FREE CASH FLOWS, AGENCY COSTS, FIRM CHARACTERISTICS AND PERFORMANCE OF FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE, KENYA

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2018

DECLARATION

Declaration by the Candidate

This thesis is my original work and has not been submitted for an academic award in any University.

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ABBREVIATIONS AND ACRONYMS

AFM:	Association of Futures Markets
AIMS:	Alternative Investment Market Segment
ANOVA:	Analysis of Variance
ASEA:	African Securities Exchanges Association
BSC:	Balanced Score Card
CAPEX:	Capital expenditure
CCP:	Central Counter Party
CG:	Corporate Governance
CMA:	Capital Markets Authority
CSR:	Corporate Social Responsibility
DA:	Discretionary accruals
DY:	Dividend yield
EMIR:	European Market Infrastructure Regulations
EASEA:	East African Securities Exchanges Association
FCF:	Free Cash flows
FISMS:	Fixed Income Securities Market
FOMS:	Futures and Options Market Segment

IAS:	International Auditing Standards
IDRC:	The International Development Research Centre
IFRS:	International Financial Reporting Standards
KMO:	Kaiser-Meyer-Olkin
MIMS:	Main Investment Market Segment
NACOSTI:	National Commission for Science, Technology and Innovation
NASI:	Nairobi Securities Exchange All Share Index
NSE:	Nairobi Securities Exchange
NPV:	Net Present Value
OLS:	Ordinary Least Squares
OTC:	Over the Counter
PAT:	Profit after Tax
Q-Q:	Quantile – Quantile
RBV:	Resource Based View
ROA:	Return on Assets
ROE:	Return on Equity
SACCOs:	Savings and Credit Cooperatives

SPSS:	Statistical Package for the Social Sciences
SSE:	Sustainable Stock Exchanges
R&D:	Research and Development
TQM:	Total Quality Management
UK:	United Kingdom
USA:	United States of America
VIF	Variance Inflation Factor
WFE:	World Federation of Exchanges

ABSTRACT

Firm performance is affected by various factors, both internal and external to the firm. Internal factors include factors such as firm size, age, liquidity, leverage, free cash flows, agency costs, profitability and growth prospects, among others. External factors include regulation and general macro-economic factors. This research sought to find out the influence of agency costs and firm characteristics on the relationship between FCF and firm performance. The first study objective was to establish how FCF influence performance of NSE listed firms. The second objective was to find out how agency costs influence the relationship between FCF and performance of NSE listed firms. Thirdly, to determine how firm characteristics influence the relationship between FCF and performance of NSE listed firms, and lastly, to establish the joint effect of FCF, agency costs and firm characteristics on the performance of NSE listed firms. The study used secondary panel data which were obtained from 60 firms listed at the NSE. Secondary data was for the period 2006 to 2015. Multiple and simple regression analyses were employed. Results indicate that FCF have a positive, statistically significant effect on firm performance; and also, agency costs have a statistically significant positive intervening effect on the relationship between FCF and firm performance. Additionally, firm characteristics have a positive moderating effect on the correlation between FCF and financial performance. Finally; FCF, agency costs and firm characteristics have a positive statistically significant joint effect on firm performance. These findings are inconsistent with the agency theory and the FCF hypothesis. Conversely, the findings seem to support the stewardship theory. The study therefore recommends that firm managers, shareholders, practitioners, the government and other regulators should enhance firm monitoring because the benefits derived from investing therein seem to outweigh the costs. Further research needs to be conducted using longitudinal study design and also by integrating the views of other practitioners in data collection rather than focusing on firm managers only.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The separation of firm proprietorship and management in public firms causes conflict of interest between firm owners (principals) and firm managers (agents). While the primary incentive of firm owners is to maximize their wealth by improving firm value, the goals of firm managers are varied and may include enrichment of personal wealth and status. This varying of interests sometimes leads managers to engage in insider dealings where there are no mechanisms for effective monitoring, validation and approving of managerial decisions (Wang, 2010).

Jensen and Meckling (1976) argue that managers opt to extract personal gain from the firms if they do not hold shares in those firms. This has the effect of raising agency costs which are manifested through investment choices that are not efficient and/ or managers not providing sufficient or efficient effort. Rising agency costs may eventually affect firm performance (Tirole, 1986). Brush, Bromiley and Hendrickx (2000) also hypothesize that manager's personal-interest encourages wastage and wastefulness when free cash flows (FCF) are present, which similarly could increase agency costs and eventually affect firm performance. Firm characteristics such as profitability, firm size, liquidity, leverage, sales growth, age of the firm, board structure and composition, asset growth, turnover, dividend payout and growth prospects are argued to have an influence on the correlation between FCF and firm performance (Subrahmanyam & Titman, 2001; Kogan & Tian, 2012 and Mukras & Nzioka, 2015).

Brush et al. (2000) observe that agency theory examines how the behavior of managers could be focused towards shareholders' interests to minimize agency costs. Jensen and Meckling (1976) and Jensen (1986) describe three kinds of agency costs. First, the monitoring cost of managers' decisions; second, the bonding cost of restricting covenants; and lastly, residual loss due to suboptimal managerial actions. The goal of managers is to enhance personal wealth, to the detriment of shareholders. The FCF hypothesis posits that this personal-interest encourages wastage when FCF are present.

The stewardship theory is in direct contrast to the agency theory. It views managers as stewards who guard and enhance the wealth of shareholders; since by so doing, utility functions of the managers are enhanced (Davis, Donaldson & Schoorman, 1997).

Stakeholder theory on the other hand views managers and shareholders, among others, as stakeholders; and can therefore influence or be influenced by the attainment of the goals and objectives of the firm (Donaldson & Preston, 1995). The resource based view (RBV) theory contends that financial firm performance is influenced by firm specific characteristics (Pierce & Robinson, 2011). Organizational theory on the other hand attempts to describe the effect of size and firm age on firm performance (Kaen & Baumann, 2003).

Nyong'o (2000) observes that Kenya has had challenges with regard to the agency problem and corporate governance (CG) in general. The result of these challenges has been generally low firm profits. Ongore and K'Obonyo (2011) also note that agency problems were equally experienced across the globe. Several cases of firm failures are an

indictment of the efficiency and effectiveness of the current CG structures, which fail to deter FCF related agency costs. This research, centered on the FCF hypothesis and agency theory, seeks to discover the way agency costs and specified firm characteristics influence the correlation between FCF and the performance of Nairobi Securities Exchange (NSE) listed firms. Ayako, Kungu and Githui (2015) observe that whereas most NSE listed firms record good performance, there are others that have presented declining performance and yet others have even been delisted from the bourse during the period between 2003 and 2014. Ongore and K' Obonyo (2011) and Njuguna and Moronge (2013) have attributed the decline during the period to the agency problem.

1.1.1 Firm Performance

Gleason and Barnum (1982) define firm performance as a firm's ability to achieve planned outcomes as measured against projected outputs. It encompasses outcomes associated with shareholder return, market performance and financial performance. On the other hand, Daft (1995) defines firm performance as the ability to achieve objectives by expending resources effectively and efficiently. Firm performance may also be viewed as incorporating specifically three areas of organizational outcomes: shareholder return; financial return and market performance, each with its specific indicators (Richard, Divinney, Yip & Johnson, 1999).

Performance is an important concept that is at the centre of a firm and its measurement is critical in determining whether the firm is achieving the desired objectives. Market performance is measured by assessing customer satisfaction, customer retention, value

delivered to customers and market share. While the importance of firm performance is broadly acknowledged, debate on the bases for performance measurement still abound. Researchers should also use operational indicators in addition to using financial indicators. These may include product quality, introduction of new products, marketing effectiveness and manufacturing value-addition which may replicate the firm's competitive position in its industry space and might influence financial performance. In operationalization of firm performance, the use of multiple indicator approach would be superior to the use of only a single indicator (Venkataram & Ramanujan, 1986).

Neely (1998) defined performance measurement systems as comprising of three interrelated components: specific measures that quantify the effectiveness and efficiency of activities; a set of measures that jointly evaluate firm performance as a whole; and, a supportive structure that allows data to be collected, organized, examined, deduced and disseminated. Performance measurement is therefore multidimensional. On the other hand, Bourne, Neely, Mills and Platts (2003) describe it as the practice of measuring effectiveness and the efficiency of an action. Efficiency is a measure of how cost-effective the resources of the firm are used when providing the specified customer service while effectiveness is the extent to which customer needs are met.

The Balanced Score Card (BSC) was developed by Kaplan and Norton (2001) and it measures customer satisfaction, financial performance, growth perspectives, learning and of performance and efficiency of internal business processes. The sustainable BSC has been applied to integrate the social and environmental aspects into effective application

of both conventional firm strategy and explicit firm sustainability strategies (Figge, Hanh, Schaltegger & Wagner, 2002).

The triple bottom line performance measurement integrates the corporate economic, environmental and social performance (Norman & MacDonald, 2004), while the International Development Research Centre (IDRC) model conceives firm performance in three general areas. First is performance in actions that support the operation (effectiveness); second is performance related to the available resources (efficiency); and lastly, performance is related to long-term capability or continuing relevance (Lusthaus, Anderson & Murphy, 1995). Other performance measurement techniques include the Performance Prism and the Cambridge Performance Measurement Process (Neely, Adams & Kennerley, 2002).

Dyer and Reeves (1995) observe that there are no performance measures universally appropriate and multiple measures should therefore be used. Wang (2010) and Ongore and K'Obonyo (2011) use ROA, ROE and Dividend Yield (DY) to measure financial performance. Szewczyk, Tsetsekos and Zantout (1996) and Mojtahedzadeh and Nahavandi (2009) have used Tobin's Q as a market-based measure of a firm's financial performance. Tobin's Q relates the market value of firms' equity with their corresponding book values. Employee job satisfaction; employee turnover; organizational effectiveness and efficiency have been proposed by Gleason and Barnum (1982) as non-financial measures of firm performance. Hubbard (1998) observes a positive significant

correlation between FCF and performance, which is manifested through prudent investment.

1.1.2 Free Cash Flows

The concept of FCF, presented by Jensen (1986), refers to surplus cash available after financing profitable ventures. FCF are therefore described as net operating income minus capital expenditure (CAPEX), minus cost of inventory and paid out dividends. On the other hand, Brealey, Myers and Allen (2005) describe FCF as net income/ profit after tax (PAT); plus, amortization and depreciation, minus CAPEX, minus changes in non-cash working-capital, add net borrowings/loans. Richardson (2006) argues that firms which have surplus funds risk wasting it in ventures that are not profitable, and that because FCF are financial resources at the managers' discretion to apportion, they are also referred to as idle cash flows.

FCF denotes funds that a firm is able to generate after setting aside cash needed to sustain or increase its assets. FCF are important because they allow firms to pursue investments that could improve value to shareholders. In the absence of funds, it is hard to create new products and services, acquire new projects, pay out dividends and pay debts. Some shareholders believe that FCF show a better perspective of the firm's ability to create profits because; while earnings can often be misrepresented through accounting gimmicks, it is more difficult to fake FCF. Positive FCF indicate that the firm is generating more funds than are being used to run the firm and to reinvest. Many small firms do not have positive FCF because they invest heavily to grow their operations. It is

worth-noting that generally, negative FCF detrimental to the firm. Negative FCF, could be an indication that the firm is engaged in huge investment projects. If high returns are earned from these investments, then there is a long run potential payoff (Chen, Sun & Xu, 2016).

Jensen (1986) argues that managers' personal - interest motive leads to waste and inefficiency when FCF are present because the objective of the managers is to increase their personal wealth instead of shareholders' wealth. Therefore, when FCF are present, the result is internal inefficiency and wastage of firm resources; which leads to increased agency costs and lower firm performance. Similarly, Wang (2010) observes that in the presence of surplus FCF, managers tend to abuse the FCF resulting in inefficient resource allocation and wrongful investment.

1.1.3 Agency Costs

Agency costs refer to the cost that a firm incurs due to incongruent interests of firms' management and shareholders (Berle & Means, 1932). Jensen and Meckling (1976) point out that the incomplete manager and shareholder contractual relationship can result into the agency problem. The agency problem that is caused by the firm managers would result in a loss to the wealth of shareholders in the following ways: first, managers, from the characteristic of personal-interest drive, would raise perquisite consumption and shirking behavior that in turn leads to increased agency costs. Secondly, managers might fail to choose the highest Net Present Value (NPV) project, and instead choose that which maximizes their own personal interest, thereby exposing shareholders to unnecessary investment risk.

Jensen (1986) claims that there are three kinds of agency costs: the monitoring cost of managers' decisions, the bonding cost of restricting agreement/contracts and the residual loss due to suboptimal managers' actions. Monitoring costs are manifested once the shareholders try to regulate or control the managers' actions. For example, the auditors are engaged by a firm on shareholders' behalf to check and control the managers' activities to confirm conduct that increases value for the shareholders. The price/cost of engaging the auditors is therefore considered an agency cost. The bonding cost entails bond covenants or contracts. A bond covenant is an agreement that restricts the firm from venturing in specified actions, such as a limitation on dividend payment. Firm claims could be structured in a way that controls shareholders' motive to follow a strategy that does not increase the total firm value. This inherent cost is an agency cost. And lastly, residual loss is the cost sustained from conflicting shareholder and manager interests notwithstanding the use of monitoring and bonding (Smith & Warner, 1979).

Brush et al. (2000) argue that once a firm has generated excess FCF, management tends to misuse the FCF, resulting in increased agency costs, which could eventually lower firm performance. Khidmat and Rehman (2014) on the other hand observe that agency costs of monitoring could increase as a result of increased FCF and consequently improve firm performance. This is because the firm is able to invest in better CG mechanisms which improve monitoring managerial decisions; and hence, reduced wastage. Agency costs are therefore expected to mediate the correlation between FCF and firm performance because they are intermediate output of FCF. Wang (2010) states seven proxy agency cost measures: earnings volatility; total asset turnover; floatation costs;

advertising research and development (R&D) expenses to sales ratio; operating expenses to sales ratio; free cash flows and administrative expenses to sales ratio.

Tirole (1986) argues that there are two main ways through which agency costs are manifested: the first one is inefficient choice of investment and the second is insufficient or inefficient effort spent by managers. Therefore, agency cost measures should be contingent on inefficient asset utilization (due to poor investment choices), excessive cost of production and extravagant perks for managers (which results in unnecessarily high expenditure), and inefficient effort spent by managers (the results of which is lower revenue and profitability). Asset utilization efficiency is measured by assets turnover ratio, which is described as the ratio of sales to assets. It indicates the way managers use the assets under their control in generating revenue. Production cost efficiency on the other hand is measured as operating expenses divided by sales. Singh and Davidson (2003) observe that a high level of operating expense is a close estimate of managers' pay and perquisites in terms of high salaries, executive and lavish offices, and other corporate support amenities. To a large extent, these costs reflect discretionary expenditure at the disposal of firm managers.

1.1.4 Firm Characteristics

Zou and Stan (1998) define firm characteristics as a firm's managerial and demographic variables that in turn encompass part of the firm's internal environment. Firm characteristics have been listed by Kogan and Tian (2012) to include firm size, leverage, liquidity, sales growth, asset growth, and turnover. Others include ownership structure, board characteristics, age of the firm, dividend pay-out, profitability, access to capital

markets and growth opportunities (Subrahmanyam & Titman, 2001 and McKnight & Weir, 2008).

Vogt (1997) argues that the more a firm has FCF the more it engages into capital investment, and hence the higher the performance. Smaller firms gear towards rampant growth, thereby utilizing most or all the available FCF in a bid to better firm performance. The relationship between FCF and investment is stronger in small and medium firms which generally, are in the growth stage. Adelegan (2009) on the other hand notes that the influence of firm size is neutral and that firms that are older incline more on internally generated funds to finance their business investments than small and medium firms.

Cline, Williamson and Yore (2014) observe that the FCF problem seems to be intense in medium and large multinationals that are less reliant on the capital market. The smaller firms that fund their investments with funds that are generated externally do not experience such declines in wealth. This is because firms that are larger have considerably more FCF that are available and are subsequently less dependent on the external market. When high FCF are available, the unconstrained manager may socialistically fund investment projects that have a negative NPV. Increased levels of FCF lead to sub-optimal allocation of resources in form of value-destroying and cross-subsidizing investment action that eventually deteriorates firm performance.

Firm age and performance relationship is to a large extent driven by selection and learning effects in the early stages of the firm's life. Once a firm is older, the relationship

could be more indirect due to a correlation between age of the firm and ownership changes, product life cycle, size of the firm and management. Usually, firms that are new require time to adapt to the environment. A new firm needs to catch up with an older firm when the new firm's performance is lower than that of the older (existing) firm so as to be competitive in the market. Therefore, it is expected that firms that are new will show higher growth rates in productivity than the older firms as a result of high FCF. Hence, age of the firm is negatively correlated with productivity growth rate because older firms have lower FCF (Brouwe, Kok & Fris, 2005).

Similarly, Cadogan and Diamantopoulos (1995) note that as firms become older and more experienced, they tend to be more bureaucratic and inflexible. Demsetz and Lehn (1985) denote firm size as the log of total assets and argue that in smaller firms, agency costs related to the FCF problem may be relatively lower than in larger firms because of more growth opportunities available for smaller firms. Larger firms tend to overinvest; thereby generating a relatively lower return on assets (ROA)/return on equity (ROE).

Opler and Titman (1993) maintain that more likely; firms that have high growth prospects are managed better than those with less growth prospects. Such firms are also less likely to have surplus FCF since any available cash would be spent on projects that have positive NPV. Thakor (2013) further argues that foreign cash in firms that have good growth opportunities should be valued significantly higher than foreign cash in firms that have poor growth prospects, since firms that have poor growth prospects are more likely to be adversely affected by the repatriation tax burden and FCF problems

stemming from a relatively low shadow price of cash. This further implies that foreign cash for firms that have poor investment prospects ought to be valued at a discount while foreign cash for firms that have good investment prospects should be valued at a premium.

Heydari, Mirzaeifar, Javadghayedi and Student (2014) postulate that firm characteristics can expose a firm to more managerial costs and thus decrease the expected positive effect of FCF on firm performance. Firm characteristics are therefore expected to moderate the correlation between FCF and firm performance because their interaction affects the strength and/ or direction of the correlation between the dependent and independent variables (Baron & Kenny, 1986). This study focused on firm characteristics of firm size and age of the firm because their influence on the correlation between FCF and firm performance seem to be more significant (Demsetz & Lehn, 1985 and Mule, Mukras & Nzioka, 2015).

1.1.5 Firms Listed at the Nairobi Securities Exchange

NSE is the primary stock market in Kenya. Apart from equities, the NSE deals with the issue and trade of debt instruments. NSE is a member of East African Securities Exchanges Association (EASEA) and the African Securities Exchanges Association (ASEA); and also an associate member of World Federation of Exchanges (WFE), a subordinate member of the Association of Futures Markets (AFM). Additionally, the NSE is a partner Exchange in the United Nations Sustainable Stock Exchanges Initiative (SSE). The NSE is a market for securities, approved and controlled by the Capital

Markets Authority (CMA), and has 63 listed firms (Appendix I). Introduced in 2008, the NSE All Share Index (NASI) is a general indicator of market performance. The NASI integrates all the daily transacted shares, therefore giving the general outline of the value of the market as opposed to the activities of selected securities' prices. The daily trading volume of the market is valued at over US $5,000,000 and a total market capitalization estimate of US $15,000,000,000. Corporate bonds, government bonds and equities are also traded at the NSE (NSE, 2015).

Odundo (2009) notes that as part of the NSE market transformation program, the CMA introduced market improvements in 2001 which led to the restructuring of the NSE into four separate segments: The Alternative Investments Market Segment (AIMS); Main Investments Market Segment (MIMS); Fixed Income Securities Market Segment (FISMS) and the Futures and Options Market Segment (FOMS). Development of the capital market has remained Kenya's strategic development goal since the mid-1980s. The government has realized significant reforms over the last three decades to underpin the country's development prospects including modernization of the NSE which includes computerization of trading, divergence of listed securities and stocks dematerialization and improvement of regulatory and supervisory structures. The NSE is among the fastest growing stock exchanges in the developing markets and is the largest in East Africa (Ayako et al., 2015).

The NSE (2015) indicates that Kenya's capital market has continued to develop. The NSE signed up six clearing members as the exchange readied itself to introduce a

derivatives market. These clearing members include Cooperative bank of Kenya, Barclays bank of Kenya, NIC bank, CBA and CFC Stanbic bank. Other banks are slated to sign up and the clearing members would, by executing the principal role of clearing and settling deals, strengthen the NSE's abilities to begin derivatives trading. The derivatives mechanisms will primarily comprise currency futures and stock indices and will work to expand liquidity in the market increasing the bourse's product offer. The NSE's derivative market, which received authorization from CMA, will permit derivatives that are exchange traded and created on various underlying financial instruments that will include equities and currencies.

The universal world norm has been a system of central counterparty (CCP) clearing and reporting, represented by the European Market Infrastructure Regulations' (EMIR) latest rules. Further to demanding central clearing of standardized Over-the-Counter (OTC) derivatives that wasn't the practice earlier, EMIR presented other numerous processes to minimize counterparty risk, a significant matter which led to contagion in the recent global financial crisis. The NSE derivatives contracts will be exchange traded and therefore clearing members will be critical components of the CCP clearing network (NSE, 2015). The CMA (2010) shows that as of 2008, the most actively traded market in Africa was South Africa, recording over 70 percent of the whole African securities markets revenue, making it the most liquid securities market in Africa, with the NSE ranking 5^{th} with 0.2 per cent contribution.

The NSE listed firms were selected for this study because data is readily available, and also, the data is generally deemed credible. Ponnu and Okoth (2009) observe that several challenges ranging from boardroom wrangles, poor decision making, lack of oversight to control by various boards of directors and unethical practices have been evident among the listed firms, resulting in a trend of poor performance. Similarly, NSE (2015) shows that several listed firms have previously been delisted, liquidated or placed under receivership on account of the agency problem.

1.2 Research Problem

The FCF hypothesis suggested by Jensen (1986) states that firm managers may invest in needless negative NPV projects when there is surplus FCF at their disposal. The hypothesis suggests that greater levels of FCF could lead to more unnecessary administrative waste and inefficiency, negatively impacting on firm performance. Demsetz and Lehn (1985) find that in the presence of substantial FCF, large firms tend to have fewer growth opportunities than smaller ones, which could lead to an overinvestment problem, thereby negatively impacting on firm performance. Similarly, Gul and Tsui (1998) note that an escalation in financial leverage seems to diminish agency costs because managers are subject to legal bonding of repaying interest and debt, that subsequently decreases misuse of FCF and therefore improves firm performance.

The agency problem, accounting anomalies and other governance manipulations is a worldwide phenomenon affecting many firms including Enron Corporation of the United States of America (USA) and China Aviation (Ongore & K'Obonyo, 2011). The World

Bank (2000) indicates that the failure of major conglomerates such as the Bank of Credit and Commerce International and WorldCom in the USA and United Kingdom (UK) respectively has inspired interest in the agency problem and governance. The economic crisis in Asia has also contributed to the rising profile of the agency problem. In the East African region, the agency problem and governance have been discussed in the framework of state-run companies where corruption, malpractice and subsidization of deteriorating firms by the government have been the major issues of concerns. The Kenyan context has been characterized by appeals for active CG particularly for public firms (Okiro, 2014). The recent financial problems facing Fidelity commercial bank, Charterhouse bank, Imperial bank and Chase bank could be related to the agency problem between shareholders and firm managers (Central Bank of Kenya, 2016).

Frentrop (2003) has recounted that there is still lack of consensus on identifying the extent and dealing with the complications that are intrinsic in CG processes. Waithaka, Ngugi, Aiyabei, Itunga and Kirago (2012) observe that FCF have caused conflict between firm managers and shareholders which in turn have affected performance of NSE listed firms. Similarly, Ongore and K'Obonyo (2011) noted existence of agency problems among firms listed at the NSE which negatively affected their performance. These observations are consistent with Nyong'o (2000) who posits that the low firm performance across the Kenyan economy is primarily due to agency problems and bad CG practices.

Globally, empirical literature shows mixed findings regarding FCF and firm performance. For instance, Nekhili, Amar, Chtioui and Lakhal (2014) carried out a study in Australia and found increased agency costs emanating from the presence of FCF. Similarly, Brush et al. (2000) conducted a study in the USA and found that weak CG caused inefficiency in the allocation of FCF. While these findings support the argument that FCF negatively affects firm performance; on the contrary, Gregory (2005), whose study was carried out in the UK established that the mergers with higher FCF were performing better than mergers with lower FCF. In addition, a study by Szewcyzk et al. (1996) in the USA found that shareholders favored firms that had both significant FCF and investment opportunities that were profitable. Locally, Wambua (2013) found a positive correlation between FCF and performance of NSE listed firms, which again invalidates the hypothesis which states that there is a negative correlation between FCF and performance of the firm. Conversely, Njuguna and Moronge (2013) found that agency conflicts within firms listed at the NSE are related to FCF, which negatively affects firm performance.

Regarding the moderating effect of firm characteristics, Hendricks and Singhal (2001) found that smaller firms tend to have better performance in terms of higher sales growth. Similarly, Kinoti (2012) found a statistically positive moderating effect of firm characteristics (ownership, age of the firm, firm size and type of industry) on the correlation between corporate image and performance of the firm. Conversely, Njeru (2013) found that firm characteristics did not have a statistically significant moderating effect on the correlation between market orientation and performance. In view of these

contradicting results, it was necessary to further investigate the moderating influence of firm characteristics on the correlation between FCF and performance of the firm.

Some prior studies portray, or tend to equate FCF to agency costs. For instance, Jensen (1986) presents his study as "agency costs of FCF, corporate finance and takeovers", while Lin and Lin (2014) describe their study as "agency costs of FCF and bidders' long-run takeover performance". Furthermore, Wang (2010) mentions seven proxy measures of agency costs and one of the proxy measures equates FCF to agency costs. These studies do not give a clear distinction between agency costs and FCF. This study has attempted to delineate FCF from agency costs and has also attempted to provide linkages between all the study variables.

Wang (2010) and Lin and Lin (2014) excluded CAPEX and net borrowings in their operationalization of FCF. This study included both CAPEX and net borrowings in the definition of FCF. Additionally, unlike Njuguna and Moronge (2013) who used asset utilization efficiency as the sole measure of agency costs, this study also incorporated production cost efficiency to measure agency costs that arise out of monitoring management's actions. These measures of FCF and agency costs are more robust.

Furthermore, some of the prior studies are bivariate. For instance, Njuguna and Moronge (2013) and Wambua (2013) focused on the influence of agency costs on firm performance. In this study, a multivariate analysis was employed, where the joint effects of FCF, agency costs, firm characteristics and firm performance were all incorporated. While many of the studies were carried out in developed economies such as Australia,

France, UK and the USA, this study focused on firms listed at the NSE, employing cross-sectional and panel data research designs.

In summary, this study sought to fill the identified knowledge gaps which constitute the research problem as follows: first, global empirical study findings are mixed and non-conclusive. This study therefore focused on firms listed at the NSE, and used panel data design. Secondly, the study sought to delineate FCF from agency costs. Third, the study incorporated the major firm characteristics of firm size and age. Fourth, CAPEX and net borrowings were incorporated in defining FCF. Fifth, two measures of agency costs were incorporated and these are; asset utilization efficiency and production cost efficiency. Lastly, a multivariate study was adopted as opposed to bivariate. This research was guided by the following study question: How significant is the influence of agency costs and firm characteristics on the relationship between FCF and financial performance of firms listed at the NSE?

1.3 Objectives of the Study

The broad objectives and specific objectives of the study are here-below stated:

1.3.1 Broad Objective

The broad objective of this research was to determine the effect of agency costs and firm characteristics on the relationship between FCF and financial performance of firms listed at the Nairobi Securities Exchange, Kenya.

1.3.2 Specific Objectives

i. Establish the relationship between free cash flows and financial performance of firms listed at the Nairobi Securities Exchange.

ii. Assess the influence of agency costs on the relationship between free cash flows and financial performance of firms listed at the Nairobi Securities Exchange.

iii. Determine the influence of firm characteristics on the relationship between free cash flows and financial performance of firms listed at the Nairobi Securities Exchange.

iv. Establish the joint effect of free cash flows, agency costs and firm characteristics on financial performance of firms listed at the Nairobi Securities Exchange.

1.4 Research Hypothesis

H_1: Free cash flows have no significant effect on the financial performance of firms listed at the Nairobi Securities Exchange.

H_2: Agency costs have no significant intervening effect on the relationship between free cash flows and financial performance of firms listed at the Nairobi Securities Exchange.

H_3: Firm characteristics have no significant moderating effect on the relationship between free cash flows and financial performance of firms listed at the Nairobi Securities Exchange.

H_{3a}: Firm age has no significant moderating effect on the relationship between FCF and financial performance of firms listed at the NSE

H_{3b}: Firm size has no significant moderating effect on the relationship between FCF and financial performance of firms listed at the NSE

H_4: There is no joint effect of free cash flows, agency costs and firm characteristics on financial performance of firms listed at the Nairobi Securities Exchange.

1.5 Value of the Study

This study was intended to provide insights into knowledge about how agency costs and firm characteristics influence the relationship between FCF and the financial performance of NSE listed firms. This research examined the validity of the FCF hypothesis, agency theory, stakeholder theory, stewardship theory; RBV theory and the organizational theory and established linkages between these theories; thereby interrogating existing knowledge to affirm, modify or reject it. The research community in finance will benefit from the study because it is intended to aggregate and provide important quantitative literature that will bridge the existing knowledge gap regarding FCF, agency costs, firm characteristics and financial performance of firms listed at the NSE. It will also serve as a foundation upon which more empirical studies will be built; hence, propagating knowledge.

This study sought to establish the correlation between FCF, agency costs, firm characteristics and firm performance. Investors, firm managers and other practitioners will benefit from the study because it delineates FCF from agency costs, and also brings out the linkages between FCF, agency costs, firm characteristics and firm performance. Firm managers are expected to act more prudently and efficiently in their pursuit of maximizing shareholders' wealth through better firm performance. Investors and other

practitioners will build on the understanding of the linkages between these variables to help improve firm performance.

The NSE and the listed firms have high growth potential given the various initiatives being undertaken at the bourse such as demutualization, restructuring and introduction of derivatives trading. The government, NSE and CMA stand to benefit from this study because the insights and intuitions gained from the study will help in the development and improvement of existing policies, guidelines and regulation.

1.6 Operational Definition of Terms

The key study variables have been defined as follows:

1.6.1 Free Cash flows

The term free cash flows refers to the sum of surplus funds available after funding profitable projects. This is described as net income plus depreciation and amortization, less capital expenditure, less change in non-cash working capital, plus net borrowing (Brealey, Myers & Allen, 2005).

1.6.2 Agency Costs

Agency costs refer to the cost that a firm incurs due to inconsistent interests of management and shareholders (Berle & Means, 1932).

1.6.3 Firm Characteristics

Firm characteristics refer to a firm's demographic and managerial variables which in turn comprise part of the firm's internal environment. Firm characteristics include firm size, leverage, liquidity, sales growth, asset growth, and turnover, age of the firm, dividend pay-out, profitability, access to capital markets and growth opportunities (Zou & Stan, 1998; Kogan & Tian, 2012; Subrahmanyam & Titman, 2001 and McKnight & Weir, 2008). This study focused on firm size and age of the firm.

1.6.4 Firm Performance

In this research, the term firm performance is used interchangeably with organizational or corporate performance. Firm performance refers to an assessment of an organization in terms of its ability to achieve its stated objectives over a given period of time. Firm performance is broad and has to be studied with reference to its indicators. A firm that is able to meet its objectives is considered to be successful (Sagwa, 2014). For this study, firm performance was measured in terms of financial performance.

Financial performance perspective may be measured using Tobins' Q, ROA, ROE, DY, sales growth rate, market share, productivity and profitability among others. This study used Tobin's Q to measure financial performance. Tobin's Q compares the market value of a firm's equity with its corresponding book values.

1.7 Organization of the Thesis

This thesis contains six chapters. The first chapter has the introduction and background to the study. The NSE has also been discussed, the research problem, research objectives, value of the study, scope and how the study is organized. In chapter two, the theoretical framework on which the study is based has been discussed.

The chapter reviews the theoretical and empirical literature relating to the linkages among the study variables. The theories reviewed are: The free cash flow hypothesis, agency theory, stakeholder theory, stewardship theory, RBV theory and the organizational theory.

Empirical literature has focused on the relationships among the variables as follows: FCF and firm performance; FCF, agency costs and firm performance; FCF, firm characteristics and firm performance; FCF, agency costs, firm characteristics and firm performance. A summary of knowledge gaps has been presented and finally the chapter ends with the conceptual framework that guides the study and the conceptual hypotheses. Chapter three has identified and discussed the philosophical orientation, the study design and population of the study.

Additionally, it has highlighted data collection methods, reliability and validity considerations, operationalization of the study variables and analytical data models. Chapter four presents the findings of the general data analysis starting with test of

validity and reliability, then the descriptive statistics including frequency tables, percentages, standard deviations, means, and Cronbach's Alpha Coefficient of reliability.

A presentation of the results of the test of hypotheses and interpretation has been featured under chapter five. The chapter has concluded by a discussion of the results/findings. Chapter six gives a summary of the findings, conclusion, study implications, limitations and recommendations for further studies.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter has explored the theoretical foundations of the study. Empirical literature has also been discussed under four sections as follows: First, FCF and financial performance; second, FCF, agency costs, and financial performance; third, FCF, firm characteristics and financial performance; and lastly, FCF, agency costs, firm characteristics and financial performance.

This chapter also gives a summary of knowledge gaps, a graphical framework of the study variables (FCF, agency costs, firm characteristics and financial performance) depicting the researcher's conceptualization of the study. It then concludes with the conceptual hypotheses.

2.2 Theoretical Foundation of the Study

The theoretical framework upon which this study is based is varied. Six theories have been discussed, and these are: FCF hypothesis, agency theory, stakeholder theory, stewardship theory, RBV theory and the organization theory. The research sought to establish the influence of agency costs and firm characteristics on the correlation between FCF and performance of NSE listed firms.

Although the agency theory, stakeholder theory, stewardship theory, RBV theory and the organization theory contribute heavily in attempting to explain the interaction between

the identified variables and their combined effect on firm performance, the FCF hypothesis is the overarching theory on which this study is founded.

2.2.1 Free Cash Flow Hypothesis

The notion of FCF was initially suggested by Jensen (1986), where FCF was described as net cash flow after subtracting all the needs of positive NPV ventures. Jensen (1986) submits that when there are surplus FCF, the severity of the agency conflict between firm shareholders and firm managers is higher. The reason for the conflict is that when there is excess cash in the firm, there is no need for the management to raise cash from the capital market. This gives firm management the freedom to spend/ invest without being monitored by capital providers as would have been the case if such funds were raised from the capital market. Shareholders would rather have such excess funds distributed back to them through share repurchase programs or as dividends if the growth opportunities for the firms are limited and the funds could not be prudently invested elsewhere. Management on the other hand would waste the surplus funds in unprofitable investments, administrative waste and managerial perks.

FCF hypothesis postulates that when firms have made significant FCF and the firms do not have gainful investment projects available, firm managers tend to misuse the FCF, which consequently raises agency costs. Critics of the FCF hypothesis claim that it nurtures short termism by discouraging investment that would bring profit in the long-run. This study is related to the FCF hypothesis because, based on the observation by Brush et al. (2000), managers' personal-interest inspires wastefulness and ineffectiveness

when there is surplus FCF. This study sought to establish the influence of agency costs and firm characteristics on the relationship between FCF and firm performance. In this study therefore, it was expected that FCF would have a negative effect on firm performance.

2.2.2 Agency Theory

The agency theory was advanced by Jensen and Meckling (1976) and it avows that shareholders; who are the owners (principals) of the firm, hire firm managers (agents). The principal expects the agent to make decisions and act in the owner's/ principal's best interest. The managers/ agents may however have self-interests that conflict with the interests of the principals. Brush et al. (2000) observe that agency theory is founded on the principle that the objective of the management is to achieve their individual interests instead of shareholders' interests and that managers' personal-interest encourages waste and ineffectiveness when there are surplus FCF.

Agency theory suggests mechanisms that aim to resolve the shareholder interests and those of the management. The mechanisms include external control measures like takeovers (Easterwood, 1997). The potential for conflict between shareholders and managers may also be minimized by the use of internal control measures like non-executive directors' monitoring and executive share ownership incentives. The advocates of agency theory postulate that control measures are mandatory for directing dishonest managerial actions. Critics on the other hand argue that control creates stronger personal behavior, lessens proactive organizational actions and honesty, and lastly results in suspicion (Jensen & Meckling, 1976).

Divergences in goals and attitude towards risk and decentralization in information are tenets of the agency theory. If the information asymmetry and conflict of interests' assumptions and are allayed, the agency problem then becomes inconsequential and not of any interest scientifically. If there were no information asymmetry, the principal would simply direct and control the agent's actions and appropriately reward the agent. If the principal and the agent have consistent interests, then the agent's incentives are clear (Podrug, 2010).

A critique of the agency approach is that the analytical focus on how to resolve conflict between the various stakeholders in the firm is too narrow, and the shareholders are not the only ones who make investment in the firm (Donaldson, 1990). Additionally, Hill (1990) has argued that even in situations of very specific assets; where the possibility of unscrupulousness is very high, there are people who will give precedence to collaboration and trust and will not initiate opportunistic behavior. Just like the FCF hypothesis, this research is related to the agency theory because it is centered on conflict of interests between firm managers and shareholders. One of the objectives of this study is to determine the influence of agency costs on the relationship between FCF and firm performance. It was expected that the higher the agency costs, the higher the effect on the relationship between FCF and firm performance.

2.2.3 Stakeholder Theory

Developed by Freeman (1984), stakeholder theory combines business accountability to a wide collection of stakeholders. The theory advances that the management of firms has a

network of relationships to serve in its stakeholders' circle in its achievement of corporate goals. The theory develops the understanding of corporate accountability to include a broad collection of stakeholders such as customers, suppliers, business associates, employees, government and its agencies, financial institutions among others. A stakeholder is defined as any person or group which can influence or is influenced by the attainment of the person's or group's objectives.

Mitchell, Agle and Wood (1997) maintain that a stakeholder may be recognized by looking at either one or two or all the associative aspects namely: first, the clout to impact the firm; secondly, the legality of affiliation in or with the firm; and lastly, the earnestness of their entitlement in or on the firm. Unlike agency theory in which the management work and serve the shareholders, stakeholder theorists propose that firm management has a relationships network for service and these include employees, business partners and suppliers. Stakeholder theory attempts to address the collection of stakeholders eligible and demanding managers' attention (Sundaram & Inkpen, 2004).

Donaldson and Preston (1995) have argued that all stakeholders participating externally or internally in the firm have an interest to fulfill. This includes the characteristics and behavior of firms incorporating how the firm is run, how the board of directors thinks about firm units, the way management think about organization and the nature of the firm itself. In this regard, the firm should strive to satisfy not only the welfare of its shareholders but also the welfare of other relevant stakeholders. Hence, the board should ensure that the firm acts on opportunities that enhance value to all the relevant

stakeholders and also prevent bad management practices that may expose the firm to scandals or risk financial distress. To achieve these, the board should consist of more members with diverse competencies, experience as well as capabilities that will effectively discharge its governance function.

The stakeholders' model has been criticized by Donaldson and Preston (1995), arguing that managers may use "stakeholder" reasons to justify poor performance. Mansell (2013) has also critiqued the stakeholder theory, stating that by using the political notion of a 'social contract' to the firm, stakeholders' theory weakens the values upon which a market economy is founded. The stakeholder theory is relevant to this study to the extent that shareholders and firm managers are considered as 'stakeholders', and therefore can influence or are influenced by the accomplishment of the organization's goals. This theory implies that the relationships of the variables in this study can take any direction; positive, negative or no relationship.

2.2.4 Stewardship Theory

Developed by Donaldson and Davis (1991), stewardship theory has its origins in sociology and psychology. A steward guards and strives to maximize the shareholder's interests through firm performance since in doing so; the value of the steward is also maximized. From this perception, the steward is the firm management who work for the shareholders; defending and making returns for them. Stewardship theory emphasizes the role of firm management being stewards; incorporating their objectives as part of the firm. Therefore, as stewards, they are contented and encouraged when the firm's success is accomplished. The stewardship theory is quite the opposite of the agency theory. It

submits that firm managers are honest and upright stewards of the assets delegated to them under their care and thus making monitoring useless. The theory opposes the agency theory which assumes that managers will act to satisfy their own self-interest rather than that of the firm. Rather, stewards who are managers, executives and board of directors are satisfied and motivated when firm objectives are achieved (Donaldson & Davis, 1991 and Davis et al., 1997).

Davis et al. (1997) argues that stewards derive greater utility at personal level by satisfying firm objectives than through self-serving behavior and as such the managers and directors are also concerned about their personal reputation as expert decision makers, which drives their effort towards better firm performance of the firms they serve. According to the stewardship theory, other non-financial motivations such as need for accomplishment and gratitude, personal fulfillment gained by successful achievement of the goals of the firm, respect for authority and peers as well as the firm's work ethics do impact on the actions of the stewards. Superior firm performance is connected to having majority of inside directors as opposed to external directors since inside directors know the firm better and are better placed to manage than outside directors.

Daily, Dalton and Cannella (2003) discern that in order to guard their reputation as decision makers in firms, firm managers are motivated to run the firm with the main objective of maximizing firm performance. Similarly, Fama (1980) suggests that firm managers are also protecting their careers so as to be seen as efficient and effective stewards of their firms. Davis et al. (1997) have critiqued the stewardship theory arguing

that the role of the 'steward' is over-simplified and impracticable; and that the theory emphasizes the personalities and egos of senior directors. The stewardship theory is related to this study to the extent that firm managers are considered 'stewards' who act on behalf of shareholders. Just like the stakeholder theory, stewardship theory adds value especially in explaining outcomes where the FCF hypothesis and agency theory are not supported. Since this theory emphasizes the role of firm managers being that of stewards, it was expected that the higher the FCF the higher the firm's performance.

2.2.5 The Resource Based View Theory

RBV is defined by Pearce and Robinson (2011) as a way of examining and recognizing a firm's strategic advantages based on observing its distinct mix of skills, assets, intangibles and capabilities. The RBV theory is concerned with internal firm-specific factors and their effect on performance. Grant (1991) observes that RBV theory views the firm as a bundle of resources that are combined to generate firm capabilities which it can use to earn above average profitability. Every firm develops capabilities from these resources and when they are well established, these become the basis of the firm's competitive advantage. Penrose (1959) explains the significance of exceptional packages/bundles of resources controlled by the firm which are critical for performance. These firm resources comprise of tangible assets, all capabilities, attributes of the firm, organizational processes, knowledge and information controlled in order to expand competence, effectiveness and efficiency that will in general lead to greater financial performance.

Resources are defined as firm capabilities, physical assets and intangibles that are semi-permanently tied to the firm (Wernerfelt, 1984). Barney (2002) observes that the RBV competitive advantage stems from a firm's unique assets and distinctive capabilities, and assumes that firms can be hypothesized as bundles of resources, and that those resources are heterogeneously dispersed across the firms with resource variances persisting over time. Similarly, Baker and Sinkula (2005) note that RBV of the firm suggests that performance is contingent on the firm's competences and specific resources.

The thirst to understand the effects of firm level characteristics on financial performance has been debated a lot in the research arena. Among the arguments presented is that a firm's financial performance is affected only by structural characteristics within the industry. The other argument is that a firm's financial performance is affected by firm specific resources. Much focus has been given to the firm level characteristics as opposed to the industry level characteristics because it forms the basis upon which the firms compete. The industry related factors is majorly explained by the competitive focus approach. The RBV theory explains the effect of firm characteristics which are internal factors to the firm with respect to financial performance (Bain, 1959 and Porter, 1980).

Researchers have carried out studies to test which of the two commonly disputed factors (industry factors or firm specific factors) are important in explaining variations in firm performance. Wernerfelt and Montgomery (1985), Schmalensee (1985), Rumelt (1991), Chang and Singh (2000) and Hawawini, Subramanian and Verdin (2003) performed variance component analysis test to establish the percentage of effects of firm

characteristics and industry factors on firm performance as measured by ROA. Under the RBV the firm is seen to be heterogeneous and firms possess a combination of unique capabilities and assets that are responsible for giving them an upper hand in competition and enable them achieve superior performance.

Wernerfelt (1984) was the earlier supporter of the RBV theory, but he did not get much attention at the time. However, scholars such as Grant (1991), Stalk, Evans and Schulman (1992) and Williams (1992) revisited Wernerfelt (1984) and found that firms with particular set of skills and capabilities outperformed their rivals. Wernerfelt (1984) describes a resource as "anything that could be deemed as a strength or weakness". According to the RBV of the firm, resources (which are inputs for the production of goods and services) and organizational competences (intangible assets that are founded learning, skills and knowledge in deploying resources) can be sources of competitive advantage. The RBV is criticized for its failure to describe how these resources are established and organized to realize competitive advantage. RBV has also been critiqued for its inability to contemplate the effect of a dynamic market environment (Lengnick-Hall & Wolff, 1999 and Priem & Butler, 2001).

Another criticism of the RBV theory is that researchers only concentrate on one resource type; that is intangible assets within a single industry and examine its effect on firm performance. The RBV theory helps in explaining performance variation of intra industry firms as it specifically addresses firm characteristics rather than industry factors. Financial resources are normally measured by leverage ratios which enable the firm to

increase its project financing by borrowing from debt providers. Liquidity measures spontaneous financial resources available to conduct normal business operations. Physical resources as measured by the size of assets is one of the tangible resources the firm can use to gain competitive advantage while business experience of the firm and serving board of directors give the firm organizational capabilities that it can use to gain a competitive advantage over its competitors thus being able to earn an above average financial performance.

The boards of directors are viewed as strategic resources that are responsible for the advancement of the firms to meet their long-term objectives (Kapelko, 2006). RBV is related to this study because it maintains that a firm's financial performance is influenced by firm specific characteristics (which are one of the study variables). Based on the RBV therefore, it was expected that the higher the FCF, the higher will be firm performance. Firm characteristics were expected to provide an interaction which statistically affects the strength and/ or direction of the correlation between FCF and firm performance.

2.2.6 Organizational Theory

Kaen and Baumann (2003) in an attempt to explain firm size came up with the organizational theory that explains firm size in relation to profitability as well as organizational transaction costs, agency costs and span of control costs. Organizational theory explains the effect of firm size and age of the firm on firm performance. Dean, Robert and Bamford (1998) cite that the size of the firm is somewhat correlated to firm performance because of concentration, industry-sunk costs, overall industry profitability

and vertical integration. Firm size matters in assessing financial performance. Large-sized firms have greater number of departments, multi-layer levels of management, have more specialized functions and skills, greater formalization, and management control is highly centralized which makes them highly bureaucratized than small-sized firms effectively making them miss out on profitable opportunities that require urgent attention (Daft, 1995).

Hannan and Freeman (1984), Aldrich and Austen (1986) and Meyer and Zucker (1989) have linked firm size and age of the firm to Inertia. Inertia is described as an insufficient or sluggish adjustment to transformation or opposition to major variations in business operations which in effect may cause the firm to miss profitable opportunities. Stinchcombe (1965) claims that firms that are older seem to be more experienced and enjoy the benefits of improvement curve effect which makes them not to be exposed to the problems of newness and hence enjoy above average performance.

Penrose (1959) argues that larger firms are able to generate superior performance because they have diversified capabilities, ability to fully exploit economies of scale and scope. Such firms have formalized procedures of conducting business which ultimately makes implementation of operations more effective. On the contrary, Leibenstein (1976) and Shepherd (1986) argue that firm size is correlated with market power and along with market power; inefficiencies are created leading to inferior performance. Thompson and McHugh (2002) have critiqued the organization theory, regarding it as being essentially

prescriptive. There is an implied belief in underlying values or 'laws' that govern managers' activities and functions.

Another weakness of the organization theory; cited by Salaman (1979) is the assumption that all firms are in some way alike, arguing that some firm analysts develop propositions about firms in general, lumping together such dissimilar examples as voluntary establishments, charities and political associations. Salaman (1979) observes that it hinders the analysis of those organizational elements which are radically exposed in employing firms, and not necessarily in all forms of organization. Organizational theory is related to this study because it explains the effect of firm size and age of the firm (which are firm characteristics) on firm performance. These are integral variables in this study. Since the theory cites conflicting views; for instance, bureaucracy in larger firms which negatively affects performance on the one hand and economies of scale and diversified capabilities in larger firms which positively affect firm performance on the other hand, it was expected that the relationship among the study variables would take any direction. Firm characteristics would moderate the relationship between FCF and firm performance by statistically influencing the strength and /or the direction of the correlation between the predictor and explanatory variables.

2.3 Free Cash Flows and Firm Financial Performance

Wang (2010) studied the impact of FCF on firm performance with empirical data from Taiwan Stock Market for the period 2002 to 2007. Using a sample of 505 firms, regression analysis was employed in data analysis. The study found that FCF had

statistically significant effects on firm performance. These effects were however conflicting. On the one hand, the presence of high FCF escalated imprudent expenditures that consequently lowered firm performance. The results indicated on the other hand that FCF were generated due to managers' efficiency in operations, implying that a positive correlation between FCF and firm performance.

However, in his definition of FCF, Wang (2010) did not take into account CAPEX and net borrowings, which are critical in the FCF definition. Additionally, the study focused on financial performance only. The findings by Wang (2010) are partially consistent with results by Gregory (2005) who studied the long run abnormal performance of UK acquirers and the correlation between FCF and firm performance. Gregory (2005) established that mergers with greater FCF achieved better than those with lesser FCF. While testing the hypothesis, the study used "long term returns" and also "analyzed announcement month return". However, the study did not include daily returns around announcement, which could probably yield different results. Furthermore, the study focused on financial performance outcomes only.

Brush et al. (2000) studied the proposition that sales growths in firms with FCF were less lucrative than sales growths for firms with lower FCF. Data was obtained from firms in the USA; covering eight years, 1988 to 1995 and used Tobin's Q to ascertain whether firms had positive NPV projects available to determine FCF. Returns to shareholders were used as a performance measure. The use of shareholder returns was criticized by Bromiley (1990) because it assumes capital market efficiency, which argues that the returns to a large extent reveal surprises to the market. Therefore, if the markets expect

firms' sales growths and profitability, even very profitable sales growths should not be reflected in shareholder returns in the periods in which they arose. The study found that firms with higher FCF achieve lower from sales growth than those without or with lower FCF. Since sales growth is a measure of firm performance, these findings support the argument that FCF negatively affects firm performance.

The findings by Wang (2010) and Gregory (2005) on the one hand and Brush et al. (2000) on the other hand reveal inconsistencies. These contradictions indicate that the correlation between FCF and firm performance is still unresolved. In this study, a more robust measure of FCF was adopted. For instance, Wang (2010) measured FCF as net operating income before depreciation, minus tax expense, minus interest expense, minus share dividends; scaled by net sales. In this study, FCF are defined as in Brealey et al. (2005) as net income add amortization and depreciation, minus CAPEX, less change in non-cash working-capital, plus net borrowing. The study is therefore expected to yield more reliable and robust results.

2.4 Free Cash Flows, Agency Costs and Firm Financial Performance

Lin and Lin (2014) investigated the agency costs of FCF and bidders' long-run takeover performance in Australia, using data for the period 1993 to 2000. The final sample included 556 acquiring firms. The study introduced two proxies of FCF; excess accounting cash flow and excess cash holdings, and tested the relationship between bidders' long-run post-acquisition performance and the level of excess cash. The findings

indicated that the level of excess cash holdings didn't show a substantial reason for the cross-sectional disparity in long-run post-acquisition performance.

The findings from the flow measure of cash indicated that the acquisitions done by bidders with surplus accounting cash flow didn't escalate agency costs and therefore were not value reducing. Rather, bidders with greater surplus accounting cash flows had better long-run post-acquisition performance. The findings therefore indicate that the examination of FCF hypothesis in the Australian takeover market is conflicting to the expectations of the FCF theory. This finding is contrary to the argument that substantial FCF increases agency costs which subsequently negatively impacts on firm performance. However, Lin and Lin's (2014) definition of FCF ignores CAPEX and net borrowings which are critical variables.

Nekhili et al. (2014) analyzed the intervening effect of agency costs of monitoring and ownership structures in reducing earnings management practices when there is FCF. The sample comprised of 85 French listed firms for the period 2001 to 2010. The results highlighted the unscrupulous managerial behavior in the presence of high FCF. The study measured FCF by multiplying the retained cash flows by the inverse of Tobin's Q. However, like in Lin and Lin (2014), CAPEX and net borrowings were omitted in the definition of FCF. The findings indicated that firms which had high FCF tended to upwardly manage their earnings. Additionally, with the availability of high FCF, the tendency of firm managers to use discretionary accruals depended on the firm ownership and the efficiency and effectiveness of governance mechanisms. Precisely, independence

of audit committees and external audit quality together with firm ownership structure (for example institutional investors and executive ownership) reduced the extent of earnings management when FCF were available.

Conversely, independent directors' ownership and board independence had no significant effect on earnings management. The results indicate that firm executives employ earnings management practices that escalate reported earnings. This implies that there are increased agency costs emanating from the presence of high FCF, subsequently negatively affecting firm performance. The negative effect of agency costs on the correlation between FCF and firm performance is also supported by Brush et al. (2000). These results are of interest to this study because the research tried to find out the effect of agency costs and firm characteristics on the correlation between FCF and performance of NSE listed firms. Agency costs are expected to mediate the correlation between FCF and firm performance because they are the intermediate output of FCF.

2.5 Free Cash Flows, Firm Characteristics and Firm Financial Performance

Demsetz and Lehn (1985) studied the firm characteristics that included structure of corporate ownership and firm size using 511 firms in the USA. Size of the firm was measured by the mean annual common stock market value, and the study period was 1976 to 1980. Ordinary least squares (OLS) regression estimates were employed in data analysis. The findings suggest that in the presence of substantial FCF, large firms tend to overinvest; thereby yielding relatively lower performance. Large firms tended to have fewer growth prospects than smaller firms and in the absence of good growth prospects;

an overinvestment problem is likely to arise, thereby negatively impacting on the firm's performance. However, the choice of a five-year study period seems too short. Literature indicates that 7 to 10 years' study period is preferred (Brush et al., 2000 and Nekhili et al., 2014).

In examining the degree of firm level over-investment of FCF, Richardson (2006) used an accounting-based structure to measure over-investment and FCF and confirmed that over-investment was dominant in firms with the greatest FCF levels. The study was carried out in the USA and used a sample of 58,053 firms for the period 1988 to 2002. The study also examined whether there was any association between firms' governance structures and FCF over-investment. The empirical analysis employed two steps. In the first step, the study used an accounting-based structure in measuring both over-investment and FCF. The study defined FCF as cash flow over and above what was needed to sustain assets in place and to fund new investment projects. On the other hand, over-investment was described as investment expenditure over and above that needed to retain assets in place and to fund probable new investments. In measuring over-investment, the study decomposed total investment outlay into two component parts. First, it needed investment spending to sustain assets in place and secondly, investment spending in new projects.

In the next step, the study decomposed investment expenditure into expected investment outlay and over-investment in negative NPV projects, where the latter varied with the firm's growth prospects, industry affiliation, funding constraints and other aspects.

Although the study incorporated the firm characteristics of size, liquidity and growth prospects, it focused on financial performance measures only. Furthermore, the study excluded age of the firm. Results suggest that some governance mechanisms like the existence of shareholders who are activists seem to lessen over-investment. Additionally, firm performance in the presence of FCF was found to be lower in firms with higher liquidity than those with lower liquidity. The findings are consistent with Harford (2002) who found that cash-rich firms were more probable to undertake acquisitions that consequently suffer abnormal failures in operational performance.

Brouwer et al. (2005) investigated whether age of the firm accounted for productivity differences. Data was obtained for the period 1994 to 1999, and the focus was on Dutch firms. Although the dataset included firms from all age cohorts (0-4 years and 5-9 years) the study focused more on firms of at least 10 years of age. Using regression methods, the results showed very few signs of a relationship between productivity (performance) and age. Both growth rate and level of productivity varied between sectors and also differed with size of the firm. There was also no indication that productivity growth rate was related to the age of the firm. On productivity level, there were very few signs of the effects of age. The Brouwer et al. (2005) study did not fully exploit the panel structure of the dataset that was available. The explicit techniques of estimation that take account of this structure, such as multilevel or panel data estimation techniques are expected to be more effective.

Conversely, Power (1998) found a negative relationship between the growth rate of productivity and age at a certain phase in the firms' lifespan. Power (1998) examined the relationship between plant age and productivity for firms in the manufacturing industry of the USA for the period 1972 to 1988. The study found that productivity growth rates decline with age, which was credited to the effects of learning. Firm characteristics are expected to moderate the correlation between FCF and performance because their effect is statistically characterized as an interaction affecting the strength and/ or direction of the correlation between FCF and firm performance (Baron & Kenny, 1986).

2.6 Free Cash Flows, Agency Costs, Firm Characteristics and Firm Financial Performance

Investigating the agency costs of FCF, corporate finance and takeovers, Jensen (1986) sampled top 200 firms in the oil industry in the USA and found a link between the agency problem with FCF, firm characteristics and firm performance. Using regression methods, results suggest that firm managers might misappropriate FCF at their disposal when the firm does not readily have viable investment opportunities and that agency costs are high when FCF are combined with poor growth prospects. Results also indicate that more debt would increase efficiency by compelling firms with large FCF but few high-return investment projects to pay back cash to the creditors. Leverage helps in preventing such firms from misappropriating resources on low-return projects.

For industries that are declining, within the industry mergers would generate value while outside industry mergers would likely generate lesser value or negative-returns. Mergers

within the food industry seemed to reflect the spending of FCF. The industry seemingly generated large cash flows with few growth prospects. The findings however seem to be contradicting because they also indicate that increased leverage escalates agency costs. As leverage increases, the typical agency costs of debt rise, which include bankruptcy costs that subsequently negatively affects firm performance.

Mojtahedzadeh and Nahavandi (2009) investigated the relationship between agency problems that arise due to FCF with long term profitability and income management. Using Tobin's Q to measure long term profitability and Adjusted Jones Model to estimate Discretionary Accruals (DA), panel analysis was used to analyze the data. Results from testing 106 firms listed on Tehran Stock Exchange throughout the years 2003 to 2007 reflect that agency costs emanating from the availability of substantial FCF negatively affect both long term and short term profitability. However, the five-year period of study seems too short and also non-financial performance outcomes were ignored in the study.
Similarly, Nunes, Serrasqueiro and Sequeira (2009) investigated 75 Portuguese service oriented firms to establish the effect of firm size on profitability (performance). They introduced control variables of growth prospects, leverage, liquidity and asset structure (tangibility).

The study used both dynamic estimators and static panel models. Results indicated a positive, statistically significant correlation between firm size and performance. They also found a positive effect of growth prospects and liquidity on profitability, but a negative effect on leverage and asset tangibility on profitability, as measured by ROA.

Results also indicated that substantial FCF negatively affected profitability of the firm. The data employed was for the period 1999 to 2003, a duration which seems too short. A longer study period of seven to ten years would probably yield different results.

Milne, Purda and Anand (2008) used 1,200 Canadian firms for the period 1999 to 2003 to test the hypothesis that independent boards are more prone than non-independent boards to willingly embrace mechanisms intended to improve their ability to monitor firm management. The study examined seven mechanisms both in aggregate and individually through construction of an index that allocated one point for each mechanism embraced, up to a maximum of seven points, and conducted multivariate regression analyses in which the explanatory variable was either the full or the reduced index.

Results indicate that the board of directors vigorously monitors decision makers who have an inclination towards diverting firm resources to their own personal interests as a consequence of the agency problem and FCF hypothesis, thereby negatively impacting on firm performance. The findings also offer evidence that a relatively large number of acclaimed monitoring mechanisms have been embraced by firms and that the acceptance rate increases for firms with both independent and executive boards. However, the Milne et al. (2008) study didn't integrate alterative views for the board of directors, such as influencing management decisions using the advisory role. The study also ignored procedures other than board monitoring that may serve to lessen agency costs.

Locally, Wambua (2013) examined the effects of agency costs on performance of NSE listed firms. The study used regression analysis and results indicated a positive correlation between FCF and firm performance. Furthermore, the study found that liquidity, firm size and ownership concentration positively influenced performance of the listed firms. However, the study did not incorporate firm age. Conflicting results were found by Njuguna and Moronge (2013) who studied the influence of managerial behavior of agency costs on performance of firms listed at the NSE. Using descriptive research methodology, results indicated that information asymmetry is a source of agency costs and that agency problems are usually related to FCF. In operationalizing the agency costs however, Njuguna and Moronge (2013) used total asset turnover as the only measure of agency costs and also focused on financial outcomes only.

To fill these knowledge gaps, this study used two measures to fully integrate agency costs. The two agency cost measures used in this study are operating expenses to sales ratio and sales to assets ratio. These two measures are better measures of agency costs because they tend to incorporate managerial asset utilization efficiency and production cost efficiency (Singh & Davidson, 2003; McKnight & Weir, 2008 and Fauver & Naranjo, 2010).

2.7 Summary of Knowledge Gaps

Empirical literature shows mixed findings regarding FCF, agency costs, firm characteristics and firm performance. For instance, Jensen (1986) found a negative correlation between FCF and firm performance, results suggesting that management

might abuse FCF at their disposal. Similar findings are recorded by Brush et al. (2000), Mojtahedzadeh and Nahavandi (2009), Wang (2010), Wambua (2013), Njuguna and Moronge (2013), and Nekhili et al. (2014).

Gregory (2005) on the other hand established that mergers that had a greater degree of FCF performed better than those with lower FCF. Similarly, Szewcyzk et al. (1996) and Chang et al. (2007) find that investors favored firms with both profitable investment opportunities and significant FCF. Likewise, Lin and Lin (2014) established that the acquisitions made by bidders with surplus FCF were not value decreasing. Instead, bidders with higher excess FCF had better long-run post-acquisition performance.

This research attempted to fill the following knowledge gaps: first, the influences of agency costs and firm characteristics (firm size and age of the firm) on the correlation between FCF and financial performance of the firm were all integrated. Secondly, FCF were measured more robustly by incorporating CAPEX and net borrowings. Thirdly, unlike in prior studies such as Wang (2010) and Njuguna and Moronge (2013) which only focused on asset utilization efficiency to measure agency costs, this study employed two different measures for agency costs. First is the asset utilization efficiency, and second is the production cost efficiency. The two measures are better because they tend to fully integrate agency costs. Lastly, the study used cross-sectional panel data design. The study therefore sought to affirm, modify, or reject existing empirical literature; by bridging the gaps identified in prior studies.

Table 2.1: Summary of Knowledge Gaps

Researcher(s)	Focus of Study	Methodology	Findings	Knowledge Gaps	How this Study Addressed Gaps
Demsetz and Lehn (1985)	Structure of corporate ownership: Causes and consequences.	The study employed OLS regression estimates with sample of 511 firms in the USA	In the presence of substantial FCF, large firms tend to overinvest, thereby negatively impacting on firm performance.	The study considered a five-year period which seems too short and the focus did not include FCF and agency costs.	This study employed a ten year period, focused on FCF, agency costs, firm characteristics and performance of firms listed at the NSE.
Jensen (1986)	FCF, agency costs, corporate finance and takeovers.	The study used regression analysis on 200 firms in the oil industry in the USA	Managers might misuse FCF at their disposal when investment opportunities are not available.	The study did not incorporate firm characteristics	This study included firm characteristics (age and size).
Szewcyzk et al. (1996)	The role of investment opportunities and FCF in explaining R&D induced abnormal returns in the	Used regression analysis and measured performance using	Shareholders favored firms that had both high FCF and profitable	Focus variables omitted agency costs.	The variables for this study are FCF, agency costs, firm characteristics and

Researcher(s)	Focus of Study	Methodology	Findings	Knowledge Gaps	How this Study Addressed Gaps
	USA firms.	Tobin's Q	investment opportunities.		firm performance.
Gul and Tsui (1998)	Tested the hypothesis that FCF and director stock ownership interaction was less likely to occur for firms with high levels of leverage.	Studied 157 low growth Australian firms and used OLS regression analyses.	Results suggested that an increase in financial leverage seemed to reduce agency costs.	The study ignored the influence of liquidity, and also focused on low growth firms only	This study focused on firm characteristics of firm size and age of the firm
Brush et al. (2000)	FCF hypothesis for sales growth and firm performance. The study was conducted in the USA.	Study used regression analysis with performance measured using Tobin's Q and shareholder return	Firms with high FCF perform poorly, and also weak CG caused inefficiency in the allocation of FCF	CAPEX and Net borrowings were omitted in FCF definition	This study included CAPEX and net borrowings to measure FCF.
Gregory (2005)	Long run abnormal performance of UK acquirers and the correlation between FCF and firm performance.	Used long term returns and analyzed announcement month return	Mergers with greater FCF performed better than firms with lower FCF.	The study did not incorporate firm characteristics and agency costs	The study incorporated agency costs and firm characteristics (age and size).

Researcher(s)	Focus of Study	Methodology	Findings	Knowledge Gaps	How this Study Addressed Gaps
Richardson (2006)	Firm level over-investment of FCF for firms in the USA.	Used an accounting-based structure to measure over-investment and FCF	Found that over-investment was intense in firms with the greatest FCF levels.	The study did not incorporate firm characteristics	This study included firm characteristics (age and size).
Mojtahedzadeh and Nahavandi (2009)	The relationship between agency problems that rise due to FCF with long term profitability and income management. The study was on firms listed on the Tehran stock exchange, Iran.	Used 106 firms for the period 2003 to 2007, used Tobin's Q to measure long-term profitability; DA was estimated using the Adjusted Jones Model.	The study found that agency problems of FCF result in short term and eventually long term profitability.	The study focused on FCF, agency costs and profitability and income and the study period was five years.	This study focused on FCF, agency costs, firm characteristics and the performance of firms quoted at the NSE. Study period was ten years.
Nunes et al. (2009)	Profitability in Portuguese service industries.	Used both static panel models and dynamic estimators	Found a positive correlation between firm characteristics and performance; and that FCF result in profitability.	The study used data for four years only (1999 to 2003) which seems too short.	This study employed data for ten years (2006 to 2015)

Researcher(s)	Focus of Study	Methodology	Findings	Knowledge Gaps	How this Study Addressed Gaps
Wang (2010)	The effect of FCF and agency costs on firm performance (firms listed at the Taiwan stock market)	Used descriptive statistics, correlations, and regression analysis	Found no evidence supporting a negative correlation between FCF and firm performance	CAPEX and Net borrowing were omitted in FCF definition	This study included CAPEX and net borrowings in measuring FCF
Waithaka et al. (2012)	Effects of dividend policy on share prices of NSE listed firms, Kenya.	Used the case method and regression analysis	Found that FCF instigated conflict between managers and shareholders which consequently affected the firm performance.	The study focused on dividend policy and stock performance.	This study focused on FCF, agency costs, firm characteristics and firm performance.
Njuguna and Moronge (2013)	Effect of managerial behavior of agency costs on performance of firms listed at the NSE, Kenya.	Used descriptive research, and used asset turnover ratio to measure agency costs	Found that FCF were negatively related to firm performance and information asymmetry causes agency problem.	The study used only one proxy measure of agency costs - total asset turnover ratio.	This study employed total assets turnover and operating expenses/ sales

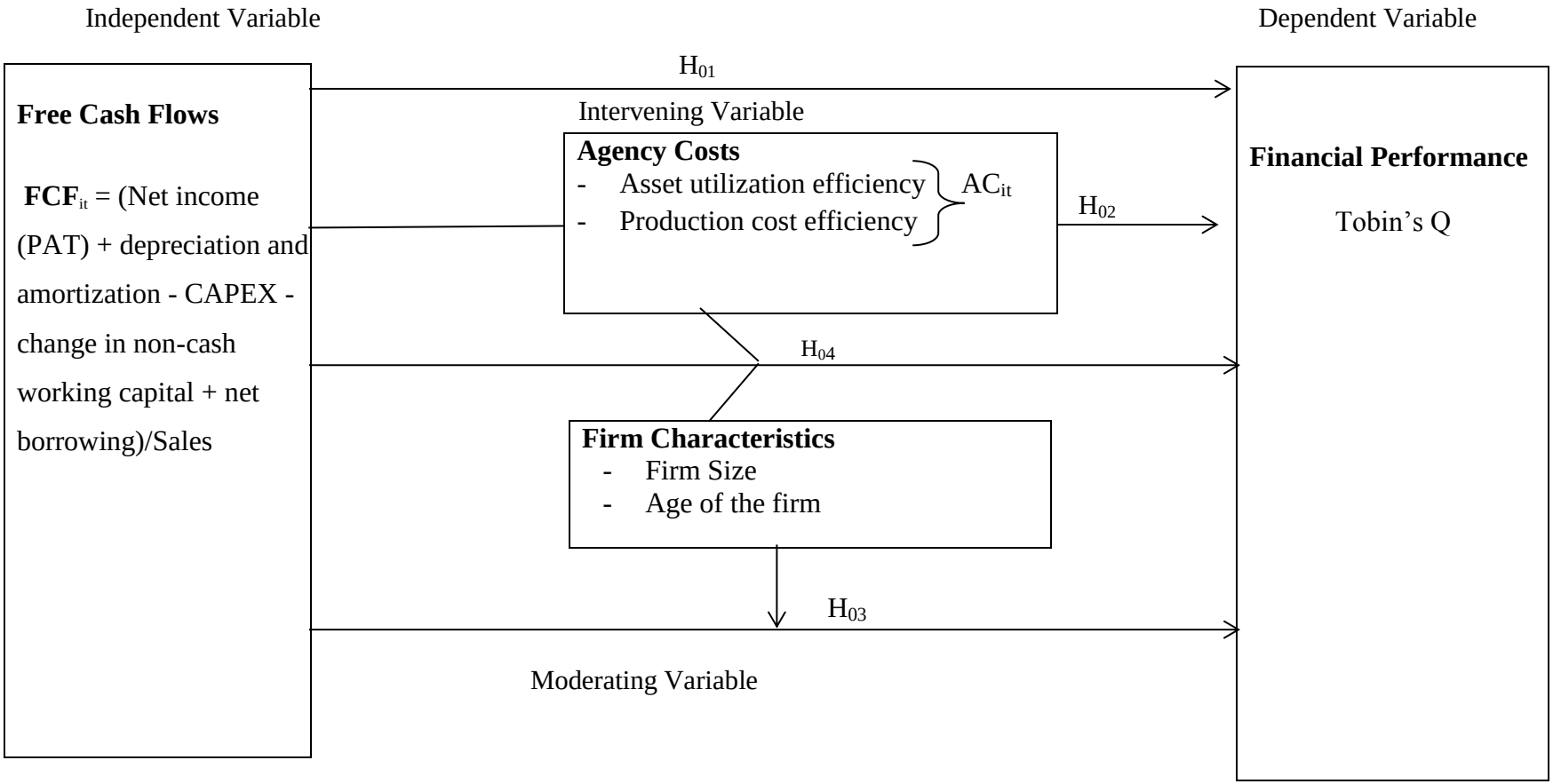
Researcher(s)	Focus of Study	Methodology	Findings	Knowledge Gaps	How this Study Addressed Gaps
Wambua (2013)	Effects of agency costs on performance of firms listed at the NSE.	Regression analysis was employed in data analysis	Got a positive correlation between FCF and firm performance.	The study did not incorporate firm characteristics	This study included firm characteristics (age and size).
Lin and Lin (2014)	Agency costs of FCF and bidders' long-run takeover performance of Australian firms.	Used regression analysis on 556 firms for the period 1993 to 2000	Found a positive correlation between FCF and firm performance.	CAPEX and Net borrowing were omitted in FCF definition	This study included CAPEX and net borrowings in measuring FCF.
Nekhili et al. (2014)	Moderating effect of CG and ownership in lessening earnings management practices when there is high FCF. The study was conducted in France.	Developed simultaneous equations to address endogeneity of FCF and then employed Hausman test.	They found opportunistic behavior of managers in presence of FCF.	Used firm characteristics of CG and ownership as moderating variable	This study used firm characteristics of size and age of the firm as moderating variable.

Source: Researcher, (2018)

2.8 Conceptual Framework

Figure 2.1 below shows graphically the researcher's conceptualization of the study.

Figure 2.1: Conceptual Model



Source: Researcher (2018)

FCF is the independent variable, whereas the dependent variable is financial performance. As shown in figure 2.1 above, H_{01} indicates the effect of FCF on financial performance. Agency costs are the intervening variable and they comprise of asset utilization efficiency and production cost efficiency. In figure 2.1 above, H_{02} designates the intervening influence of agency costs on the correlation between FCF and financial performance. In similar manner, H_{03} depicts the moderating influence of firm characteristics on the correlation between FCF and financial performance. Firm characteristics in the study are firm size and age of the firm. Lastly, H_{04} shows the joint effect of FCF, agency costs and firm characteristics on financial performance.

2.9 Chapter Summary

This chapter reviewed theoretical foundation on which the study is grounded. The theories highlighted are: The FCF hypothesis, agency theory, stewardship theory, stakeholder theory, RBV theory and the organizational theory. Empirical studies were also examined, specifically reviewing the correlation between FCF and financial performance; the intervening role of agency costs on the correlation between FCF and financial performance; the moderating role of firm characteristics on the correlation between FCF and financial performance; and finally, the joint effect of FCF, agency costs and firm characteristics on financial performance. Findings are mixed, with some studies indicating negative relationships while others showing positive relationships. A summary of knowledge gaps has also been underscored. The chapter presented and explained the conceptual model that guided the study and how it was conceptualized by the researcher.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter deliberates on the research methodology used. It presents the philosophy, research design, study population, how data was collected, reliability and validity. The operationalization of study variables, the techniques of data analysis applied and summary of the research objectives. Their corresponding hypotheses and analytical models have also been highlighted.

3.2 Research Philosophy

Research is defined by Proctor (1998) as a process to find out the unknown. A critical phase in doing social science research is to decide and validate the preferred research philosophy embraced by the researcher. Inter-related paradigmatic conventions concerning the nature of reality, the researcher's role and the research process initiate scientific research. Research philosophy is the primary essential credence that supports the options that need to be selected in taking a position in research. Philosophy has consequences on what, how and why research is to be conducted (Carson, Gilmore, Perry & Gronhaug, 2001).

Research philosophy has broad paradigms. There are interpretative and the positivistic paradigms. Perry, Reige and Brown (1999) explain the relationships among the techniques that the researcher employs, the researcher and the reality and truth that they seek. The two philosophical traditions that guide research in social science are positivism

and phenomenology (Saunders et al., 2007). The roots of positivism tradition are grounded in empiricism (Kerlinger, 2002). Positivism is an ontology which makes an assumption that a person has a straight access to the actual world and it is likely to get independent information regarding the particular external reality.

Interpretivism or Phenomenology is an ontology which makes an assumption that a person does not have direct access to the real world and the knowledge he/she has regarding this apparent realm is important in its own terms. Within the phenomenological ontology, epistemology is founded on belief or assumption that the person conducting the research is part of the reality and therefore not objective, value-free or independent. Research emphasis is to understand what happens in a particular situation, and it contemplates several realities and diverse perceptions of the researcher (Carson et al., 2001).

In this study, the two philosophical traditions were examined and positivism was considered the more appropriate tradition for the study because the study is centered on prevailing theory and it develops hypotheses that can be verified. Positivism made it possible to make definite statements about the influence of agency costs and firm characteristics on the correlation between FCF and firm performance grounded on unbiased assessment and deductive reasoning. The study utilized statistical data analysis techniques and the researcher was objective and independent, because individual feelings were not introduced.

3.3 Research Design

Research design involves decisions on where, what, when, how far/much and through which means regarding a phenomenon. It is the outline employed to direct a research study to make certain that the research addresses the study problem (Gorard, 2013). After considering various research designs described by research experts such as Cooper and Schindler (2006), Mugenda and Mugenda (1999) and Muganda (2010), as well as the purpose of the study, the philosophical tradition adopted, the topical scope, researcher involvement, time period over which the data was collected, the nature of the data and type of data analysis, the study design embraced was cross sectional descriptive design.

Mojtahedzadeh and Nahavandi (2009) successfully used the cross-sectional research design in their study of the relationship between agency problems that arise due to FCF with long term profitability and income management. Mwangi (2014) also successfully employed this study design in determining the influence of members' income and conduct of Savings and Credit Cooperatives (SACCOs) in the correlation between efficiency and characteristics of SACCOS in Kenya. The cross-sectional descriptive design was considered appropriate because of its versatility and leverage in collection of data from a large number of respondents within a fairly short time period.

3.4 Population of the Study

The target population comprised of the entire 63 firms listed at the NSE (Appendix I) as at December 31, 2015. This was a census study which involved obtaining information from every member of the population. A census of all the NSE listed firms was employed

because the number of listed firms at the NSE is relatively small and therefore the study could easily be carried out.

3.5 Data Collection

Secondary data was collected from published financial statements, obtained from the NSE. Time series panel data was collected, covering a 10 - year period from 2006 and to 2015. A ten-year period is deemed large enough to yield reliable findings. A similar period was adopted by Gregory and Wang (2010) and Nekhili et al. (2014). Appendix II shows the data collection form.

3.6 Reliability and Validity

The main indicators of the value of a data collection instrument are reliability and validity of the measures. Reliability is among the most essential components of test quality and it entails consistency, or reproducibility, or the examinee's test performance. Therefore, reliability is the degree with which research instruments yield consistent results after repeated trials. Reliability of a measure has two parts; its stability over time and the consistency of the instrument in measuring the concept. Several methods of computing test reliability exist and they include decision consistency, parallel forms reliability, test-retest reliability, inter-rater reliability and internal consistency. Decision consistency is often an appropriate choice for many criterion-referenced tests (Kimberlin & Winterstein, 2008).

Validity is the degree with which theory and evidence corroborate interpretations of test scores occasioned by suggested uses of tests. It denotes whether or not the test is measuring what it anticipated to measure. It is perhaps the most essential criteria for the quality of a test. There are several types of validity and these consist of construct validity, criterion-related validity and content validity. Construct validity refers to the extent to that an instrument measures the attribute or hypothetical concept that it was proposed to measure while content validity is the degree with which the content of the objects reveals the content purview of interest. Lastly, criterion-related validity is evaluated when an individual wants to establish the correlation of scores on a test to a specified benchmark (AERA/APA/NCME, 2000 and Penfield & Miller, 2004).

3.6.1 Reliability Test

Stability was assessed by use of test retest reliability while internal consistency was assessed using inter-item consistency reliability. In testing for reliability, Cronbach alpha was calculated. The Cronbach's alpha coefficient was applied in measuring internal consistency of the measurement scales. It is a scale measurement tool that is frequently used in social sciences for determining internal consistency of factors or items among and within variables of the study. Nunnally (1967) and Oppenheim (1992) argue that alpha coefficient value of 0.700 and above is tolerable.

The Cronbach's alpha coefficient was employed because it is suitable for multi-scaled items. The Cronbach's alpha is a broad formula of the Kunder-Richardson (K-R) $_{20}$ formula as shown:

$$KR_{20} = \frac{(K)\,(S^2-\Sigma s^2)}{(S^2)\,(K-1)}$$

KR_{20} = Reliability coefficient of internal consistency

S^2 = Variance of all scores

K= Number of items employed to measure the model

s^2 = Variance of individual items

This study also employed secondary data. Kimberlin and Winterstein (2008) argue that the foremost concern when deciding if secondary data should be used is to confirm that the data set suitably measures the variables that are required to answer the study questions. Secondary data was collected from audited financial statements of all NSE listed firms. This data is deemed reliable because financial reporting is guided by International Financial Reporting Standards (IFRS). Furthermore, the companies Act (CAP 486) of the laws of Kenya require that every limited liability firm conducts a statutory audit at least once annually. Such audits are guided by International Auditing Standards (IAS).

3.6.2 Validity Test

Validation of the instrument was accomplished in several ways. Pre-test was done by administering the instrument to eight middle level managers to complete. The eight managers were conveniently selected to review the statement items for clarity, meaning

and relevance. Based on their response, the data collection instrument was appropriately modified. Validity shows whether the instrument is testing what it should be testing.

Content validity was achieved by establishing whether the items in the data collection instrument are well balanced in content domain and link up well with theoretical assumptions centered on the study objectives which involved checking of the content to establish if it contained representative sample of the objects being measured. Criterion-related validity was established by administering test-retest or stability test on the data contents in the data collection instrument. Construct validity was established by ensuring that the study variables were properly operationalized. This was achieved through constant consultations and reviews by research experts from the University of Nairobi's School of Business. Validity can be measured by use of expert judgment and informed opinion (Kerlinger, 2002).

3.7 Operationalization of the Study Variables

This study has four variables of interest; independent variable, dependent variable, intervening variable and a moderating variable. Table 3.3 shows the research variables and their respective metrics/indicators. Theoretical and empirical research in the area of study has guided the choice of the variables.

Table 3.1: Operationalization of Study Variables

Variable	Indicator	Measure	Support from Literature	Form Section
Independent Variable				
Free Cash Flows	Net income (PAT), add depreciation and amortization, minus CAPEX, minus change in non-cash working capital*, add net borrowing.	{Net income (PAT) add depreciation and amortization, minus CAPEX, minus change in non-cash working capital, plus net borrowing}/Net Sales**	Brealey et al. (2005) and Nekhili et al. (2014)	Part A of Data Collection Form
	Dependent variable(s) - Firm Performance			
Financial Performance	Tobin's Q	Equity market value/Equity book value	Szewczyk et al. (1996) and Mojtahedzadeh and Nahavandi (2009)	Part B of Data Collection Form
	Intervening Variable(s)			
	[(a)] Asset utilization efficiency = Net sales to total Assets ratio	(a + b)/2 = AC	Tirole (1986)	Part C of Data Collection Form

Variable	Indicator	Measure	Support from Literature	Form Section
Agency Costs	[(b)] Production cost efficiency = Operating expenses to net sales ratio		Tirole (1986); Singh and Davidson (2003)	
	Moderating variable(s)			
Firm Characteristics	Firm Size	Natural log of total assets	Demsetz and Lehn (1985)	Part D of Data Collection Form
	Firm Age	n log (number of years since incorporation)	Ferris and Yan (2009)	

Source: Researcher, (2018)

* Non-cash working capital includes inventories, financial assets held to maturity, receivables and prepayments (current assets); and, payables, accrued expenses, current income tax liability (liabilities). For financial and investment firms, non-cash working capital includes prepaid lease rentals, intangible assets, deferred tax assets and retirement benefit assets (assets); and, taxation payable, dividends payable, deferred tax liabilities and retirement benefit liabilities.

**Net sales in case of insurance firms are the equivalent of "Net premium revenue". For commercial banks, it is "Total operating income" which is composed of net interest income, add total non-interest income. In case of investment firms, it is "Income" which is comprised of rental income, dividends and interest received, and other incomes.

3.8 Data Analysis

Data was analyzed using inferential statistics generated from statistical software, using 95% confidence interval as in Aiken and West (1991). Descriptive statistics and inferential statistics were both employed in data analysis. Measures of dispersion and measures of central tendency were used in profiling the respondent firms.

Linear regression analyses were used in establishing the magnitude and nature of the relationship between the study variables and in testing the relationships hypothesized. This study employed panel data regression analysis using the OLS technique where data consist of cross-sectional and time series data which was combined into a panel data set

and projected with the use of panel data regression. Regression analysis is a statistical tool for examination of relations between variables.

The value of the coefficient of determination (R^2) indicates the extent of variation in the dependent (explanatory) variable explained by the independent (predictor) variable. Beta values indicate the extent of variation in the explanatory variable that is attributed to the extent of variation in the independent variable. F ratio measures the model fit or simply how sound the equation line established fits the data observed. Interpretation of statistical significance of each relationship hypothesized was based on β, R^2, t, F, and P – values. The study hypotheses were measured using two sets of regression equations. The regression analysis was done using STATA software.

3.9 Choice of Panel Data Analysis Model

Panel data analysis can be categorized into several categories. First are the pooled panels which assume that there exist no distinctive qualities of characters in the dimension set and there are no common effects across time. Second are the fixed effects models which assume existence of unique qualities of characters which are not the effects of random variations and which don't differ across time. They assume changes in intercepts across sets or time periods. Lastly we have random effects models which have the assumption that there are distinctive time constant qualities of characters which are the effects of random variations and do not associate with the characters that are the effects of random variation. They don't relate with the specific regressors. The random effect models are suitable if we want to draw conclusions about the entire population.

The selection of a suitable model is contingent on the aim of investigation and complications regarding the exogenity of dependent variables. The fixed effects model and the random effects model were not considered. The pooled regression model was suitable because of its assumption that all the organizations are similar. The Pooled regression model also has an assumption that the coefficients, including the intercepts; are identical for all study items (firms). The fixed and random effect models provide for individuality or heterogeneity among the organizations by letting each organization to have own intercept that is time invariant.

3.9.1 Effect of Free Cash Flows on Financial Performance

In establishing the effect of FCF on firm performance FCF is the predictor variable, while financial performance is the explanatory variable. In the specification, the standard errors are clustered by firm and year. Equation 3.1 entails panel data for 2006 to 2015

The regression model for hypothesis 1 is as follows:

$$\bar{Q}_{it} = \acute{\alpha} + \beta FCF_{it} + € \text{ ---------- (3.1)}$$

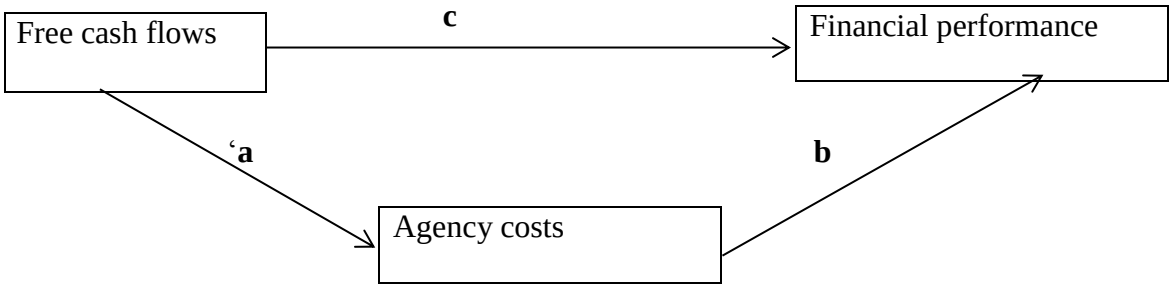
Where: $\bar{Q}$ = Financial performance and $_{it}$ indicates the firm i at time t. Financial performance was measured using Tobin's Q. $\acute{\alpha}$ = Constant term; β = Beta Coefficient; FCF_{it}= Free cash flows for firm i, at time t where t is the year 2006 to 2015.

3.9.2 Free Cash Flows, Agency Costs and Financial Performance

In analyzing hypothesis 2, the relevant variables are FCF (independent variable), agency costs (intervening variable) and financial performance (dependent variable). Intervening effects were examined using hierarchical (stepwise) multiple regression analysis. As in

Baron and Kenny (1986), the fundamental concept of mediating variables is that in some way they intervene in the process of transformation between response and stimuli. Some essential features of a mediating variable include the fact that the independent variable shall affect the mediator variable (path a); the mediator shall affect the dependent variable (path b); independent variable shall affect the dependent variable (path c); and that once paths a and b are controlled; path c becomes inconsequential, or trivial. The mediation path is shown in figure 3.1 below.

Figure 3.1: Path Diagram for Mediation effect of Agency Costs



Source: Researcher (2018)

Mediation was tested through the following three steps. Step one entailed the dependent variable $\bar{Q}$ (financial performance) being regressed on the independent variable **FCF** (Free cash flows). In step two, the mediator **AC** (agency costs) was regressed on the independent variable **FCF**. In step three, $\bar{Q}$ is regressed on **AC** and **FCF**. In each step the β coefficient was tested to establish the size and direction of the correlation. If a zero order relationship exists and is significant then proceed to the next step. Mediation exists if FCF coefficient is significant in step 2, and also when the FCF coefficient is significantly less in step 3 than in step 1.

In testing intervention between FCF and financial performance the regression model is as follows:

$$\bar{Q}_{it} = \acute{\alpha} + \beta_1 FCF_{it} + €_{it} \text{ ---------- (3.2a)}$$

$$AC_{it} = \acute{\alpha} + \beta_1 FCF_{it} + €_{it} \text{ ---------- (3.2b)}$$

$$\bar{Q}_{it} = \acute{\alpha} + \beta_1 AC_{it} + \beta_2 FCF_{it} + €_{it} \text{ ---------- (3.2c)}$$

while controlling the effect of M on Y,

Where: AC_{it} is the sum of Production cost efficiency (PCE_{it}) and Asset utilization efficiency (AUE_{it}) divided by 2 (average) for the period 2006 to 2015.

3.9.3 Free Cash Flows, Firm Characteristics and Financial Performance

In testing hypothesis 3 the relevant variables are FCF, firm characteristics (moderating variable) and financial performance. The regression models are as follows:

$$\bar{Q}_{it} = \acute{\alpha} + \beta_1 FCF_{it} + \beta_2 AGE_{it} + \beta_3 (AGE_{it} * FCF_{it}) + € \text{ ---------- (3.3a)}$$

$$\bar{Q}_{it} = \acute{\alpha} + \beta_1 FCF_{it} + \beta_2 SIZ_{it} + \beta_3 (SIZ_{it} * FCF_{it}) + € \text{ ---------- (3.3b)}$$

Where: SIZ_{it} = Firm size; AGE_{it} = Age of the firm

Equations 3.3a and 3.3b represent moderation models. For purposes of avoiding possible high multicollinearity, the variables were centered and an interaction term added. If the predictor variable (FCF) and moderator variable (firm characteristics) are not significant with the interaction term, then complete moderation has happened. Otherwise if the independent and moderator variables are significant with the interaction term, then

moderation has happened, but the main effects are also significant (Aiken & West, 1991 and Mackinnon et al., 2002).

In equations 3.3a and 3.3b above, the variables associated with coefficient β_3 were added in the model to measure the effect of moderation. The effect of moderation variables; firm size and age is characterized statistically as an interaction that affects the strength and/ or direction of the correlation between explanatory variable (firm performance) and the predictor variables (Baron & Kenny, 1986). The term * in the model does not imply multiplication but rather, it denotes moderation.

3.9.4 Relating all the Variables

Hypothesis 4 entails testing all the variables in the conceptual framework. In testing for the effect on financial performance, panel data model was applied in measuring the strength of the relations between the independent, moderating, intervening and dependent variables. To measure the joint effect of the moderating, intervening and independent variables, intercept (constant) was used to determine the nature and extent of effect of all the variables. Additionally, R^2 was employed in determining the joint effect of the moderating, intervening and independent variables on the dependent variable (financial performance). The resultant model is as follows:

$$\bar{Q}_{it} = \acute{\alpha} + \beta_1 FCF_{it} + \beta_2 AC_{it} + \beta_3 SIZ_{it} + \beta_4 AGE_{it} + € \text{---------- (3.4)}$$

Where:

3.4 represents the model for the effect on financial performance which utilized secondary panel data for the period 2006 to 2015 and $\bar{Q}_{it}$ represents financial performance.

Table 3.2: A Summary of Statistical Tests of Hypotheses

Objective	Hypothesis	Analytical Model	Interpretation
i. To establish the relationship between FCF and financial performance of firms listed at the NSE	**H_{01}**: FCF have no significant effect on financial performance of firms listed at the NSE	• ANOVA regression model • Panel data regression model • Test of assumption (normality and multi-collinearity)	• Relationship exists if **β** is significant • Relationship will be determined based on R^2
ii. To assess the influence of agency costs on the relationship between FCF and financial performance of firms listed at the NSE	**H_{02}**: Agency costs have no significant intervening effect on the relationship between FCF and financial performance of firms listed at the NSE	• ANOVA regression model • Panel data regression model • Test of assumption (normality and multi-collinearity)	• Mediation exists if FCF coefficient is significant in step 2, and also when in step 3, the FCF coefficient is significantly less than in step 1. • Regression co-efficient and R^2 will be used to affirm the effect of agency cost on the relationship between free cash flow and firm performance.
iii.To determine the influence of firm characteristics on the	**H_{03a}**: Firm age has no significant moderating effect on the relationship between FCF and financial performance of	• ANOVA regression model • Panel data regression	• Moderation exists when the interaction term between firm characteristics and FCF is a significant ($p < 0.05$) predictor of firm

Objective	Hypothesis	Analytical Model	Interpretation
relationship between FCF and financial performance of firms listed at the NSE	firms listed at the NSE **H_{03b}**: Firm size has no significant moderating effect on the relationship between FCF and financial performance of firms listed at the NSE	model • Test of assumption (normality and multi-collinearity)	performance. Furthermore, when FCF remains a significant predictor while firm characteristics become insignificant. • The intercept of the regression model will be used to tests the influence of firm characteristics on the relationship between free cash flow and firm performance. • Regression co-efficient and R^2 will be used to affirm the effect of firm characteristics on the relationship between FCF and firm performance.
iv. To establish the joint effect of FCF, agency costs and firm characteristics on financial performance of firms listed at the NSE	**H_{04}**: There is no joint effect of FCF, agency costs and firm characteristics on financial performance of firms listed at the NSE	• ANOVA regression model • Panel data regression model • Test of assumption (normality and multi-collinearity)	• The intercept of the regression model will be used to tests the joint effect of FCF, agency costs and firm characteristics on firm performance • R^2 will be used to get the joint effect of independent variables on Firm Performance

3.10 Chapter Summary

The chapter discussed the study methodology employed and has highlighted the research philosophy adopted; clearly indicating that the study was anchored on the positivist orientation since it is founded on existing theory and it articulates hypotheses which can be verified. Furthermore, the positivist approach made it possible to make categorical statements.

The research design used has also been discussed. The research design adopted was cross sectional descriptive survey. The population of the study has been highlighted; as a census of all firms listed at the NSE. The chapter has also explained the data collection methodology. Reliability and validity considerations have been discussed.

Operationalization of research variables has been deliberated, showing a summary table of the four variables of study, indicators, how the variables were measured, support from literature and the relevant section of the data collection form. Data analysis has been explained; being regression methods, using inferential statistics. The chapter also presented a tabulated summary of the research objectives, their corresponding hypotheses and analytical models.

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

4.1 Introduction

The study sought to establish the relationships between free cash flows, agency costs, firm characteristics and performance of firms listed at the NSE. Secondary data were collected to test the relationships between the study variables. This chapter presents an analysis of the results. More specifically, the chapter has focused on descriptive statistics, reliability tests, validity tests and correlation analysis.

4.2 Pre-estimation Diagnostics

The study used OLS to estimate regression models. The use of OLS is based on normality, linearity, sampling adequacy and internal consistency of variables used in the regression model. Therefore, normality, linearity, internal consistency and sampling adequacy of these variables were required for the application of OLS. This section presents the test statistics to verify satisfaction of these assumptions by the data collected and analyzed.

4.2.1 Normality test

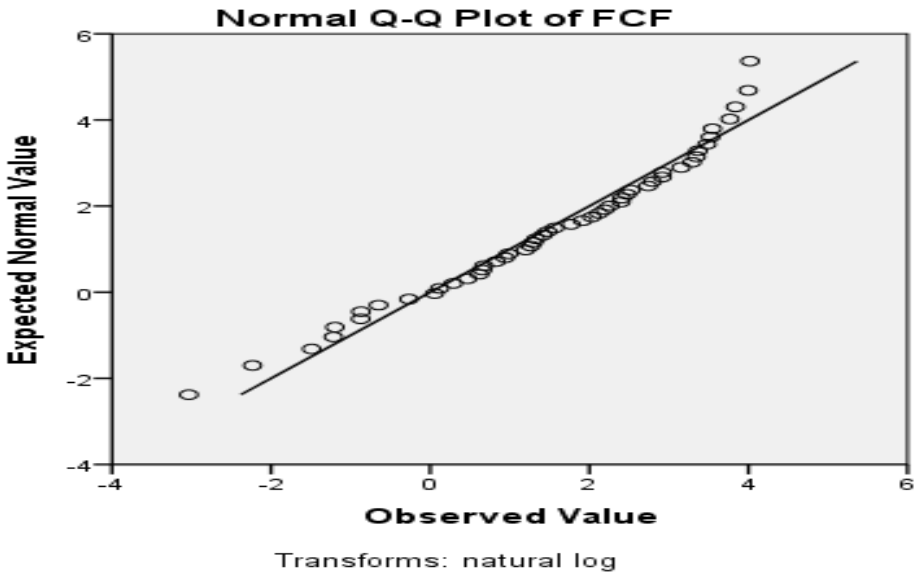
The Shapiro Wilk test for normality was conducted to test if the variables were normally distributed. The null hypothesis was that the data did not come from a population that was normally distributed. Therefore, the alternate hypothesis is that the data originated from a normally distributed population. The test statistics for normality of each variable are shown in table 4.1 below.

Table 4.1: Normality Test

Variable	Test Statistic	
	Z statistic	**P value**
Free cash flows	1.687	0.082
Agency costs (AC)	1.501	0.160
Firm Age	0.832	0.129
Firm Size	1.004	0.076

Table 4.1 above shows that the p-values for all the variables were greater than 0.05, and therefore, we failed to reject the null hypothesis that the variables were normally distributed at five per cent level of significance. Therefore, OLS could be applied on the data considering that the data met the assumed conditions for application of multiple regression analysis. Field (2013) recommends use of a visual inspection of histograms or Quantile – Quantile (Q-Q) plots to supplement use of tables and numbers. These plots are presented below:

Figure 4.1: Q-Q Plot for Free cash Flows (2006 – 2015)



The results of the Q-Q plot in figure 4.1 above exhibits normality because most of the observations seem to be in a straight line, with a few cases appearing to be far away from the line.

Figure 4.2: Q-Q Plot for Agency Costs (AC) – 2006 to 2015

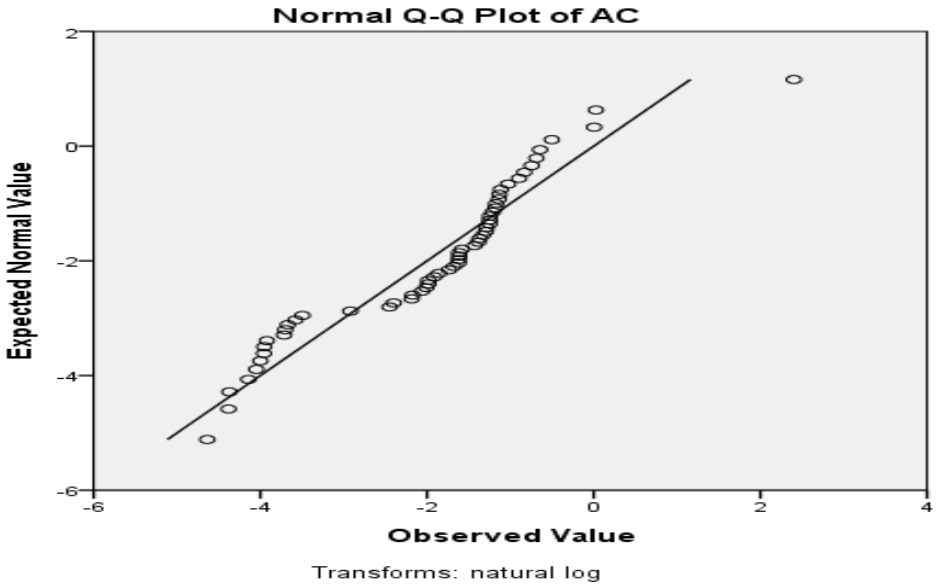
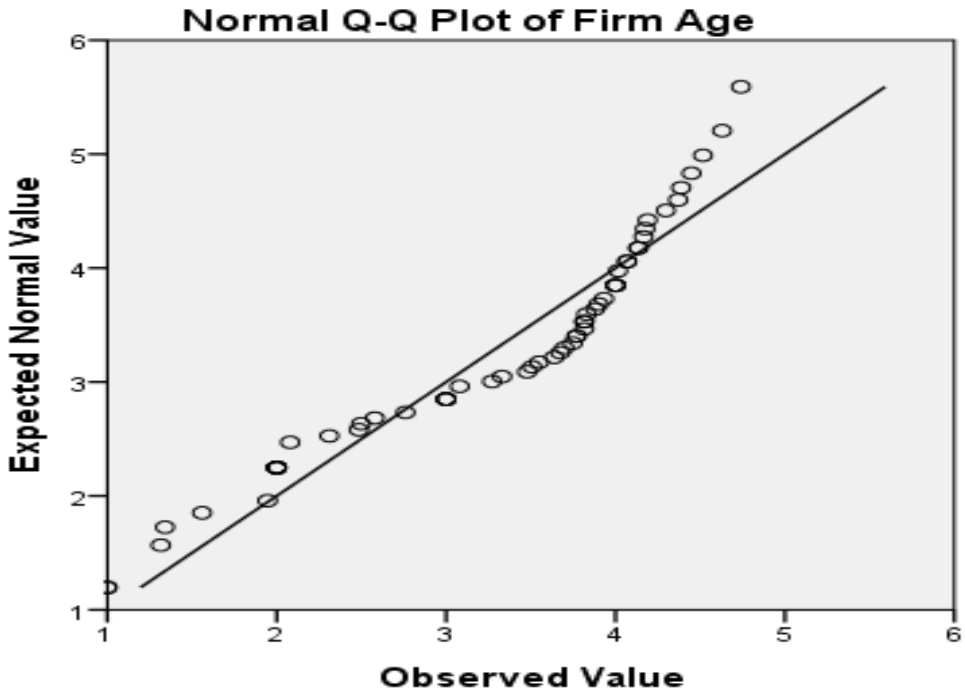


Figure 4.2 Q-Q plot above for agency costs (AC) reveals normality because the majority of the observations seem to be along the straight line. Outliers were investigated and

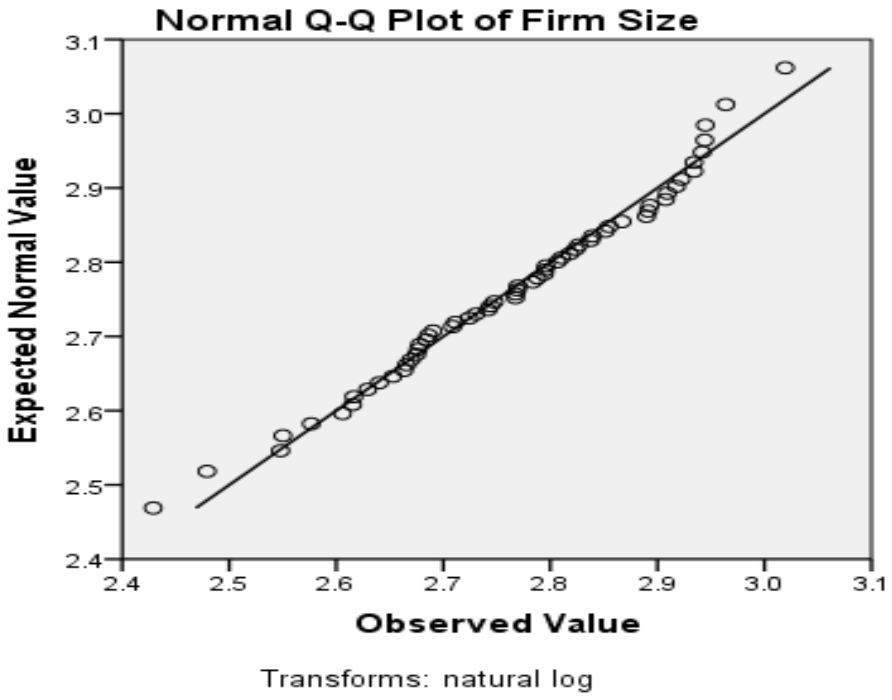
corrected or eliminated where necessary. Large data sets can be analysed even if some variables do not meet normality assumptions (Tabachnick & Fiddel, 2013).

Figure 4.3: Q-Q Plot for Firm Characteristics (Firm Age) – 2006 to 2015



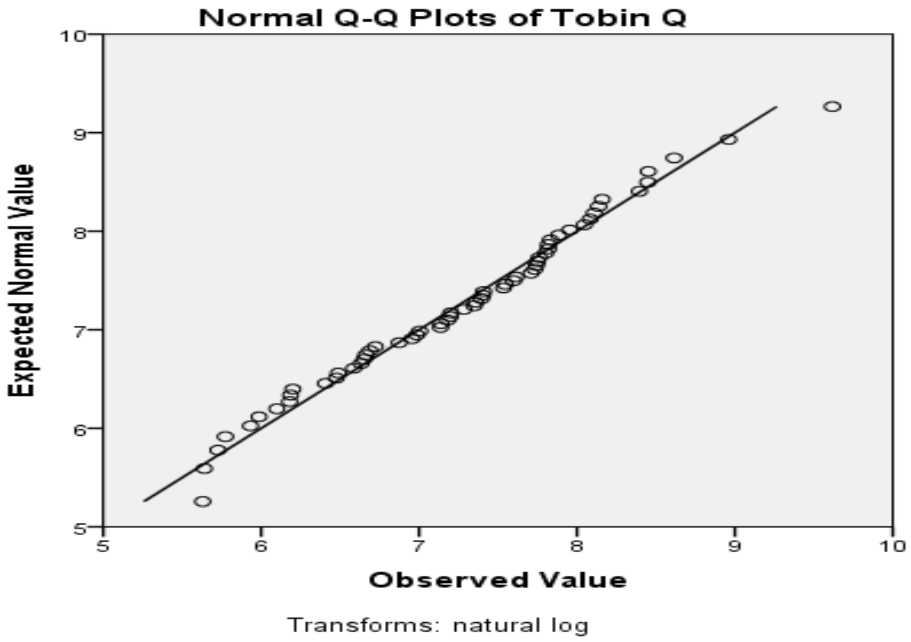
The above Q-Q in figure 4.3 exhibits normality. This is because most of the observations seem to be in a straight line, with a few cases appearing to be far away from the line.

Figure 4.4: Q-Q Plot for Firm Characteristics (Firm Size) – 2006-2015



The Q-Q plot for firm size in figure 4.4 above indicates almost all the observations being on a straight line. This implies normality of the data. Outliers were investigated and corrected or eliminated where necessary.

Figure 4.5: Q-Q Plot for Firm Financial Performance – 2006 to 2015



The Q-Q plot for financial performance in figure 4.5 above shows normality.

4.2.2 Reliability Tests

Reliability tests were carried out through Cronbach's alpha tests in Statistical Package for the Social Sciences (SPSS) with the findings presented below. The results are shown in Table 4.2 below. Except for financial performance which shows a score of 0.672, all the other variables indicate reliability scores above 0.700 which is the accepted score for reliability (Bonett & Wright, 2014). The research instrument was therefore deemed reliable.

Table 4.2: Reliability Scores for Individual Variables

Variable Item	Cronbach's Alpha
Free Cash Flow	0.726
Firm Age	0.798
Firm Size	0.814
Agency Costs-AC	0.828
Financial Performance	0.672

4.2.3 Test for Linearity

In testing whether the variables were linearly associated, a correlation analysis was done. The null hypothesis for the test was that there was no linear association. The test statistics for linear associations between the predictor variables and firm performance (explanatory variable) are shown in table 4.3 below:

Table 4.3: Test for Linearity

Reference Variable: Firm Performance	Coefficient of Correlation	P-Value
Free cash flows	0.506	0.000
Agency costs (AC)	0.521	0.000
Firm Age	0.619	0.000
Firm Size	0.590	0.000

From table 4.3 above, FCF shows a coefficient of correlation of 0.506, agency costs (AC) indicate 0.521, firm age 0.619 and finally firm size reveal 0.590. All the values exceed 0.5000 meaning that there is a positive correlation. Financial performance is the reference variable. All the p-values for the respective coefficients of correlation are 0.000 which is lower than 0.01.

Thus, all the predictor variables have a significant positive correlation with financial performance at five per cent level of significance. Therefore, the predictor variables and the explanatory variable (financial performance) move in the same direction which suggests a linear relationship. This positive significant correlation indicates that the signage coefficients of the predictor variables in the simple regression models are positive.

4.2.4 Bartlett's Test for Internal Consistency

The study tested the consistency of the items in the designed questionnaire to measure several variables used in the research by applying the Bartlett's test of sphericity. The null hypothesis of the test was that there was no internal consistency. A failure to reject the null hypothesis implies that the principal components which measure individual sections have to be established using principal component analysis.

Conversely, rejecting the null hypothesis implies that all the elements are consistent internally and that their composites can be applied in measuring the variables concerned.

Test statistics for each of the sections involved in the linear regression analysis are presented in table 4.4 below.

Table 4.4: Bartlett's Test

Variable	Degrees of freedom	Test statistic	
		Chi Square	**P value**
Free cash flows	21	438.2	0.000
Agency costs (AC)	10	266.5	0.000
Firm age	10	146.2	0.000
Firm size	10	162.1	0.000
Financial performance	10	269.40	0.000

Table 4.4 above demonstrates that the null hypothesis which states that the variables are not intercorrelated in each of the sections has to be rejected at five per cent significance level. This is confirmed by all the p-values being less than 0.01 for the variables.

4.2.5 Multicollinearity Test

Multicollinearity occurs if there is a strong relationship between two or more independent variables in a regression model. Multicollinearity becomes an issue only in multiple regressions and not for simple regression analysis. Multicollinearity poses several problems such as increases in standard errors of β coefficients. This means that the βs have relatively higher variability across samples and less likely to represent the population. The second problem is limiting the size of R, which measures multiple correlation between the independent variables and the result, and R^2, the variance of the

result for which the independent variables explain, making the second predictor to explain very little of the remaining variance. The other problem posed by multicollinearity is that it reduces the importance of predictors, making it hard to measure the specific significance of a predictor (Field, 2009).

To test whether the level of multicollinearity in the estimated models could be tolerated, Variance Inflation Factor (VIF) was used. The rule of the thumb is that a value of VIF that is less than 10 means that the level of multicollinearity can be tolerated (Robinson & Schumacker, 2009). Since multicollinearity test is only applicable for multivariate regressions, only VIF statistics are reported since the regressions involve more than one independent variable.

Table 4.5: Multicollinearity Test

Variables	VIF
Free Cash Flows	2.06
Agency costs (AC)	1.55
Financial Performance	2.52
Firm Size	1.09
Firm Age	1.68

Table 4.5 above shows that the VIF for all the models estimated ranged from 1.09 to 2.35 showing that the VIF results are between the acceptable ranges of 1 to 10 (Robinson &

Schumacker, 2009). This shows that the variables did not exhibit multicollinearity and regression analysis could then be carried out.

4.3 Descriptive Statistics

Table 4.6: Descriptive Statistics for Secondary Data – 2006 to 2015

Variables	No.	Min	Max	Mean	STD
Tobin's Q (Ratio)	600	0.867900	6.447370	0.526600	0.634590
FCF (Ratio)	600	-0.024530	3.145000	1.6900	0.11270
AC(Ratio)	600	0.003716	6.329080	3.3166898	0.91646
SIZ (Ratio)	600	-1.342200	2.810600	0.4418300	0.612300
AGE (n log of year since incorporation)	600	1.40884	5.400013	3.904435	0.287000

Table 4.6 above shows descriptive statistics for secondary data for a 10 year period from 2006 to 2015. Table 4.6 above gives the descriptive analysis for the main variables used in the research. It shows that the average Tobin Q is 0.5266. This suggests that on average, firms listed at NSE have recorded fairly impressive performance. The Tobin's Q mean of 0.5266 suggests that the firms' market values are less than their book values. Since their market price to book value ratio is less than one, the market expects the value of these firms to reduce in the future because the market price also takes any future earnings into account at the current price.

For FCF the average is 1.69, meaning that most firms listed at NSE have low FCF. The mean for AC was found to be 3.3166898 indicating a high asset turnover and operating expenses to sales ratio. The average age of the firm is indicated by the log of 3.904435. This shows that the firms listed at the NSE are relatively old. On average the mean firm size of listed firms at the NSE is indicated by a log of 0.4418300 indicating that the firms have a fairly high asset value.

4.4 Chapter Summary

This chapter presented information on pre-estimation diagnostics. These include normality test, reliability test, reliability test, test for linearity, Bartlett's test for internal consistency and multicollinearity test. The chapter also gave results of analysis tests run on the data that was collected. These include descriptive statistics. Results were indicated by standard deviations, mean scores, minimum scores and maximum scores.

CHAPTER FIVE: TESTS OF HYPOTHESES AND DISCUSSION

5.1 Introduction

This section presents the hypotheses of the study, which are derived from the research objectives and the results of the hypothesized relationships. This study was informed by the premise that there exists a correlation between FCF and financial performance and that this relationship is intervened by agency costs and is moderated by firm characteristics.

5.2 Correlation Analysis

The relationship between strength and direction of the variables' relationship was investigated using the Pearson Product Moment correlation coefficient. This was significant so as to assess whether any relationship exists between the variables before proceeding with further analyses. The study employed the following classification: strong if 0.7 and above; moderate if 0.4 but less than 0.7 and weak if 0 and less than 0.4.

Apart from analysing the direction and strength of association, correlation analysis was also used to test the presence of multicollinearity between the independent variables. Multicollinearity exists if independent variables are highly correlated (r = or greater than 0.75). Multicollinearity reduces the importance of predictors, making it difficult to assess the individual importance of a predictor. Multicollinearity may lead to poor regression modelling (Dancey & Reidy, 2011). The results in Table 5.1 below show that there is no multicollinearity since all the predictor coefficient results are below 0.75.

Table 5.1: Pearson Product-Moment Correlations among the Dependent, Independent, Intervening and Moderating Variables

		Firm performance	Free cash flows	Agency costs	Firm size	Firm age
	Firm performance	1	0.702**	0.519**	0.405**	0.126
Pearson	**Free cashflows**		1	0.129*	0.135*	0.245**
Correlation	**Agency costs**			1	0.198	0.322**
	Firm size				1	0.418**
	Firm age					1

Source: Researcher, (2018)

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

As indicated in Table 5.1 above, there is a strong positive correlation between financial performance and FCF (r = 0.702). On the other hand, the correlation between financial performance and firm size and with agency costs is moderate and positive (r = 0.405 and 0.519 respectively). The correlation with firm age is weak but positive (r = 0.126). All the correlations were significant at 0.05 except firm age. The relationships between financial performance and FCF, agency costs, firm size and firm age moved in the same direction as hypothesized in the study. These variables were further assessed using regression analysis as shown in section 5.3 below.

5.3 Hypotheses Testing Using Regression Analysis

In order to establish these relationships, four hypotheses were formulated and tested. For purposes of testing the hypotheses, different regression models were run. First, finding out the correlation between FCF and financial performance; secondly, tests to determine the intervening effect of agency costs on the correlation between FCF and financial performance; thirdly, tests were carried out to establish the moderating effect of firm characteristics on the relationship between FCF and financial performance; and lastly, to find out the joint effect of FCF, agency costs and firm characteristics on financial performance of NSE listed firms.

In order to ascertain these relationships, the hypotheses were formulated and tested using simple and multiple linear regression analyses. The hypotheses were tested at 95 percent confidence level ($\acute{\alpha} = 0.05$), while p-values were used to establish individual significance of the hypothesized relationships. The significance and general robustness of the model was assessed using F statistic and p-values for significance. Overall, F statistic value greater than 1 signifies goodness of fit. P-values greater than or equal to 0.05 indicated that we would fail to reject the null hypothesis while those with p-values less than 0.05 signified that the null hypothesis would be rejected. ANOVA and panel data analyses results have been presented and discussed below.

5.3.1 Free Cash Flows and Financial Performance

The study sought to determine the effect of FCF on financial performance and it employed panel data design. Panel data was used in establishing financial performance, which was measured by Tobin's Q (equity market value/ equity book value). FCF on the other hand was measured as Net income + depreciation and amortization - CAPEX - change in non-cash working capital + net borrowing)/Net sales. The study sought to identify the effect of FCF on firm financial performance. The following hypothesis was developed:

H_{01}: FCF have no significant effect on financial performance of firms listed at the NSE.

Maximum likelihood regression model was employed in data analysis. The test statistics regression results with financial performance as the dependent variable and FCF as the independent variable are reported in Table 5.2(a) below:

Table 5.2: Panel Data Results for Free Cash Flows and Financial Performance

Model Summary

Model	R	R^2	Adjusted R^2	Standard Error
1	0.4890	0.2391	0.2106	0.2258

a. Predictors: (Constant), Free cash flows

b. Dependent Variable: Financial performance

(a) ANOVA

Model	Sum of Squares	DF	Mean Square	F	Sig
Regression	2.689	1	2.689	5.376	0.017
Residual	32.483	599	0.054		
Total	35.172	600			

a. Predictors: (Constant), Free Cash Flows

b. Dependent variable: Financial performance

(c) Regression Co-efficients

Model	Unstandardized Coefficients		Standard Coefficients	t	Sig
	B	Standard Error	Beta		
Constant	0.48011	0.011662	0.20	7.229	0.000
FCF	0.206	0.0254	0.265	5.4238	0.0023

Dependent variable: Financial performance

The model coefficients are shown in Table 5.2(c) above. The results indicate that FCF is a significant predictor, because the p value is 0.0023 which is lower than 0.05 (level of significance). Furthermore, results indicate R^2 of 0.2391 which implies that FCF explain 23.91% of the variability in firm financial performance. The results have rejected the null hypothesis implying that FCF have a statistically significant positive effect on financial performance of firms listed at the NSE. The regression model that explains the variation in financial performance as a consequence of FCF is as shown below:

$\bar{Q}_{it} = 0.48011 + 0.206FCF_{it}$

Where:

$\bar{Q}$ = Firm financial performance

FCF =Free cash flows

5.3.2 Free Cash Flows, Agency Costs and Financial Performance

This study sought to ascertain the effect of agency costs on the relationship between FCF and financial performance. The corresponding hypothesis is:

Hypothesis 2: Agency costs have no significant intervening effect on the relationship between free cash flows and financial performance of firms listed at the Nairobi Securities Exchange.

The study employed secondary panel data in determining the results under this hypothesis. Secondary data was obtained from financial statements and measured agency costs using asset utilization efficiency (sales/assets) and production cost efficiency (operating expenses/sales). The values were obtained separately (AUE and PCE) and added together, then divided by two to obtain agency costs (AC).

In testing for mediation/ intervention, first, the relationship between the dependent variable (financial performance) and the independent variable (FCF) was carried out, ignoring the intervening variable (agency costs-AC). This was step number 1 and is similar to the regressions performed under hypothesis one under section 5.2. The model should indicate significance, where $p = <0.05$.

Next, is the regression analysis between FCF (the independent variable) and agency costs (AC) which is a combination of production cost efficiency and asset utilization efficiency as intervening variable, ignoring the financial performance (the dependent variable). The FCF and AC relationship should be significant (p=<0.05) if one is to move to step 3. Under step 3, the regression analysis is done with financial performance as the dependent variable and both AC and FCF as independent variables. Regression results for step 1 are same as shown in Table 5.1 earlier: Results from step 1 shown in Table 5.1 indicate the p value of 0.0023 and is therefore significant. The regression model is specified as: $\bar{Q}_{it}$ = 0.48011 + 0.206FCF_{it}. This necessitates moving to step 2, the results of which are depicted in Table 5.3 below:

Table 5.3: Panel Data Results of Agency Costs as the Dependent Variable and Free Cash flows as the Independent Variable

a) Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.3356	0.1126	0.0958	0.2290

a. Predictors: (Constant), FCF

b. Dependent Variable: Agency costs (AC)

b) ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
Regression	6.881	1	6.881	0.59	46.181	0.053
Residual	89.226	599	0.149	0.43		
Total	96.107	600				

.a. Predictors: (Constant), FCF

b. Dependent Variable: Agency costs (AC)

c. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.117	.03042		3.840	.023
	FCF	.083	.0137	.265	2.772	.048

a. Dependent Variable: Total Non-Performance

Results in Table 5.3(c) above indicate that FCF is a significant predictor of AC as shown by Sig = <0.05. Table 5.3(a) above shows R square of 0.1126 which implies that 11.26% variations in AC are explained by changes in FCF. The regression model for the relationship between FCF and AC ignoring financial performance is given below:

AC = 0.117 + 0.083FCF

Since the relationship between FCF and AC is significant (as depicted by Sig. = 0.048), we can now move to step 3; where financial performance is the dependent variable, while FCF and AC are predictor variables. The results of step 3 are displayed in Table 5.4 below:

Table 5.4: Panel Data Results of Financial Performance as the Dependent Variable while Agency Costs and Free Cash flows are the Independent Variables

a. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.7157	0.5122	0.4613	0.2288

a. Predictors: (Constant), AC, FCF

b. Dependent Variable: Financial Performance

a. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.725	2	7.3625	62.606	0.000
	Residual	106.258	598	0.1776		
	Total	120.983	600			

a. Predictors: (Constant), AC, FCF

b. Dependent Variable: Financial Performance

c. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.187	.0342		4.4409	.021
	FCF	.211	.0179	.227	1.3380	.071
	AC	.148	.042	.282	6.2376	.015

a. Predictors: (Constant), AC, FCF

b. Dependent Variable: Financial Performance

The findings in Table 5.4 above indicate that financial performance is significantly predicted by AC (p =0.015 which is <0.05). On the contrary, FCF does not significantly predict financial performance. This is depicted by (p = 0.071 which is >0.05). From the regression results above, Adjusted R squared changed from 0.2106 to 0.4613 showing a significant increase in the relationship between FCF and financial performance.

This change is attributed to the intervening variable's effect. It is therefore concluded that agency costs (AC) have a positive statistically significant intervening effect on the relationship between FCF and financial performance. The null hypothesis that Agency costs have no significant intervening effect on the relationship between free cash flows and financial performance of firms listed at the Nairobi Securities Exchange is therefore rejected. The resultant regression model is as shown below:

$\bar{Q}_{it} = 0.187 + 0.148AC_{it} + 0.211FCF_{it}$

5.3.3 Free Cash Flows, Firm Characteristics and Financial Performance

This study sought to identify the effect of firm characteristics on the relationship between FCF and financial performance. The corresponding hypothesis is:

Hypothesis 3: Firm characteristics have no significant moderating effect on the relationship between free cash flows and financial performance of firms listed at the Nairobi securities exchange

The study employed secondary panel data in determining the results under this hypothesis. Since firm characteristics (age and size) are additive, each one of them was tested separately. Therefore, under this hypothesis, two sub-hypotheses were developed as follows:

H_{03a}: Firm age has no significant moderating effect on the relationship between free cash flows and financial performance of firms listed at the Nairobi securities exchange.

H_{03b}: Firm size has no significant moderating effect on the relationship between free cash flows and financial performance of firms listed at the Nairobi securities exchange.

Secondary data was obtained from financial statements and measured firm characteristics using firm size and age of the firm. Firm size was measured using the natural log of total assets while age of the firm was measured using the natural log of number of years since incorporation. The moderating effect of firm size and firm age on the relationship between FCF and firm financial performance was assessed using the centered approach as by Wu and Zumbo (2008).

This involves the following steps. Step 1 involves the independent variables and the moderator variables being regressed against firm financial performance. Step 2 on the other hand entails introduction of the centered approach in the model with the predictor variable, moderating variable and the interaction term being factored into the model. The regression results are shown in Table 5.5 below:

Table 5.5: Panel Data Results for Financial Performance as the Dependent Variable and FCF and Firm Age as the Predictor Variables

a. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.5894	0.3474	0.3109	1.573

a. Predictors: (Constant), FAGE_CENTRED, FCF_CENTRED

b. Dependent Variable: Financial Performance

b. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.1189	2	2.5594	85.31	0.000
	Residual	20.440	598	0.03		
	Total	25.5589	600			

a. Predictors: (Constant), FAGE_CENTRED, FCF_CENTRED

b. Dependent Variable: Financial Performance

c. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.041	.11662		2.8109	0.044
	FCF	.1306	.0144	.088	4.4238	0.023
	AGE	.201	.02607	.353	6.120	0.002

a. Dependent Variable: Financial Performance

Results in Table 5.5(a) above show R^2 of 0.3474 and Adjusted R^2 of 0.3109. Table 5.5(c) above shows the coefficients of FCF and AGE as 0.1306 and 0.201 respectively. The p values for FCF and AGE are 0.023 and 0.002 respectively, indicating statistical significance because each of them is less than 0.05. Results for Step 2 are displayed in Table 5.6 below, where the interaction term is introduced.

Table 5.6: Panel Data Results for Financial Performance as the Dependent Variable and FCF and Firm Age as the Predictor Variables, Centered Approach

a. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.6825	0.46580	0.42170	0.41054

a. Predictors: (Constant), FCF_FAGE_CENTRED, FAGE_CENTRED, FCF_CENTRED

b. Dependent Variable: Financial Performance

b. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.034	3	4.01130	29.957	0.000
	Residual	79.950	597	0.1339		
	Total	91.984	600			

a. Predictors: (Constant), FCF_FAGE_CENTRED, FAGE_CENTRED, FCF_CENTRED

b. Dependent Variable: Financial Performance

c. Coefficients

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.065	0.0245		4.1263	0.001
	FCF_CENTRED	0.207	0.0014	0.293	7.4638	0.000
	AGE_CENTRED	0.094	0.091	0.351	1.986	0.047
	FAGE_CENTRED	0.045	0.02	0.0204	2.230	0.027

a. Predictors: (Constant), FCF_FAGE_CENTRED, FAGE_CENTRED, FCF_CENTRED

b. Dependent Variable: Financial Performance

Results from Table 5.6 above shows R squared change from 0.3109 to 0.42170 which is a change of 0.1108 (11.08% change) which is occasioned by the interaction term. This is also confirmed by the p values which are all less than 0.05 meaning that firm age

positively and significantly moderates the relationship between FCF and financial performance. The regression model for moderation effect of firm age is as shown below:

$$\bar{Q}_{it} = 0.65 + 0.207FCF_{it} + 0.094AGE_{it} + 0.045FAGE_{it}$$

Table 5.7: Panel Data Results for Financial Performance as the Dependent Variable and FCF and Firm Size as the Predictor Variables

a. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.6481	0.4200	0.3902	0.3198

a. Predictors: (Constant), SIZE, FCF

b. Dependent Variable: Financial performance

b. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.447	2	4.224	120.685	0.0000
	Residual	21.456	598	0.035		
	Total	29.903	600			

a. Dependent variable: Financial performance

c. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.09	0.02109		5.3270	0.0014
	FCF	0.107	0.03104	0.178	7.4238	0.0000
	SIZE	0.223	0.09100	1.444	1.9860	0.0470

a. Dependent Variable: Financial Performance

Results in Table 5.7(a) above show R^2 of 0.4200 and Adjusted R^2 of 0.3902. Table 5.7(c) above shows the coefficients of FCF and SIZE as 0.107 and 0.223 respectively. The p values for FCF and SIZE are 0.000 and 0.047 respectively, indicating statistical significance because each of them is less than 0.05. Results for Step 2 are displayed in Table 5.8 below, where the interaction term is introduced.

Table 5.8: Panel Data Results for Financial Performance as the Dependent Variable and FCF and Firm Size as the Predictor Variables, Centered Approach
a. Model Summary

Model	R	R Square	Adjusted R^2	Std. Error of the Estimate
1	0.7853	0.6167	0.5654	0.2208

a. Predictors: (Constant), FCF_CENTRED, SIZE_CENTRED, FSIZE_CENTRED

b. Dependent Variable: Financial Performance

b. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.138	1	3.138	17.119	0.0011
	Residual	109.846	599	0.1833		
	Total	112.984	600			

a. Predictors: (Constant), FCF_CENTRED, FCF_FSIZE_CENTRED, FSIZE_CENTRED

b. Dependent Variable: Financial Performance

c. Coefficients

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.144	0.0245		4.826	0.021
	SIZE_CENTRED	0.048	0.0140	0.392	2.586	0.041
	FCF_CENTRED	0.155	0.0140	0.132	3.938	0.003
	FSIZE_CENTRED	0.227	0.0327	0.472	2.679	0.0981

a. Dependent Variable: Financial Performance

Results from Table 5.8 above shows R squared change from 0.3902 to 0.5654 which is a change of 0.1752 (17.52% change) which is occasioned by the interaction term. This is also confirmed by the p values which are all less than 0.05 meaning that firm size moderates the relationship between FCF and financial performance. The regression model for moderation effect of firm size is as shown below:

$\bar{Q}_{it} = 0.144 + 0.155FCF_{it} + 0.048SIZ_{it} + 0.227FSIZE_{it}$

The moderating effect was established as in Stone-Romero and Liakhovitski (2002) which involves assessing the effects on the dependent variable (non-financial performance) of the moderating variables (firm size and age) and dependent variable (FCF). Regression results with non-financial performance as the dependent variable, firm characteristics (firm size and age) and FCF as predictors as shown below.

5.3.4 Free Cash Flows, Agency Costs, Firm Characteristics and Financial Performance

This study sought to establish the joint effect of FCF, agency costs and firm characteristics on firm performance. The corresponding hypothesis is as follows:

Hypothesis 4: There is no joint effect of free cash flows, agency costs and financial characteristics on performance of firms listed at the Nairobi Securities Exchange

Secondary data was obtained from financial statements. The independent variable is FCF; intervening variable is agency costs (AC). The moderating variable is firm characteristics which are firm size and age of the firm. Financial performance was measured using Tobin's Q and is the dependent variable. Panel data results are presented in table 5.9 below:

Table 5.9: Panel Data Results for Free Cash Flows, Agency Costs, Firm Characteristics and Financial Performance

a. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.8780	0.7708	0.6645	0.5432

a. Predictors: (Constant), FCF, AC, Firm Size, Firm Age

b. Dependent variable: Financial performance

b. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.708	2	3.854	22.807	0.012
	Residual	101.336	598	0.169		
	Total	7.934	600			

a. Predictors: (Constant), FCF, AC, Firm Size and Firm Age

b. Dependent Variable: Financial Performance

c. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.65	0.011		3.826	0.033
	FCF	0.144	0.024	0.081	4.938	0.020
	Age	0.107	0.027	0.150	1.233	0.074
	Size	0.231	0.069	0.102	6.586	0.010
	AC	0.314	0.034	0.259	2.901	0.032

a. Predictors: (Constant), FCF, AC, Firm Size and Firm Age

b. Dependent Variable: Financial Performance

From the panel study results, the intercept (constant) is 0.065 with a statistically significant p-value of 0.033. FCF have a coefficient value of 0.144 with a p-value of 0.02 which is significant. The findings indicate that FCF still have positive effect on the performance of the listed firms and the effect is still significant even when control variables are introduced in the model. The effect of agency costs is also positive and significant at p value 0.032. Firm size shows a positive and significant joint effect (p value is 0.01) while age has a positive effect but the effect is not significant (p value is 0.074). The R^2 is 0.7708 indicating that 77.08% of changes in financial performance are accounted by the joint effect of FCF, AC and firm characteristics (size and age).

Overall, the joint effect of FCF, agency costs and firm characteristics on performance of firms listed at NSE indicates a positive significant relationship. The null hypothesis is therefore rejected. There is a significant joint effect of FCF, agency costs and firm characteristics on performance of firms listed at the NSE. The regression model that explains the variation in firm performance as a result of the joint effect of FCF, agency costs and firm characteristics is shown below:

$$\bar{Q}_{it} = 0.65 + 0.144FCF_{it} + 0.314AC_{it} + 0.231SIZ_{it} + 0.107AGE_{it}$$

Where: $\bar{Q}_{it}$ = Financial performance

FCF= Free Cash flows

AC = Agency Costs (AC)

SIZ = Firm Size

AGE = Firm Age

5.4 Discussion

The study had four hypotheses with hypothesis 3 having two sub hypotheses, one focusing on firm age and the other on firm size. The results under each objective are discussed here-below.

5.4.1 The Influence of Free Cash Flows on Financial Performance

The first objective of the study was to establish the influence of FCF on the performance of firms listed at the NSE. This was achieved through analyzing the audited financial statements of the listed companies (panel data).

The results indicate that there is a significant positive relationship between FCF and firm performance. The findings for the influence of FCF on financial performance showed a statistically significant positive relationship. These results are consistent with other studies on FCF and firm performance. For instance, Kargar and Ahmadi (2013) found a positive relationship between FCF and performance of firms listed at the Tehran stock exchange. Similarly, Gregory (2005) established that the greater the FCF, the better the performance in merger undertakings. Szewczyk et al. (1996) and Chang et al. (2007) concluded that shareholders favour businesses that have FCF.

In his study on the effects of agency costs on performance of firms listed at the NSE, Wambua (2013) also found a positive relationship between FCF and firm performance. The findings show that increasing FCF disposes more resources to firm managers who then deploy the resources towards generating more revenues and profits for the firm.

The findings are inconsistent with the FCF hypothesis postulated by Jensen (1986) which suggests that agency conflicts between firm managers and shareholders become more severe in the presence of substantial FCF, thereby negatively affecting firm performance. Furthermore, these findings reject the agency theory which was proposed by Jensen and Meckling (1976). The agency theory is based on the premise that the goal of firm managers is to maximize their personal wealth and other self-interests instead of maximizing the wealth of shareholders.

On the contrary, the findings seem to support the stakeholder theory which advances that firm management has a network of relationships and therefore corporate accountability

includes a broad range of stakeholders such as suppliers, business associates, financial institutions, the government, customers, among others. Similarly, the findings are consistent with the stewardship theory. The theory emphasizes the role of firm managers as being that of stewards who integrate their goals as part of the firm's goals.

5.4.2 The Influence of Agency Costs on the Relationship between Free Cash Flows and Financial Performance

The second objective was to assess the influence of agency costs on the relationship between FCF and financial performance of firms listed at the NSE. The study hypothesized that agency costs have no significant intervening effect on the relationship between FCF and performance of firms listed at the NSE. The assessment of agency costs, FCF and financial performance was achieved by reviewing financial statements of companies listed at the NSE. The results indicate a statistically significant positive intervening effect of agency costs on the relationship between FCF and financial performance.

The results reveal that agency cost measure is positive and significantly associated with firm performance. This can be attributed to the role of internal control system in reducing agency costs associated with residual loss due to suboptimal managerial actions. These findings are supported by Kangarluei, Motavassel, and Abdollahi (2011) and Khidmat and Rehman (2014) who established a statistically significant positive effect of agency costs on the relationship between FCF and firm performance.

Similarly, Lin and Lin (2014) found a positive statistically significant effect of agency costs on the relationship between FCF and firm performance in the Australian takeover market. These findings are contrary to the argument that substantial FCF increases agency costs which subsequently affects firm performance negatively. The FCF hypothesis and the agency theory are therefore not supported by the findings. On the contrary, the stakeholder theory and the stewardship theory are supported by the results.

5.4.3 The Influence of Firm Characteristics on the Relationship between Free Cash Flows and Financial Performance

The third objective of the study was to determine the moderating effect of firm characteristics on the relationship between FCF and performance of firms listed at the NSE. The firm characteristics evaluated were firm size and age of the firm. An assessment of audited financial statements was carried out to measure FCF, firm characteristics (firm size and age of the firm) and firm financial performance.

Results indicate firm size exhibiting a statistically significant positive moderating effect on the relationship between FCF and firm financial performance. Similarly, firm age shows a positive moderating effect on the relationship between FCF and firm financial performance, and the effect is also statistically significant. The positive effect of firm size confirms the results of the study conducted by Nyamweno and Olweny (2014) which found firm size to be positively related to ROA. This indicates that larger firms report higher financial performance as compared to smaller firms. Abbasi and Malik (2015) clarified the relationship between firm size and financial performance by concluding that

larger firms had higher likelihoods of obtaining credit from financial institutions and would get loans at lower rates because they have superior credit worth ratings and have lower risk of bankruptcy.

Heydari et al. (2014) argue that firm characteristics such as firm age and size can expose a firm to more agency costs related to management and growth prospects thus depressing the effect of FCF on firm performance. This result can be viewed from the perspective of liability of obsolescence in which organizational performance declines with age.

The decline can be attributed to environmental drift, resulting from rivalry and competition and organizational inertia, the syndrome of too big or too old to change. Liabilities of obsolescence arise from growing external mismatch with the environment. The results indicate positive effects of firm characteristics on the relationship between FCF and firm financial performance. The results in this study support the RBV theory which is concerned with internal firm specific factors and their effect on performance. The RBV theory views the firm as a bundle of resources which are combined to create organizational capabilities that it can use to earn more than average profitability. If well developed, competences from these resources become a source of competitive advantage (Grant, 1991).

5.4.4 The Joint Effect of Free Cash Flows, Agency Costs and Firm Characteristics on Financial Performance

The last objective of the study was to establish the joint effect of FCF, agency costs and firm characteristics on financial performance of firms listed at the NSE. Financial performance was measured by Tobin's Q. Firm characteristics that were considered in the study were firm size and age of the firm. Panel data results indicate that there is a positive statistically significant joint effect of FCF, agency costs and firm characteristics on firm performance. These findings support results by Chen et al. (2016) who conclude that large firms which have been in existence for a long time tend to have structures in place to reduce agency costs.

The findings are also similar to Wang (2010) who concluded that there exists a positive joint effect of firm size, FCF and agency cost on firm performance. Results of the study by Jabbary, Hajiha, Labeshka and Hassanpour (2013) are confirmed by these findings which reveal that FCF have a positive significant effect on firm performance even with the inclusion of control variables of agency costs and firm characteristics. All the agency cost coefficients indicate statistically significant positive effects.

Emami et al. (2014) observe that internal control systems provide an overarching framework that reduces agency costs; and hence, positively affecting firm performance. These findings are also similar to Dawar (2014) who established that firm monitoring costs impact positively on firm performance. In testing financial performance, firm size had a coefficient of 0.231 and p-value of 0.01 when jointly tested with other variables,

indicating that firm size has a positive effect on firm performance even with control variables introduced.

These findings are supported by Banafa (2016) who concluded that firm size affects performance of firms significantly, albeit with small effect when moderated by other variables. In testing financial performance, firm age revealed a positive but not statistically significant effect with a coefficient of 0.107 and a p-value of 0.074. These results contradict with Brouwe et al. (2005), who concluded that productivity growth rates are negatively correlated with firm age.

Overall, the joint effect of FCF, agency costs and firm characteristics on performance of firms listed at NSE indicates a positive significant relationship. We therefore reject the null hypothesis which states that there is no significant joint effect of free cash flows, agency costs and firm characteristics on financial performance of firms listed at the NSE.

These results have rejected the FCF hypothesis and the agency theory. This is because FCF, firm characteristics and agency costs have indicated a positive joint effect on firm performance. On the other hand, the stewardship theory, the stakeholder theory and the RBV theory seem to be supported by the findings. The organisational theory which explains firm size in relation to profitability as well as organizational transaction costs, agency costs and span of control also seems to be supported by the findings of this study.

Table 5.10: Summary of Tests of Hypotheses, Results and Conclusions

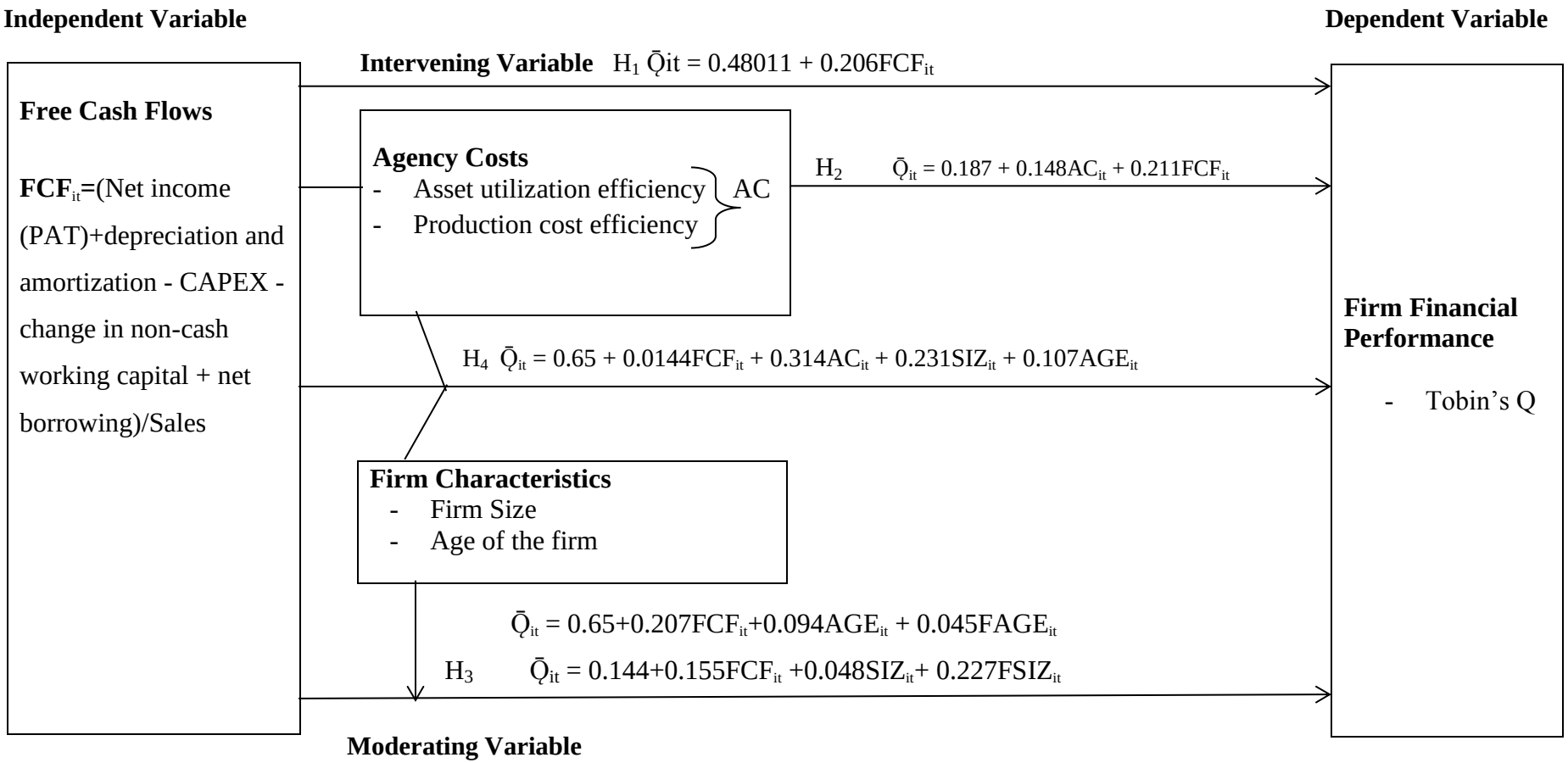
Hypothesis	**R^2**	**(p-value)**	**Conclusion**
H_{01}: FCF have no significant effect on financial performance of firms listed at the NSE	0.2391	0.0023	Null Hypothesis rejected
H_2: Agency costs (AC) have no significant intervening effect on the relationship between FCF and financial performance of firms listed at the NSE	0.5122	0.031	Null Hypothesis rejected
H_{03a}: Firm age has no significant moderating effect on the relationship between FCF and financial performance of firms listed at the NSE	0.4658	0.047	Null Hypothesis rejected
H_{03b}: Firm size has no significant moderating effect on the relationship between FCF and financial performance of firms listed at the NSE	0.6167	0.041	Null Hypothesis rejected
H_{04}: There is no joint effect of FCF, agency costs and firm characteristics on financial performance of firms listed at the NSE	0.7708	0.033	Null Hypothesis rejected

5.5 Summary and Presentation of Empirical Models

The chapter presented the study results from analytical tests conducted to verify the study hypotheses. The findings of the statistical analyses carried out were presented and interpreted. The study established that FCF have a statistically significant positive effect on financial performance. This relationship is intervened by agency costs and moderated by firm characteristics.

Agency costs have a statistically significant positive intervening effect on the relationship between FCF and financial performance. On the other hand, firm characteristics have a statistically significant negative moderating effect on the relationship between FCF and firm financial performance. Finally, the study established that there is a joint effect of FCF, agency costs and firm characteristics on financial performance of firms listed at the NSE. The joint effect is positive and statistically significant. The empirical conceptual model depicting the relationships between the variables is presented in figure 5.1 below:

Figure 5.1: Revised Empirical Model – Financial Performance



Source: Researcher (2018)

CHAPTER SIX: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This study investigated the relationship between FCF, agency costs, firm characteristics and financial performance of firms listed at the NSE. The independent variable is FCF while agency costs are intervening variables and firm characteristics are moderating variables. Financial performance is the dependent variable. The chapter has summarized the findings of the study and made conclusions upon which recommendations are drawn. Discussions, conclusions and recommendations have been presented. These have been discussed in light of other studies that have investigated the same or similar variables in other settings. The chapter ends with the study implications to theory, policy and practice; and, recommendations for further research.

The study had four objectives upon which conclusions are aligned to. The objectives were: first, to stablish the relationship between free cash flows and financial performance of firms listed at the NSE; second, to assess the influence of agency costs on the relationship between free cash flows and financial performance of firms listed at the NSE; third, to determine the influence of firm characteristics on the relationship between free cash flows and financial performance of firms listed at the NSE; and lastly, to establish the joint effect of free cash flows, agency costs and firm characteristics on financial performance of firms listed at the NSE.

6.2 Summary of Findings

This study was founded on the premise that FCF have an influence on financial performance, and that the relationship between the two is intervened by agency costs and moderated by firm characteristics. A conceptual framework was therefore developed and the study empirically tested hypotheses which were guided by the study objectives. The first objective of the study was set to find out the relationship between FCF and performance of firms listed at NSE. The findings reveal that FCF have a statistically significant positive effect on performance of firms listed at the NSE.

This finding is supported by the coefficient of determination of 0.2391 which indicates the variations in firms' financial performance (explanatory variable) explained by FCF (predictor variable). The effect of FCF was established to be statistically significant and therefore the null hypothesis was rejected. Therefore, we reject the null hypothesis that FCF have no statistically significant effect on performance of firms listed at the NSE.

The results are inconsistent with the FCF hypothesis advanced by Jensen (1986) which proposes that agency conflicts between firm managers and shareholders become more severe in the presence of substantial FCF, thereby negatively affecting financial performance. Additionally, these findings reject the agency theory which was suggested by Jensen and Meckling (1976). These results are consistent with Wambua (2013) who found a positive relationship between FCF and firm performance. The findings imply that increasing FCF avails more resources to firm managers who utilize the funds in generating more wealth.

The second objective of the study sought to assess the influence of agency costs on the relationship between FCF and financial performance of firms listed at the NSE. The findings indicate that agency costs have a positive statistically significant intervening effect on the relationship between FCF and financial performance of firms listed at the NSE. Thus the study rejected the null hypothesis which states that agency costs have no significant intervening effect on the relationship between FCF and financial performance of firms listed at NSE.

These findings support Lin and Lin (2014) who found a positive statistically significant effect of agency costs on the relationship between FCF and firm performance in the Australian takeover market. These findings are contrary to the FCF hypothesis suggested by Jensen (1986) and the agency theory postulated by Jensen and Meckling (1976). However, the stakeholder theory advanced by Freeman (1984) and the stewardship theory developed by Donaldson and Davis (1991) seem to be supported by the findings.

The third objective of the study sought to establish the influence of firm characteristics on the relationship between FCF and financial performance of firms listed at the NSE. Results indicate that firm characteristics (both firm size and age) have a positive significant moderating effect on the relationship between FCF and financial performance of firms listed at the NSE. These findings contradict Heydari et al. (2014) who argue that firm characteristics such as firm age and size can expose a firm to more agency costs related to management and growth prospects thus depressing the effect of FCF on firm performance.

The fourth and final hypothesis sought to establish the joint effect of FCF, agency costs and firm characteristics on financial performance of firms listed at the NSE. Results show positive coefficients for all the variables, which means that as FCF, agency costs and firm characteristics jointly increase, performance of the NSE listed firms also increases. Firm characteristics show a positive statistically significant joint effect on firm financial performance and also FCF and agency costs show a positive statistically significant joint effect on firm financial performance. The results have rejected the FCF hypothesis and the agency theory. On the other hand, the results seem to support the stewardship theory, the stakeholder, RBV theory and the organisational theory.

6.3 Conclusions

Based on the findings of the study, FCF is fundamental to firm performance because it allows firms to invest and grow, thereby improving performance. Firms should strive to increase FCF since it has a statistically significant positive effect on financial performance. Similarly, firms should invest more in firm monitoring which; according to the findings in this study, the benefits derived from investing in firm monitoring (improved firm performance) outweigh the agency costs of investing therein (in firm monitoring). This study has found no evidence supporting the FCF hypothesis as suggested by Jensen (1986), and therefore firms listed at the NSE are not consistent with the FCF hypothesis.

Consistent with these findings, Nyamweno and Olweny (2014) found firm size to be positively related to financial performance. Similarly, Dawar (2014) found that firm

monitoring costs impact positively on financial performance. Conflicting with literature (Kwanum & Lorpev, 2012), firm age indicated a positive effect on the relationship between FCF and firm financial performance. However, the findings of this study are consistent with Banafa (2016) who concluded that firm size affects firm performance significantly when moderated by other variables. It is therefore confirmed that there exists a strong relationship between FCF, agency costs, firm characteristics and financial performance of firms listed at the NSE.

6.4 Contributions of the Study

The study has contributed to knowledge in the areas of FCF and the agency problem, firm characteristics and firm performance. More specifically, the study has contributed to theory, policy and practice.

6.4.1 Contribution to Theory

The results of this study have to a large extent rejected the FCF hypothesis advanced by Jensen (1986) and the agency theory advanced by Jensen and Meckling (1976) which postulate that when a firm has generated significant FCF and there are no lucrative investment projects available, managers tend to abuse the FCF, which results in increased agency costs. The study results have therefore given credence to the critics of the FCF hypothesis and agency theory who argue that the theories foster short-termism by not favouring investments that have long run returns. Furthermore, the findings support the argument that even in conditions of greatly specific assets where the likelihood of opportunism is very high, there are people who will give precedence to cooperation and trust and will not engage in opportunistic behavior.

The study findings have also given credibility to the stewardship theory postulated by Donaldson and Davis (1991) which emphasizes the role of firm managers as being stewards; incorporating their objectives as part of the firm. As stewards, they are contented and encouraged when success of the firm is achieved. Agency costs have shown a positive intervening effect on the relationship between FCF and firm performance. This finding gives credibility to firm monitoring through CG which seems to have achieved the objective of aligning the interests of firm managers and shareholders. The study findings also imply that firm capabilities and firm characteristics complement the effects of agency costs on performance.

The inclusion of firm characteristics as a moderating variable provided an opportunity to test the RBV and organizational theories by providing empirical evidence about how the specific firm characteristics (size and age) affect firm performance. This study adopted two measures of agency costs. This measurement approach has enabled the study to offer a stronger and more robust assessment of the linkages between the study variables.

6.4.2 Contribution to Policy

The Kenyan context is characterized by calls for effective CG particularly for public limited liability firms (Okiro, 2014). These study findings have refuted the FCF hypothesis by revealing a positive relationship between FCF and firm performance as intervened by agency costs. This is an indication that investing in firm monitoring is yielding positive results. Adopting good CG mechanisms (firm monitoring which form

part of agency costs) is an effective way of improving firm performance. Firms should endeavor to strengthen their monitoring mechanisms so as to increase performance.

Improving CG entails having an optimal number of board of directors; enhancing board independence; making full disclosure of shareholding and director' remuneration. Policy makers will therefore maintain CG calls and strive to strengthen and continue developing policies, regulations and prudential guidelines that protect and strengthen shareholders.

6.4.3 Contribution to Practice

The study findings have shown the fundamental importance of firms generating FCF and strengthening firm monitoring. The joint effect of FCF, agency costs and firm characteristics on firm performance has yielded a positive relationship. Firm managers, investors and other practitioners will therefore put more emphasis on the need for firms to generate FCF and to enhance firm monitoring.

Cash flows from operating activities, financing activities and investment activities will be more keenly analyzed with a view to achieve greater efficiency. This study has also delineated FCF from agency costs; unlike studies such as Jensen (1986) which generally regard FCF as agency costs. This gives firm managers, investors and other practitioners a better understanding of the variables and their linkages, which will enhance effectiveness and efficiency in firm operations.

6.5 Limitations of the Study

The study focused on firms listed at the NSE which operate in a unique environment. Unique factors such as regulatory environment, culture and demographics limit the generalizability of the study results to other countries or markets. However, this limitation does not render the study findings applicable to NSE listed firms only. Some aspects could be relevant to other markets.

Secondly, the major theoretical motivations underlying this study are the FCF hypothesis and the agency theory. Traditionally, the board of directors keenly monitors decision makers who tend to divert resources to their own personal interests. The findings support this view and offer evidence that proper firm monitoring mechanisms yield higher firm performance. A probable limitation of the study is that it does not integrate other CG mechanisms, such as influencing managers' actions through an advisory role.

Thirdly, the study disregards practices other than board monitoring that may serve to lessen agency costs. Firm monitoring costs were a part of the larger agency cost variable. The omission of alternative board monitoring practices did not therefore undermine the robustness and / or the rigor of the study. Fourthly, the study used only two firm characteristics. These are firm size and age of the firm. Other firm characteristics include profitability, leverage, liquidity, sales growth among others. The study employed size and age only because they are the most commonly used in literature, and their effect on firm performance is more significant (Demsetz & Lehn, 1985 and Mule, Mukras & Nzioka, 2015).

Lastly, literature indicates at least seven proxy measures of agency costs. These are: operating expense to sales ratio, total asset turnover, advertising and R&D expense to sales ratio, administrative expense to sales ratio, earnings volatility, firm monitoring index and FCF. This study utilized only two of these measures (total asset turnover; and, operating expense to sales ratio). Agency cost measures other than the two used in this study may yield different findings. Employing only one agency cost measure may still be sufficient and therefore the omission of other measures did not undermine the robustness and / or the rigor of the study.

6.6 Recommendations of the Study

The findings have indicated that there exists a positive relationship between FCF and financial performance. The study therefore recommends that firm managers, investors and other practitioners should focus more on the need for firms to generate FCF. Positive FCF indicate that the firm is making more cash than is used to operate the firm and for reinvestment. Such excess funds can be given back to shareholders as dividends or share repurchase packages in cases where the firms have limited growth prospects and the funds could not be better invested somewhere else.

It is therefore recommended that regulators, policy makers, investors and other practitioners should emphasize on monitoring and CG mechanisms to maintain, if not, improve high firm performance. Study results indicate that proper monitoring mechanisms can bring the actions of firm managers into congruence with those of shareholders; which primarily is, to maximize the shareholders' wealth.

6.7 Suggestions for Further Research

This study used Tobin's Q in measuring financial performance. Further studies need to be conducted using ROE, ROI, ROA, DY, sales growth, market share or productivity. Secondly, the study population was all firms listed at the NSE. These firms cut across various industry sectors. Future studies could focus on specific industries such as manufacturing, financial sector, communications, agricultural or automobile industry. This is because focusing on a specific industry could yield different results that are unique for the industry.

Thirdly, this study used only two firm characteristics as moderating variables. These are firm size and age of the firm. Future studies could employ sales growth, liquidity, growth prospects, profitability, asset growth, turnover, ownership structure, dividend pay-out, profitability and access to capital markets, among others. Use of other moderating variables may yield different results.

Lastly, the study only employed two proxy measures of agency costs. Future studies should attempt to use all the suggested seven agency cost measures or the other agency cost measures not employed in this study. This could yield different results or provide more robustness and rigor in the study.

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APPENDICES

Appendix I: Firms Listed at the Nairobi Securities Exchange as at December 31, 2015

NO.	SECTOR
A	**AGRICULTURAL**
1	Eaagads Ltd
2	Kapchorua Tea Co. Ltd
3	Kakuzi Ltd
4	Limuru Tea Co. Ltd
5	Rea Vipingo Plantations Ltd
6	Sasini Ltd
7	Williamson Tea Kenya Ltd
B	**AUTOMOBILES AND ACCESSORIES**
8	Car and General (K) Ltd
9	Sameer Africa Ltd
10	Marshalls (E.A.) Ltd
C	**BANKING**
11	Barclays Bank Ltd
12	CFC Stanbic Holdings Ltd
13	I&M Holdings Ltd
14	Diamond Trust Bank Kenya Ltd
15	Housing Finance Co Ltd
16	Kenya Commercial Bank Ltd
17	National Bank of Kenya Ltd
18	NIC Bank Ltd
19	Standard Chartered Bank Ltd
20	Equity Bank Ltd
21	The Co-operative Bank of Kenya Ltd
D	**COMMERCIAL AND SERVICES**
22	Nation Media Group

23	Kenya Airways Ltd
24	Express Ltd
25	Standard Group Ltd
26	TPS Eastern Africa (Serena) Ltd
27	Hutchings Biemer Ltd
28	Uchumi Supermarket Ltd
29	Scangroup Ltd
30	Longhorn Kenya Ltd
E	**CONSTRUCTION AND ALLIED**
31	Athi River Mining
32	Bamburi Cement Ltd
33	Crown Berger Ltd
34	E.A. Cables Ltd
35	E.A. Portland Cement Ltd
F	**ENERGY AND PETROLEUM**
36	Kenol-Kobil Ltd
37	Total Kenya Ltd
	FIRM AND SECTOR
38	KenGen Ltd
39	Kenya Power & Lighting Co Ltd
40	Umeme Ltd
G	**INSURANCE**
41	Jubilee Holdings Ltd
42	Pan Africa Insurance Holdings Ltd
43	Kenya Re-Insurance Corporation Ltd
44	Liberty Kenya Holdings Ltd
45	British-American Investments Company (K) Ltd
46	CIC Insurance Group Ltd
H	**INVESTMENT**
47	Olympia Capital Holdings Ltd

48	Centum Investment Co Ltd
49	Trans-Century Ltd
50	Home Afrika Ltd
51	Kurwitu Ventures
I	**INVESTMENT SERVICES**
52	Nairobi Securities Exchange Ltd
J	**MANUFACTURING AND ALLIED**
53	B.O.C Kenya Ltd
54	British American Tobacco Kenya Ltd
55	Carbacid Investments Ltd
56	East African Breweries Ltd
57	Mumias Sugar Co. Ltd
58	Unga Group Ltd
59	Eveready East Africa Ltd
60	Kenya Orchards Ltd
61	A.Baumann CO Ltd
62	Flame Tree Group Holdings Ltd
K	**TELECOMMUNICATION AND TECHNOLOGY**
63	Safaricom Ltd

Appendix II: Data Collection Form

Firm X (Indicate Firm name accordingly)

Part A: FREE CASH FLOWS

Year	Net Income (PAT) (a)	Depreciation & Amortization (b)	CAPEX (c')	Change in non-cash working capital *(d)	Net borrowing ** (e')	Net sales*** (f)	FCF = (a + b – c - d + e) /f
2006							
2007							
2008							
2009							
2010							
2011							
2012							
2013							
2014							
2015							

* Non-cash working capital includes inventories, financial assets held to maturity, receivables and prepayments (current assets); and, payables, accrued expenses and current income tax liability (liabilities). For financial and investment firms, non-cash working capital includes prepaid lease rentals, intangible assets, deferred tax assets, retirement benefit assets and other assets (assets); and, taxation payable, dividends payable, deferred tax liabilities and retirement benefit liabilities.

**Net borrowings were determined by comparing current year and previous year long-term loans

***Net sales in case of insurance firms are the equivalent of "Net premium revenue". For commercial banks, it is "Total operating income" which is composed of net interest

income plus total non-interest income. For investment firms, it is "Income" which is comprised of rental income, dividends and interest received, and other incomes.

PART B: FINANCIAL PERFORMANCE

Year	*Equity Market Value (a)	Equity Book Value (b)	Tobin's Q = a / b
2006			
2007			
2008			
2009			
2010			
2011			
2012			
2013			
2014			
2015			

PART C: AGENCY COSTS

Year	1. Asset Utilization Efficiency (AUE)			2. Production Cost Efficiency (PCE)		
	(a) Net sales*	(b) Total assets	AUE = a/b	(c) Operating expenses	(d) Net sales	PCE=c/d
2006						
2007						
2008						
2009						
2010						
2011						
2012						
2013						
2014						
2015						

*Net sales in case of insurance firms are the equivalent of "Net premium revenue". For commercial banks, it is "Total operating income" which is composed of net interest income plus total non-interest income. For investment firms, it is "Income" which is comprised of rental income, dividends and interest received, and other incomes.

PART D: FIRM CHARACTERISTICS

	Firm Size	Firm Age
Year	(a) Natural Log of Total Assets	(b) Natural log of Age (Number of years since incorporation)
2006		
2007		
2008		
2009		
2010		
2011		
2012		
2013		
2014		
2015		

***Net sales in case of insurance firms are the equivalent of "Net premium revenue". For commercial banks, it is "Total operating income" which is composed of net interest income plus total non-interest income. For investment firms, it is "Income" which is comprised of rental income, dividends and interest received, and other incomes.