (1990) stated that managers in firms with high free cash flows prefer investing them in projects with negative net value over paying them to shareholders as dividends and in order to obscure these investments engage in earnings management. Jensen (1986) argued that diversification programs were likely to be undertaken by managers with large free cash flows resulting in low benefit or even value destroying mergers. Shleifer and Vishny (1991) attributed hostile takeovers in the 1980s to reversed over-investment by managers who undertook unrelated diversification programs due to large free cash flows in the 1960s. FCF theory proposed that debt creation in takeovers in organizations with large cash flows but few high-return investment projects increases efficiency and helps prevent from wasting resources on low-return projects. Jensen (1986) further predicts that takeovers financed with cash and debt will generate larger benefits than those accomplished through exchange of stock as debt and cash are associated with growth opportunities and a shortage of free cash flow.

2.3 Measures of Stock Returns

A firm's financial performance, in the view of the shareholder, is measured by how better off the shareholder is at the end of a period, than he was at the beginning and this can be determined using ratios derived from financial statements; mainly the balance sheet and income statement, or using data on stock market prices (Berger & Patti, 2002). Similarly (Panday, 2005) states that the major objectives of a firm include among others enhancing shareholders wealth and profit making.

Gentry and Shen (2010) highlighted that there has existed debate on the relationship between accounting and market performance measures with accounting measures seen as reflections of the past and market measures reflections of the future. Proponents of market based performance measures argue that stock prices incorporate all relevant information (Lubatkin & Shrieves, 1986) and argue that accounting measures based on accrual accounting are subject to earnings management to meet managers' interests (Chalak & Mohammadnezhad, 2012).

Stock returns can be measured by dividends per share and capital gains on stock value for a specified period. Beaver and Morse (1978) argued that under perfect markets and certainty, the price of a security is equal to the present value of its future cash flows. Kanini (2006) found share prices at the NSE to be responsive to cash dividends indicating that stock prices at the NSE change to reflect the value of cash dividend. Maina and Muturi (2013) further stated that the behavior of a stock's price is the best indicator of a bank's financial performance because it reflects the markets evaluation of a firm.

Various factors affect stock returns among them firm size. Using market equity to account for firm size, (Fama & French, 1992) found that a positive linear relationship between stock returns and firm size. Demsetz and Lehn (1985) concurred arguing that larger firm size implies larger capital resources, lower overall cost and generally greater market value of a given fraction of ownership. At the NSE progressive studies have pointed to the growing importance of firm size in determining firm performance. Oliech (2002) found no relationship between size and stock returns and Moses (2003) found a weak relationship between firm size and stock returns at the Nairobi Stock

exchange. Ngunjiri (2010) found earnings volatility and size of the firm significantly explained stock price movements at the NSE. Using net assets, total loans, total deposits as determinants of firm size (Nzioka, 2013) found a significant positive relationship between firm size and financial performance. Total deposits and total loans were found to have relatively stronger effects on financial performance compared to total assets pointing to the importance of revenue measures in the determination of firm size as opposed to assets from the balance sheet.

2.3.1 Dividend Payout and Stock Returns

Many arguments have been put forward to explain why firms pay dividends. Easterbrook (1984) argued that lower debt to equity ratios reduce a firm's chance of bankruptcy, reduces risk and therefore transfers benefit from shareholders to bondholders as projects are financed from retained earnings. Therefore shareholders prefer management to pay dividends from retained earnings and firms taking on risky projects to avoid unwarranted interest payments to bondholders. On the other hand agency theorists (Verma, 1994) argued that firms pay dividends to deal with agency problems. Jensen (1986) also pointed out that payouts to shareholders such as dividend payments reduce free cash flows at management's discretion and then leads to increases in stock prices.

Studies at the NSE have however given contrary results on the effect of dividend on stock price as put forward by agency theory. Nura (2000) found a varying negative effect of dividend payment on share prices pointing towards possible client indifference to dividend payment. Ngunjiri (2010) found that dividend yield and payout ratio did not have significant impact on the share price volatility at NSE. Onyango (2013) concurred and found that increases and decreases in dividend

payments had no major impact on stock prices of firms at the NSE. While testing the assumptions of free cash flow theory further examination of the effect of dividend on stock returns is required.

2.3.2 Debt Ratio and Stock Returns

Signaling theory suggests a positive relationship between financial leverage and cash flow. Ross (1977) argued that the relationship between debt and corporate performance is dependent on whether a firm is performing and stated that because debt costs increase the probability of default only performing firms can issue debt. Pecking order theory however implies a negative relationship between financial leverage and cash flow as given investment opportunities firms will first rely on available cash then proceed to utilize debt then equity. The level of debt in firms is also influenced by firm size as (Ferri & Jones, 1979) argued that because large firms can access cheaper debt they obtain large debt hence debt is positively associated with firm size. Agency theorists propose the use of debt to deal with the agency conflicts which then leads to improved corporate performance. In the United States of America (Berger & Patti, 2002) found higher leverage was associated with higher profits in the banking industry supporting agency theory. Akhtar, S., Javed, B., Maryam, A., & Sadia, H. (2012) also found a positive relationship between financial leverage and financial performance of the companies at the energy sector in Pakistan.

Earlier studies in Kenya pointed to a weak association between debt levels and financial performance. Karani (2009) found no relationship between expected common stock returns and the debt-equity ratio while (Onsomu, 2003) found that debt did not have any significant effect on the value of the firms at the NSE. However, recent studies have pointed to emerging relationships between firm performance and

debt. Muchugia (2013) found a positive and negative relationship respectively between short term debt and long term debt and profitability. Buigut, Soi, Koskei and Kibet (2013) also found debt had a significant positive effect on share prices of energy listed companies at the NSE. Free cash flow theory concurs with recent findings at the NSE as it proposes that leverage increasing transactions lead to increases in stock prices.

2.4 Empirical Review

Brush, Bromile and Hendrickx (2000) investigated the agency argument that sales growth in firms with free cash flow is less profitable than sales growth for firms without free cash flows while testing whether strong governance conditions improve the performance of firms with free cash flow. The study used a multiple regression model to compare specific financial performance indicators specifically, firm profitability, cash flow, industry sales, industry profitability, capital market returns, and corporate ownership against sales growth, cash flow and free cash flows in owner managed, owner controlled and fund controlled firms in the years 1988 to 1995. Using COMPUSAT data the study found firms with free cash flow gain less from sales growth than firms without free cash flow consistent with agency theory. The study also found that substantial management stock ownership mitigates the influence of free cash flow on performance while outside blocks held by mutual funds reduce sales growth substantially, but does not increase performance from sales growth.

Njuguna and Moronge (2013) assessed the influence of the managerial behavior of agency cost on the performance of listed firms on NSE. The study used a multiple regression analysis between performance and agency cost, information asymmetry, debt ratio, managerial ownership and board composition. The study found a

significant positive relationship between the components of agency cost namely managerial ownership, information asymmetry, debt ratio and board composition on the performance of listed firms on NSE. Findings also revealed that agency problems within a firm are usually related to free cash-flow and asymmetric information problems and that debt servicing obligations help reduce agency problems. The study concluded that non-conforming information was a source of the problems of agency conflicts and that the organization's good performance depends on the importance of knowledge possessed by a decision maker and that Information would never be fully revealed on the part of the managers due to agency problems.

Wambua (2013) studied the effects of agency costs on financial performance of companies listed at the Nairobi Securities Exchange The study investigated the effect of board independence, executive compensation, board size, free cash flows and chief executive duality on financial performance. The research issued questionnaires to individuals working in the public listed companies in Kenya and used published information about the current performance of the public listed companies and the implications resulting from the agency costs. Data was analyzed using means, standard deviation, frequency distribution and percentages. The study concluded firm's chief executive duality, executive remuneration, board independence, board size and free cash flow are all significant at 95 percent confidence level with free cash flow being the most important in determining financial performance compared to other variables.

Zeitun, Tian and Keen (2007) investigated the effect of cash flow and free cash flow on corporate failure in Jordan using both matched samples and a cross-sectional time-

series (panel data) sample representative of 167 Jordanian companies in 1989-2003. Logit models were used to outline the relationship between firms' financial health and the probability of default. Results showed that the both variables were important in predicting corporate failure in Jordan. Findings showed that firm's cash flow decreases corporate failure and free cash flow increases the probability of corporate failure consistent with the cash flow theory and free cash flow theory. The research concluded that capital structure was the main factor affecting the probability of default as it affects a firm's ability to access external sources of funds.

Chalak and Mohammadnezhad (2012) examined the relationship between earnings management and free cash flows in firms with high free cash flows and low growth. Data was collected from 63 companies listed in Tehran Securities Exchange and analyzed using linear regression, Pearson analysis, and variance analysis. Study findings showed that there was a direct significant relationship between discretionary accruals and free cash flows as well as a direct relationship between discretionary accruals and free cash flows in Iranian firms with high free cash flows and low growth in line with the free cash flow theory.

Zurigat, Sarwati and Aleassa (2014) investigated the free cash flow hypothesis in the Jordanian capital markets. Data pertaining to 102 non-financial firms listed on Amman Stock exchange (ASE) during the period of 1998–2009 were analyzed using pooled and panel data methods. The study found that debt and dividend are not substitute techniques for mitigating agency costs of free cash flow in the Jordanian capital market contrary to the free cash flow theory and rather, they are

complementary to each other. Findings also revealed that low growth firms in the Jordanian market use debt more than dividends.

Wang (2010) sought to explore the impact of free cash flows on agency costs and to test the agency theory based on the empirical data from Taiwan publicly-listed companies. The study used asset turnover, operating expense ratio, administrative expense ratio, advertising and research and development ratio, volatility of net operating income and volatility of net income to measure agency costs. The study found free cash flows could increase management incentive for perquisite consumption and free cash flows could arise from internal operating efficiency. Total asset turnover and operating expense ratio were found have a significantly negative impact on firm performance and stock return variables for agency costs supporting agency theory. The study also lacked evidence supporting the free cash flow hypothesis as finds showed a significantly positive relation between free cash flow and firm performance measures.

Galogah, Pouraghajan and Makrani (2013) investigated the relationship between free cash flow and stock return of 140 companies listed in the Tehran Stock Exchange in the years 2006-2011. A multivariate regression model was used and the F-Limer test performed. The research results found that there was a negative and significant relationship between free cash flows and stock returns indicating that by increasing the company's free cash flows their stock return will decline and this will lead to reduce the firm value in capital market.

2.5 Summary of Literature Review

Empirical studies have highlighted the importance of free cash flows in that they are directly related to discretionary accruals in earnings management (Chalak & Mohammadnezhad, 2012), they increase the probability of corporate failure (Zeitun et al.,2007) and they reduce gains on sales (Brush et al., 2000). Free cash flows are therefore an important measure and should be used in interpreting traditional financial statements. However, studies conducted on the relationship between free cash flows and stock returns in different capital markets have given mixed results on the assumptions of free cash flow theory. While some point to a significant positive relationship between free cash flows and performance contrary to free cash flow theory (Wang, 2010). Other studies found a significant negative relationship between free cash flows and stock returns (Galogah et al., 2013) evidence supporting free cash flow theory. The variations in the findings may be tied to the existence or lack of agency conflicts in the specific capital markets due to regulations in the markets.

Njuguna and Moronge (2013) found agency problems within a firm are usually related to free cash flow and asymmetric information problems. The study findings highlight that agency problems do exist at the NSE while a study by (Wambua, 2013) isolated free cash flows as the most important factor in determining accounting measures of financial performance above other agency costs measures and found a significant positive relationship between free cash flows and accounting financial performance. This study seeks to establish the relationship between free cash flows and market financial performance measures specifically stock returns in Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter captured the research design and methodologies that were employed by the researcher in the collection and analysis of data. The chapter specifically explored research design, population of the study, sample that was used, data collection procedures and data analysis techniques to be used.

3.2 Research Design

The study adopted a descriptive research design. Descriptive studies are concerned with the what, where and how of a phenomenon hence more placed to build a profile on that phenomenon (Mugenda and Mugenda, 2003). The design was appropriate as the study sought to profile the relationship between free cash flows and stock returns.

3.3 Population of the Study

The population of this study comprised of all 62 listed companies at the NSE for the years 2009 to 2013.

3.4 Sample size and Technique

Data pertaining to 28 companies was excluded from the sample as 7 companies were listed, 6 suspended, 8 companies had rights issues and 7 companies had stocks splits during the period under review. In the resulting sample, sectors with only one company i.e. telecommunications and growth and enterprise market sectors were excluded from the study.

3.5 Data Collection

The study utilized secondary data. Free cash flows, share prices, total debt, total assets and market return was derived from published audited financial statements of listed companies and data from the NSE.

3.6 Data Analysis

The data analysis involved correlation analysis and a multiple linear regression analysis to determine the nature and extent of the relationship between free cash flows and stock return at the NSE. The study also sought to analyze the relationship across the various market sectors at the NSE. The study used Statistical Package for Social Sciences (SPSS) Version 21.0 to aid in data analysis.

3.6.1 Analytical Model

The regression model for the study was expressed as follows:

$$Y_t = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where Y_t = Stock return for period t.

X_1 = Free cash flows for period t.

X_2 = Dividend payout ratio for period t.

X_3 = Debt ratio for period t.

X_4 = Firm size for period t.

ϵ = Error term

β_0 is the constant coefficient while $\beta_1, \beta_2, \beta_3$ and β_4 are coefficients of independent variables.

3.6.2 Operationalization of the Study Variables

The dependant variable of the study was stock return while the independent variables were free cash flows, dividend payout ratio, debt ratio and firm size.

3.6.3 Measurement of Free Cash Flows

Jensen (1986) defined free cash flows as operating cash flows less capital expenditure, inventory cost and dividend payment. The definition however lacks accounting preciseness (Wang, 2010). Lehn and Poulsen (1989) measured free cash flows as operating net income before depreciation expense, less corporate income tax,

interest expenses and cash dividends. Wang (2010) used operating cash flow as a proxy for operating net income before depreciation. The use of operating cash flows from operations is advantageous as they do exclude accruals and provisions that are present if measures from the income statement are used. Free cash flows were further scaled down under the consideration of firm size by net sales. Free cash flows were expected to have a significant negative relationship with stock returns in accordance with the free cash flow theory. Free cash flows were expressed as:

$$X_1 = \frac{\text{Operating} - \text{Tax}_t - \text{Interest} - \text{Common stock} - \text{Preferred stock}}{\text{Cash flow}_t \quad \text{expense}_t \quad \text{dividends}_t \quad \text{dividends}_t}$$
$$\text{Sales}_t$$

3.6.4 Measurement of Stock Returns

Stock return is the best indicator for a firm's financial performance (Rose & Hudgins, 2013). Stock returns can be measured as either by the change in stock price or as change in stock price plus dividend per share also referred to as total shareholder return. For the study stock prices were assumed to include information on dividend as per findings by (Kiremu, Galo, Wagala & Mutegi, 2013: Kanini, 2006). Stock returns were calculated as the holding period return from time t-1 to t expressed as:

$$Y_t = \frac{\text{Stock price}_t - \text{Stock price}_{t-1}}{\text{Stock price}_{t-1}}$$

3.6.5 Dividend Payout ratio

Studies by (Rozeff, 1984; Fama & French, 1988) found a positive relationship between stock return and dividend yield. Muturi (2007) found that of all of the five fundamental accounting variables, dividend yield was the most significant in explaining common stock returns at the NSE. According to FCF theory dividend payout is expected to have a significant positive relationship with stock returns. For the study dividend payout ratio was measured as:

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$$X_2 = \frac{\text{Common stock dividend}_t + \text{Preferred stock dividend}_t}{\text{Net Income}_t}$$

3.6.6 Debt Ratio

A study by (Omondi & Muturi, 2013) found debt ratio to be an important factor in firm performance. Studies at the NSE (Buigut, Soi, Koskei & Kibet, 2013; Muchugia, 2013) concur with assumptions of free cash flow theory that there is a positive association between debt and stock prices. Further findings by Imbalo (2011) point to a negative relationship between financial leverage and dividend payout. Debt ratio can be measured by the ratio of total debt to total assets or ratio of total debt to market equity. The ratio of total debt to total assets does not reflect shareholders attitude on the firm but reflects the actual debt book ratio and will therefore be used in the study. Debt ratio was expressed as:

$$X_3 = \frac{\text{Total debt}_t}{\text{Total assets}_t}$$

3.6.7 Size of the Firm

Stock returns are influenced by firm size (Fama & French, 1992; Demsetz & Lehn, 1985). Local studies have indicated a positive relationship between firm size and stock performance (Kalui, 2004; Ngunjiri, 2010). Common measures of firm size include the natural logarithm of book total assets or sales. A study by (Nzioka, 2013) found revenue measures as indicators of firm size were had more significant effects on financial performance than assets therefore the natural logarithm of sales for the period was used to control for firm size in the study.

3.6.8 Tests of Significance

Pearson's correlation matrix was used to test for correlations and multi collinearity among the independent variables. A correlation is a number between -1 and +1 that measures the degree of association between two variables. The correlation coefficient

value (r) ranging from 0.10 to 0.29 is considered to be weak, from 0.30 to 0.49 is considered medium and from 0.50 to 1.0 is considered strong. A positive value for the correlation implies a positive association while a negative value for the correlation implies a negative or inverse association.

The student T test was used to test the statistical significance of the independent variables while the ANOVA F statistic was used to test the significance of the regression model.

CHAPTER FOUR : DATA ANALYSIS , PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents analysis of the data collected from respondents; this study sought to establish the relationship between free cash flows and stock returns for firms listed at the Nairobi Securities Exchange. The dependent variable was Stock return (Returns) while the independent variables were; Free cash flows (FCF), Dividend payout ratio (DP), Debt ratio (DR) and Firm size (SIZE).

4.2 Correlation Analysis

Table 4. 1: Pearson Correlation Coefficients

		Returns	FCF	DP	DR	SIZE
Returns	Pearson Correlation	1				
	Sig. (2-tailed)					
FCF	Pearson Correlation	.725	1			
	Sig. (2-tailed)	.004				
DP	Pearson Correlation	.740	.873	1		
	Sig. (2-tailed)	.018	.007			
DR	Pearson Correlation	.787	.646	.800	1	
	Sig. (2-tailed)	.046	.039	.004		
SIZE	Pearson Correlation	.684	.754	.759	.881	1
	Sig. (2-tailed)	.034	.000	.013	.003	

In order to establish the relationship between free cash flows and stock returns of firms listed at the Nairobi securities exchange, Pearson product moment correlation analysis was used. According to the correlation matrix Table 4.1, there is a positive correlation between stock returns and free cash flow, dividend payout, debt ratio and firm size of magnitude 0.725, 0.740, 0.787 and 0.684 respectively. Free cash flow, dividend payout, debt ratio and firm size had P-values of 0.004, 0.018, 0.046 and 0.034 respectively indicating that the coefficients were statistically significant at 5% significance level with the most significant factor being debt ratio. The correlation

findings infers that all the factors positively and significantly influenced stock returns at the NSE with debt ratio having the highest effect on stock returns, followed by dividend payout ,free cash flow, while firm size had the lowest effect on stock returns.

4.3 Regression analysis for all sectors at the NSE

In order to determine establish the relationship between free cash flows and stock returns for all the firms listed at the Nairobi Securities Exchange, the study conducted a multiple regression on nine sectors listed at the NSE. The study applied the statistical package Version 20.0 to code, enter and compute the measurements of the multiple regressions for the study. These findings are discussed presented below:

4.3.1 Model Summary all sectors at the NSE

Table 4. 2: Model Summary all sectors at the NSE

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.962[a]	.925	.893	23.30032

a. Predictors: (Constant), SIZE, FCF, DP, DR

The four independent variables that were studied explain 89.3% of variation in stock returns as represented by the value of adjusted R^2. This therefore means that other factors not studied in this research contribute 10.7% of variance in the dependent variable. Further research should be conducted to investigate the unexplained relationship between free cash flows and stock returns for firms listed at the Nairobi Securities Exchange.

4.3.2 Analysis of Variance (ANOVA) for all sectors at the NSE

In order to establish the strength of the model in explaining the relationship between the dependent variable (Returns) and the independent variables (fresh cash flow, dividend payout, debt ratio and firm size), the study conducted an Analysis of Variance (ANOVA). The findings were as shown in Table 4.3.

Table 4. 3: ANOVA for all sectors at the NSE

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	6420.185	4	6605.046	12.73	.035[b]
Residual	85579.320	165	518.662		
Total	91999.505	169			

The P-value is less than 0.05, thus indicating that the predictor variables, (fresh cash flow, dividend payout, debt ratio and firm size) explain the variation in the dependent variable which is stock returns at the Nairobi Securities Exchange.

4.3.3 Regression matrix for all sectors at the NSE

In order to determine the extent to which each of the four independent variables affected the dependent variable, the study determined the coefficients values for each independent variable. The findings were as illustrated in the Table 4.4.

Table 4. 4: Regression Coefficients for all sectors at the NSE

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Constant	34.067	31.380		1.086	.027
FCF	.136	.906	.012	.150	.008
DP	.533	.574	.072	.930	.035
DR	10.801	8.626	.098	1.252	.021
SIZE	1.834	1.418	.101	1.294	.019

a. Dependent Variable: Returns

From the regression findings,

$$Y_t = 34.067 + 0.136 X_1 + 0.533 X_2 + 10.801 X_3 + 1.834 X_4$$

Where Y is the dependent variable (Stock Returns), X_1 is free cash flow, X_2 is dividend payout, X_3 is debt ratio and X_4 is firm size.

The regression equation above has established that taking all factors into account (fresh cash flow, dividend payout, debt ratio and firm size) constant at zero, stock return will be 34.067. The findings presented also show that taking all other independent variables at zero, a unit increase in fresh cash flow would lead to a 0.136 increase in the stock return. A unit increase in dividend payout would lead to 0.533

increase in the stock return. A unit increase in debt ratio would lead to 10.801 increase in stock return while a unit increase in firm size would lead to 1.834801 increase in stock return. These findings show that the independent variable with the greatest effect on stock returns at the NSE is the debt ratio followed by firm size, dividend payout then free cash flow. The study also established that all the variables were significant as their significance values were less than 0.05.

4.4 Regression analysis - Agricultural sector

The study also conducted a cross-sectional OLS multiple regressions on companies under agricultural sector listed at the NSE in terms of free cash flows and stock returns consolidated over the period of 2009–2013. These findings were discussed below.

4.4.1 Model Summary Agricultural sector

Table 4. 5: Model summary agricultural sector

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.934[a]	.873	.746	.36550

The four independent variables that were studied explain 74.6% of variation in Returns as represented by the value of adjusted R^2. This therefore means that other factors not studied in this research contribute 23.3% of variation in the dependent variable. Therefore, further research should be conducted in the firms under agriculture sector to investigate the other relationship between free cash flows and stock returns for firms listed at the Nairobi Securities Exchange.

4.4.2 Analysis of Variance (ANOVA) Agricultural Sector

In order to establish the strength of the model in explaining the relationship between the dependent variable (Returns) and the independent variables (fresh cash flow, dividend payout, debt ratio and firm size) of firms under agriculture sector, the study

conducted an Analysis of Variance (ANOVA). The findings were as shown in the Table 4.6

Table 4. 6: ANOVA agricultural sector

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3.676	4	.919	6.880	.044[b]
Residual	.534	4	.134		
Total	4.211	8			

The P-value is less than 0.05, thus indicating that the predictor variables, (fresh cash flow, dividend payout, debt ratio and firm size) explain the variation in the dependent variable which is Returns at the Nairobi Securities Exchange.

4.4.3 Regression matrix Agricultural sector

Table 4. 7: Regression Coefficients agricultural sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-.519	2.160		-.240	.822
FCF	8.737	1.858	.931	4.702	.009
DP	.018	.788	.005	.022	.983
DR	-.254	1.005	-.049	-.253	.813
SIZE	.006	.100	.010	.056	.958

a. Dependent Variable: Returns

According to Table 4.7, free cash flow was significant as its significance value was less than 0.05 while firm size, debt ratio and dividend payout were insignificant as their significance values were greater than 0.05. From the model, taking all factors (fresh cash flow, dividend payout, debt ratio and firm size) constant at zero, stock returns had an autonomous of -0.519. The data findings analyzed also showed that taking all other independent variables at zero, a unit increase in free cash flow lead to an increase in stock returns by 8.737. The regression model drawn from table 4.7 is presented as:

$$Y_t = -0.519 + 8.737X_1 + 0.018X_2 - 0.254X_3 + 0.006X_4$$

4.5 Regression analysis - Commercial and service sector

The study conducted a cross-sectional OLS multiple regressions on companies under commercial and service sector listed at the NSE in terms of free cash flows and stock returns consolidated over the period of 2009–2013.

4.5.1 Model Summary Commercial and service sector

Table 4. 8: Model summary commercial and service sector

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.899[a]	.808	.615	.20271

The four independent variables that were studied explain 61.5% of variation in Returns as represented by the value of adjusted R^2. This therefore means that other factors not studied in this research contribute 39.5% of changes in the value of the dependent variable.

4.5.2 Analysis of Variance (ANOVA) Commercial and service Sector

Analysis of Variance (ANOVA) in the commercial and service sector tabled findings below.

Table 4. 9: ANOVA commercial and service sector

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.791	4	.197	12.31	.007[b]
Residual	.064	4	.016		
Total	.855	8			

The P-value is less than 0.05, indicating that the predictor variables, (fresh cash flow, dividend payout, debt ratio and firm size) explain the variation in the dependent variable which is Returns at the Nairobi Securities Exchange.

4.5.3 Regression matrix Commercial and service sector

In order to determine the extent to which each of the four independent variables affected the dependent variable, the study determined the coefficients values for each independent variable. The findings were as illustrated in Table 4.10.

Table 4. 10: Regression Coefficients commercial and service sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-2.714	1.819		-1.492	.210
FCF	-1.306	.511	-.681	-2.558	.063
DP	.055	.079	.202	.691	.528
DR	2.128	.640	1.295	3.324	.029
SIZE	.095	.071	.433	1.344	.250

a. Dependent Variable: Returns

According Table 4.10, debt ratio was significant as its significance value was less than 0.05 while free cash flow, dividend payout and firm size were insignificant as their significance values were greater than 0.05. However, dividend payout, debt ratio and firm size were positively correlated while free cash flow was negatively correlated with stock returns. From the model, taking all factors (fresh cash flow, dividend payout, debt ratio and firm size) constant at zero, stock returns had an autonomous of -2.714. The data findings analyzed also showed that taking all other independent variables at zero, a unit increase in debt ratio lead to a 2.128 increase in stock returns. The regression model drawn from table 4.10 is presented below:

$$Y_t = -2.714 - 1.306X_1 + 0.055X_2 + 2.128X_3 + 0.095X_4$$

4.6 Regression analysis -Manufacturing and allied sector

The study also conducted a cross-sectional OLS multiple regressions on companies under manufacturing and allied sector listed at the NSE. Findings were discussed below.

4.6.1 Model Summary Manufacturing and allied sector

Table 4. 11: Model summary manufacturing and allied sector

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.833[a]	.693	.638	.11978

The four independent variables that were studied explain 63.8% of variation in Returns as represented by the value of adjusted R^2. This therefore means that other

factors not studied in this research contribute 36.2% of variance in the dependent variable. Therefore, further research should be conducted to investigate the other relationship between free cash flows and stock returns for firms under manufacturing and allied sector listed at the Nairobi Securities Exchange.

4.6.2 Analysis of Variance (ANOVA) Manufacturing and allied sector

Table 4. 12: ANOVA manufacturing and allied sector

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.075	4	.01875	1.973	.519[b]
Residual	.019	2	.0095		
Total	.094	6			

The ANOVA analysis performed between four independent variables and a dependent variable namely stock return shows that in regression the P-value is greater than 0.05. Therefore the overall model for the manufacturing and allied sector listed at the NSE between years 2009 to 2013 was insignificant.

4.6.3 Regression matrix manufacturing and allied sector

In order to determine the extent to which each of the four independent variables affected the dependent variable, the study determined the coefficients values for each independent variable. The findings were as illustrated in the Table 4.10.

Table 4. 13: Regression Coefficients Manufacturing and allied sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	2.018	1.761		1.146	.370
FCF	4.715	3.221	1.565	1.464	.281
DP	-.002	.011	-.081	-.139	.902
DR	-.298	.363	-.590	-.820	.498
SIZE	.063	.067	.648	.943	.445

a. Dependent Variable: Returns

From Table 4.13, all the variables were insignificant as their significance values were greater than 0.05. The regression model drawn from table 4.13 is presented below:

$$Y_t = 2.018 + 4.715X_1 - 0.002X_2 - 0.298X_3 + 0.063X_4$$

4.7 Regression analysis - Construction and allied sector

The study conducted a cross-sectional OLS multiple regressions on companies under construction and allied sector listed at the NSE in terms of free cash flows and stock returns consolidated over the period of 2009–2013. These findings were discussed below.

4.7.1 Model Summary Construction and allied sector

Table 4. 14: Model summary construction and allied sector

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.950[a]	.902	.840	.30321

Table 4.14 above depicts the overall model summary of regression analysis for the construction and allied sector between the years 2009 to 2013. From the findings, 84% of changes in the stock returns at the NSE between the years 2009 to 2013 for the Construction and Allied sector were attributed to the four independent variables in the study. This shows that all the factors under study were significant.

4.7.2 Analysis of Variance (ANOVA) Construction and allied sector

Analysis of Variance (ANOVA) was conducted to establish the strength of the model in explaining the relationship between the dependent and independent variables.

Table 4.15: ANOVA construction and allied sector

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.159	4	.289	7.605	.018[b]
Residual	.143	4	.035		
Total	1.302	8			

Table 4.15 shows that the P-value is less than 0.05, therefore the overall model for the construction and allied sector listed at the NSE between years 2009 to 2013 was significant.

4.7.3 Regression Coefficients Construction and allied sector

Table 4. 16: Regression Coefficients construction and allied sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	2.419	.990		2.443	.038
FCF	.319	1.150	.087	.278	.018
DP	.091	.977	.117	.093	.041
DR	.715	.28	.501	2.553	.033
SIZE	2.427	.201	.415	12.074	.002

a. Dependent Variable: Returns

According to Table 4.16, all the variables were significant as their significance values were less than 0.05. However, all the variables were also positively correlated. From the model, taking all factors (free cash flow, dividend payout, debt ratio and firm size) constant at zero, stock returns had an autonomous of 2.419. The data findings analyzed also showed that taking all other independent variables at zero, a unit increase in free cash flow lead to an increase in stock returns by 0.319. A unit increase in dividend payout lead to a 0.091 increase in stock returns; a unit increase in debt ratio lead to a 0.715 increase in stock returns while a unit increase in firm size lead to a 2.427 increase in stock returns. This inferred that all the variables contributed more to the stock returns. The regression model drawn from table 4.16 is presented as:

$$Y_t = 2.419 + 0.319X_1 + 0.091X_2 + 0.715X_3 + 2.427X_4$$

4.8 Regression analysis- Banking sector

Cross-sectional OLS multiple regressions on companies under banking sector listed at the NSE in terms of free cash flows and stock returns consolidated over the period of 2009–2013 revealed the following:

4.8.1 Model Summary Banking sector

Table 4. 17: Model summary banking sector

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.930[a]	.864	.796	.125652

Table 4.17 above depicts the overall model summary of regression analysis for the Banking Sector between the years 2009 to 2013. From the findings, 79.6% of variations in the stock return at the NSE between the years 2009 to 2013 for the Banking Sector were attributed to the four independent variables in the study. This implies that 19.4% contributes to the other factors not studied in this research. This shows that all the factors under study were significant.

4.8.2 Analysis of Variance (ANOVA) Banking sector

The strength of the model in explaining the relationship between the dependent variable and the independent variables in the banking sector is elaborated by the Analysis of Variance (ANOVA) of the variables below:

Table 4. 18: ANOVA banking sector

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.551	4	.1377	5.296	.365[b]
Residual	.080	3	.026		
Total	.631	7			

The P-value is greater than 0.05, indicating that the predictor variables, (free cash flow, dividend payout, debt ratio and firm size) do not explain the variation in the dependent variable which is Returns at the Nairobi Securities Exchange.

4.8.3 Regression matrix Banking sector

A regression analysis on the banking sector independent variables revealed the findings below.

Table 4. 19: Regression Coefficients banking sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	2.461	.962		2.558	.033
FCF	.006	.218	1.462	.275	.011
DP	-.814	.413	-2.193	-1.971	.005
DR	.513	.221	.711	2.321	.019
SIZE	-.177	.412	-.189	-.283	.040

a. Dependent Variable: Returns

According to Table 4.19, all the variables were significant as their significance values were less than 0.05. Free cash flow and debt ratio were positively correlated with the stock returns while dividend payout and firm size were negatively correlated. From the model, taking all factors (free cash flow, dividend payout, debt ratio and firm size) constant at zero, stock returns had an autonomous of 2.461. The data findings analyzed also showed that taking all other independent variables at zero, a unit increase in free cash flow lead to an increase in stock returns by 0.006. A unit increase in dividend payout lead to a 0.814 decrease in stock returns; a unit increase in debt ratio lead to a 0.513 increase in stock returns while a unit increase in firm size lead to a 0.177 decrease in stock returns. This inferred that free cash flow and debt ratio contributed more to the stock returns. The regression model drawn from table 4.19 is presented as:

$$Y_t = 2.461 + 0.006X_1 - 0.814X_2 + 0.513X_3 - 0.177X_4$$

4.9 Regression analysis - Automobiles and accessories sector

The study conducted a cross-sectional OLS multiple regressions on companies under agricultural sector listed at the NSE in terms of free cash flows and stock returns consolidated over the period of 2009–2013. These findings were discussed below.

4.9.1 Model Summary Automobiles and accessories sector

Table 4. 20: Model summary automobiles and accessories sector

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.869[a]	.755	.729	9.18931

The four independent variables that were studied explain 72.9% of variation in

Returns as represented by the value of adjusted R^2. This therefore means that other

factors not studied in this research contribute 27.2% of variation in the dependent

variable.

4.9.2 Analysis of Variance (ANOVA) Automobiles and accessories

sector

Table 4. 21: ANOVA automobiles and accessories sector

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	982.180	4	245.545	13.813	.028[b]
Residual	53.330	3	17.776		
Total	1035.511	7			

The regression P-value is less than 0.05 indicating that the predictor variables, (free

cash flow, dividend payout, debt ratio and firm size) explain the variation in the

dependent variable which is stock returns at the Nairobi Securities Exchange.

4.9.3 Regression matrix Automobiles and accessories sector

Table 4.22: Regression Coefficients automobiles and accessories sector

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Constant	17.778	38.369		.463	.005
FCF	179.772	71.474	.768	2.515	.017
DP	-4.676	8.025	-.324	-.583	.010
DR	16.200	31.553	.294	.513	.043
SIZE	-1.025	1.835	-.180	-.559	.015

a. Dependent Variable: Returns

According to the Table 4.22, all the variables were significant as their significance

values were less than 0.05. However, free cash flow and debt ratio were positively

correlated while dividend payout and firm size were negatively correlated with stock

returns. From the model, taking all factors (free cash flow, dividend payout, debt ratio and firm size) constant at zero, stock returns had an autonomous of 17.778. The data findings analyzed also showed that taking all other independent variables at zero, a unit increase in free cash flow lead to an increase in stock returns by 179.772. A unit increase in dividend payout lead to a 4.676 decrease in stock returns; a unit increase in debt ratio lead to a 16.200 increase in stock returns while a unit increase in firm size lead to a 1.025 decrease in stock returns.. The regression model drawn from table 4.22 is presented as:

$$Y_t = 17.778 + 179.772X_1 - 4.676X_2 + 16.200X_3 - 1.025X_4$$

4.10 Regression analysis - Insurance sector

A cross-sectional OLS multiple regressions insurance sector companies listed at the NSE in terms of free cash flows and stock returns consolidated over the period of 2009–2013 revealed the following.

4.10.1 Model Summary Insurance sector

Table 4. 23: Model summary insurance sector

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.937[a]	.877	.834	3.10570

The four independent variables that were studied, explain 83.4% of variance in return on Assets as represented by the R^2. This therefore means that other factors not studied in this research contribute 16.6% of variance in the dependent variable.

4.10.2 Analysis of Variance (ANOVA) Insurance sector

An Analysis of Variance (ANOVA) in the insurance sector at the NSE detailed the following findings were as shown in the Table 4.24 below.

Table 4. 24: ANOVA insurance sector

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	7699.410	4	1674.852	17.448	.036[b]
Residual	383.950	4	95.987		
Total	8083.360	8			

The P-value for the regression model is less than 0.05, indicating that the predictor variables (free cash flow, dividend payout, debt ratio and firm size) explain the variation in the dependent variable which is Returns at the Nairobi Securities Exchange.

4.10.3 Regression matrix Insurance sector

The study determined the coefficients values for each independent variable as indicated in the Table 4.25 below.

Table 4.25: Regression Coefficients Insurance sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	6.907	9.359		.738	.033
FCF	4.674	3.856	.646	1.212	.021
DP	3.747	.931	.183	4.024	.016
DR	.214	.462	.002	.463	.009
SIZE	8.791	8.476	.472	1.037	.035

a. Dependent Variable: Returns

The coefficient table above has established that taking all factors into account (free cash flow, dividend payout, debt ratio and firm size) constant at zero, stock return will be 6.907. The findings presented also show that taking all other independent variables at zero, a unit increase in free cash flow would lead to a 4.674 increase in the stock return. A unit increase in dividend payout would lead to 3.747 increase in the stock return. A unit increase in debt ratio would lead to 0.214 increase in stock return while a unit increase in firm size would lead to 8.791 increase in stock return. These findings show that the independent variable with the greatest effect on stock returns at the NSE is the firm size followed by free cash flow, dividend payout then debt ratio.

The study also established that all the variables were significant as their significance values were less than 0.05. The regression model drawn from table 4.25 is presented below:

$$Y_t = 6.907 + 4.674X_1 + 3.747X_2 + 0.214 X_3 + 8.791X_4$$

4.11 Regression analysis - Investment sector

The study conducted a cross-sectional OLS multiple regressions on companies under banking sector listed at the NSE in terms of free cash flows and stock returns consolidated over the period of 2009–2013. These findings were discussed below.

4.11.1 Model Summary Investment sector

Table 4. 26: Model Summary investment sector

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.853[a]	.727	.692	4.66211

The four independent variables that were studied explain 69.2% of variation in Returns in the investment sector as represented by the value of adjusted R^2. This therefore means that other factors not studied in this research contribute 30.8% of variance in the dependent variable.

4.11.2 Analysis of Variance (ANOVA) Investment sector

Table 4. 27: ANOVA investment Sector

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	216.142	4	54.035	10.321	.035[b]
Residual	31.411	6	5.235		
Total	247.553	10			

The P-value is less than 0.05, indicating that the predictor variables, (free cash flow, dividend payout, debt ratio and firm size) explain the variation in the dependent variable which is Returns at the Nairobi Securities Exchange.

4.11.3 Regression matrix Investment sector

Table 4.28: Regression Coefficients investment sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	3.521	.844		4.171	.010
FCF	6.631	.941	.166	7.046	.599
DP	-.418	.308	-.532	-1.357	.013
DR	3.094	.439	.052	7.047	.047
SIZE	2.539	.638	.573	3.979	.017

a. Dependent Variable: Returns

From the findings of the coefficient table above for the investment sector between the years of 2009 to 2013, all the variables were significant as their significance values were less than 0.05 except free cash flow whose significance value was greater than 0.05. Debt ratio and firm size were positively correlated while dividend payout was negatively correlated with stock returns. From the model, taking all factors (free cash flow, dividend payout, debt ratio and firm size) constant at zero, stock returns had an autonomous of 3.521. The data findings analyzed also showed that taking all other independent variables at zero, A unit increase in dividend payout lead to a - 0.418 decrease in stock returns; a unit increase in debt ratio lead to a 3.094 increase in stock returns while a unit increase in firm size lead to a 2.539 increase in stock returns. The regression model drawn from table 4.28 is presented below:

$$Y_t = 3.521 + 6.631X_1 - 0.418X_2 + 3.094X_3 + 2.539X_4$$

4.12 Regression analysis - Energy Sector

4.12.1 Model Summary Energy Sector

Table 4. 29: Model summary energy sector

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.875[a]	.765	.724	.37507

The four independent variables that were studied explain 72.4% of variation in Returns as represented by the value of adjusted R^2. This therefore means that other

factors not studied in this research contribute 27.6% of variance in the dependent variable.

4.12.2 Analysis of Variance (ANOVA) Energy sector

Analysis of Variance (ANOVA) in the energy sector revealed the following findings.

Table 4. 30: ANOVA energy sector

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.151	4	.287	9.89	.039[b]
Residual	.766	9	.029		
Total	1.917	13			

The P-value is less than 0.05 indicating that the predictor variables, (free cash flow, dividend payout, debt ratio and firm size) explain the variation in the dependent variable which is Returns at the Nairobi Securities Exchange.

4.12.3 Regression matrix Energy sector

The study determined the coefficients values for each independent variable as illustrated in the Table 4.31 below.

Table 4. 31 Regression Coefficients energy sector

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	2.986	2.701		1.106	.298
FCF	.518	.488	.733	1.063	.315
DP	.037	.259	.092	-.141	.891
DR	-.410	.517	-.234	-.792	.449
SIZE	.158	.119	.390	1.323	.218

a. Dependent Variable: Returns

The findings on the coefficient table above has established that taking all factors into account (free cash flow, dividend payout, debt ratio and firm size) constant at zero, stock return would be 2.986. The findings presented also show that all the variables were insignificant as their significance values were greater than 0.05. The regression model drawn from table 4.31 is presented below:

$Y_t = 2.986 + 0.518X_1 + 0.037X_2 - 0.410X_3 + 0.158X_4$

4.13 Discussion

The study established the regression model was significant for the whole market, agricultural, commercial, construction, automobiles, insurance, investment and energy sectors. The model was found to be insignificant in the manufacturing and banking sectors. Coefficients of determination indicated that dependent variables explained 89.3%, 84%, 83.4%, 79.6%, 74.6%, 72.9%, 72.4%, 63.8%, 62.9% and 61.5% variance in stock returns for the whole market, construction, insurance, banking, agricultural, automobiles, energy, manufacturing , investment and commercial sector respectively. The study B coefficient and significance results for each independent variable across sectors are summarized in the Table 4.32 below.

Table 4. 32 Regression Coefficients for all sectors

Variable	Coeff.	Whole Mkt	Agri.	Com. & Service	Manf. & Allied	Cons. & Allied	Bank.	Auto. & Allied	Insur.	Invest.	Energy
FCF	B	0.14	8.74	-1.31	4.72	0.32	0.01	179.77	4.67	6.63	0.52
	Sig.	0.01	0.01	0.06	0.28	0.02	0.01	0.02	0.02	0.60	0.32
DP	B	0.53	0.02	0.06	0.00	0.09	-0.81	-4.68	3.75	-0.42	0.04
	Sig.	0.04	0.98	0.53	0.90	0.04	0.01	0.01	0.02	0.01	0.89
DR	B	10.80	-0.25	2.13	-0.30	0.72	0.51	16.20	0.21	3.09	-0.41
	Sig.	0.02	0.81	0.03	0.50	0.03	0.02	0.04	0.01	0.05	0.45
SIZE	B	1.83	0.01	0.10	0.06	2.43	-0.18	-1.03	8.79	2.54	0.16
	Sig.	0.02	0.96	0.25	0.45	0.00	0.04	0.02	0.04	0.02	0.22

a. Dependent Variable: Returns

From summary of coefficients table above, the study established that free cash flows for the whole market had a significant positive relationship with stock returns. The predictive power of the model for the whole market was however attributed to debt ratio, followed by firm size and dividend payout which had greater positive significant impact on stock return than free cash flows. Sector coefficient results showed positive significant relationships between free cash flows and stock returns in the automobile, agricultural, insurance, construction and banking sectors of 179, 8, 4.67, 0.319 and 0.01 respectively. The predictive power of the model in the sectors

was attributed to free cash flows in the automobile, agricultural and insurance sectors and size in the construction and banking sectors. Free cash flow coefficients in the commercial, manufacturing, investment and energy sectors were insignificant at 5% significance level.

Regression results revealed significant positive correlations between dividend payout, debt ratio, firm size and stock return for the whole market with slopes of 0.53, 10.80 and 1.83 respectively. On sectors, the study determined significant positive correlations between dividend payout and stock returns in the insurance and construction sectors and significant negative correlations in the automobile, banking and investment sectors in the orders mentioned. The study observed significant positive relationship between debt ratio and stock return in all sectors except the agricultural, banking, manufacturing and energy sectors. Debt ratio had a greater impact in the automobile sector, followed by the investment sector, commercial sector, construction sector and lastly insurance sector. Firm size was found to have a significant positive correlation to stock returns in the insurance, investment and construction sectors with slopes of 8.79, 2.53 and 2.42 respectively. A significant negative relationship between firm size and stock return with slopes of 1.03 and 0.81 were established in the automobile and banking industry respectively.

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CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter provides the summary of the findings from chapter four, and it also gives the conclusions and recommendations of the study based on the objectives of the study. The objective of this study was to establish the relationship between free cash flows and stock returns for firms listed at the Nairobi Securities Exchange (NSE).

5.2 Summary of findings

The model was found to be significant for the whole market. Study findings revealed that FCF, dividend pay, debt ratio and firm size accounted for 89.3% of the variance in stock returns of firms listed at the NSE. A significant positive correlation between free cash flows, dividend payout, debt and firm size was established for the whole market.

P-values of the analysis of variance in 7 out of 9 specific sectors were significant indicating that independent variables explained variation in stock returns in those sectors. The model regression showed that FCF has a significant positive relationship with stock returns in 4 out of 9 sectors examined. Significant positive correlations between dividend payout and stock returns were established in 2 out of 9 sectors examined and significant positive correlations between debt ratio and stock returns were established in the 5 out of 9 sectors.

5.3 Conclusions

The objective of the study was to establish the relationship between free cash flows and stock returns at the NSE. Study results established that free cash flows in most sectors and in the whole market had a significant positive correlation with stock

returns at the NSE. The findings suggest that increases in free cash flows lead to increased financial performance and subsequently stock prices. The findings are contrary to free cash flow theory which assumes that increased free cash flows leads to management misuse and decreased financial performance and stock returns. In light of the assumptions, free cash flow theory is therefore irrelevant at the NSE and free cash flows cannot be used to detect agency conflicts at the NSE. Study results concur with findings at the NSE on free cash flows and accounting performance measures (Wambua, 2013). Findings imply that free cash flows could render a firm with investment opportunities which would generate more value for the firm hence would have a positive impact on firm performance (Wang, 2010). Study findings conflict with predictions of (Jensen, 1986) and findings at the Tehran stock exchange (Galogah et al., 2013).

Debt ratio and dividend payout were found to have a significant positive correlation with stock returns supporting assumptions of FCF theory that dividend pay and debt reduce funds available for misuse by management. Debt and dividend can therefore be utilized to mitigate agency conflicts at the NSE (Verma, 1994). Findings also imply that debt has a positive signaling effect on the market (Ross, 1977) and concurs with findings by (Berger & Patti, 2002; Akhtar, Javed, Maryam, & Sadia, 2012). Study results concur with local studies (Buigut, Soi, Koskei & Kibet, 2013).

5.4 Recommendations

The study recommends that firms increase levels of free cash flows as they are positively correlated with financial performance and stock returns.

The study also recommends that firms increase both short term and long term debt as well as dividend payouts as they too are positively correlated with stock returns at the NSE.

5.5 Limitation of the study

Data pertaining to 28 firms was excluded from the study due to listings, delisting, stock splits and rights issues by the firms at the NSE in 2009-2013. If adjustments for price increases on stock splits and rights issues were made, the study would have had a larger population and yielded more conclusive results.

5.6 Suggestions for Further Research

This paper examined the relationship between free cash flow and stock returns at the Nairobi securities exchange and established a positive significant correlation between FCF and stock returns. Oler and Picconi (2005) proposed that the impact of free cash flows will be known two years after establishment of funds and misuse by management. Therefore a study of free cash flows and stock returns two years after establishment of the FCF can test the assumptions.

This study also recommends future studies be conducted taking into account the effects of macro-economic variables and other factors such as speculation at the NSE that may influence stock returns.

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APPENDIX 1: Firms listed at the NSE per Sector

AGRICULTURAL
1   Eaagads Ltd
2   Kakuzi
3   Kapchorua Tea Co. Ltd
4   The Limuru Tea Co. Ltd
5   Rea Vipingo Plantations Ltd
6   Sasini Ltd
7   Williamson Tea Kenya Limited

COMMERCIAL AND SERVICE
8   Kenya Airways Ltd
9   Longhorn Kenya Limited
10   Nation Media Group
11   Scangroup Ltd
12   Standard Group Ltd
13   TPS Eastern Africa (Serena) Ltd
14   Uchumi Supermarket Ltd
15   Hutchings Biemer Ltd
16 Express Limited

TELECOMUNICATION AND TECHNOLOGY
17   Safaricom Ltd
18 Access Kenya Ltd

AUTOMOBILES AND ACCESSORIES
19   Car & General (K) Ltd
20   CMC Holdings Ltd
21   Marshalls (E.A.) Ltd
22   Sameer Africa Ltd

BANKING
23   Barclays Bank Ltd
24   Diamond Trust Bank Kenya Ltd
25   Equity Bank Ltd
26   Housing Finance Co Ltd
27   CFC Stanbic Holdings Ltd
28   Kenya Commercial Bank Ltd
29   National Bank of Kenya Ltd
30   NIC Bank Ltd
31   Standard Chartered Bank Ltd
32   The Co-operative Bank of Kenya Ltd
33   I & M Holdings Ltd

INSURANCE
34   CFC Insurance Holdings Ltd
35   Jubilee Holdings Ltd
36   Kenya Re-Insurance Corporation Ltd

37	Pan Africa Insurance Holdings Ltd
38	British American Investments Co. (K) Ltd
39	Liberty Kenya Holdings Ltd

INVESTMENT

40	Centum Investment Co Ltd
41	Olympia Capital Holdings Ltd
42	Trans-Century Ltd

MANUFACTURING AND ALLIED

43	A.Baumann Co. Ltd
44	B.O.C Kenya Ltd
45	British American Tobacco Kenya Ltd
46	Carbacid Investments Ltd
47	East African Breweries Ltd
48	Eveready East Africa Ltd
49	Kenya Orchards Ltd
50	Mumias Sugar Co. Ltd
51	Unga Group Ltd

CONSTRUCTION AND ALLIED

52	Athi River Mining Ltd
53	Bamburi Cement Ltd
54	Crown Berger Ltd
55	E.A.Cables Ltd
56	E.A.Portland Cement Ltd

ENERGY AND PETROLEUM

57	KenGen Ltd
58	KenolKobil Ltd
59	Kenya Power & Lighting Co Ltd
60	Total Kenya Ltd
61	Umeme Ltd

GROWTH AND ENTERPRISE MARKET SEGMENT

| 62 | Home Afrika Ltd |