OWNERSHIP STRUCTURE, AGENCY COSTS, FIRM SIZE AND VALUE OF COMPANIES LISTED AT THE NAIROBI SECURITIES EXCHANGE

BY

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DECLARATION

I, declare that this thesis is my original work and that it has not been previously been presented in any other University for the award of a degree.

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DEDICATION

I dedicate this thesis work to my late dad, Mr Jackson Mukaria. I honour you dad, you were a great man, a peace maker and a great provider.

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You are a hero dad, rest in peace

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ABBREVIATIONS AND ACRONYMS

AC	Agency Costs
ADF	Augmented Dickey and Fuller
BP	Breusch Pagan
CEO	Chief Executive Officer
EBIT	Earnings before Interest and Tax
FGLS	Feasible Generalized Least Squares
FS	Firm Size
FO	Foreign Ownership
FV	Firm Value
GLS	Generalized Least Squares
HAC	Heteroskedasticity Autocorrelation Consistent
IE	Investment Efficiency
IO	Institutional Ownership
LM	Lagrange Multiplier
LN	Natural Logarithm
MC	Market Capitalization
MDE	Managerial Discretionary Expenses
MMC	Managerial Monitoring Costs
MO	Managerial Ownership
MM	Modigliani and Miller
NPV	Net Present Value
NSE	Nairobi Securities Exchange
PCSE	Panel Corrected Standard Errors
POLS	Pooled Ordinary Least Squares

OLS	Ordinary Least Squares
OS	Ownership Structure
REIT	Real Estate Investment Trust
ROA	Return on Assets
ROE	Return on Equity
SD&A	Selling, Distribution, and Administrative
S&P	Standard and Poor's
TA	Total Assets
TQ	Tobin's Q
TS	Total Sales
UK	United Kingdom
US	Unites States
VIF	Variance Inflation Factor
2SLS	Two Stage Least Square

ABSTRACT

When the wellbeing of managers and owners are not congruent, agency costs arise. This study intent was to explore the influence of agency costs and size of firm on the relationship between ownership structure and value of companies listed at the NSE. Specifically, the study intended to establish the relationship between ownership structure and the value of listed companies; the mediating effect of agency costs on the nexus between ownership structure and value of companies listed at the NSE; the moderating influence of firm size on the relationship between ownership structure and value of companies listed at the NSE and the joint effect of ownership structure, agency costs and firm size on value of companies at the NSE. To accomplish the stated objectives, the hypotheses formulated were: the relationship between ownership structure and value of companies listed at the NSE is not significant; the mediating effect of agency costs on the relationship between ownership structure and value of companies listed at the NSE is not significant; the moderating effect of firm size on the relationship between ownership structure and value of companies listed at the NSE is not significant; and the joint effect of ownership structure, agency costs and firm size on value of companies at the NSE is not significant. This study was anchored on agency theory that asserts the separation of ownership from management and hence occasion aspects of agency problems that affect may firm value. The study population consisted of 65 listed firms as at 31st December 2017, however adequate data of 54 firms was obtained yielding 397 firm-year observations for the period of study from 2010 to 2017. Data was collated from listed firms' annual integrated financial reports and licensed Share Registrars. The study adopted a positivist research philosophy. Diagnostics tests were undertaken to prepare the data for regression analysis. In the circumstance of violation of assumptions of the ordinary linear regression model, a recalculation of the panel corrected standard errors was undertaken or a transformed regression model-feasible generalized least squares that purges autocorrelation and/or heteroscedasticity was fitted. The findings were that managerial equity holdings had a statistically significant negative impact on entity value while institutional and foreign equity holdings reveal a positive significant effect on value of listed firms. The study found that the influence of ownership on value of firm is transmitted through the efficiency mechanisms in the utilization of managerial discretionary expenses in an entity. Managerial ownership also influences value indirectly via audits and non-executive directors monitoring mechanisms but is not the case for foreign and institutional ownership. Moreover, for varying sizes of entities, an enhancing influence subsits on the relationship between managerial ownership and value, and foreign equity holding and entity value. On the contrary, the nature of relationship between institutional holdings and entity value does not change for all levels of firm sizes. Managerial holdings and discretionary expenses have a negative link while institutional and foreign holdings and monitoring cost depict positive statistically significant joint impact on value of firm. However, firm size has a positive though not significant joint effect on value. The study expands the existing base of knowledge on ownership and value by incorporating concept of agency costs while considering Kenya listed firms context. The implication for policy and practise is to incorporate institutional and foreign ownership holdings as positive drivers of value. However, effectiveness and policy relevance of stock options compensation schemes for management should be reassessed since ownership by management negatively affect value. There is also a need to enhance existing monitoring mechanisms so as to maximize value of firm. This study was limited to listed firms in Kenya. Study extensions can probe the ownership and value relationship by targeting annual changes in ownership holdings in order to offer additional insights. Further, alternative proxies for agency costs and entity age can be integrated to offer ancillary comprehension of the link between ownership identities and value.

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

The separation of ownership and control is a governance debate subject of academia and industry that has attracted vast research interest mainly in developed markets; nevertheless it has not been conclusive (Andow & David, 2016). Shareholder value maximization is a central objective of a firm. If the welfares of managers and owners are not aligned, agency costs arise (Chen & Yu, 2012). Firm executives would in the absence of agency problems undertake investments that maximize investors' wealth. There exist a link between ownership structure and value of firm because ownership can act as a governance mechanism to align interests of managers and owners and in effect mitigate agency costs which can maximise the firm value (Kallamu, 2016). Further, ownership control can trigger active managerial monitoring to align management interest and can influence resources utilization efficiency that affect the firm cash flows and hence value (Wellalage & Locke, 2011). Meanwhile, the relationship between equities holding structure and value is influenced by entity size that affects ownership structure choice adopted by firms. To this end, Dang, Li and Yang (2017) argue that firm size generates economies of scale that can either boost firm value or magnify agency problems that can lower firm value.

Different theoretical arguments advance the nexus among firm ownership structure, agency costs and value. In this line, the agency theory championed by Jensen and Meckling (1976) assert that although equity holders strive to maximize firm value, managers might seek to pursue their own interests. Ownership structure can help to align management and shareholder interests via monitoring of managers actions and in essence can mitigate agency costs. Donaldson and Davis (1991) premise their argument on stewardship theory that firm managers act as stewards who strive to achieve maximization of firm productivity.

Further, Freeman (1984) extends the agency theory perspective of maximizing shareholders interest to all stakeholders centred on stakeholder theory while DiMaggio and Powel (1993) adopt the institutional theory which advances the legitimacy environment of formal structures that can streamline alignment of interest between managers and owner and can mitigate agency costs.

This study targets the entities listed at the Nairobi Securities Exchange (NSE). This is because the firms have separate ownership from management occasioning aspects of agency problems that affect firm value. The firms' shares are freely transferable through trading at the bourse resulting to varied ownership structures that can influence firm value (Ongore, 2011). Further, owners activate monitoring to streamline management interest and influences efficiency of resources utilization that affects the firms' cash flows. The firms exhibit diverse firm sizes which can influence ownership structure. Thus, the firms are likely to manifest distinct relationships amongst ownership structures, agency costs, firm sizes and value. The current literature in corporate finance has also nurtured an enriched understanding of firms ownership structure and agency costs and many researchers are interested in consensus of the value creation or destruction debate. Thus, motivation for this study is an attempt to reconcile scholarly findings with marketplace realities and inform decision making by attempting to establish the link among ownership structure, agency costs and size on entity value.

1.1.1 Firm Value

Firm value is attributed to the total worth of an organisation's assets (Abreu, 2016). It also refers to the summation of the worth of both debt and equity. Firm value can also refer to the present worth of anticipated future cash flows or income generated by firm's assets

(Damodaran, 2002). Further, Tirole (2006) reckon that firm value can also relate to the price at which a firm can be transferred between a passionate vendor and a willing purchaser in an arm's length business agreement. The value can thus be based on either accounting book values or market value measures. Firm value is synonymous with shareholders wealth. Firm value is important as it can be used to evaluate shareholders' investment return, make comparisons between companies or establish share issue price in case of public offerings (Damodaran, 2002). Moreover, valuation is fundamental when making strategic decisions to either buy or sell a firm and in quantifying value creation or otherwise attributable to firm executives action.

The maximization of shareholders wealth is a key objective of every firm (Demsetz & Villalonga, 2001). The value is generated by management investment decisions and strategies (Abreu, 2016). Modigliani and Miller (1958) advocated that firm value is identical to the worth of all the cash flows generated by its resources. Firms strive to stabilize earnings by undertaking investment opportunities that lead to less variability of future cash flows. To this end, Fahlenbrach and Stulz (2009) contend that mitigating market inefficiency of agency costs can enhance value. Mishra (2014) and Kallamu (2016) operationalize firm value by considering Tobin's Q which represents ordinary shares market worth to replacement cost as introduced by Tobin James in 1969. Market to book proportion is greater than one for value adding investments. Thanatawee (2014), Agrawal & Knoeber (1996); and Chung and Pruitt (1994) adopted Tobin's Q as a quotient of market worth of ordinary shares plus worth of preference shares plus liabilities scaled by the assets book value. In addition, Florackis (2008) considered firm value based on the proportion of market worth of equity to shareholders funds.

1.1.2 Ownership Structure

Ownership structure signifies the distribution of firms' equity holdings based on capital contribution and voting rights (Tirole, 2006). The structure represents the interest of different constituents of shareholders in a firm (Welch, 2003). Moreover, the structure can be considered as being diffused where the bulk of shares are owned by small multiple shareholders or concentrated with few majority shareholders (Mishra, 2014). Further, ownership structure dimensions of owner identity are managerial, institutional and foreign shareholding (Thomsen, Pedersen & Kvist, 2006). Managerial holding relates to ownership by corporate insiders, that is board members and firm managers (McConnell, Servaes & Lins, 2008). Institutional shareholding is ownership by entities for instance investment firms, commercial banks, insurance, superannuation and mutual funds, Government and foreign firms (McKnight & Weir, 2009). Accordingly, institutional owners can either be investors who actively monitor firms activities; that is investment advisers and fund managers. Alternatively, institutional owners may comprise the passive investors such as commercial banks, insurance companies and other institutions who do not actively monitor security markets. Foreign shareholding represent ownership by non-local investors (Thanatawee, 2014).

Ownership structure can act as an alternative governance mechanism in monitoring firm efficiency and hence firm value (Tirole, 2006). Heterogeneous shareholders with different interests can shape governance mechanisms. Institutional shareholders may either trigger active managerial monitoring to streamline management and owner interests or may seek to pursue their own motive at the outlay of minority stock holders (AL-Najja, 2015). Mishra (2014) argue that foreign investors' interest may involve transfer of superior managerial skills or may attract international capital. Singh and Davidson (2003) reckon that increased

managerial ownership trigger efficient resources utilisation and maximize shareholder wealth. Likewise, Jensen and Meckling (1976) propose that management stock reward can align managers and shareholders' interests. However, Demsetz and Lehn (1985) criticized the argument that entity value would be increased by changing the ownership by management which aligns the interest of shareholders and managers. This is due to the fact that, if firms would not deviate from the optimal ownership level so as to continually maximize value. Similarly, Fahlenbrach and Stulz (2009) argue that huge reduction in managerial equities holding does not lead to a decrease in value. Further, Mustapha and Ahmad (2013) contend that ownership by managerial provides an avenue for executives to pursue their own interests. Ownership structure can mitigate agency costs between owners and managers and maximize firm value (Isik & Syakan, 2013).

There exist a linkage between ownership holdings and entity value which emanate from effective entities executives monitoring (Kallamu, 2016). When a firm is managed by the owner, optimal decisions can be made to maximize owner's utility. However, McConnell and Servaes (1990) reported reduction in firm value proxied by Tobin's Q for larger ownership by managerial levels. A similar argument is that the prevalence of outside equity will cause agency costs owing to divergence of interests (McKnight & Weir, 2009). A parallel argument by Bradford, Du and Sokolyk (2011) assert that information asymmetry between owners and executives are evident for firms with numerous owners. Welch (2003) proxy ownership structure by adopting herfindahl index of the concentration of shareholdings. Meanwhile, Mishra (2014) employ proportion of holding by institutional ownership profile whereas Isik and Syakan (2013) adopt dummy variables for ownership identity. Besides, Ferreira and Matos (2008) consider institutional ownership signified as a portion of sum of the holdings of all institutions over firms' market capitalization.

1.1.3 Agency Costs

Agency costs are costs incurred by principals to monitor and limit managers from engaging in unwarranted actions (Jensen & Meckling, 1976). In addition, the costs consist of contractual bonding expenditures (compensation package) by an agent to reassure principals that agents' actions are in the principals' best interest. Moreover, the costs cover any residual loss of welfare experienced by the principal as a consequence of separation of control and equity holdings (Jensen & Meckling, 1976). Nagar, Petroni and Wolfenzon (2011) describe agency costs as the monitoring costs incurred by principals to avert an agent from prioritizing own interests over the shareholders value maximization. Wellalage and Locke (2011) consider agency costs as the costs resultant from unproductive resource utilization in the form of over or under investments and undue perks and operating expenses. The agency costs continuum spans from a firms' operational efficiency status to optimization of organizational resources to controlling of managerial discretionary expenditures in a firm.

Agency conflicts can manifest in a situation where controlling shareholders or executive managers channel or consume resources of the firm in conducts that reward themselves but which are not in the finest interests of the other shareholder (Gogineni, Linn & Yadav, 2016). In this case, management discretionary operating costs and personal emoluments can lead to unwarranted selling or distribution and administration expenses. In the event of insufficient effort by the management, it can results in lower revenues (Wellalage & Locke (2011). In essence, agency costs are evident in numerous forms such as making non-optimal investment decisions, self-serving behaviour of executives, motives for empire-building, consumption of excessive perquisite and acts mismanagement. Singh and Davidson (2003) opine that the effects of such adverse acts can manifest in decline of shareholder wealth.

Similarly, Sign and Davidson (2003) reckon that lower agency costs are manifested through a firm somewhat greater asset turnover and a low cost to sales ratio. Asset utilization ratio can measure the potential loss in revenue resulting from sub-optimal investment choices. A higher asset turnover ratio can indicate greater sales volume that eventually improves cash flows of the corporate. On the contrary, a small asset turnover ratio echoes that executives have deployed firm resources in unjustified investments that do not yield adequate cash flows. Similarly, high operating cost to income ratio can point to agency conflicts.

The alignment of owner and manager interest which mitigates agency costs can be achieved by monitoring agent's aberrant behaviour through budget restrictions, operating rules and compesation policies (McKnight & Weir, 2009). He and Ho (2010) argue that managerial ethics on an acceptable course of action are assessed either from benefits of managerial action or on the adherence of laid down corporate polices. Further, Ang, Cole and Lin (2000) theorize that an entity managed by the owner suffers insignificant agency costs but the costs are higher for a firm directed by an outsider. Firms with larger managerial ownership should have lower agency conflict due to convergence of owners and management interest that lower agency costs and higher firm value (Sign & Davidson, 2003). Public entities experience higher agency costs when matched to private firms (Gogineni, Linn & Yadav, 2016).

Agency costs increase complexity of ownership structures. Firms with less monitoring may be linked with amplified agency costs. McKnight and Weir (2009) contend that institutional investors have enticements to monitor management. Nonetheless, Singh and Davidson (2003) contend that institutional holdings possibly will only have partial effect of

mitigating agency costs due to lack of expertise in monitoring. Moreover, foreign investors can alleviate agency costs by enhancing active monitoring or can increase the costs by permitting expropriation of firm resources that affect firm value (Thanatawee, 2014; Mishra, 2014). In addition, in cases of lower share ownership by different owner constituents, may demand for higher quality audit and outstanding calibre of independent directors. The resultant increased monitoring can mitigate agency conflict and boost shareholder value. The extant literature adopts varied proxies to operationalize agency costs. Mustapha and Ahmad (2013) proxy agency costs as monitoring costs for audit as well as non-executive directors' emoluments. McKnight and Weir (2009) and Ang et al. (2000) use inverse proxy of efficiency of asset utilization to capture agency costs. Still, Wellalage and Locke (2011 adopt discretionary expenses to sales ratio.

1.1.4 Firm Size

Firm size refers to an entity's feature that gives magnitude of an organisation in reference to market capitalisation, assets, revenues, profits and number of employees (Abreu, 2016). Dang, Li and Yang (2017) contend that size is a fundamental firm characteristic besides, industry, growth opportunities, profitability, firm age among others. Firm sizes ranges from small, to medium and large. Forbes Global (2016) use assets, sales, profits and market capitalization measures to rank based on sizes of firms in the world. Market capitalization is market oriented and is based on outstanding issued shares multiplied by the prevailing market price. The aggregate assets measure the firms' entire resources while total sales are more allied to product market (Dang, Li & Yang, 2017). The size of a firm determines the level of economies of scale, market power that can be achieved and accessibility to capital markets in an attempt to achieve lower costs and improve firm value (Isik & Soykan, 2013). To this end, bigger firms are mired with greater coordination requirements and beyond a

certain point, scale economies cease to exist. Besides, the larger the entity size, ceteris paribus, the greater the entity's capital and hence the greater the market value of a certain portion of ownership (Nazir & Afza, 2018). Larger firms are characterized by high asymmetric information, but have sufficient resources to adopt quality governance systems which can enhance value.

Goginenia, Linn and Yadav (2016) argue that firm size can be linked with the magnitude or absence of an agency problem that is based on varying ownership structures and in essence can influence firm value. In a similar manner, the firm characteristics of size steers the interaction of the link between ownership and value of entity (Nagar, Petroni & Wolfenzon, 2011). A parallel argument by Hu and Izumida (2008) purport that, optimal ownership level varies with firm size. Wellalage and Locke (2011) reckon that the ownership-management conflict seems to disappear in small businesses. To this end, ownership by managers is prevalent in small organisations than large firms. However, McKnight and Weir (2009) argue that bigger firms are projected to experience greater agency costs due to the superior informational asymmetry faced by owners. Demsetz and Lehn (1985) contend that larger firm size translates to more dispersed ownership than do small firms.

Fahlenbrach and Stulz (2009) argue that younger and smaller American firms display greater ownership by managers. Similarly, Helwege, Pirinsky and Stulz (2009) reckon that young firms have highly concentrated ownership. Indeed, Bradford, Du and Sokolyk (2011) assert that greater equity ownership in small firms by owner-manager is associated with improved firm value. Goginenia, Linn and Yadav (2016) opine that larger firms' excessive cash flow predisposes greater abuse of resources resulting in higher agency costs.

Isik and Soykan (2013) operationalize size of firm by way of natural logarithm of total sales while Mishra (2014) and Demsetz and Villalonga (2001) consider a measure of book worth of assets. Wellalage and Locke (2011) proxy entity size via considering the logarithm of number of employees in a firm while Dang, Li and Yang (2017) adopt assets, sales and market capitalization measures.

1.1.5 Companies Listed at the Nairobi Securities Exchange

Listed firms on a global scale relate to firms whose equities are quoted in an organized market and represent an economy's significant sectors including energy exploration, mining, manufacturing, telecommunication among others. Forbes (2016) contends that listed firms are globally among the largest firms in many countries as measured in terms of firm market value, revenue, assets and profits. There were 65 listed firms in 10 different industry categories as at 31st Dec 2017 as presented in appendix 1. The firms' shares are freely transferable through trading at the securities exchange that can result in diverse ownership structures and owner identities. The firms disclose in their annual reports the different owner identities for managerial, institutional and foreign ownership. The different ownership structures occasion aspects of agency problems that can affect firm value. The firms can raise cost-effective capital facilitated by the exchange that stimulates investment (NSE, 2017).

The listed firms' performance is constantly monitored by many investors who trade in the firms' shares at the bourse. Therefore, the firm ownership activates managerial monitoring to streamline management interest and influences efficiency of resources utilization that affects the firm cash flows and thus value. Further, the firms exhibit distinct characteristic of firm size targeted in the study that influence equity holdings and hence entity value. The

entities' listing in 10 different industry categories represents the economy's significant sectors which allow comparison of firms within the same industry and across industries. The firms average sizes as revealed by the market capitalization stood at Ksh 1.2 trillion in 2010, Ksh 1.6 trillion in 2013 but declined to Ksh. 868 billion in 2015 (NSE, 2016). This study acknowledges the display of distinct features of the study variables amongst the firms of ownership structure, agency costs, size and value and thus adopts firms listed at the NSE as an ideal study context.

1.2. Research Problem

Firms strive to maximize shareholder value that is based on the present worth of its future anticipated cash flows (Damodaran, 2002). Contemporary firms have separate ownership from management occasioning aspects of agency costs which influence firm value. Firm executives would in the absence of agency problems undertake investments that maximize investors' wealth. The magnitude of the agency costs manifest through inefficient resource application in the form of non-optimal investments, extreme and unnecessary costs and perks leading to more expenditures, and unsatisfactory effort exerted by managers which lower firm earnings. Ownership structure is extensively dispersed for the US and UK firms while it is mainly concentrated for the rest of the world (Goldberg, Danko & Kessler, 2016). The ownership structure can yield a device mechanism that might either mitigate the agency problem between managers and equityholders through managerial monitoring or it can accelerate the problem by tunnelling resources via managers' private interest. Indeed, managerial, institutional or block holder ownership can enhance shareholder protection mechanism. Likewise, foreign investors' interest may not only attract international capital but also increased monitoring that however may reduce managers' entrepreneurial productivity and investment creativity. Additionally, ownership structure influence firm

management endeavour to maximize shareholders wealth by efficient utilization of firms' resource. However, over-investment in sub-optimal projects or under-investment in growth opportunities heightens the dilemma of firm value enhancement or destruction. Moreover, large and small firms exhibit different ownership structures. The size of firm generates economies of scale that either boost firm value or magnify agency problems.

The firms listed at the NSE have separate ownership from management occasioning to aspects of agency problems that affect firm value. The firms' shares are freely transferable through trading at the securities exchange and can result in diverse ownership structures and owner identities. Further, the firm ownership triggers monitoring to streamline management interest and influences efficiency of asset utilization that can affect firm cash flows. The firms further exhibit distinct firm sizes that can influence ownership holdings patterns and hence the entity value. The firms sizes are revealed by market capitalization or total assets of each firm while the firms listing in 10 different industry categories represents the economy's significant sectors and allow comparison of firms. The listed firms are exposed to cash flows uncertainty. For instance, Kenya Airways limited reported a financial loss amounting to Ksh.26 billion in 2014 that led to reduction of its market value by over 60% while Safaricom limited has continuously reported profits in their results year on year that has tripled its market value (NSE, 2016).

Studies on the association among ownership structure, agency costs, firm size and value study variables have yet to reveal no debatable conclusion and thus present varied research gaps. The contextual, conceptual and methodological gaps arise from findings debate, measurement of variables and estimation techniques. To begin with, contextual gap in a local perspective, arises from the fact that the vast empirical studies on ownership structure

and monitoring costs focus on developed securities markets that findings may not hold for listed firms in Kenyan context. Conceptually, gaps arise on the raging debate of the effect of ownership on value for the scanty empirical studies available in Kenya that also examined the study variables separately without emphasis on intervening and moderating concepts extensions. Ongore (2011) established that foreign and managerial ownership exhibited a significant direct link to performance for Kenyan firms. Moreover, Mokaya and Jagongo (2015) asserted a direct association between equity holdings and entity accounting performance. The studies did not incorporate concept of monitoring costs extension to enrich the prediction precision of the relationships.

Moreover, conceptual gaps in a global perspective arise from lack of consensus evident from the divergent debate views on the ownership-value effect of positive, negative or no relationships. Ownership characteristics illuminate agency concerns of governance mechanisms that lead to divergent views on the firm value effect. Mishra (2014); Nakano and Nguyen (2013); Welch (2003) report a positive nexus between ownership and value while AL-Najja (2015); Thomsen Pedersen and Kvist (2006); Demsetz and Villalonga (2001) reported no significant link between ownership and shareholder value. Andow and David (2016) found negative nexus between ownership and value while Gurbuz and Aybars (2010) report inverse association between ownership and equity holders wealth even though the study explored only foreign ownership. Also, conceptual gap arises in that the studies do not incorporate concepts extensions to advance the predictive power of ownership and value of entities.

Additionally, methodology gaps arise from analysis methods, operational definition of variables and on the ownership structure aspect of managerial, institutional or foreign

investigated that also reveal inconsistent ownership-value results. Mishra (2014); Isik and Soykan (2013) revealed a direct connection between ownership structure and value using panel data models. Similarly, Ongore (2011) adopting ordinary least square estimator report a positive relationship. However, Chen and Yu (2012) report a U-shaped relationship based on generalized linear models. Further, Welch (2003) reported that OLS results indicated that ownership is significant in explaining entity performance while Demsetz and Villalonga (2001) establish that 2 stage least squares (2SLS) regression results show no effect of ownership distribution on performance. Isik and Soykan (2013); and Chen and Yu (2012) adopt ownership identity as dummy variables instead of relative ownership variables. In current study, the results are robust and more insightful by incorporating size to reveal when a link between ownership structure and value exists. Moreover, model in this study evaluate the transmission of effect of ownership structure via agency costs on to firm value to enrich prediction precision.

This study provides more insight in a Kenyan context by evaluating the transmission capability of agency costs to connect ownership to entity value. Moreover, the study provide additional insights based on mean centered interactive effects on circumstances when corporate size changes the ownership-value relations rather than only explain the direct effect of size on value. Thus, a motivation for this study was to attempt to reconcile scholarly findings raging debate with marketplace realities and inform decision making by attempting to establish the effect of agency costs and firm size on the link between ownership and value. The study seeks to not only test the link between ownership structures and entity value but also the combinative influence of ownership, agency costs and entity size on value. This study consequently attempts to probe the question: What is the effect of agency costs and size on the relationship between ownership and value of firms listed at the NSE*?*

1.3. Research Objectives

The main objective of the study was to establish the effect of agency costs and firm size on the relationship between ownership structure and value of companies listed at the Nairobi Securities Exchange.

The study addresses the following specific objectives:

i. To evaluate the relationship between ownership structure and the value of companies listed at the Nairobi Securities Exchange.
ii. To determine the effect of agency costs on the relationship between ownership structure and value of companies listed at the Nairobi Securities Exchange.
iii. To establish the effect of firm size on the relationship between ownership structure and value of companies listed at the Nairobi Securities Exchange.
iv. To evaluate the joint effect of ownership structure, agency costs and firm size on the value of companies listed at the Nairobi Securities Exchange.

1.4. Value of the Study

The study supplement the theory of finance by examining vital facets of agency, stakeholder, stewardship and institutional theories that shareholder wealth is maximized when alignment of shareholders and management interest through effective monitoring lead to efficient allocation of resources. This was evaluated on whether those arguments are effective by modelling ownership structures that are projected to mitigate the agency problem in listed firms against shareholders wealth maximization. Further, it sought to justify the argument that managers' efficient utilization of organization resources and active monitoring can increase entity value. The study output further feeds to the debate in academic discourse on the firm ownership structures and value relationship. It assesses the

mediating role of agency costs and moderating influence of entity size on the nexus between equity holding structure and value. Further, the study offers added insights on the joint effect of agency costs and size of firm on the connection between ownership structure and value of firm.

The results of this thesis offer guidance on management practises by enlightening listed firms executives to evaluate the contribution of different shareholders' profile in terms of capital, skills and governance benefits and costs and its effect in maximizing shareholder wealth. Foreign investors can transfer useful skills that strengthen management monitoring. Managerial and institutional shareholders profile can lead to efficient resources utilisation or pursuit of own interests. The different shareholders' profiles can be structured in a way that enhances firm efficiency.

Moreover, agency costs manifest in numerous forms such as making non-optimal investment decisions, self-serving behaviour of executives, empire-building motives and consumption of excessive perquisite. In this context, this study provides insight on the agency costs mitigation practises of the proportions of managerial discretionary expenses to income ratio directed towards income generating activities so as to maximize shareholders wealth. For instance, a higher selling, distribution and administration expenses ratio can point to excessive discretionary expenses by firms' management that in return demands a high sales level so as to amplify shareholders wealth.

The study report is also useful to listed firms stake holders, policy makers plus regulators such as CMA and NSE. The key motive of the policy makers is to improve investor protection and enhance corporate governance mechanisms. This would be achieved by

providing input to policy interventions when re-drafting improved guidelines on investor protection and ownership structure regulations. For instance, if raising managerial ownership stake encourages corporate actions that harm the firm, it would in turn be expected to reduce agency costs and in essence improve listed firms financial performance. Policy makers would also require information on the tenets of ideal ownership structures so as to formulate appropriate ownership entry and exit policy interventions that would result in the maximization of shareholders wealth. In addition, policies formulated may enhance capital market development and in essence economy by allowing transfer of capital and foreign direct investment in case of foreign investors.

1.5. Organization of the Thesis

This thesis is structured to cover six chapters: introduction; review of literature; methodology; descriptive analysis and results; hypothesis testing and findings discussion and summary, conclusions and recommendations. Chapter one outlines a foundation of the concepts of the study: ownership structure, agency costs, firm size and firm value. Thereafter, a discourse on the study context of entities listed at the NSE is then undertaken and subsequently, a scheme of the research problem and research objectives is outlined. The chapter culminates with a discussion on the value of the study.

Chapter two commences with an outline of the theories upon which the study is grounded. The theories are; Agency theory (Jensen and Meckling, 1976), Institutional theory (DiMaggio and Powel, 1993), Stewardship theory (Donaldson and Davis, 1991) and Stakeholder theory (Freeman, 1984). Then, the chapter highlights review of literature on the link among the various variables of the thesis. It also provides the summary of gaps in knowledge from empirical review as well as the conceptual framework depicting the relationship between the variables of the study.

Chapter three outlines the methodology that guides this research study. This encompasses the study philosophy, design of research, target population, collection of data, operationalization of study variables and analysis of data. Chapter four presents the descriptive analysis and results of the study variables. Specifically, a discussion of the statistics of thesis dependent variable (Tobin's Q), explanatory variables (managerial, institutional and foreign ownership), mediator variables (agency costs: managerial discretionary expenses and monitoring costs) and moderator variable (firm size: total assets). The chapter ends with an analysis of study variables correlations.

Chapter five documents the results of testing hypothesis on the connection among ownership structure, agency costs, entity size and value of entities listed at the Nairobi Securities Exchange. The coefficient of determination which is a ratio of explained variation in relation to total variation and significance level of the estimated coefficient were assumed in testing the thesis hypothesis. The researcher undertook diagnostic testing to assess the conformity of the research data with assumptions of ordinary least squares to enable fit robust regression model and mitigate on type 1 and type 2 errors. A discussion on the outcomes of the study are also contained in this chapter.

Chapter six contains a summary of outcomes of the study in lieu of both the descriptive statistics and research hypothesis. Moreover, the conclusions drawn from the test of hypothesis are also contained in this chapter. In addition, the contribution to theory and knowledge; and recommendations for policy and practice are also outlined. The chapter moreover pinpoints the study limitations and future directions of research.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

The chapter embarks on an argument of the theories for which the study is grounded, and then follows a review of literature highlighting relationships between the various variables of the study. It also documents the summary of gaps in knowledge from empirical review as well as the conceptual framework depicting the relationship between variables of the study.

2.2 Theoretical Framework

A theoretical framework leads research by defining the measurable variables and statistical interactions to expect for the setting of the issues in a study (Cooper & Schindler, 2008). This study is anchored on agency theory, institutional theory, stewardship theory and stakeholder theory that explain the nexus between ownership structure, agency costs, size and firm value.

2.2.1 Agency Theory

Jensen and Meckling (1976) espoused the agency theory. The theory explains the conflict that exists between listed firms principals (equity investors) and agents (directors) originating from detachment of ownership and management. While general shareholders strive to maximize the firm value, managers or controlling shareholders might seek to pursue their own interests. This yields agency costs by form of bonding expenses between executives and shareholders, monitoring costs and a residual loss to the firm (Jensen & Meckling, 1976). The ownership and management separation creates information asymmetry and managers can engage in adverse selection that poses a moral hazard. In this case, managerial self-interest pursuit to maximize their personal utility functions

necessitates monitoring of agents activities to reduce agency costs or offering enticements to align managerial interests to those of the principal. Managers compensated in the form of shares can realize goal congruence with that of the general owners.

Firm are managed by professional executives (agents) who may or may not hold shares in the firms that they manage. The executives are appointed by shareholders (principals). Shareholders may either be minority local or foreign individual investors or local and foreign institutions (Thanatwee, 2014). Shareholders with significant ownership control may appoint their own representatives in the board of entities to safeguard their interest. Other shareholders may engage in active management as the firm executives. The different shareholders set in the firm management may either engage in effective investment actions which maximize their own utility or for the benefit of the entire firm.

As firm executive ownership rises, the managers may begin to exert insufficient effort, magnify personal perks and enrich themselves (Tirole, 2006). The executive actions are unfavourable to shareholders. Managers may invest in projects that make them indispensable (Shleifer and Vishny, 1989). In other instance, executives can manipulate and engage in creative accounting which falsifies the entities performance to reflect a favourable position. Managers may also consume personal perks at the expense of equity holders. This is considered as the managerial entrenchment hypothesis where executives transfer personal benefits to the firm and in turn escalate the costs of operation that may reduce the firm value.

The alignment hypothesis arises when the interest of the shareholders and agents are streamlined (Tirole, 2006). Alignment can occur via monitoring management executives

actions so as to control on the errant behaviour and maximize entity's value. Shareholders with significant equity holding can take an active role in management. The shareholders can also mitigate on the agency costs by appointing representatives in the board in form of non-executive and independent directors. Firms also adopt other corporate governance practises including conducting external audits to check on compliance to laid accounting practices.

The listed firms' ownership structure and value relationship is anchored on agency theory. On one hand, when managerial ownership level is high, the managers are considered as owners and in essence embrace goal congruence. On the other hand, greater shareholding by foreigners, block holders and institutional investors can enhance effective monitoring of managers action that can extinguish agency costs and in essence improve listed firms value. However, Davis, Schoorman and Donaldson (1997) acknowledge that increased managerial monitoring suggested by the agency theory interferes with managerial investment creativity. In a similar manner, Mustapha and Ahmad (2013) critique the theory assumption that social life is a chain of contract while it ignores the existence of social and authority relationship.

2.2.2 Stewardship Theory

Stewardship theory was advanced by Donaldson and Davis (1991) in psychology and sociology field. The theory argues that steward management and owners with controlling interest are only inspired by commissioning optimal investment choices which are beneficial to corporates. Further, the theory aims at explaining the connection between management and ownership in expansion of productivity as a result of maximization of steward's utility functions. Davis, Schoorman and Donaldson (1997) opine that unlike the

agency theory premised on instituting control mechanisms to safeguard against managerial opportunistic and personal interest, the stewardship theory endorses development of trust and managers behaviour that is organization centered. The theory further reckons that managers and controlling shareholders act as trustworthy administrators of the firm and emphasis on the mutual benefit of the entity. Davis, et al. (1997) argued that stewards believe that shareholders equitably share the residual dues of the firm and thus on maximizing shareholder wealth, the share of the steward is also maximized. On account of this, the interest between the shareholders and managers and majority and minority shareholders are indeed aligned and thus maximise firm productivity.

The theory informs the framework on which a link between ownership structure, agency costs and listed firms value is premised. It is valuable in this study as it suggests that executive and controlling shareholders stewards' deeds are desirable to all shareholders and this eliminates managerial monitoring costs and increases efficiency of resource utilization in effect creates value for listed firms. However, the separation of equity holding and managerial control yields agency problems and therefore the listed firms incur agency costs in attempt to maximize shareholders wealth. Stewardship theory argues that increased monitoring recommended by the agency theory interferes with managerial productivity unlike steward executives who have the freedom to exercise investments creativity that enhance productivity. Indeed, Lin (2005) critique stewardship theory for its argument that managers are motivated via intrinsic rewards of personal achievement and growth which are not quantifiable unlike the agency theory extrinsic motivators such as salary, shares options and bonuses that are quantifiable.

2.2.3 Stakeholder Theory

Stakeholder theory was advanced by Freeman (1984). The theory extends company accountability to a wide variety of stakeholders. In fact, Harrison and Wicks (2013) contend that stakeholder theory extends the agency theory perspective of maximising shareholders interest to welfares beyond economic value maximization for only equity holders. Jensen (2002) conjectures that stakeholder theory prolongs the notion of firm ownership beyond the ancient economic or legal owners who attain stakeholder status by injecting capital. The theory considers the aim of a firm is to serve the societal interests. Indeed, all stakeholders are presumed to have equitable rights and accordingly there is an obligation to treat everyone equally. Stakeholders are either direct or indirect. Equity holders, employees, customers and creditors whose interests are in line with an entity are the direct stakeholders. Indirect stakeholders such as the Government are not directly impacted by existence of entities.

Deegan (2009) present a classification of external and internal stakeholders. External stakeholders include of equity holders, customers, government and suppliers in general while internal stakeholders consist of the management, board of directors and employees. The internal stakeholders affect the performance of entities. Stakeholder theory embraces the principle that no stakeholder has a priority of interest over others (Freeman, 2004). The theory is similar in approach to the agency theory in that it targets to converge the interests of stakeholders and agents and consequently achieve goal congruence. The theory articulates the notion that firms are reliant on stakeholders for their success and the stakeholders have certain stake in the firms. This theory therefore focuses on stakeholder-agent relationships in an attempt to align interests of all stakeholders in the firm (Carney, Gedajlovic & Sur, 2011). The theory aims to create economic value where parties

have collective effort to improve the wellbeing of every firm constituent in a corporate social responsibility approach.

Stakeholder theory is applicable in this study as it provides the basis on which entities strike a balance on its strategies so as to satisfy the interest of different stake holders. The theory links watchdog executives and auditors monitoring activities to the shareholders, government and suppliers in general. Entities owe a duty to fulfil the obligations of diverse stakeholders and consequently it is a requisite to safeguard investment returns. Thus executives' actions calls for monitoring in attempt to create value that provide an equitable return on equity holders' capital while satisfying the obligations of other stakeholders. Thus the firms attempt to mitigate agency costs and undertake monitoring in order to efficiently utilise resources and realize sufficient returns to share equitably among entities stakeholders. Deegan (2009) critiqued stakeholder theory notion that entity executives can not undertake corporate policies and strategies without taking into consideration welfares of the varied stakeholders, yet the managers view equity holders as one of the diverse stakeholders that they represent.

2.2.4 Institutional Theory

Institutional theory is attributed to the seminal work of DiMaggio and Powel (1993). The theory is premised on institutional environment legitimacy of formal structures derived from rational myths, rules, norms, system and procedures that are influential guide for social behaviour accepted in a society. The rules are widely acknowledged by individuals in a society and as such organizational systems abide by the forces in their activities. Scott (2008) conjectured that firms adopt structures either due to legal influence, mimic of successful forms or normative pressures from professional groupings. DiMaggio and Powel

(1993) argued that members abide by the rules set out in institutions so as to endure or triumph in the society. Firms attain legitimacy endorsement on conforming to norms of the institutional environment and strive to achieve value congruence. Scott (2008) contends that institutional theory integrates social legitimacy as a key input in the entity transformation process. As such, when the norms of a society are adhered to, entities organizations tend to embrace management styles or other socially acceptable structures

Institutional theory is applicable in this study by prescribing institutional environments that are shaped by the regulatory and professional bodies. Corporate rules and regulation, professional code of conduct and ethics, legislation, statutory audits, documented processes and practises aid in monitoring listed firms. The institutional environment establishes authoritative guidelines for social behaviour such as inclusion of non-executive directors in boards. Similarly, firm owners oversight management by undertaking statutory audits so as to achieve shareholders maximization goal congruence. The practice acts a monitor that mitigates agency costs and activates efficient utilization of firms resources which can influence shareholder wealth maximisation. Scott (2008) critiqued institutional theory rigidity in explaining institutional environment dynamism of the contemporary organizations.

2.3 Empirical Literature Review

This segment highlights empirical review on the link between entity ownership structure and value, the mediating influence of agency costs on the nexus between ownership structure and value and the moderating role of firm size on the link between ownership structure and value.

2.3.1 Ownership Structure and Firm Value

The available equity holdings and control literature is replete with mixed proof on the status of connection between equity ownership distribution and corporate value. To begin with, Fahlenbrach and Stulz (2009) scanned the managerial ownership dynamics of 4,900 US firms on value from 1988 to 2003. The study utilized a breakdown of annual changes in managerial ownership while employing a panel regression model. The study found that managers were expected to considerably reduce their ownership when firms were performing exceptionally and raise ownership when firms are financially constrained. Still, the results do not substantiate that huge decrease in managerial ownership lead to adverse influence on entity value. An earlier study by Demsetz and Villalonga (2001) investigated the link between equity holdings and the value of 223 US firms. The study based on two stage least square regression conjectured that there ought to be no link between variations in equity holdings and changes in value because the intention of a firm is to magnify shareholders wealth. They opined that equity holdings vary across firms due to regulatory issues, industry of operation and motives for economies of scale. Despite the aforementioned, the studies were conducted in the US market context.

An argument by Chen, Hou and Lee (2012) examine the role of managerial and directors shareholdings on performance of publicly listed tourist hotels in Taiwan for the period 1997–2009. Panel regression test show that managers shareholdings does significantly predict financial performance and additionally reflect U-shape effect for directors shareholdings on ROA, ROE plus Tobin's Q. This signify that minimum performance arises at a higher share of managerial and directors' ownerships and vice versa. Nevertheless, the focus of the study was seven companies only in the hotel industry. Moreover, Haniffa and Hudaib (2006) examine the link that subsist between structure of

governance and performance in Malaysia. Notwithstanding the adoption of cross sectional OLS regression for 347 firms traded at the Kuala Lumpur Stock Exchange, the study conclude that shareholding by management is significantly negatively related to accounting performance but not to the market value of firm.

Andow and David (2016) evaluated the impact of equity holding by managers on the performance of listed conglomerate entities in Nigeria from 2004 to 2013. The study follow a panel data multiple regression estimator. The outcomes return a negative connection between ownership by managers and performance of the firm, a sign of managerial entrenchment. Nonetheless, the study did not integrate mediation effect of agency costs on corporate value. On the contrary, Gugong, Arugu and Dandago (2014) explored effect of ownership on performance of 17 Nigeria traded insurance firms during 2001 and 2010 period. The study adopted OLS estimation and reported a direct link between institutional and management equity holdings and performance, a sign of interest alignment. Nevertheless, book measures of performance of return on assets and equity were considered for the mentioned studies that targeted only insurance firms unlike the cross industry firms that were targeted for this thesis.

Hossain (2016) predicted the link of firm ownership by managers on the profitability of 81 manufacturing Bangladeshi entities listed at the Dhaka Exchange starting in 2002 to 2014. The study adopted a panel transformed standard error regression estimation. Managerial ownership was captured as the shareholding of directors, sponsors and managers. The study established that managerial ownership positively affects profitability, a sign that ownership by managers reduces agency conflicts and creates value. The study context is however different from the current study and adopted accounting book measure premised on return

on equity and assets unlike the market measures adopted in this study. Moreover, the study did not incorporate the influence of agency costs and other dimensions of ownership on value.

Mokaya and Jagongo (2015) established the connection between management equity holdings structures and financial performance of 63 NSE traded firms for 2014. The study relied on ordinary regression analysis and noted that equity ownership holdings returns a direct connection on the performance of listed firms. The study fail to integrate the impact of institutional and foreign ownership aspects on entity value and did not incorporate agency costs in the study. In a similar approach, McConnell, Servaes and Lins (2008) investigated the effect of insider share holdings and 450 US firm value from 1994 to 1999. The study relying on a stepwise regression concluded that changes in insider share ownership affects firm value attributed to alignment of interest between managers and owners. Similarly, Welch (2003) examine the connection between managerial share ownership and performance of 114 Australian listed firms from 1999 to 2000.Based on OLS, the study report positive link between entity value and ownership. However, the study relied on analysis for only a two year period.

Malik (2015) examined the link between ownership equity distribution and performance of only 14 pharmaceutical firms in India. The study adopted a panel data methodology to test the role of domestic and foreign institutional investors on return on shares holding besides return on assets for listed corporates at Bombay Stock Exchange for the 2004 - 2014 era. The study results unveiled an insignificant inverse relationship between local institutional and foreign institutional shareholding on performance. The study only targeted pharmaceutical firms and relied on accounting performance measures unlike the current

study that incorporate cross industry firms and utilize market performance measures. Moreover, AL-Najja (2015) investigated the effect of institutional equity holdings on the performance of 82 non-financial Jordanian listed entities for the 2005 to 2013 period. Institutional ownership was hinged on the share of equities affiliated with institutions. The study utilized panel data regression and established the most convenient estimation model as the fixed effect regression. In attempt to verify the findings rigor, different robustness checks, including lagged regression modelling and logit analysis checks were administered. Moreover, the results of the study revealed no relation between institutional equity holding and performance. Nevertheless, the study was based on accounting proxies of return on assets plus on equity to operationalize entity value, instead of the market value Tobin'Q measure featured in this research study.

A study by Ferreira and Matos (2008) investigated the association between foreign institutional equity holdings and value of 11,224 firms in 27 countries in the world over the period from 2000 to 2005. The study adopted standardized panel regressions for 38,064 firm-year observations. The results revealed that by foreign institutions equity holdings has a significant direct impact on valuation of entities which is an indicator that presence of foreign institutions act as effective firm monitors that enhances value of shareholder. Further, the findings documented indicate that foreign institutions are linked with superior operating performance. Conversely, foreign ownership was measured as a proportion of sum of the holdings of all the institutions in a firm's stock as a proportion of market capitalization unlike based on the ratio of outstanding shares adopted in the current study.

Thanatawee (2014) explored the connection between institutional ownership and value of 323 Thailand listed entities for the years from 2007 to 2011. The study adopted a two-stage

least squares approximation and observe a direct link between institutional share holdings and shareholders wealth, indicating a case of active monitoring by domestic institutional shareholders. The study excluded the effect of equity holdings for managers and foreigners, and the intervening role of agency costs on value. On the contrary, Ongore (2011) analyzed the effect of institutional equity holding on value of 42 Kenyan traded firms for the period 2009- 2012. The study found a direct connection between institutional investor and performance, undoubtedly a sign of benefit of active monitoring by institutional investors that enhance value.

A further analysis by Ahmad and Jusoh (2014) examined the link between institutional equity ownership and value of 730 Malaysian listed firms. The study adopted the generalized least square and operationalized performance by adopting Tobin's Q for one model and a separate model utilizing stock price to denote performance indicator. The results are considered robust since institutional equity holdings had positive and significant relation for both performance measures of Tobin's Q and share price. A concern arise on the three years panel data modelled in the analysis, unlike an eight year period adopted in the current study that offer rich panel data for ownership and value of firm relationship analysis.

A study outlining the link between large firm shareholders and performance proxies of return on equity plus Tobin's Q, was carried out by Isik and Soykan (2013) in Turkey. The study relied on data for 164 industrial corporations which were listed on Istanbul Stock Exchange from 2003 to 2010. A dynamic panel-data estimation model that included a lagged performance indicator as one of the predictor variables was adopted for the study. In addition, a set of dummy variables captured equity ownership of large shareholder at

levels of below 10%, 10% to 50% and a shareholding of greater than 50%. The results revealed a positive ownership structure-firm value relationship for all the three dummy ownership coefficients. The results obtained could be a sign that firms with large shareholders enhance better firm monitoring thus resulting to more profitability. The study nonetheless, only targeted industrial firms and adopted dummy variables to represent ownership proportion instead of ownership relative variables incorporated in the current study that also feature cross-industry firms.

In contrast, Thomsen, Pedersen and Kvist (2006) evaluate the relation between institutional ownership and value of 489 United States and 276 European Union firms using a granger test procedure. The findings disclose no significant association with value for the firms in either the US or the UK but a significant inverse relation between ownership and value in the ensuing period for listed firms in Continental Europe. This is probably where influential institutional holders are considered to have private interests. Meanwhile, use of current data in Kenya context by this study provide deeper insights on shareholding governance.

Mishra (2014) evaluated the influence of foreign ownership on value for 1,357 firms in 32 Australian industries from 2001 to 2009. The study adopted a panel data regression based on lagged ownership values and revealed that foreign institutional holdings in Australian firms' have a significant besides direct impact on entity value. Consistent with the agency theory, the finding manifest institutional holdings efficacy in monitoring function on corporate management. The research did not integrate the link of managerial and institutional ownership on entity value. On the contrary, Gurbuz and Aybars (2010) analyzed the role concerning foreigners share holdings on performance of 205 non-financial listed Turkey firms from 2005-2007. This study relied on an autocorrelation and

heteroskedasticity corrected general least squares panel data modelling. The outcomes revealed a curvilinear connection between ownership and value implying that foreign ownership rallies value up to a certain level after which value declines. This may be attributed to trade-off of gains from monitoring and losses on entrenchment by foreigners. The study, however, was limited to only a three year period.

The existing literature is replete with conflicting findings about the impact of equity holding proportion on value including a fact that studies were in diverse contexts and adopting varied estimation techniques. Further, some studies concentrated on a dimension of ownership structure of either managerial, institutional or foreign. Moreover, gaps also arise from period of study and operationalization of ownership variables as dummies instead of relative ownership variables. Therefore, a need to extend test in a different content in Kenya to corroborate the extant findings about nature of connection between ownership and value.

2.3.2 Ownership Structure, Agency Costs and Firm Value

The extant literature reveals mixed relation between ownership structure and agency costs and also on entity value. Chinelo and Yiegbuniwe (2018) evaluate the role of governance mechanism and ownership structure in alleviating agency cost for listed manufacturing entities on the Nigerian Stock Exchange during the period 2007 to 2017. Agency costs is predicted based on governance and ownership affiliated elements such as ownership concentration, managerial ownership, executive panel independence, director's rewards and size of board. The analysis outcomes show that advanced managerial holdings, operating overhead and free cash flow return significant impact on agency problem. The study do not extend the estimation to show the transmission of agency costs on the entity value.

Kallamu (2016) investigated the interacting role of managerial monitoring on the link between equity holdings proportions and performance of an entity. The study adopted a sample of 37 finance entities listed in Bursa Malaysia from 2007 to 2011. The study found a negative relation of ownership holdings share on value denoted vide Tobin's Q as proxy indicating that majority ownership by directors promotes their personal interest and hence reduces firm value. Indeed, the existence of autonomous executives on the board ought to enhance value. Consequently, self-governing directors impact on direction and magnitude of the connection between ownership array and value. The study, however, considered only finance entities instead of cross industry firms that are targeted in this study.

A study instituting the nexus between agency costs and diversity of ownership and control for private and public UK firms was steered by Goginenia, Linn and Yadav (2016). The study employed lagged ownership identities and agency costs analysis for 109,534 firm year observations from 2002 to 2010. Agency cost was proxied by operating expense to sales ratio and asset turnover. The results indicate that firms with more diffused ownership and those run by a non-owner manifest superior agency costs consistent with the agency theory proposition. The study however adopted dummy ownership variables to represent owner-manager and non-owner managers unlike proportionate equity holding adopted in this study.

While controlling for endogeneity, Rashid (2010) estimated the bond subsisting between shares held by management and agency cost using instrumental variable regression for 110 listed corporates in Bangladesh using data from 2006 to 2013. The study output confirm that managerial holdings mitigate agency proxied by asset utilization ratio. However, the study do not reveal empirically the link to firm value. Furthermore, Mustapha and Ahmad

(2013) examine association of institutional shareholding and monitoring cost of 867 Malaysian listed firms in 2006 applying OLS estimation. The results reveal a positive trend between institutional holdings and monitoring costs. This reveals that as the stake of institutional shareholdings increase, the monitoring costs also rises attributed to demand for extra monitoring by minority equity holders so as to strike a balance against the powers of institutional investors. In addition, the result reveals that higher institutional ownership is linked with greater monitoring costs. The study context was in Malaysia unlike the current study based in Kenya.

Moreover, Bradford, Du and Sokolyk (2011) test the association between equity ownership, agency costs, and performance of 4,928 start-up closely-held US firms from 2004 through 2008. The study based on OLS regressions document that decrease in agency costs attributed to increase in owner-manager equity ownership result to a superior corporate value. This is consistent with the notion that executives own enriched information about the future prospects and that firms adopt governance measures consistent with value maximisation. However, the study relied on the number of hours worked, as the key element for defining a principal owner-manager and considered only managerial ownership for US start-ups firms.

Wellalage and Locke (2011) examined ownership structure, agency costs and corporate governance mechanisms for 100 New Zealand small unlisted firms from 1998 to 2008. The study relied on a panel data model that consists of time series and cross sectional data. The results reveal that firms with greater insider ownership have high agency costs, a sign that private costs are directed into the firms. The study however, was based on small unlisted firms and considered only the aspect of insider ownership on value for unlisted entities.

McKnight and Weir (2009) examined the contribution of board shareholding and institutional equity ownership ratio and governance variables on agency costs of 350 UK non-financial firms from 1996 to 2000. Among the proxies adopted for agency costs included assets-to-sales ratio. The study adopted a logistic regression, instrumental variables and fixed effect estimation. In support of agency theory, the study confirm that reduced agency costs is associated with increased board shareholdings but higher institutional ownership may not mitigate agency costs due to ineffectiveness in monitoring board actions. The study did not establish influence of agency costs on foreign ownership dimension and entity value.

In an effort to extend the ownership-value link, Lin and Chang (2007) investigated whether managerial equity holding affects agency cost for 266 Taiwanese listed firms. The firms involved in the study comprised of 18 industries and data was consolidated for the period from 1996 to 2006. The study estimate procedure was a panel regression model. The results of the empirical work propose that increased managerial holding reflected inefficiency asset utilization and hence higher agency costs. Indeed, the results show that asset turnover ratio reduced with higher proportion of managerial shareholders. This is perhaps attributed to the managerial interest entrenchment proposition. The study did not integrate the estimation of institutional and foreign equity stakes on agency costs and value.

Ang, Cole and Lin (2000) examined agency problem variation with ownership stake for 1,708 U.S. small firms during 1992. Agency costs were evaluated by comparing efficiency of firms that are managed by shareholders with one that are managed by outsiders. The study applied a multivariate regression framework that revealed agency costs rise with increase in proportion of non-manager equity holders and in essence agency costs fluctuate

with ownership by managers. Further, agency costs were higher when outsiders managed firms. However, the study relied on data for only small American firms for a period of one year. Further, holdings profiles were less diffused ownership of such small firms since shares are not traded.

Subsequently, Singh and Davidson (2003) expanded propositions by Ang et al. (2000) to include large US firms from 1992 to 1994. Agency costs were based on asset utilization ratio and managerial discretionary operating expenses. The study found that greater insider ownership streamlines managerial and shareholders' welfares and mitigates agency costs when agency is defined in terms of asset utilization but relationship is insignificant if agency costs is considered as discretionary expenses incurred in generating revenues.

2.3.3 Ownership Structure, Firm Size and Firm Value

Firm size is a characteristic of the firm that can yield economies of scale that enhance firm value or it can accelerates management problems that may lower firm value. A study by Nazir and Afza (2018) analyzed the stake of firm governance in enhancing value for 162 listed corporations in Pakistan. The study used 1944 firm year observations for a period of 13 years as of 2004 to 31st December 2016. Firm value was modelled in a panel regression incorporating corporate governance indicator (ownership structure, audit structure, board structure) including ownership, size of the company and leverage. The results show insider ownership by board members and institutions manifest negative impact with value for both large and small firms. However, small foreign owned firms had positive but not statistically significant effect on value. In contrast ownership by foreigners was statistically significant in respect to large firms. This is a case of effective monitoring where high ownership stakes exist by foreigners. This study was in Pakistan unlike the current one in the Kenyan context.

Kansil and Singh (2017) explored the nexus between foreign institutional ownership, firm value and characteristics for 496 listed Indian non-financial firms from 2008 to 2014. The study adopted logistic regression models with firm size that was based on total assets. The study found that corporates with controlling foreign stakes had greater market value than ones demonstrating non-controlling foreign stake and that foreign investors target to invest in prosperous and bigger firms. The results point to a view that size and profitability significantly propel the probability of targeting controlling stake by foreign investors. Indeed, the results further reveal that stake of foreign institutional holdings increases in bigger entities and in return influence governance and mitigate agency costs. Nevertheless, the study used dummies to represent foreign holdings unlike the relative ownership measures adopted in this study.

Ratnawati, Hamid and Popoola (2016) investigated the interaction effect of ownership by institution and entity size on the relation between shares stake by managers and management of earnings. The study adopted a least square regression for a sample of 115 manufacturing corporations listed at the Indonesian Exchange since 2008 to 2012. Corporate size was operationalized as a natural log of overall assets. The study affirmed that size trend a positive effect on managerial ownership. However, the study targeted shareholding-value approximation by only managers and institutions stakes for manufacturing businesses.

Nakano and Nguyen (2013) approximated the effect of foreign holdings on value of Japanese firms from 2005 to 2011. Firm characteristics including firm size were modelled as control variables in the panel data estimation of lagged ownership variables. The study reported a positive impact of foreign equity possession on electronics firms' value. Firm

size exhibited a positive association with foreign ownership that strengthened the ownership-value relations. However, the study did not integrate the role of agency costs on the ownership-value link.

Mishra (2014) established the relationship between ownership by foreigners and value of 32 Australian mining and oil and gas producer firms from 2000 to 2005. Size of firm was proxied as a log of firm market capitalization. The study confirm a positive link of foreign ownership on entity value but report an inverse link between ownership and performance on incorporating the size of the foreign owned firms, a pointer to ineffective monitoring by foreign investors. The study considered effect of only foreign ownership on value for Australian corporations and mere direct effect of size on value in contrast to the Kenyan context and shareholding by institutions and executives targeted in current research.

Helwege, Pirinsky and Stulz (2009) investigated ownership by managers dynamics on value of 4,900 American firms with assets exceeding $5 million from 1988 to 2003 while modelling firm characteristics as estimator variables. The study was based on probit regressions of ownership and established that as size increase, it were plausible for entities to experience great decrease in managerial ownership. However, the results do not offer proof that large decreases in ownership affect value adversely plus the study targeted only managerial ownership.

2.3.4 Ownership Structure, Agency Costs, Firm Size and Firm Value

The preceding review of studies do not provide results of combined effect of the study variables but investigate and reports the isolated effect of each variable. Nevertheless, a few studies provide some insight. Besides the direct link between firm equity holding

structure and value, agency costs and firm size can mediate and moderate the relationship respectively. Moreover, the inclusion of interaction and intervention in the ownership-value relationship may provide justifications for inconsistencies in the research findings. A study by Kao, Hodgkinson and Jaafar (2019) investigated the ownership structure, agency cost and firm performance while incorporating firm size as a variable in order to isolate its effect in the estimation analysis. The study targeted Taiwanese listed entities beginning since 1997 to 2015 for 10,151 entity-period observations and applying panel estimation model. Agency costs was proxied on the ratio of independent directors. The study results of institutional, foreign and family holdings confirm direct relationship with value of firm. The fraction of independent directors, the proxy for agency cost monitoring show no direct linkage to value, Further, corporate size is negatively interrelated to market to book worth of equity. Nevertheless, the study context was Taiwan and further, agency cost was a ratio of independent directors unlike monitoring cost and discretionary costs targeted in this study. Still, the study only exemplifies the effect of agency costs and size as explanatory variables unlike mediation and interaction modelling in this study.

Similarly, Owusu and Weir (2017) estimated the link between agency costs, ownership profile and governance devices in Ghana from 2000 to 2009. The study was based on panel data set analytical framework constructed using 283 firm-year observations of entities stretching from 21 entities in 2000 to 35 entities as per the close of 2009. Agency costs was captured as expenditure to sales ratio which reveals the magnitude to which discretionary expenditures are incurred in revenue generation. In addition, sales-to-assets element was an indicator of agency costs. Firm size (total sales) and leverage were also included in the regression approximation. The estimation outcomes depict that the existence of remuneration plus audit committees, decreased agency costs as measured via sales to assets

fraction and maximize value. This is an indication that board committee operate in the interests of shareholders. Firm size was directly related to sales-to-assets proportion while was inversely related to expenses-to-sales ratio as proxies for agency costs. This is evidence that larger firms manifest more informational asymmetry for shareholders thus the agency costs. However, the study context was in Ghana and did not establish the effect on value that was extended in this current study.

2.4 Summary of Gaps

The review of the extant literature uncover a couple of methodological, conceptual and contextual research gaps that yields conflicting results on the effect of equity holdings and entity value. The contextual, conceptual and methodological gaps arise from operationalization of variables, period of study, estimation technique and whether a study account for endogeneity or not, so as to obtain robust results free from spurious relationships. Conceptual gaps arise from the divergent views on the ownership-value effect of either positive, negative or no relationships. Ownership characteristics illuminate agency concerns that lead to differing views on the firm value effect. Ahmad and Jusoh (2014); Gugong, Arugu and Dandago (2014); Mishra (2014); Nakano and Nguyen (2013); Ferreira and Matos (2008); Welch (2003) observe a direct positive nexus between stake holdings structure and entity value while AL-Najja (2015); Ongore (2011); Demsetz and Villalonga (2001) assert no substantial trend between holdings dispersion and value. Malik (2015); and Andow and David (2016) found a negative relationship while Gurbuz and Aybars (2010) report no link for ownership topology and value although the studies explored only foreign aspect of ownership. Gaps arises in that the studies reviewed do not present extensions to refine extant findings on the exact conceptual relation between ownership and value by introducing appropriate mediating and moderating variables.

Certainly, this study incorporated agency costs as an intervening variable and entity size as a moderator in an effort to further improve the predictive power of equity holding and value of listed companies. Further, this studies pursue the nature of link between specific ownership structure dimension of managerial, institutional and foreign holdings on value of entities.

Methodology gaps arise from analysis methods, operational definition of variables and the aspect of ownership structure adopted. Mishra (2014); Isik and Soykan (2013) found a positive ownership structure-firm value relationship using panel data models. Similarly, Ongore (2011) adopting ordinary least square approximation reports a positive relationship. Additionally, Kansil and Singh (2017) adopting logistic regression model found entities with controlling foreign holdings possess higher market value. Further, Ahmad and Jusoh (2014) adopted the generalized least squares and present a positive relations of institutional holdings and value. Meanwhile, Nakano and Nguyen (2013) reported a positive trend of foreign holdings on electronics firms' value based on a dynamic panel regression. However, Chen and Yu (2012) report U-shaped ownership relationship based on generalized linear models. Similarly, Gurbuz and Aybars (2010) found that foreign investors beyond a certain extent reduce firm value based on a generalized least squares corrected for heteroskedasticty and serial correlation. Further, Welch (2003) reported that Ordinary Least Squares results reveal that equity holdings are vital in explaining performance of an entity while Demsetz and Villalonga (2001) found that two stage least squares (2SLS) approximation outcome uncover no influence of equity holdings on entity performance. Isik and Soykan (2013); and Chen and Yu (2012) adopt ownership identity as dummy variables instead of relative ownership variables.

Contextual gap arises from the fact that vast empirical studies on ownership configuration and agency costs focus on larger and more developed securities market that findings may not hold for listed firms in Kenyan context. Demsetz and Villalonga (2001) and McConnell, Servaes and Lins (2008) researched ownership patterns in the US. Meanwhile, Thomsen, Pedersen and Kvist (2006) undertook a comparative study of entities in Europe and the US. Goginenia, Linn and Yadav (2016) and McKnight and Weir (2009) effort was extended to UK firms. Welch (2003) conducted ownership-value study for Australian listed firms while AL-Najja (2015) concentrated on Jordanian listed firms. Malik (2015) targeted listed firms in India- Bombay Stock Exchange. Moreover, Gugong, Arugu and Dandago (2014) and Andow and David (2016) present cases for African context as to the link between holdings stake and value of firm.

Further, scanty empirical studies available in Kenya examined the study variables separately without emphasis on intervening and moderating variables that would offer auxiliary insight supporting the connection between share holdings and value of firms. Ongore (2011); and Mokaya and Jagongo (2015) established that equity ownership pattern of a firm has a direct connection with performance. This study provides more insight in a Kenyan context adopting feasible generalized least squares while incorporating agency costs as a mediating variable to expound on ownership-value relationship. Specifically, it reveals the channel via which shareholding structures mechanisms affect entity value and when the direct link vary. Table 2.1 document a brief of knowledge gaps plus how they are addressed in present study.

Table 2.1: Summary of gaps

Researcher	Area of Study Focus	The Methodology	Research Findings	Research Gaps	Focus of Present Study
Kao, Hodgkinson and Jaafar (2019)	Ownership and agency cost on performance integrating size as a control variable for Taiwan firms	Panel approximation model	Institutional, foreign and family stakes confirm direct relation on value of entity while size depict an inverse relation	Incorporates entity size as a control variable for Taiwan firms	The study adopt size as a moderating variable for Kenyan firms
Nazir and Afza (2018)	Role of corporate governance in enhancing value	Panel modelling	insider ownership manifest negative impact on value and foreigners shareholding do not affect value	Integrate ownership by foreigners and insiders on value for Pakistan	Integrates ownership by foreigners, mangers and institutions on value for Kenyan corporates
Owusu and Weir (2017)	Agency costs, ownership structure and governance	Panel data analytical framework	Existence of board committee diminished agency costs	The study does not extend a test of diminished agency costs	An extension on the influence of agency costs on value
Andow and David (2016)	ownership by managers on conglomerate performance	Panel data estimator model	Evidence of negative link of ownership by managers on conglomerate performance	The study did not integrate agency costs on the ownership-value link for a context in Nigeria	The study integrate agency costs on the ownership-value link for a Kenyan context

Researcher	Area of Study Focus	The Methodology	Research Findings	Research Gaps	Focus of Current Study
Goginenia, Linn and Yadav (2016)	Agency costs and structure of ownership for UK firms	A multivariate regression	Firms with more diffused ownership and those run by non-owner manifest superior agency costs	The study adopted dummy ownership variables	The study is based on relative ownership variables of listed firms in Kenya
Kallamu (2016)	Ownership pattern, autonomous directors and performance	Generalized methods of moment	A negative relationship of ownership structure proxied through Tobin's Q	The study considered only finance firms	The study consider cross industry and monitoring costs as an intervening variable.
Mokaya and Jagongo (2015)	Managerial ownership structures and financial performance	Regression analysis	Managerial ownership exhibits a direct and significant influence on value.	The study did not consider institutional, foreign ownership aspects and agency costs	The link among ownership structure, agency costs and firm size of Kenyan firm
Malik (2015)	Domestic and foreign institutional investors on return on equity and assets	panel data methodology	An insignificant inverse relations between local and foreign institutional holdings and performance	The study only targeted pharmaceutical firm and relied on accounting performance measures	cross industry firms and utilize Tobin Q market measure
Mishra (2014)	Foreign holdings and firm value	The study adopts dynamic panel regressions	Foreign stake has a direct influence and significant relation to value of entity.	The study considered only Foreign equity faction for Australia entities value	The relationship among ownership alignment, agency costs and firm size of Kenyan firms

Researcher	Focus of Study	Methodology	Research Findings	Research Gaps	Emphasis of present Study
Gugong, Arugu and Dandago (2014)	Managerial ownership and firm performance	Ordinary least square regression	A positive link between management equity holding ratio and performance	The study considered only managerial ownership for Nigeria insurance firm	The study consider different equity stake structure effect on cross industry Kenyan listed firms
Ongore (2011)	Ownership stakes and entity performance	Ordinary least squares approximation	Equity stake proportions trend significant positive connection on performance	The study did not consider agency costs	The link among holding profiles, agency costs and entity value
Wellalage and Locke (2011)	Ownership structure, agency costs and governance indicators	Panel data estimation model	Higher insider ownership has high agency costs	The study considered only small firms and insider ownership	The connection between equity stakes, agency problem and value of Kenyan listed corporations
Bradford, Du and Sokolyk (2011)	Equity ownership, agency costs, and performance of corporates	OLS regressions	A decrease in agency costs due to owner-manager equity ownership lead to a higher firm value	considered only managerial ownership for start-up US firms	managerial, institutional and foreign ownership structure, agency costs and firm value for Kenyan firms
Gurbuz and Aybars (2010)	Ownership by foreigners and performance of Turkey listed firms	A Generalized Least Squares (GLS) panel data approach	A curvilinear trend between equity stakes and value of firm and direct effect of size on value	The analysis was for only a three year period and considered foreign ownership in Turkey	managerial, institutional and foreign ownership structure, agency costs, firm size and firm value for Kenyan firms

Researcher	Attention of Study	Methodology	Research Findings	Research Gaps	Emphasis of Current Study
McKnight and Weir (2009)	Ownership and governance variables on agency costs	A panel data analysis technique	Higher institutional ownership may not necessarily mitigate agency cost	The study did not establish the link of foreign ownership on agency costs and value	The link between managerial, institutional and foreign ownership pattern, agency costs and entity value
Singh and Davidson (2003)	Agency costs and ownership structure	A multivariate regression	Higher insider ownership lowers the agency costs	The study did not establish the effect of stakes by foreign on agency costs and value	The relationship between managerial, institutional plus foreign ownership structure, agency costs and entity value
Welch (2003)	Ownership configuration and entity performance	Two-stage least squares regression	A positive association between entity performance and equity stakes	The study did not consider corporate agency costs	The link among ownership structure, agency costs, firm size and firm value
Demsetz and Villalonga (2001)	Equity stakes alignment and entity performance	employ a simple and two stage least squares estimator	no significant link between ownership and entity performance	The estimate did not integrate agency costs	The link among ownership structure, agency costs, firm size and corporation value
Ang, Cole and Lin (2000)	Costs of agency and ownership structure	A multivariate regression framework	Agency costs rise with increase in proportion of non-manager equity holders	study relied on telephone collected data for only small firms in the US	The study target Kenyan listed firms and adopts secondary data for a nine year period

Summarized by Author, 2017

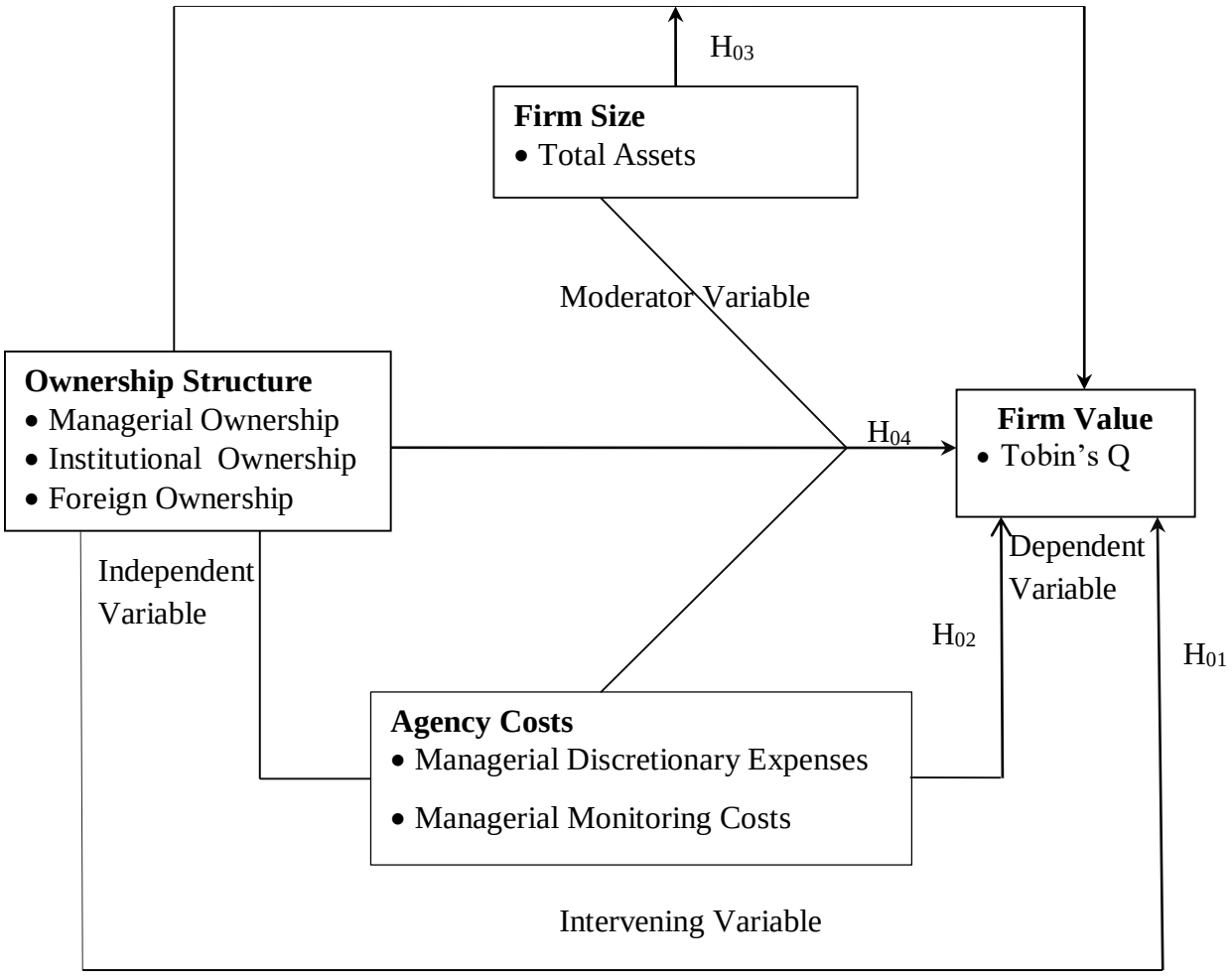
2.5 The Conceptual Framework

The conceptual model is premised on an integrated theoretical foundation of agency theory, institutional theory, stakeholder theory and stewardship theory to estimate the link among ownership structure, agency costs, firm size and firm value of listed firms. Based on agency theory's separation of management and ownership, this study conceptualizes ownership structure as an independent variable with a multi-dimension construct that influences the firm value. There exist a link between entity ownership pattern and value because ownership control enable to streamline the welfares between shareholders and managers and in effect diminish agency problem and monitoring costs and then maximizes the firm value.

It was hypothesized that agency costs act as the underlying mechanism through which the effect of ownership structure is transmitted to value. Accordingly, the connection between ownership configuration and entity value is mediated by agency costs. Managerial ownership can trigger efficient utilization of firm resources and hence influence value. Moreover, institutional and foreign shareholding set-up active monitoring to streamline management interest and achieve goal congruence that lead to shareholder wealth maximisation. Further, it was hypothesized that ownership structure and value of entity relationship vary across levels of firm size. Entity size specifies conditions when ownership structure and value relationship exist. Still, size influence the equity stakes structure choice assumed by firms and eventually the value of a firm. The predicted direction among ownership structure, size and entity value is that large firms with managerial ownership have higher agency costs owing to the greater informational asymmetry and hence lower entity value. Accordingly, small firms and those in industries with foreign and institutional ownership are visualized to have higher value of firm. Large firms with managerial and

institutional ownership can lure agency costs hence affect value. Finally, it was visualized that ownership structure, agency costs and size jointly influence value. In the schematic diagram, the hypothesized direct influence of equity stake configuration on entity value forms the primary area of the study (H_{01}). Further, the study conceptualized that costs of agency conflicts intervenes the bond between ownership alignment and firm value (H_{02}). Moreover, entity size moderates the relationship between ownership structure and firm value (H_{03}). Finally, loop (H_{04}) depict the conceptualized combinative influence of ownership configuration, agency costs and size on entity value. The inter-relation amongst the variables of study in the conceptual model is outlined in Figure 2.1 below.

Figure 2-1: Conceptual Model



Source: Author, 2017

2.6 Research Hypotheses

The following null hypotheses were formulated as informed by review of literature and the relationships portrayed in the conceptual model in Figure 2.1:

H_{01}: The relationship between ownership structure and value of companies listed at the Nairobi Securities Exchange is not significant.

H_{02}: The mediating effect of agency costs on the relationship between ownership structure and value of companies listed at the Nairobi Securities Exchange is not significant.

H_{03}: The moderating effect of firm size on the relationship between ownership structure and value of companies listed at the Nairobi Securities Exchange is not significant.

H_{04}: The joint effect of ownership structure, agency costs and firm size on value of companies listed at the Nairobi Securities Exchange is not significant.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter documents the methodology that guides this research thesis. It encompasses the research philosophy, the research design, the target population, data collection, operationalization of variables and analysis of data.

3.2 Research Philosophy

Research philosophy denotes the advancement of knowledge and the status of such knowledge (Nachmias & Nachmias, 2004). It is a belief of the mode by which data related to a phenomenon should be gathered and analysed in an attempt to accumulate new knowledge. Positivism and phenomenology constitute the main philosophical paradigms that guide research in social sciences (Zikmund, 2003).

On one hand, positivism was advanced by Auguste Comte in the 19th century and lay foundation on empiricism which relies on a scientific rigor to bring forth knowledge. Researchers take a 'scientific' perspective to determine the truth or falsify the stated hypotheses. Positivist advances an approach that comprises of collection of data, extracting generalization, verification and formulation of law (Nachmias & Nachmias, 2004). On the other hand, phenomenology describe phenomenon from the viewpoint of participants lived experiences (Groenewald, 2004). The approach is a qualitative orientation to research insights characterized by open and unstructured interviews where researchers interact personally with units of analysis being investigated (Zikmund, 2003).

This study adopted a positivist research philosophy. This is premised on the view that the study is theory-based and involved a review of extant literature to develop a conceptual frame of logical relationships. It furthered entailed testing of hypothesis, collection of quantitative data and carrying out analysis in order to draw conclusion on the subject of study.

3.3 Research Design

Research design is the strategy of investigation aimed at acquiring empirical substantiation of the relationships among variables of a study to address a research problem (Zikmund, 2003). A multi-dimensional research design was adopted for this study and targeted descriptive, causal and longitudinal designs. Descriptive study involves description of phenomena or characteristics linked with a subject population (Cooper & Schindler, 2008).

Descriptive design facilitated in profiling characteristics of variables and offering hints for further probe. Longitudinal design involves collection of variable observations overtime for several units of study and allow estimate of individual and time effect in panel models unlike cross sectional design that relates to gathering of data just once and not across time (Green, 2008). The design allows data sets that consist of both cross sectional and time series. The design enabled capture data sets with more variability and less collinearity among variables (Baltagi, 2005). Moreover, the design enabled to accumulate data that was more informative and which permit control for individual listed firms heterogeneity (diversity) and eliminate bias in regression estimation in attempt to predict robust relationship among variables of study (Wooldridge, 2013).

A causal research design was used to elucidate how the independent variable initiates change in the dependent variable consequently defining the cause-effect connection which subsists among variables (Cooper & Schindler, 2008). The design further permitted for generalization of the sample findings to the population of listed firms. In this case, causal research design enabled the researcher to discover any relationship among ownership structure, agency costs, firm size and investor wealth of entities quoted by the Nairobi Securities Exchange. Nzioka (2017) used a causal research while Ochieng (2016) and Mwangi (2014) implemented descriptive research design to analyze the causality between various study variables and to draw conclusions in their respective studies.

3.4 Population of the Study

Population is the aggregate of the entire elements integrated in a study that share some universal set of characteristics (Cooper & Schindler, 2008). The target population of the thesis encompasses all the quoted entities at the NSE (appendix 1). There were 65 companies quoted at the Nairobi Securities Exchange as at 31st Dec 2017 (NSE, 2017). The individual listed firms were considered as the unit of analysis.

This research concentrated on the corporations quoted at Nairobi Securities Exchange because the firms have separate management and ownership that occasion aspects of agency problems and can affect firm value. Moreover, the firms' shares are freely transferable through trading at the securities exchange and can result in diverse ownership structures and owner identities. Management ownership can activate efficient utilization of firms' assets and concentrated ownership set-up active monitoring to align interest of management and ownership to maximise shareholders wealth. The firms further exhibit distinct characteristics of firm size. The entities included in the study came from a variety

of industries in an attempt to capture heterogeneity aspects. Thus, the listed firms are likely to manifest distinct relationships amongst variables of study and hence the listed firms were adopted as an ideal context.

3.5 Data Collection

The research utilized secondary data that was considered adequate to enable the researcher capture measures of the variables and achieve the study objectives. The data was collected from an in-depth review of published annual reports for a period of eight years from 2010 to 2017. Collis and Hussey (2009) contend that suitability of a period of data collection is guided by adequacy of data points that can enable collect adequate analysis data. A data collection form was adopted as the instrument for data capture and is included as Appendix 2.

The data was gathered from the Nairobi Securities Exchange (NSE) and Capital Market Authority (CMA). Data was also obtained from listed firms' licensed Share Registrars, Central Depository and Settlement Corporation Kenya limited (CDSC), DirectFn Data Vendors and physical visit to some listed companies offices. The researcher specifically captured data from listed firms' annual integrated financial reports, Capital Market Authority statistical bulletins, respective company websites, CDSC Kenya and periodic circulars to shareholders. The data was then transferred into Microsoft excel for easy manipulation and later uploaded to 'R', Software version 3.6.0 statistical package for subsequent analysis processes.

3.6 Operationalization of Variables

The operationalization of variables as guided by review of previous studies is shown in table 3.1. The independent variable of ownership structure is measured based on dimensions managerial, institutional and foreign equity holdings. The intervening variable of agency costs is measured in terms of managerial discretionary expenses and firm monitoring costs. Managerial monitoring costs relate to the non-executive directors emoluments and auditors remuneration. The non-executive directors' emoluments consist of an annual fee based on bonded monthly retainer and a sitting allowance meant for each board or committee meeting attended. Managerial discretionary expenses relates to cost incurred by the management in undertaking the day to day operations of the organization. The expenses relate to selling, distribution and administration costs incurred by an organization.

The moderating variable of firm size was operationalized in terms of total assets of listed companies. Tobin's Q was adapted to proxy the independent variable of value of entity. The value of entity was estimated using the market worth of ordinary shares scaled by the nominal value of equity (shareholders fund).

Table 3.1 Operationalization of Variables

Variable	Indicators	Operational Definition	Measure	Source
Ownership Structure (Independent variable)	Foreign Ownership	Shareholding by foreign investors	Ratio of foreign share ownership to total outstanding shares of firm i	Thanatawee (2014)
	Institutional Ownership	Shareholding by institutions	Proportion of institutions share ownership to total outstanding shares of firm i	AL-Najja (2015)
	Managerial Ownership	Shareholding by management	Ratio of managerial ownership (Board members and CEO) total outstanding shares of firm i	Mishra (2014)
Agency costs (Intervening variable)	Managerial Monitoring Costs	Audit fees and non-executive directors remuneration	Monitoring costs of audit fees and remuneration of non-executive directors scaled by sales of firm i	Mustapha and Ahmad (2013)
	Managerial Discretionary Expenses	Utilization of firms resources by managers	Selling, distribution, and administrative (SD&A) expenses sales ratio of firm i	Rashid (2016), Wellalage & Locke (2011), Singh and Davidson (2003) Ang, Cole and Lin (2000)
Firm Size (Moderating variable)	Total Assets	Total Assets	Total assets of firm i	Mishra (2014) McKnight and Weir (2009)
Firm Value (Dependent variable)	Tobin's Q	Firm Worth	$\frac{\text{Market value of equity of firm i}}{\text{Book value of equity of firm i}}$	Florackis (2008), Thanatawee (2014) Kao, Hodgkinson and Jaafar (2019)

3.7 Diagnostic Tests

Diagnostics tests of normality, linearity, multi-collinearity, homoscedasticity, serial correlation and stationarity were undertaken to enable achieve robust analysis. Normality track spikes in residuals so as to achieve exact statistical results (Green, 2008). Descriptive statistics of the minimum, mean, maximum, standard deviation, kurtosis and skewness were used to check for normality. Multi collinearity describes a situation with high association between independent variables (Gujarati & Porter, 2009). In case of high linear strength between variables, it becomes difficult to isolate effect of an independent variable on criterion variable. Further, it causes the standard error to be amplified and in turn cause less accurate coefficient and unreliable confidence intervals (Woodridge, 2002). A high R-squared value may point to a case of multi collinearity.

A correlation matrix was adopted to investigate the pairwise correlations between variables. In case of correlation coefficient $r > \pm 0.7$, the independent variables were considered as strongly related. Tolerance level and Variance Inflation Factor (VIF) were undertaken to test status for multi collinearity. A benchmark VIF of greater than 10 implied a high strength between variables. Tolerance is a reciprocal value of the variance inflation factor. A tolerance level of greater than 0.1 is acceptable (Baltagi, 2005). In case of multi collinearity, the independent variable with the highest inflation factor can be excluded from further analysis.

Linearity depicts the functional (model) specification of relationship between the predictor gradient and outcome variables (Green, 2008). Gujarati and Porter (2009) describe linearity as a linear function of the beta (β) of a variable implying that parameters are raised to the first power only and not necessarily linear variables. In case of violation of assumption of linearity, the conclusions draw from a model fit is biased (Baltagi, 2005). The linearity

assumption was verified by inspecting a residual versus fitted plot. A fairly horizontal line at zero or no fitted pattern of a diagnostic plot, depict linearity. Plots of linearity test are annexed as appendix 3 (residuals vs fitted plots) though no cases of non-linearity was identified.

Homoscedasticity arises from the classical assumption that the variance of residuals should not surge with fitted values of dependent variable implying that variance of the residuals has to be constant and same for all observations (Halcoussis, 2005). Residuals represent the difference between the observed and predicted values in a model fitted. The fitted model is the one closest from a family of models that best fits the observed data and in essence the variance of residuals should not surge with fitted values of dependent variable (Baltagi, 2005). In case of manifestation of heteroskedasticity, the OLS estimates remain unbiased, but the estimates of the variance of the beta coefficients are no longer accurate (Wooldridge, 2013).

Heteroscedasticity arise mainly in datasets that have a big range between the largest and smallest observation values (Gujarati & Porter, 2009). Heteroscedasticity lowers the precision of estimated regression coefficient and thus increasing the chance that the coefficient estimates are further from the precise population value (Green, 2008). Heteroscedasticity was estimated by adopting Breush-Pagan statistical test advanced by (Breusch & Pagan, 1979). The test relied on p-value of more than a significance level of 0.05 in order to accept the null hypothesis that variance of the residuals was constant.

Serial correlation is state which occurs where the residue or error terms of regression variables for different time periods are correlated (Green, 2008). It arises when a current

disturbance error term value is a function of the previous observation of the error term (Baltagi, 2005). This may be a common scenario where data for analysis was collected over time. In order to apply linear regression, the residuals from a regression analysis should be independently distributed. If the assumption is violated, then the disturbances are pairwise auto correlated and regression coefficients estimated standard errors (variances) are biased and inconsistent (Wooldridge, 2013).

Wooldridge F-statistic was applied to test existence of auto-correlation. The null hypothesis adopted was that there existed no first order autocorrelation among residuals. A P-value of less than 5% significance level points to manifestation of serial correlation (Wooldridge, 2002). In cases of autocorrelation, robust covariance matrix estimators were recalculated after performing OLS regression. Alternatively, Green (2008) recommendation of generalized least squares Prais Winsten procedure that removes autocorrelation using model inbuilt differencing transformation was utilized.

Stationarity is a depiction of the status of data trend where its variance and mean do not vary systematically over time (Gujarati & Porter, 2009). Panel datasets can at times manifest infinite variance and non-uniform oscillations compared in respect to the mean. If panel data characteristics of mean, covariance and variance are time variant, a scenario for nonstationary or unit root problem manifest (Green, 2008). Where panel data exhibit time variant trends, white-noise errors arising can exemplify spurious regression (Baltagi, 2005). The variable were subjected to unit root test via the Augmented Dickey and Fuller (ADF) test. The test is based on the null hypothesis that panel series was non-stationary.

Further, panel linear data analysis that involved a determination of whether to fit a fixed effect model, pooled ordinary least squares or a random effect model was applied. A panel linear model allow control over variables that cannot be observed and accounts for individual heterogeneity for variable's that change overtime but not across groups (Baltagi, 2005). The pooled ordinary least squares assume no unique characteristics (homogeneity) of unit firms and no effects over a study period (Gujarati & Porter, 2009). Fixed effects model assumes that firms are heterogeneous in nature and that the unobserved individual heterogeneity are correlated with the study independent variables of ownership structure, agency costs and entity size and as such capture coefficients that do not vary across individual firms. Indeed, all behavioural differences between individual entities and over time are seized by the same intercept (Wooldridge, 2010). Random effects decomposes unobserved firm and/or time effects from the error term and hence assume that individual firm specific effects are independent of ownership structure, agency costs and size of corporation.

Breusch and Pagan's (1979) Lagrange Multiplier (LM) estimate was adapted to experiment whether to fit pooled ordinary least squares or a random effect model while an F-test compared the fixed effect model and OLS to evaluate the improvement of the goodness of fit by the fixed effect approximation. Further, the Hausman specification estimate that scrutinizes if the individual effects are uncorrelated with other independent variables was performed in order to apply appropriate estimator between fitting a fixed or random effect model (Baltagi, 2005).

In case of breach of norms of the ordinary linear approximation estimator, a recalculation of the panel corrected standard errors (PCSE) of ordinary linear regression model was

undertaken (Bailey & Katz 2011). It involved adopting a two-stage least square (2SLS) in cases which were plagued by heteroskedasticity and autocorrelation. Musau, Waititu and Wanjoya (2015) conjecture that panel data sets manifest heteroscedasticity and autocorrelation of unknown form that results in non-spherical disturbances. Thus the panel co-variance estimator proposed by Newey and West (1987) which yields consistent estimators in presence of heteroscedasticity and autocorrelation (HAC) of unknown form was adopted by the researcher to address heteroscedasticity and autocorrelation problem. Alternatively, a transformed regression model- generalized least squares (GLS) that purges autocorrelation and/or heteroscedasticity was adopted (Green, 2008). Specifically, a regression with autocorrelation Prais Winsten modelling and panel-corrected standard errors transformation was used to describe data generalization where cases of heteroskedasticity and autocorrelation were detected.

3.8 Data Analysis

Data analysis involves checking central tendency and dispersion, testing the goodness of data and hypothesis testing (Sekaran, 2003). Data was analysed by adopting descriptive plus inferential statistics. Descriptive statistics for instance frequencies along with percentages were preferred to profile the firms' ownership structures, agency costs and firm size. Pearson's correlation approximation was ideal to measure the degree of linear association between the variables of the study. 'R' software, version 3.6.0 statistical package was used to undertake the analysis.

Linear regression was adopted to define the interactions of the relationship that exists among the variables of the estimation. The first hypothesis elaborated a check of the direct link between ownership configuration and entity value using a multiple regression. The

second hypothesis followed Baron and Kenny (1986) three steps procedure to weigh the mediating influence of agency costs on the link between ownership structure and firm value. Furthermore, Baron and Kenny (1986) two steps method was adopted to assess the moderating effect of firm size on the nexus between ownership structure and firm value. Finally, a multiple regression estimation was adopted while assessing the fourth hypothesis of the joint effect of agency costs and size of corporate on the relationship between equity holdings and entity value. The research hypotheses were verified at 5% level of significance.

3.8.1 Ownership Structure and Firm Value

The first objective was to estimate the relationship between ownership structure and value of listed entities at the Nairobi Securities Exchange. The dependent variable was entity value that adopted Tobin's Q (TQ) as its proxy while the dependent variable was ownership structure denoted as managerial holdings, institutional equity stake and foreign holdings. Ownership structure disaggregated into foreign, institutional and managerial ownership was fitted into the following regression model.

$$FV_{it} = \beta_0 + \beta_{11}MO_{it} + \beta_{12}IO_{it} + \beta_{13}FO_{it} + \varepsilon_{it} \qquad \ldots\ldots 1$$

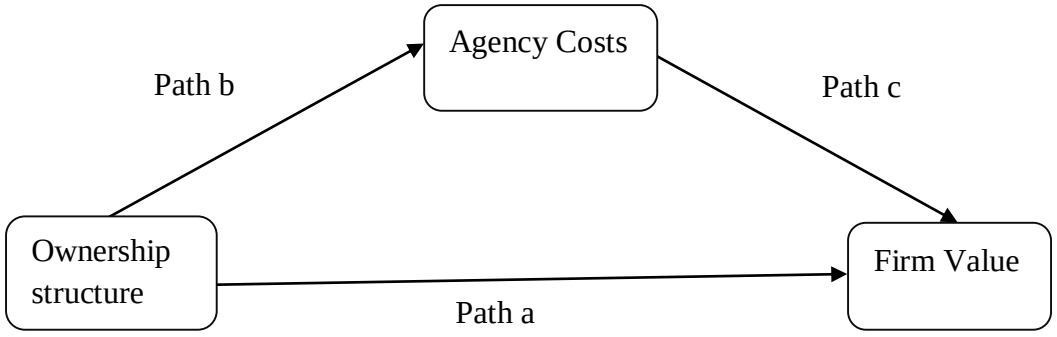
Where:

FV is entity value, MO is managerial ownership, IO is institutional ownership and FO foreign ownership, β_0 is the regression constant term and β_i is regression coefficient of variable i.

3.8.2 Ownership Structure, Agency Costs and Firm Value

The second objective involved establishing the mediating effect of agency costs on the relationship between ownership holdings and value of listed firms. Baron and Kenny (1986) principles of mediation corresponds to the transmission of the effect of a predictor variable on an outcome variable through a mediator. A predictor variable directly affect the outcome variable (path a) or indirectly affect the outcome variable through a mediator (path b) and the mediator in turn affect the outcome variable (path c). The mediation path is outlined in figure 3.1.

Figure 3.1: Mediation Path Diagram



Source: Researcher (2019)

Kenny and Baron (1986) three steps were followed in establishing role of ownership holdings on value through agency costs as a mediator. Similar approach was adopted by Hsu, Wang and Hsu (2012). The initial step model fitted was similar to model 1 of assessing the nexus between ownership holdings and value of listed entities. Step 2 of the analysis established the relationship between costs of agency (intervening variable) and ownership holdings (independent variable). Agency costs indicator of managerial discretionary expenses proxy is the proportion of selling, distribution, and administration expenditures to sales while managerial monitoring costs were based on audit cost and non-executive directors' remunerations scaled by sales.

In this step, the mediator is predicted by ownership structure. The following model was adopted to test intervention analysis in step two

$$MMC_{it} = \beta_{mo} + \beta_{mm}MO_{it} + \beta_{mi}IO_{it} + \beta_{mf}FO_{it} + \varepsilon_{it} \quad \text{.....2}$$

$$MDE_{it} = \beta_{eo} + \beta_{em}MO_{it} + \beta_{ei}IO_{it} + \beta_{ef}FO_{it} + \varepsilon_{it} \quad \text{.....3}$$

Where MO, IO and FO are the same as denoted in equation 1.

MMC is managerial monitoring costs and

MDE represents managerial discretionary expenditures.

The third step in investigation of the mediating effect of managerial discretionary expenses and managerial monitoring costs on the relationship between ownership proportions and value of entity involved expressing value as a function of either managerial discretionary expenses or managerial monitoring costs in turns while in presence of ownership proportions based on equation 4 and 5 in that order.

$$FV_{it} = \beta_{20} + \beta_{21}MO_{it} + \beta_{22}IO_{it} + \beta_{23}FO_{it} + \beta_{24}MDE_{it} + \varepsilon_{it} \quad \text{.....4}$$

$$FV_{it} = \beta_{20} + \beta_{21}MO_{it} + \beta_{22}IO_{it} + \beta_{23}FO_{it} + \beta_{24}MMC_{it} + \varepsilon_{it} \quad \text{.....5}$$

Furthermore, this step of testing the mediation evaluated the effect of ownership structure on firm value in presence of managerial discretionary expenses and monitoring costs. The principle is to capture the change in effect in direct relationship once the mediator is included in the approximation model. The estimation in this step trailed the change of the primary effect of ownership holdings on value of firm once the managerial discretionary expenses and monitoring costs are introduced in the equation in step one.

3.8.3 Ownership Structure, Firm Size and Value

The third objective was to ascertain the effect of size in moderating the relationship between ownership proportions and value of listed firm. Baron and Kenny (1986) two steps methodology was adopted to ascertain moderating effect of size based on the following equations.

The primary (direct) effect was tested for the starting step of the regression.

$FV_{it} = \beta_{f0} + \beta_{311} MO_{it} + \beta_{312} IO_{it} + \beta_{313} FO_{it} + \varepsilon_{it}$ …….……..…….. 6

In the subsequent step, the interaction term variable of moderator and independent variable were included in the regression model

$FV_{it} = \beta_{f0} + \beta_{311} MO_{it} + \beta_{312} IO_{it} + \beta_{313} FO_{it} + \beta_{314} TA_{it} + \beta_{ta31}(MO_{it}^{c}.TA_{it}^{c}) +$

$\beta_{ta32}(IO_{it}^{c}.TA_{it}^{c}) + \beta_{ta33}(FO_{it}^{c}.TA_{it}^{c}) + \varepsilon_{it}$…….……..7

Where,

$(MO_{it}^{c}.TA_{it}^{c})$ represent the centered interaction term between indicator of managerial equity holding and total assets,

$(IO_{it}^{c}.TA_{it}^{c})$ represents the centered interaction term between institutional ownership and total assets

$(FO_{it}^{c}.TA_{it}^{c})$ is the centered interaction term between foreign holding and total assets

3.8.4 Ownership Structure, Agency Costs, Firm Size and Value

The fourth objective was to establish the combined effect of ownership structure, agency costs (managerial monitoring cost and discretionary expense) and the firm size (total assets) on the value of quoted entities.

The joint effect analysis of the study variables was investigated in the following regression equation:

$$FV_{it} = \beta_{f0} + \beta_{411} MO_{it} + \beta_{412} IO_{it} + \beta_{413} FO_{it} + \beta_{414} MMC_{it} + \beta_{415} MDE_{it} + \beta_{416} TA_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots 8$$

Table 3.2 Summary tests for hypotheses and interpretation

Objectives	**Hypotheses**	**Analytical methods and Model**	**Interpretation**
To establish the relationship between ownership structure and firm value of companies listed at the Nairobi Securities Exchange	**H_1:** The relationship between ownership structure and value of quoted firms at the Nairobi Securities Exchange is not significant.	Multiple regression model Firm value = f (Ownership structure) $Y = \beta_0 + \beta_{11}MO_{it} + \beta_{12}IO_{it} + \beta_{13}FO_{it} + \varepsilon_{it}$ Y= Firm Value, β_0= intercept, MO=Managerial Ownership, IO=Institutional Ownership, FO= Foreign Ownership structure, β= coefficient, ε= Error term	A relationship exists if any of the betas (β) of MO, IO and FO is significant where P value is less than 0.5 ($p>0.05$)
To establish the effect of agency costs in mediating the relationship between ownership structure and firm value of companies listed at the Nairobi Securities Exchange	**H_2:** The mediating effect of agency costs on the relationship between ownership structure and value of listed firms at the Nairobi Securities Exchange is not significant	Stepwise Regression Analysis Firm Value = f (MO,IO,FO,AC) Step 1: $FV=\beta_0 + \beta_{21}MO_{it} + \beta_{22}IO_{it} + \beta_{23}FO_{it} + \varepsilon_{it}$ Step 2: $AC=\beta_0 + \beta_{21}MO_{it} + \beta_{22}IO_{it} + \beta_{23}FO_{it} + \varepsilon_{it}$ Step 3: $FV=\beta_0 + \beta_{24}AC_{it} + \beta_{25}MO_{it} + \beta_{26}IO_{it} + \beta_{27}FO_{it} + \varepsilon_{it}$ AC= agency costs, FV=firm value MDE & MMC are facets of AC	Mediation (indirect) effect is confirmed if MO, IO and FO coefficients are significant in step 2 provided the MO, IO and FO coefficients in step 3 are lesser in significance than for step 1. If step 3 coefficients are significant then partial mediation occurs

Objectives	Hypotheses	Analytical methods and Model	Interpretation
To establish the effect of firm size in moderating the relationship between ownership structure and value of companies listed at the Nairobi Securities Exchange	**H_3:** The moderating effect of firm size on the relationship between ownership structure and value of listed firms at the Nairobi Securities Exchange is not significant	Stepwise Regression Analysis Firm Value = f (MO,IO,FO,FS) $FV= \beta_0+\beta_{11}MO_{it}+\beta_{12}IO_{it}+ \beta_{13}FO_{it} +\varepsilon_{it}$……..(i) $FV= \beta_0+\beta_{11}MO_{it}+\beta_{12}IO_{it}+ \beta_{13}FO_{it}+ \beta_{31}TA_{it} +\beta_{32}$ $(MO^c_{it}.TA^c_{it}) +\beta_{33}(IO^c_{it}.TA^c_{it}) +\beta_{34}(FO^c_{it}.TA^c_{it}) +\varepsilon_{it}$ …..(ii)	Moderation is confirmed if any of the product term between ownership structure and size is significant. Further, if the main effects is significant and also if variance accounted for in the model with product term is greater than model with no interaction
To establish the joint effect of ownership structure, agency costs, firm size and value of companies listed at the Nairobi Securities Exchange	**H_4:** The joint effect of agency costs and firm size on the relationship between ownership structure and listed firm value is not significant.	Multiple regression Firm Value = f (MO,IO,FO,AC,FS) $FV_{it} = \beta_{f0} + \beta_{411}MO_{it}+ \beta_{412}IO_{it} + \beta_{413}FO_{it}$ $+\beta_{414}MMC_{it}+\beta_{415}MDE_{it}+ \beta_{416}TA_{it} + \varepsilon_{it}$	If F-statistic/Wald statistic is statistically significant. Moreover, if at least any beta coefficient in the model is significant then it implies that a relationship exist

CHAPTER FOUR

DESCRIPTIVE ANALYSIS AND RESULTS

4.1 Introduction

This chapter documents the descriptive analysis and results of the study variables. Specifically, a discussion of the statistics of research dependent variable (Tobin's Q), explanatory variables (managerial, institutional and foreign ownership), mediator variables (agency costs: managerial discretionary costs and monitoring costs) and moderator variables (firm size: total assets). The chapter ends with an analysis of study variables correlations.

4.2 Study Sample

The population of listed firms as at 31st December 2017 was 65 companies. However, adequate data for 54 firms was accessible which represented a success rate of 83.1%. Kithinji (2017) in a study of restructuring and performance of commercial banks obtained a data success rate of 88.6% (39 out of 44 banks). The sample of 54 firms yielded 397 firm year observations connecting to the duration of study from 2010 to 2017. Due to unavailability of some data, observations for firms vary from 2 years to the maximum of eight years. The mean observations were 7.35 years for each firm reflecting a percentage of 91.88% of the total sampled firms' observations and thus yielding an unbalanced panel dataset. Similarly, McKnight and Weir (2009) employed 534 firm observations from a total of 128 UK non-financial firms based on an unbalanced panel dataset. In addition, Owusu and Weir (2017) established a 283 firm-year observations, from a minimum period of 2 years to a maximum of 10 years for 35 listed firms in Ghana.

4.3 Descriptive Statistics of Firm Value

Descriptive statistics summarizes the firm value data set designated via Tobin's Q using the minimum, mean, maximum, standard deviation, kurtosis and skewness. While computing the market value of equity, every firm year end market share price and number of shares for each of the 8 years of data capture, were based on monthly averages of share price and shares outstanding at the end of each month respectively. Table 4.1 displays the descriptive summary of Tobin's Q.

Table 4.1 Firm Value Statistics

	N	Min	Max	Mean	Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Firm Value	397	0.10	7.40	1.53	1.30	1.96	0.122	4.58	.244

Source: Author 2019

The listed firms Tobin's Q value varies from 0.10 to 7.40, revealing a significant variation in valuation among the listed firms. The firms mean value was 1.53 with a standard deviation of 1.29 that show the variation in the firms' valuation. The mean Tobin's Q discloses that the firms generally created value for the equity holders during the study period since the mean is greater than book value of 1. Tobin's Q maximum and minimum values were 7.40 and 0.10, a pointer to heterogeneity and diversity in value among firms sampled. Skewness and kurtosis show the shape of variables distributions and aid to check for normality and hetereoskedasticity in a distribution. Tobin's Q is positively skewed (1.96) specifying that the firm values distribution is relatively normally distributed. The distribution is more fairly peaked with a kurtosis of 4.58 revealing that some listed firms were highly valued.

4.4 Descriptive Statistics of Ownership Structure

The ownership proportions dimensions are the independent variables of this study. The institutional and foreign equity holdings were obtained by averaging quarterly end share holdings to derive the annual share standing for each of the eight years of study. Managerial equity holding were based on the members of the board direct interest in firms ordinary shares as at the end of each firms financial period. The descriptive statistics of managerial, institutional and foreign equity holdings are summarised in table 4.2

Table 4.2 Ownership Structure Statistics

	N	Min	Max	Mean	Std. Deviation	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Managerial Ownership	397	0.00	0.82	0.13	0.20	1.70	.122	1.88	.244
Institutional Ownership	397	0.01	0.95	0.48	0.25	-0.19	.122	-1.21	.244
Foreign Ownership	397	0.00	0.94	0.28	0.28	0.61	.122	-1.10	.244

Source: Author 2019

The minimum value of managerial ownership was zero which implied that some listed firms directors and CEO do not own any shares in the firms which they manage. The maximum value of 0.82 reveals that some managers held a significant number of shares in the listed companies. On average, the firms' managerial equity holding stood at 0.13 implying that the executives of the firms held generally a small proportion of equities in the listed firms. Managerial share interest positive skewness of 1.7 denote that substantial firm managers hold small number of shares in many listed firms. A kurtosis value of 1.88 reveals a fairly mesokurtic distribution of members of the board interest in entities ordinary shares.

The institutional equity holding mean value of 0.48 suggests that institutions are half the share of the shareholders of the listed entities. The minimum value of 0.01 reveals that some listed entities were not owned at all by any institutional investors. However in other firms, the maximum shareholding by institutional investors was at 95 per cent. This implies that some firms were owned almost exclusively by the institutional equity holders. Institutional equity holding skewness score of -0.19 is close to zero and thus an indication that the distribution of scores is symmetrical. The kurtosis score of -1.21 presents a fairly flat distribution of institutional equity holders' scores.

The maximum equity holding by foreign investors stood at 94 per cent, shows that some foreign investors held a substantial number of shares in some firms. On average the ownership by foreign investors was at 29 per cent of total equity holding for the listed corporates. The minimum value of zero reveals that some firms were not owned at all by foreign investors. The skewness score of 0.61 for the foreign ownership indicates that the distribution does not deviate further from a normal distribution. The kurtosis score of -1.10 shows that foreign holding follows a fairly flat distribution.

4.5 Descriptive Statistics Agency Costs

Agency costs were represented by the indicators of Managerial discretionary expenses (MDE) and managerial monitoring costs (MMC). The managerial discretionary expenditure should be directed towards income generating activities that improve the wealth of shareholders. Selling, distribution, and administrative expenses (SD&A) are considered as managerial discretionary expenses that capture the level of agency costs. The selling, distribution, and administration expenses to turnover ratio reflects the management ability to proficiently utilize its resources in generating sales. A higher SD&A ratio can

point to excessive discretionary expenses by firms' management and hence reflect higher agency costs. On the contrary, a lower SD&A turnover ratio can indicate greater cost control measures that conserve cash flow to the firm.

Independent directors and external auditors monitoring mechanisms can mitigate agency costs by streamlining managers and shareholders' interests. Managerial monitoring costs as a separate indicator of agency costs was represented by ratio of audit cost and non-executive directors' remuneration to sales. Firms with less monitoring can experience higher agency costs. In cases of lower share ownership by different owner constituents, may demand for higher quality audit and outstanding calibre of independent directors. The resultant increased monitoring can mitigate agency conflict and boost shareholder value. The results of the descriptive analysis of agency cost are summarized in table 4.3.

Table 4.3 Agency Costs Descriptive Statistics

Agency Cost Proxies	N	Min	Max	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Selling, Distribution and Admin expenses	397	0.01	0.800	0.2954	0.1906	0.57	.122	-0.43	.244
Managerial monitoring costs	397	0.00	0.100	0.0007	0.0086	1.416	.122	12.77	.244

Source: Author 2019

The results in table 4.3 show that mean selling, distribution and admin expenses turnover ratio is 0.30 which signifies that every 30 cents of managerial discretionary costs incurred generated a revenue of a shilling to the firms. The minimum value of 0.01 reveals that some firm managers spent only one percent of revenues generated in selling, distribution and administration expenses. This may be considered to represent minimal agency costs in some listed firms. On the other hand, the maximum MDE turnover ratio of 0.80 implies

that some firm managers utilize a high proportion of discretionary costs to generate revenue for the firms. In essence, the increased cost to income ratio may signify inefficiencies in the firms' operation and thus a cases of inherent agency problems. The MDE turnover ratio is positively skewed at a score 0.57 unveiling cases of average efficiencies for some listed firms. The kurtosis of MDE turnover ratio is peaked at -0.43, signifying that few firms experienced a lower managerial discretionary costs.

The summarized results in table 4.3 further confirm that on average the amount spent by the firms on audit and non-executive directors' remuneration to turnover ratio amounted to 0.0007. The minimum amount spent on monitoring costs was so minimal when compared to level of sales realized while the maximum costs was 10 percent of sales generated. This indicates a wide range among the firms amounts spent on remunerating non-executive directors and payment for audits fees. Moreover, increased amount spent on monitoring would signify associated higher agency costs among the listed entities. Monitoring costs distribution is positively skewed with a score of 1.42 exhibiting a slight deviation from normal distribution of the variable data. The kurtosis score of monitoring costs incurred by the firms is 12.77, a signal of non-normal data distribution.

4.6 Descriptive Statistics Firm Size

In the interest of ascertaining the moderating effect of size of entity on the impact between ownership holdings and value for listed entities, total assets was adopted as a measure of size of entity. The summary descriptive statistics for size are outlined in table 4.4.

Table 4.4 Firm Size Descriptive Statistics

Firm Size	N	Min	Max	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Total Asset Sh.(million)	397	158.3	646,668	70,909.62	108,275.46	2.30	.122	5.93	.244

Source: Author 2019

The descriptive statistics on table 4.4 show that firm size as measured by aggregate assets has a mean worth of Sh.70.9 billion with a corresponding standard deviation of 108.26 billion which discloses that listed firms vary significantly in size. The minimum value of listed firm size was Sh.158 million whereas the maximum was Sh.646.6 billion denoting greater heterogeneity between smallest and largest listed firms based on total assets. The skewness score of total assets of 2.3 is an indication of a relative symmetrical distribution while the kurtosis value of 5.93 signifies a relative normal distribution of data.

4.7 Correlation Analysis

Correlation between variables describes the strength of association between variables (Cooper & Schindler, 2008). The association strength is can either be considered as positive or negative. The study variables correlations are presented based on pearson's product moment correlation. A perfect correlation is denoted by a coefficient value of one. Indeed a correlation of -1 signifies a perfectly negative relationship while a correlation of +1 depicts perfectly positive linear relationship. A correlation of zero specifies that no association exists between the variables. Correlation results are presented at a significance of 0.05 and 0.01 in line with other studies of Mwangi (2014) and Kithinji (2017).

4.7.1 Correlation between Ownership Structure and Firm Value

The nature and strength of the connection between firm value (Tobin's Q) and indicators of equity holding of managerial, institutional and foreign was investigated based on Pearson product moment correlation. The analysis of the correlation between equity holding indicators and value of entity are summarized in table 4.5.

Table 4.5 Correlation between Ownership Structure and Firm Value

		Firm value	Managerial Ownership	Institutional Ownership	Foreign Ownership
Firm Value	Pearson Correlation	1			
	Sig. (2-tailed)				
Managerial Ownership	Pearson Correlation	-0.235**	1		
	Sig. (2-tailed)	.000			
Institutional Ownership	Pearson Correlation	-0.36	0.352**	1	
	Sig. (2-tailed)	.470	.000		
Foreign Ownership	Pearson Correlation	1.19*	-0.374**	-0.802**	1
	Sig. (2-tailed)	0.017	.000	.000	

* Significant at $\rho < 0.05$
** Significant at $\rho < 0.01$
Source: Author 2019

Table 4.5 results show statistically significant inverse relations between firm value and managerial ownership (r=-.235, p=00) which imply that firm value decrease as managerial equity holding increase. On the contrary, there was a positive correlation between value and foreign equity holding (r=.119, p=00), indicating that value of firm improved as foreign holding increased. The institutional equity holding demonstrated an inverse but insignificant association (r=- 0.36, p=.400) with the value of firms.

4.7.2 Correlation between Ownership Structure and Agency Costs

The nature as well as strength of the relationship between agency costs (managerial discretionary expenditures and managerial monitoring costs) and indicators of ownership equity holding of managerial, institutional and foreign was investigated based on Pearson's product moment correlation. The results of the correlation between ownership equity holding indicators and agency costs are condensed in table 4.6.

Table 4.6 Correlation between Ownership Structure and Agency Costs

		Discretionary expenditures	Monitoring Costs	Managerial Ownership	Institutional Ownership	Foreign Ownership
Discretionary expenditures	Pearson Correlation	1				
	Sig. (2-tailed)					
Managerial monitoring costs	Pearson Correlation	.107*	1			
	Sig. (2-tailed)	.033				
Managerial Ownership	Pearson Correlation	.132*	-.076	1		
	Sig. (2-tailed)	.008	.128			
Institutional Ownership	Pearson Correlation	-.038*	0.73	.353**	1	
	Sig. (2-tailed)	.039	.144	.000		
Foreign Ownership	Pearson Correlation	.125*	-.233**	-.376**	-.802**	1
	Sig. (2-tailed)	.012	.00	.000	.000	

* Significant at $\rho < 0.05$
** Significant at $\rho < 0.01$

Source: Author 2019

As charted in table 4.6, a statistically substantial positive association (.107, p=.033) exists between monitoring costs and managerial discretionary expenditure. A sign that as the operational costs increase, a corresponding effort in monitoring effort is considered. A positive association (r=0.132, p=00) was noted between managerial discretionary expenditure and managerial ownership denoting that variations in managerial ownership holding affect is the efficiency utilization of resources by listed entities. Indeed, as the

managerial ownership increases, there is also a surge in managerial discretionary expenditure for the firms. Companies. On the contrary, a significant negative association (r=-.083, p=.448) was established between institutional holding and the firms discretionary expenses. This points to a decrease in discretionary expenditures as the level of holding by institutions rises. In contrast, a positive correlation (r=.125, p=012) was depicted between foreign equity holding and managerial discretionary expenditure. This indicates that operational expenses increase as foreign holding proportions rise.

The results in table 4.6 further show that there exists a negative statistically significant correlation (-.076, p=0.001) between foreign holding and monitoring costs. This is a sign that surge in foreign ownership is accompanied by a decline in monitoring costs. Moreover, a low level of discretionary managerial expenditure (agency costs) is seem to be prevalent in corporations with greater foreign ownership. On the other hand, positive but not statistically significant association (r=0.073, p=1.44) was noted between institutional holding and monitoring costs implying that institutional equity holding was associated with an increase with costs probably due to their increased demand for firm monitoring. However, a negative but not statistically significant association (-.076, p=0.001) was established between managerial equity holding and monitoring costs.

4.7.3 Correlation between Agency Costs and Firm Value

The strength plus nature of the association between costs of agency (discretionary expenditures and managerial monitoring costs) and value of listed firms (Tobin's Q) was investigated based on Pearson's product moment correlation. The outcomes of the correlation between costs of agency indicators and firm value are summarized in table 4.7.

Table 4.7 Correlation between Agency Costs and Firm Value

		Firm value	Discretionary expenditures	Monitoring Cost
Firm value	Pearson Correlation	1		
	Sig. (2-tailed)			
Managerial discretionary expenditures (MDE)	Pearson Correlation	-0.131**	1	
	Sig. (2-tailed)	.007		
Managerial Monitoring cost (MMC)	Pearson Correlation	.079	-.107*	1
	Sig. (2-tailed)	.116	.033	

* Significant at $\rho < 0.05$ level
** Significant at $\rho < 0.01$ level
Source: Author 2019

The results in table 4.7 show a significant positive association (r=-0.131, p=.007) between managerial discretionary expenditures and value of firms. This implies that as discretionary expenditures by management increases, the firm value reduces and thus an excessive selling, distribution and administration expenses reduces the value of firms. However, there was a positive but insignificant association (r=.079, p=.144) between monitoring costs and value of firms. This can be attributed to the effectiveness of independent directors and on the quality status of audit undertaken for the listed firms in protecting the interest of shareholders.

4.7.4 Correlation between Firm Size and Value

The strength and direction of association between firm size (total assets) and value of listed firms (Tobin's Q) was examined based on Pearson product moment correlation. The results of the correlation between indicators of firm size and firm value are summarized in table 4.8.

Table 4.8 Correlation between Firm Size and Value

		Firm value	Total Assets
Firm value	Pearson Correlation	1	
	Sig. (2-tailed)		
Total Assets	Pearson Correlation	-0.098*	1
	Sig. (2-tailed)	.043	

* Significant at $\rho < 0.05$
** Significant at $\rho < 0.01$
Source: Author 2019

Table 4.8 shows the results of the correlation analysis between firm size indicator of total assets and value of firms. It was noted that a statistically significant negative association (r=-.098, p=.043) exists between firm size (total assets) and value of firm. This is a sign that large firms can exhibit agency costs that may reduce their value.

4.7.5 Correlation between all the Study Variables

A correlation matrix of the association among ownership structure, agency costs, firm size and interaction variable between ownership structure and firm size was investigated. The results are summarized in table 4.9.

Table 4.9 Pearson's Correlations Matrix for All Study Variables

		Tobin's Q	MO	IO	FO	MDE	MMC	FIRM SIZE	FO.TA	MO.TA	IO.TA
Tobin's Q	Pearson Correlation	1									
	Sig. (2-tailed)										
MO	Pearson Correlation	-.237**	1								
	Sig. (2-tailed)	.000									
IO	Pearson Correlation	-0.41	.353**	1							
	Sig. (2-tailed)	.400	.000								
FO	Pearson Correlation	0.126*	-.376**	-.802**	1						
	Sig. (2-tailed)	.012	.000	.000							
MDE	Pearson Correlation	-.136**	-.132*	-.038*	.125*	1					
	Sig. (2-tailed)	.007	.000	.035	.001						
MMC	Pearson Correlation	.073	-.076**	.073**	-.233**	-.400**	1				
	Sig. (2-tailed)	.144	128	.000	.000	.000					
FIRM SIZE	Pearson Correlation	-.046	.217**	-.0.90	.187*	-.296**	.585**	1			
	Sig. (2-tailed)	.354	.000	.072	.011	.000	.000				
MO.TA	Pearson Correlation	-.167**	-.720**	.301**	.658**	-.050	.152**	.578**	1		
	Sig. (2-tailed)	.001	.000	.000	.000	.308	.003	.000			
IO.TA	Pearson Correlation	-.050	.337**	302**	.197**	-.210**	.521**	.905**	.799**	1	
	Sig. (2-tailed)	.321	.000	.095	.000	.000	.000	.000	.000		
FO.TA	Pearson Correlation	.064	-.068	-.497**	.658**	.252	-.490**	.168**	.773**	.568**	1
	Sig. (2-tailed)	.199	.172	.001	.000	.001	.000	.000	.000	.000	

* Significant at $\rho < 0.05$ level

** Significant at $\rho < 0.01$ level

Source: Author 2018

The results of the correlation between the variables in table 4.9 show that all the variables denote significant correlation with value of firm except for institutional equity holding, managerial monitoring costs and firm size. Foreign equity holding (r=0.126, p=.012) show a positive and significant association with value of firm while management ownership and discretionary managerial expenditure display a negative but significant correlation with

firm value. Moreover, institution holding and managerial monitoring costs and firm size depict a negative correlation with value of firm though it is not significant.

Additionally, the results in table 4.9 show the correlation between the interaction term variables and ownership dimensions. The interaction term variable between managerial equity holding and firm size (r=-.167, p=.000) reveal a statistically significant negative correlation with firm value. This implies that as the interaction power between ownership and firm size increases, the value of the firm decreases. Similarly, the interaction term between institutional equity holdings and firm size based on total assets (r=-.050, p=.321) reveal a negative association with value though the interaction is not significant. Meanwhile, interaction term between foreign holding and firm size (r=-.064, p=.199) portray statistically non-significant positive association with value.

4.8 Chapter Summary

This chapter outline the descriptive analysis and results of the study variables. Specifically, the chapter has outlined the statistics of study dependent variable (Tobin's Q), explanatory variables (managerial, institutional and foreign ownership), mediator variables (agency costs: monitoring costs and managerial discretionary expenditure) and moderator variables (firm size: total assets). The population of listed firms as at 31st December 2017 was 64 and adequate data of 54 firms was obtained and applied in the analysis. 397 firm-year observations were gathered to enable conduct the study analysis.

The listed firms Tobin's Q mean value is 1.53 varying from 0.10 to 7.40 and revealing a significant variation in valuation among the listed firms. The mean managerial equity holding stood at 0.13 with a low of 0 and a high of 0.82. The average value of institutional

equity holdings was 0.48 varying from 0.01 to 0.95. On the other hand the highest equity holding by foreign investors stood at 0.94 while some firms revealed no foreign ownership at all. The mean cost to income ratio was 0.30 with a maximum of 0.80 while mean audit and non-executive directors' remuneration amounted to Sh.28.1 million. The entity size as measured by overall assets averaged Sh.70.9 billion with a range from Sh.158 million to maximum limit of Sh.646.6 billion.

The chapter ends with a presentation of an analysis of study variables correlations. The summary association between the study variables: firm value and ownership (r=-.235, p=.000); value of firm and foreign equity holding (r=.119, p=0.017); and institutional holding and firm value (r=-.36, p=0.470); Managerial discretionary expenses and; managerial equity holding (r=-.132, p=0.00); foreign equity holding (r=-.376, p=.000), and institutional holding (r=.353, p=.000). The strength and nature of the relationship between managerial monitoring costs and managerial holdings (r=-.076, p=.128); and monitoring cost and institutional holding (r=.073, p=.001) and monitoring cost and foreign holding (r= -.233 p=.000). The correlation for entity size (aggregate assets) and value of firm (r=-.046, p=.354). The correlations with firm size for interaction term of firm size for managerial equity holding (r=-.167, p=.000), institutional equity holdings (r=-.050, p=.321) and foreign holding (r=-.064, p=.199).

CHAPTER FIVE
HYPOTHESIS TESTING AND DISCUSSION

5.1 Introduction

This section documents the testing of study hypothesis on the relationship among ownership structure, agency costs, firm size and value of companies quoted at the Nairobi Securities Exchange. The coefficient of determination which is a ratio of explained variation in relation to total variation and significance level (P-value) of the estimated coefficient was adopted in testing the study hypothesis. The researcher conducted diagnostic testing to assess the conformity of the research data with assumptions of ordinary least squares to enable fit robust (rigor) regression approximation and mitigate on both type 1 and type 2 errors.

5.2 The Relationship between Ownership Structure and Firm value

The first objective was to evaluate the relationship between equities stake structure (managerial ownership, foreign investors and institutional holdings) and value of the entity measured via Tobin's Q.

The first null hypothesis that the researcher tested is defined as follows.

H_1: The relationship between ownership holdings and wealth of listed entities at the Nairobi Securities Exchange is not significant.

In testing the hypothesis, the analysis began by undertaking regression diagnostics tests. Firstly, a multi-collinearity test was conducted for managerial stakes, institutional holdings and foreign equity stakes independent variables. Table 5.1 presents the multi collinearity tests summary results which reveals that the variance inflation factor ranged from 1.172 to 2.891 and the tolerance values range from 0.346 to 0.853.

Table 5.1 Multicollinearity Test

Variables	VIF	Tolerance
Managerial Ownership	1.1718	0.8534
Institutional Ownership	2.8393	0.3522
Foreign Ownership	2.8913	0.3459

imcdiag(Thesisdata[,c("MO","IO","FO")], Thesisdata$TQ
Source: Author 2019

Secondly, the Breusch-Pagan test (BP test) was conducted to test for heteroskedasticity. The null hypothesis of the approximation is that the variance of the residuals is constant. Table 5.2 compress results of the bptest.

Table 5.2: Breusch-Pagan Heteroskedasticity Test

Data: TQ ~ MO + IO + FO
BPTEST = 20.268, df = 3, p-value = 0.00015

Source: Author 2019

The results of the Breush Pagan test in table 5.2 (BP=20.27, p=0.000) led to rejection of the null hypothesis that variance of the residuals is static and accept the alternative hypothesis of presence of heteroskedasticity. This is an indication that the residual disturbances have different variances. Thereafter, unit root test of variable datasets was done. The test hypothesis is that panel series was nonstationary. Table 5.3 set out the unit root summary results.

Table 5.3: Panel Unit Root

	Level Unit Root ADF Test		
Variable	ADF t statistic	Critical Value (5%)	Integration Order
Firm Value	-7.4776* (0.01)	-2.897	1(0)
Managerial Ownership	-5.7259* (0.01)	-2.897	1(0)
Institutional Ownership	-4.8353* (0.00)	-2.897	1(0)
Foreign Ownership	-4.7064* (0.01)	-2.897	1(0)

* Significant at $\rho < 0.05$ level
Source: Author 2019

The Table 5.3 show that the dependent and independent variables' ADF T-statistic are significant at 5% level and greater than critical value of -2.897 (consider absolute figure) hence the datasets are stationary and are integrated at order zero. Subsequently, serial correlation test for variable residuals status based on Wooldridge F-static test was undertaken. The null hypothesis of the test is that there is no auto correlation. Table 5.4 abridges the results of autocorrelation test of the error terms of the fitted regression model.

Table 5.4: Serial Correlation Wooldridge Test

Data: TQ ~ MO + IO + FO

Chisq = 174.43, df = 2, p-value < 0.000

Alternative hypothesis: serial correlation in idiosyncratic errors

Source: Author 2019

Table 5.4 results point to presence of auto correlation. Due to detection of serial correlation and heteroskedasticity, the fixed effects, pooled OLS and random effects estimator could not be fitted when OLS assumptions do not hold. Therefore, the researcher adopted the feasible generalized least squares estimator of Prais Winsten panel corrected standard errors transformation. Table 5.5 excerpts the results of the transformed estimator approximation.

Table 5.5: Serial Correlation Correction and Corrected Standard Error Panel Regression

Unbalanced Panel Design:
Total obs.: 397 Avg obs. per panel 7.3519
Number of panels: 54 Max obs. per panel 8
Number of times: 8 Min obs. per panel 2

Coefficients	Estimate	Std. Error	t value	Pr(>|t|)
Intercept	1.2758	0.2524	5.055	6.61e-07 ***
MO	-1.4745	0.3724	-3.959	8.92e-05 ***
IO	0.8687	0.3131	2.775	0.00578 **
FO	0.9836	0.4409	2.231	0.02624 *

Signif. Codes: '***' 0.001 '**' 0.01 '*' 0.05
R-squared: 0.596
Wald statistic: 47.139, Pr (> Chisq (3)): 0

Author: 2019

The results of feasible generalized least squares estimation in Table 5.5 show that managerial indicator of ownership structure had a statistically significant negative effect on firm value while institutional ownership structure had a significant positive effect on firm value. Foreign equity holdings had a statistically significant positive effect on value of firm. The respective regression coefficients and standard errors of the independent variables are managerial ownership (β =-1.4745, ρ =0.000), institutional ownership (β=0.8687, ρ =0.0058) and foreign ownership (β = 0.9836, ρ =0.0262).

Moreover, the intercept regression coefficient had a significant positive effect (β=1.2758, ρ = 0.000) on the firm value. The holdings by foreigners (β=0.9836) have a higher marginal positive predictive power of value of entity than institutional holdings (β= 0.8687). All indicators of managerial, institutional and foreign ownership are consequential in predicting the value of publicly traded firms in Kenya.

The equation for the relationship between ownership structure and firm value is provided by the following model;

FV = 1.2758 - 1.4745 MO + 0.8687 IO + 0.9836 FO

The findings of the sub-hypotheses are summarized in Table 5.6.

Table 5.6 Summary Results of Objective One Hypothesis

Objectives	Hypotheses	Sub-Hypotheses	Result	Table	Interpretation
To establish the relationship between ownership structure and firm value of companies listed at the Nairobi Securities Exchange	The relationship between ownership structure and value of listed firms at the Nairobi Securities Exchange is not significant.	The relationship between managerial ownership and value of traded firms at the Nairobi Securities Exchange is not significant.	reject	5.5	The relationship between managerial ownership and value of listed firms at the Nairobi Securities Exchange is significant (β=-1.4745,p=0.0000)
		The relationship between institution ownership and value of listed firms at the Nairobi Securities Exchange is not significant.	reject	5.5	The relationship between institution ownership and value of listed firms at the Nairobi Securities Exchange is significant (β=0.8687, p=0.0050)
		The relationship between foreign ownership and value of listed firms at the Nairobi Securities Exchange is not significant.	reject	5.5	The relationship between foreign ownership and value of listed firms at the Nairobi Securities Exchange is significant. (β =0.9836, p=0.0264)

Source: Author 2019

5.3 The Mediating effect of Agency Costs (Managerial Discretionary Expenses and Monitoring Costs) on the effect of Ownership Structure on Value of Firm

The second objective was to establish the mediating effect of agency costs (managerial discretionary expenses and monitoring costs) on the effect of ownership structure on the value of firm. The following stated hypothesis was tested.

H_2: The mediating effect of agency costs (managerial discretionary expenses and monitoring costs) on the effect of ownership structure on value of companies listed at the Nairobi Securities Exchange is not significant.

The indicator of agency costs, managerial discretionary expenses was represented by the ratio of selling, distribution and administration expense to sales (cost to income ratio) while managerial monitoring costs were based ratio of audit cost and non-executive directors' remuneration to turnover. A composite value was not computed for the agency costs but separate proxies for managerial discretionary expenses and managerial monitoring costs were adopted. Accordingly, two sets of regression models were applied to separately establish the mediating effect of managerial monitoring costs and managerial discretionary expenses on the relationship between ownership structure and firm value. Three steps as advocated by Baron and Kenny (1986) were followed to investigate the mediating effect. Similar steps were adopted by Hsu, Wang and Hsu (2012). Step one test the relationship between ownership structures and firm value. In step two, separate regressions were fitted between ownership structure and the mediator variable (managerial monitoring costs and discretionary expenses). The end step involved expressing firm value as a function of ownership structure in presence of agency costs. The same step checks the change of primary effect of ownership holdings on value of firm once agency costs was introduced so as to confirm or disapprove mediation.

5.3.1 The Mediating Effect of Managerial Discretionary Expenses and Step one of Testing the Effect of Discretionary Expenses on the Relationship between Ownership Structure and Value of Firm

The mediating effect of managerial discretionary expenses on the relationship between ownership structure and firm value is a sub-objective on the mediating effect of agency costs on the relationship between ownership structure and firm value. The following stated sub-hypothesis was tested.

H_{2a}: The mediating effect of managerial discretionary expenses on the relationship between ownership structure and value of companies listed at the Nairobi Securities Exchange is not significant.

Baron and Kenny (1986) three steps in testing variable mediating effect was adopted to investigate the effect of managerial discretionary expenses on the value of listed companies. The first step of testing the mediating effect of managerial discretionary expenses on the relationship between ownership structure and firm value excluded the mediator from the regression model. This step is similar to regression of hypothesis one under section 5.2. The results of managerial equity holding revealed a statistically significant negative effect on firm value while institutional ownership structure had a direct effect on firm value. Similarly, foreign equity holding coefficient indicator exhibited a statistically significant positive effect on value of firm.

The predicator model after taking into account the significance levels is replicated as:

FV = 1.2758 - 1.4745 MO + 0.8687 IO + 0.9836 FO

In addition, the relationship between ownership structure and value of firm is significant (Wald statistic= 59.96, P value= 0.00) thus allowing to proceed to step 2.

5.3.2 Step Two of Testing the Relationship between Ownership Structure and Managerial Discretionary Expenses

The second step considers the mediator as though it were a dependent variable. This specifically involved investigating the relationship between the equity holdings on managerial discretionary expenses (MDE). The assumptions of the ordinary least squares were tested so as to fit the appropriate model and enable obtain robust results free from standard errors bias. To start with, multicollinearity test results are summarized in Table 5.7.

Table 5.7 Multicollinearity Test

Variables	VIF	Tolerance
Managerial Ownership	1.1718	0.8534
Institutional Ownership	2.8393	0.3522
Foreign Ownership	2.8913	0.3459

Author: 2019

The results in Table 5.7 show that the VIF values for the variables were within the benchmark range and accordingly multicollinearity problem did not arise. In subsequent diagnostic, Wooldridge test of autocorrelation was ascertained and the test results are displayed in Table 5.8

Table 5.8 Serial Correlation Wooldridge Test

Data: MDE ~ MO + IO + FO

Chisq = 260.9, df = 2, p-value < 2.2e-16

Alternative hypothesis: serial correlation in idiosyncratic errors

Author: 2019

Table 5.8 results disclose that ($\chi 2$=260.90, $\rho < 0.05$) signifying that the null hypothesis that there is no auto correlation should be rejected and in that case confirming existence of autocorrelation. Besides, multicollinearity and autocorrelation test, heteroskedasticity was also tested and the Breusch-Pagan (BP) test results are mapped in Table 5.9.

Table 5.9 Heteroskedasticity Breusch-Pagan test

Data: MDE ~ MO + IO + FO

BP = 40.517, df = 3, p-value = 0.000

Author 2019

Breusch-Pagan test results (BP = 40.517, ρ = 0.0000) in Table 5.9 signify that the test is not statistically significant and hence pointing to heteroskedasticity. Undoubtedly, the OLS regression model could not be fitted as the OLS assumptions were violated. Therefore, in an attempt to address autocorrelation and heteroskedasticity detected, generalized least squares estimator of Prais–winsten panel corrected standard errors transformation was the model fitted onto the regression. The results of the feasible generalized least square regression is exhibited in Table 5.10.

Table 5.10: Prais-Winsten Correlation Correction and Panel-corrected Standard Errors Panel Regression

Data: MDE ~ MO + IO + FO
Total obs.: 397 Avg obs. per panel 7.3519

Number of panels: 54 Max obs. per panel 8

Number of times: 8 Min obs. per panel 2

Coefficients	Estimate	Std. Error	t value	Pr(>|t|)
Intercept	0.18901	0.03046	6.205	1.39e-09 ***
MO	0.22330	0.04159	5.370	1.35e-07 ***
IO	0.05305	0.04872	1.089	0.27686
FO	0.14902	0.04871	3.059	0.00237 **

Signif. Codes: '***' 0.001 '**' 0.01 '*' 0.05

R-squared: 0. 6562

Wald statistic: 40.815, Pr(> Chisq (3)): 0

Author 2019

The results in Table 5.10 illustrate a statistically significant positive effect of managerial (β= 0.2233, ρ =0.00) and foreign ownership (β=0.1490, ρ =0.0024) on managerial

discretionary expenses. However, institutional ownership demonstrated a positive but not a significant effect on the managerial discretionary expenses utilization. The results indicate that all equity holdings had a positive effect on utilization of managerial discretionary expenses. The MO and FO relationship with value is significant (Wald statistic= 40.815, ρ value= 0.00) consequently, a minimum but not sufficient condition of confirming intervention is demonstrated at this step where managerial and foreign equity holdings predicts managerial discretionary expenses. However, the results further revealed that the link between institution equity holdings and managerial discretionary expenses was positive but not statistically significant.

5.3.3 Step Three Test of the Relationship Managerial Discretionary Expenses and Firm Value on controlling for Ownership Structure

The third step in investigation of the mediating effect of managerial discretionary expenses on the relationship between ownership structure and firm value involved expressing firm value as a function of managerial discretionary expenses in presence of ownership structure. The analysis commenced with conducting the tests of multicollinearity, autocorrelation and heteroskedasticity. The results of the multicollinearity test are unveiled in Table 5.11.

Table 5.11 Individual Multicollinearity Diagnostics Summary

	VIF	TOL
Managerial ownership	1.2210	0.8190
Institutional ownership	2.8632	0.3493
Foreign ownership	3.0121	0.3320
Managerial Discretionary Expenses	1.0742	0.9309
Imcdiag(x =Thesisdata[,c("MO", "IO", "FO","MDE")],y = Thesisdata$TQ)		

Source: Author 2019

Table 5.11 results depict that no collinearity was detected by the multi collinearity test. In the subsequent phase, unit root test of panel datasets for managerial discretionary expenses variable was undertaken. Ownership structure and value variables were subjected to test of unit root and were stationarity as per Table 5.3 outline. The summary results of unit root status for managerial discretionary expenses (MDE) variable are exhibited in Table 5.12

Table 5.12: Panel Unit Root

Variable	Level Unit Root ADF t statistic	Critical Value (5%)	Integration Order
Managerial Discretionary Expenses Ratio	-6.1755* (0.01)	-2.897	1(0)

* Significance at $\rho < 0.05$

Source: Author 2019

Table 5.12 summary show that the ADF (calculated) t-statistic -6.1755 of managerial discretionary expenses ratio variable series is greater (absolute terms) than critical (tabulated) value of -2.897 and is significant at 5% thus manifest no unit root. In the ensuing stage, OLS autocorrelation assumption was tested by conducting the Wooldridge F-stastic test. The results are exhibited in Table 5.13.

Table 5.13: Serial Correlation Wooldridge Test

Pbgtest (model4POLS)

Data: TQ ~ MO + IO + FO + MDE

Chisq = 174.56, df = 2, ρ-value < 2.2e-16

Source: Author 2019

The results in table 5.11 (Chi (χ^2) =174.56, ρ = 0.00) reveal a case of autocorrelation disturbance. Heteroskedasticity check of the variance of the residuals was also undertaken. The Breusch-Pagan test results are summarized in Table 5.14.

Table 5.14: Heteroskedasticity Breusch-Pagan Test

Data: TQ ~ MO + IO + FO + MDE

BP = 35.0830, df = 4, ρ- value = 0.0000

Source: Author 2019

Table 5.14 results (BP=35.0830, ρ =0.00) reveal a changing trend of variance of the residuals. The detection of autocorrelation and heteroskedasticity necessitated fitting a feasible general least squares Prais-winsten and panel-corrected standard transformation regression. The outcomes of the panel transformed regression are documented in Table 5.15.

Table 5.15: Panel Regression with AR(1) Prais-Winsten correction and Panel-corrected Standard Errors

Coefficients	Estimate	Std. Error	t value	Pr(>|t|)
Intercept	1.4044	0.2315	6.067	3.07e-09 ***
MO	-1.3334	0.3826	-3.485	0.000547 ***
IO	0.7862	0.3112	2.526	0.011934 *
FO	0.8651	0.3899	2.219	0.027089 *
MDE	-0.4881	0.3734	-1.307	0.0191918*

Signif. Codes: '***' 0.001 '**' 0.01 '*' 0.05

R-squared: 0.6599

Wald statistic: 70.9091, Pr (>Chisq (4)): 0

Source: Author 2019

Table 5.15 present the results of generalized least squares estimation of the mediating effect of managerial discretionary expenses on the relationship between ownership structure and firm value. The results show that managerial ownership (β=-1.3334, ρ =0.0005) has a statistically significant negative relationship with value. Similarly, managerial discretionary expenses (β=-0.4881, p=0.0192) reveal a statistically significant negative relationship with value of firm. In contrast, foreign ownership (β=0.8651, p=0.0271) and

institutional equity holding (β= 0.7862, p= 0.0120) reveal a significant positive effect on firm value. Moreover, the intercept regression coefficient had a significant positive effect (β=1.4044, p=0.00) on the firm value. Further, the results in step 3 confirm that the relationship between the MDE and value of firm in the presence of the MO, IO and FO is significant (Wald statistic= 70.9091, P value =0.00). The equation for the relation between managerial discretionary expenses and firm value in presence of the indicators of ownership is provided by the model;

FV = 1.4044 - 0.4881 MDE -1.3334 MO + 0.7862 IO + 0.8651 FO

Additionally, the step captured the effect of ownership structure on firm value in presence of managerial discretionary expenses. Specifically, the estimation in the step trailed the change of the primary effect of the indicators of ownership on value of firm once the managerial discretionary expenses is introduced in the equation in step one. The equation for the relation between the indicators of ownership and firm value in presence of managerial discretionary expenses is provided by the model;

FV = 1.4044 -1.3334 MO + 0.7862 IO + 0.8651 FO - 0.4881 MDE

As evident in Table 5.15 managerial, foreign and institutional equity holdings are significantly related to the value of firm. Meanwhile, the significant coefficients of managerial changed from (β= -1.4745 to β= -1.3334); institutional holdings changed from (β =0.8687 to β =0.7862) and foreign holdings changed from (β=0.9836 to β = 0.8651). This reflects a diminishing effect of ownership indicators on value in presence of managerial discretionary expenses. Thus signifying that the influence of ownership by foreign and institution investors on value of firm is partially explained through the

utilization of managerial discretionary expenses in an entity. The partial influence of managerial discretionary expenses indicates that the value of firm is influenced via a direct effect of ownership structure on value and also through an indirect effect of ownership structure on the utilization of managerial discretionary expenses on the value of entity. Ownership by management diffuse negative influence on value via managerial discretionary expenses while institutional holding emit positive effect on value through MDE.

5.4 The Mediating Effect of Managerial Monitoring Cost on the Relationship between Ownership Structure and Firm Value

The mediating effect of managerial monitoring costs on the relationship between ownership structure and firm value is a sub-objective on the mediating effect of agency costs. The following stated sub-hypothesis was tested.

H_{2b}: The mediating effect of managerial monitoring costs on the relationship between ownership structure and value of companies listed at the Nairobi Securities Exchange is not significant.

Baron and Kenny (1986) elaborate three steps in testing mediating effect was adopted to investigate the effect of managerial monitoring costs (ratio of audit cost and non-executive directors remuneration to sales)

5.4.1 Step one of testing the effect of managerial monitoring Costs on the Relationship between Ownership Structure and Firm Value in establishing the effect

The first step of testing the mediating effect of managerial monitoring costs on the relationship between ownership structure and firm value excluded the mediator (managerial

monitoring costs) from the regression model. This step is similar to regression of hypothesis one under section 5.3.1. The results of managerial equity holdings revealed a statistically significant negative effect on value while indicator coefficients of foreign ownership and institutional ownership had direct positive effect on value of listed firms.

The predicator model after taking into account the significance levels is replicated as follows;

FV = 1.2758 - 1.4745 MO + 0.8687 IO + 0.9836 FO

In addition, the relationship between ownership structure and value of firm is significant (Wald statistic= 47.139, P value= 0.00) thus allowing to proceed to step 2.

5.4.2 Step Two of Testing the Relationship between Ownership Structure and Managerial Monitoring Cost

Once a relationship between ownership structure and value of an entity has been established in step one, it meets the first requisite condition for testing mediation. The next phase in investigating the effect of managerial monitoring cost on the relationship involves evaluating the effect of ownership structure on the managerial monitoring cost which is a mediator. The OLS assumptions were tested so as to fit the appropriate model and enable obtain robust results free from standard errors bias. Multicollinearity test results are similar to those exhibited in Table 5.6 since the same variables of managerial, institutional and foreign ownership were fitted in an estimator model to predict the managerial monitoring costs (mediator).The autocorrelation test was run and results are summarized in Table 5.16

Table 5.16: Serial Correlation Wooldridge Test

Data: MMC ~ MO + IO + FO
Chisq = 147.15, df = 2, p-value < 2.2e-16

Source: Author 2019

The results (χ^2 =147.15, ρ = 0.00) in Table 5.16 reveal presence of autocorrelation of the error term. The next diagnostic test targeted data stationarity status of managerial monitoring costs variable based on H0: unit root in series. The results of unit root test are outlined in table Table 5.17

Table 5.17: Panel Unit Root

Variable	Level Unit Root ADF t statistic	Critical Value (5%)	Integration Order
Managerial Monitoring Costs	-5.9058* (0.01)	-2.897	1(0)

* Significance at $\rho < 0.05$

Source: Author 2019

Table 5.17 outline that the ADF t-statistic -5.9058 of managerial monitoring costs variable data is more than tabulated (critical) figure of -2.897 and is significant at 5% thus manifest no unit root status. Moreover, the residue variance status was verified by conducting Breusch-Pagan heteroskedasticity test and results of the test are postured in Table 5.18.

Table 5.18 Breusch-Pagan Heteroskedasticity Test

Data: MMC~ MO + IO + FO

BP = 4.8714, df = 3, p-value = 0.1815

Source: Author 2019

Table 5.18 results reveal that the residual variance was constant, implying absence of heteroscedasticity. Consequently, the pooled OLS, fixed effects and random effects models could not be fitted when OLS autocorrelation assumption do not hold. Thus the model fit was a generalized least squares estimator of Prais winsten procedure that adjust only serial correlation without correction for the standard errors since no heteroskedasticity disturbance was detected by the Breusch-Pagan test. The results of the estimation are displayed in Table 5.19.

Table 5.19: Prais-Winsten Correction Estimation Procedure for Serial Correlation

Coefficients	Estimate	Std. Error	t value	Pr(>|t|)
Intercept	0.008845	0.002764	3.200	0.00149 **
MO	-0.004488	0.003518	-1.276	0.020280*
IO	-0.003521	0.003597	-0.979	0.32829
FO	-0.007741	0.003610	-2.144	0.03264 *

Signif. Codes: '***' 0.001 '**' 0.01 '*' 0.05

Residual standard error: 0.007235 on 393 degrees of freedom

Multiple R-squared: 0.06497, Adjusted R-squared: 0.05545

F-statistic: 6.827 on 4 and 393 DF, p-value: 2.547e-05

Source: Author 2019

The results for step two regression between ownership structure indicators and managerial monitoring cost as a dependent variable are reflected in Table 5.19. The results show a statistically significant negative relationship of managerial ownership (β=-0.0049, ρ =0.0203) and foreign holdings (β = -0.0077, ρ = 0.0326) on managerial monitoring costs. On the contrary, institutional equity holdings (β = -0.003521, ρ = 0.3283) has a negative but not a significant relationship with managerial monitoring costs. The significant managerial and foreign equity holdings with monitoring costs fulfills a condition required for subsequent mediation step. However, nonsignificance relations between institutional holdings and managerial monitoring costs fails the required mediation criteria. Thus managerial monitoring costs does not transmit (mediate) any influence of institutional ownership on the value of firm. The mediation testing progresses to step 3 based on the significance of managerial and foreign equity holding on managerial monitoring costs.

5.4.3 Step Three Test of the Relationship between Managerial Monitoring Costs and Firm Value in presence of Ownership Structure

In step three, the investigation the mediating effect of managerial monitoring costs involve the relationship between managerial monitoring costs and entity value in the presence of the ownership structure. The analysis was initiated by undertaking the tests of multicollinearity, serial correlation and heteroskedasticity. Table 5.20 shows the multi-collinearity test results.

Table 5.20 Multicollinearity Diagnostics Result

	VIF	Tolerance
Managerial Ownership	1.1959	0.8362
Institutional Ownership	2.8656	0.3490
Foreign Ownership	3.0293	0.3301
Managerial Monitoring Costs	1.0664	0.9378
Imcdiag(x =Thesisdata[, c("MO", "IO", "FO","MMC")],y = Thesisdata$TQ)		

Source: Author 2019

The results in Table 5.20 show that all independent variables are within the benchmark criteria of less than VIF of 10. This implies that no multicollinearity problem was detected among the explanatory variables of managerial, institutional and foreign ownership, and monitoring costs. Additionally, Wooldridge F-static test was conducted to check for autocorrelation of regression residuals. The autocorrelation test is based on the null hypothesis that error terms are not correlated. The test results are displayed in Table 5.21.

Table 5.21: Serial Correlation Wooldridge Test

Data: TQ ~ MO + IO + FO + MMC
Chisq = 181.79, df = 2, p-value < 2.2e-16
Alternative hypothesis: serial correlation in idiosyncratic errors

Source: Author 2019

Results in Table 5.21 show that the ($\chi 2$=181.79, ρ =0.00) thus disclosing that variables error terms are correlated. Thereafter, heteroskedasticity diagnosis test was undertaken. Accordingly, the Breusch-Pagan test result are displayed in Table 5.22

Table 5.22: Heteroskedasticity Breusch-Pagan Test

Data: TQ ~ MO + IO + FO + MMC

BP = 20.291, df = 4, p-value = 0.0004

Source: Author 2019

Table 5.22 show the Breusch-Pagan test results (BP = 20.291, ρ = 0.0004). The test is statistically significant and thus the null hypothesize that the error term variance is unchanging is rejected and accordingly the heteroskedasticity problem is confirmed. Therefore, the OLS regression model could not be fit as autocorrelation and heteroskedasticity assumptions were violated. Consequently, a generalized least squares estimator of Prais–Winsten correction and corrected standard errors transformation was fit as the regression model. The results of the Prais–Winsten regression are outlined in Table 5.23.

Table 5.23: Panel Regression with AR(1) Prais-Winsten Correction and Panel-corrected Standard Errors

Unbalanced Panel Design:
Total obs.: 397 Avg obs. per panel 7.3519
Number of panels: 54 Max obs. per panel 8
Number of times: 8 Min obs. per panel 2

Coefficients:	Estimate	Std. Error	t value	Pr(>|t|)
Intercept	0.8459	0.2148	3.939	9.70e-05 ***
MO	-1.2946	0.3192	-4.056	6.02e-05 ***
IO	1.2420	0.2530	4.909	1.35e-06 ***
FO	1.4423	0.3853	3.744	0.000209 ***
MMC	21.8084	8.6135	2.532	0.011735 *

Signif. Codes: '***' 0.001 '**' 0.01 '*'0.05
R-squared: 0.5648

Wald statistic: 79.6896, Pr (>Chisq (4)): 0
Model<- panelAR (TQ ~ MO + IO + FO + MMC, data = Thesisdata)

Source: Author 2019

Table 5.23 show the results of generalized least squares estimation. The results exhibit a negative effect of managerial ownership (β =-1.2946, ρ =0.00) on value. On the contrast, institutional equity holding (β =1.2420, ρ =0.00), foreign equity holding (β =1.4423, ρ =0.0002), and monitoring cost (β= 21.8084, ρ =0.0083) reveal a positive statistically significant relationship with value. Moreover, the intercept regression coefficient had a significant positive effect (β= 0.8459, ρ = 0.0001) on the value of firm. Further, the results in this step on the relationship between the MMC and value of firm in the presence of the MO, IO and FO is significant (Wald statistic= 79.6896, ρ =0.00). However, only the relationship of managerial and foreign equity holdings on value of firm is relevant in monitoring costs mediation step analysis. The equation for the relationship between managerial monitoring costs and entity value in presence of ownership structure is provided by the model;

FV = 0.8459 + 21.8084 MMC - 1.2946 MO + 1.2420 IO + 1.4423 FO

The concluding guide in confirming the mediating effect of managerial monitoring costs, involves establishing the effect of ownership structure on value of firm in presence of managerial monitoring costs. The criterion still based on the approximation in step three, is an estimation that trails the change of the main effect of the indicators of ownership on value of firm once the managerial monitoring costs is introduced in the equation in step one. The equation for the causality between the indicators of ownership and firm value in presence of managerial monitoring costs is provided by the model;

FV = 0.8459 - 1.2946 MO + 1.2420 IO + 1.4423 FO + 21.8084 MMC

The result in Table 5.23 specifies that ownership by management is negative but significant while foreign equity holdings is positively related to the value of firm on controlling for the effect of MMC in the estimation equation. The coefficient of managerial ownership changes from (β=-1.4745 to β= -1.2946) while the foreign holdings coefficient changed from (β= 0.9836 to β= 1.4423). Although the coefficient of ownership by management is significant in contrast to the view by Baron and Kenny (1986) condition 3, the marginal reduction in magnitude of the effect reflect a fractional transmission (indirect causal effect) of the influence of monitoring costs on the relationship between managerial ownership and value of firm.

On the contrary, the marginal increase in magnitude of the foreign holdings coefficient confirms that controlling for managerial monitoring costs does not reduce the magnitude of foreign equity holdings on the value of firm. Thus, foreign ownership does not channel (mediate) the entity value through mechanisms of managerial monitoring costs. Since, managerial ownership influences value indirectly via audit and non-executive directors monitoring mechanisms, consequently the researcher fail to reject the null hypothesis that the mediating effect of managerial monitoring costs on the relationship between ownership structure and value of entity is not significant. The findings of the sub-hypotheses are summarized in table 5.24.

Table 5.24 Summary Results of Objective Two Hypothesis

Objectives	Hypotheses	Sub-Hypotheses	Result	Table	Interpretation
To establish the relationship between ownership structure and firm value of companies listed at the Nairobi Securities Exchange	**H_1:** The mediating effect of agency costs on the relationship between ownership structure and value of companies listed at the Nairobi Securities Exchange is not significant.	The mediating effect of managerial discretionary expenses on the relationship between ownership structure and value of companies listed at the Nairobi Securities Exchange is not significant.	Accept	5.13	The relationship between ownership structure and value is mediated by managerial discretionary expenses
		The mediating effect of managerial monitoring cost on the relationship between ownership structure and value of companies listed at the Nairobi Securities Exchange is not significant	accept	5.20	The relationship between ownership structure and value is mediated by managerial monitoring cost

5.5 Moderating Effect of Firm Size on the Relationship between Ownership Structure and Firm Value

The third objective was to establish the moderating effect of firm size on the relationship between ownership structure and firm value. The following stated hypothesis was tested.

H_3: The moderating effect of firm size on the relationship between ownership structure and value of companies listed at the Nairobi Securities Exchange is not significant.

The testing of moderating effect involved establishing the effect of dependent variable (ownership structure), moderator variable (size) and an interaction product variable between ownership structure and size of firm on value. Baron and Kenny (1986) two steps methodology was adopted to ascertain the moderating effect of size on the relationship between ownership structure and firm value. The initial step involved fitting ownership structure indicators in a regression model as independent variables to predict the firm value.

This model presents the primary effects of predicting the value of firm. In the subsequent step to establish moderation, ownership structure, entity size and product term formed as a composite between the ownership structure and size were jointly regressed against the firm value. The moderation effect was tracked on the basis of increasing (enhancing) the effect of ownership structure on the value of firm. Further, a buffering effect was considered in case of decreasing effect of ownership holdings on the value of firm. In other case, an antagonistic effect was tracked where size of entity reverses the impact of ownership structure on the value of firm (Lachowicz, Preacher & Kelley, 2018). If the product term between ownership structure and size is significantly different from zero, it points to evidence of moderation (Hayes, 2018). Moreover, moderation was confirmed if the main

effects is significant and also if variance (adjusted R-Squared) accounted for in the model with product term is greater than model with no interaction.

A regression analysis on the moderation effect of firm size (total assets) on the relationship between ownership structure and firm value was conducted. A separate test for the assumption of the ordinary least squares was done for each regression, so as to obtain robust estimation results. Panel corrected standard errors (PCSE) instead of generalized least squares was applied for estimating the moderating effect of firm size on the link between equity holdings and value of entity. It involved estimating the OLS but correcting the standard errors due to presence of serial correlation and heteroskedasticity (Wooldridge, 2013).

The initial step to establish the moderation effect of firm size involved fitting ownership structure in a regression model as independent variable to predict the firm value and obtain the primary effect. The ordinary least square (OLS) assumption test for this initial step are similar to section 5.2. However, since a panel corrected standard error regression was fitted, it was necessary to determine the appropriate model to adopt. Therefore, model fitting entailed conducting the Hausman test for choice between fixed effect versus random effect, F-test for fixed effect versus pooling effect; and Lagrange Multiplier (LM) test for random effect versus pooling effect. While conducting the Hausman test, the null hypothesis adopted was that random effect model was the appropriate model to be fitted for the regression and table 5.25 show the results of conducting the test.

Table 5.25: Hausman Test for Fixed versus Random Effect

Phtest (modela1fixed, model1brandom)

Data: TQ ~ MO + IO + FO

Chisq = 0.7448, df = 3, p-value = 0.8626

Alternative hypothesis: one model is inconsistent

Source: Author 2019

Table 5.25 results reveal that (χ2 =0.7448, ρ >0.05) implying that the null hypothesis random model is appropriate and hence the random effects model is applicable. A further test was undertaken to test for the feasible model between the pooling effects versus random effect. The Lagrange Multiplier test null hypothesis tested is that the OLS is appropriate for the analysis. Table 5.26 summarize the results of F-test for fixed effect versus the pooling effect model.

Table 5.26: Langrange Multiplier for Random versus Pooling Effect

Data: TQ ~ MO + IO + FO

Chisq. = 453.25, df1 = 1, ρ-value = 0.056

Alternative hypothesis: significant effects

Source: Author 2019

According to summary results in Table 5.26 (Chisq= 453.25, ρ = 0.056), the null hypothesis was accepted and hence the pooled OLS regression was considered the appropriate model to be fitted for the regression. Moreover, in an attempt to address heteroscedasticity and autocorrelation detected by OLS diagnostic tests in section 5.2, a pooled OLS regression sandwich to a Newey and West (1987) panel-corrected standard errors (PCSE) procedure was implemented. Table 5.27 presents the results of pooled OLS regression model fitted after heteroskedasticity-autocorrelation consistent covariance (HAC) adjustment based on panel corrected standard errors (PCSE) procedure.

Table 5.27: Pooled OLS Results on Effect of Ownership Structure on Firm Value

Plm (TQ~ MO + IO + FO, data = Thesisdata, index = c("Company", "Year"))

Unbalanced Panel: n = 54, T = 2-8, N = 397

Coefficients	Estimate	Std. Error	t-value	Pr(>|t|)
Intercept	0.97789	0.30635	3.1921	0.001526 **
MO	-1.48077	0.33760	-4.3861	1.484e-05 **
*				
IO	1.02022	0.42614	2.3941	0.017128 *
FO	0.87575	0.38035	2.3025	0.021830 *

Signif. Codes: '***' 0.001 '**' 0.01 '*'0.05

Total Sum of Squares: 664.43

Residual Sum of Squares: 618.49

R-Squared: 0.069149

Adj. R-Squared: 0.062043

F-statistic: 9.73147 on 3 and 393 DF, p-value: 3.303e-06

Source: Author 2019

The results of robust standard errors procedure in Table 5.27 indicate that managerial indicator of ownership structure has a significant negative effect on firm value while foreign and institutional equity holding have a significant positive effect on value of entities. The respective regression coefficients and the P-values of the independent variables are managerial ownership (β=-1.4808, ρ =0.0000), institutional ownership (β=1.0202, ρ =0.0171), foreign ownership (β =0.8758, ρ =0.0292). Moreover, the regression coefficient had a significant positive effect (β= 0.9779, ρ = 0.0218) on the firm value. The model for the relationship between ownership structure and firm value is provided by the model;

$$FV = 0.9779 - 1.4808\ MO + 1.0202\ IO + 0.8758\ FO$$

The second step to establish the moderation effect of firm size based on firm assets involved jointly regressing ownership structure, firm size and an interaction term variable formed as a composite between the ownership structure and firm size (total assets). The step in moderation commenced by following Wu and Zumbo (2008) guide of mean-centering of ownership structure and firm size to create the product term. Centering involved transforming variables by estimating the mean of each variable series then subtracting that mean for every data point (Lachowicz, Preacher & Kelley, 2018). The variables were centered to mitigate potential multi collinearity problem between interactive effects of ownership indicators and size variables.

The OLS diagnostics tests of multicollinearity, linearity, autocorrelation and heteroskedasticity preceded the regression analysis. A multi collinearity test of managerial ownership, institutional ownership, foreign ownership, entity size and interaction term variables was initially conducted by the researcher and the results of the test are displayed in Table 5.28.

Table 5.28: Multicollinearity Diagnostics Result

	VIF	TOL
Managerial ownership	1.3693	0.7303
Institutional ownership	3.2948	0.3035
Foreign ownership	3.8403	0.2604
Firm size	1.3541	0.7385
MOTA	1.3784	0.7255
IOTA	6.9384	0.1441
FOTA	6.9950	0.1430

imcdiag(x = Thesisdata[, c("MO", "IO", "FO", "Log(Assts)", "MOTA", "IOTA", "FOTA")], y = Thesisdata$TQ)

Source: author 2019

The results of the test of multicollinearity in Table 5.28 indicate the level of variance inflation factor at acceptable level of less than 10. This is a confirmation that no case of multi-collinearity was detected. The product term variables were derived from the centering process. Then the firm size and interaction terms variable data was tested for unit root as per Table 5.29.

Table 5.29: Panel Unit Root

Variable	Level Unit Root ADF t statistic	Critical Value (5%)	Integration Order
Firm size	-7.5860* (0.01)	-2.897	1(0)
MOTA	-5.3822* (0.01)	-2.897	1(0)
IOTA	-5.5763* (0.01)	-2.897	1(0)
FOTA	-5.1507* (0.01)	-2.897	1(0)

* Significance at $\rho < 0.05$
Source: Author 2019

Table 5.29 summary show that the ADF t-statistics for the firm size and interaction terms variable dataset are greater (absolute terms) than critical (tabulated) value of -2.897 and is significant at 5% thus manifest no unit root. At the next stage of analysis, serial correlation test of the residuals error terms was verified. The results are displayed in table 5.30.

Table 5.30: Wooldridge Test for Serial Correlation

Data: TQ ~ MO + IO + FO + Log (Assts) + MOTA + IOTA + FOTA
Chisq = 172.99, df = 2, p-value < 0.0000
Alternative hypothesis: serial correlation in idiosyncratic errors

Source: author 2019

Serial correlation test based on the Wooldridge test results in Table 5.30 (Chisq = 172.9, p-value <0.05) lead to rejection of the null hypothesis that there was no serial correlation. The Breusch-Pagan test (bptest) was conducted to test against heteroskedasticity. The Null

hypothesis of the test is that the residuals variance is constant. The results of the heteroskedasticity test are displayed in Table 5.31.

Table 5.31 Studentized Breusch-Pagan Test

Data: TQ ~ MO + IO + FO + Log (Assts) + MOTA + IOTA + FOTA
BP = 25.774, df = 7, p-value = 0.00055

Source: author 2019

Table 5.31 present the Breusch-Pagan test results indicating presence of heteroskedasticity. Hausman test was undertaken to guide on the choice of the appropriate model to be employed between fixed effects versus random effects when fitting the regression. The null hypothesis was that random effects model was appropriate. The summary of the results are represented in Table 5.32.

Table 5.32: Hausman Test

Data: TQ ~ MO + IO + FO + Log (Assts) + MOTA + IOTA + FOTA
Chisq = 60.91, df = 7, p-value = 0.0526
Alternative hypothesis: one model is inconsistent

Source: author 2019

Table 5.32 results show that (X^2= 60.91, P-value = 0.0526) lead to accept the null hypothesis and therefore the random model is considered appropriate. This necessitated a further test so as to choose the appropriate model between a random effect model and pooled ordinary least squares model. The Lagrange Multiplier test (LM) test for random effects was carried out to determine the applicable model to be fitted and involved a choice between random effects versus pooled OLS models. The null hypothesis tested is that no panel effect exist (OLS is better). Table 5.33 summarises the results of the F-test for fixed effect versus pooling effects model.

Table 5.33: Lagrange Multiplier Test for unbalanced panels

Data: TQ ~ MO + IO + FO + log (Assets) + MOTA + IOTA + FOTA

Chisq = 424.15, df = 1, p-value =0.06452

Source: author 2019

As shown in Table. 5.33, the test results (Chisq (X^2) = 4.24.15, p-value =0.06) indicate that no panel effect exist and hence the null hypothesis was not rejected. It therefore follows that a pooled OLS model should be fitted in conducting the analysis of the moderation effect of entity size (total assets) on the connection between ownership structure and entity value. In an attempt to address heteroscedasticity and autocorrelation highlighted by OLS diagnostic tests, a panel-corrected standard errors procedure based on Newey and West (1987) estimator was undertaken on the fitted pooled OLS regression. The outcomes of the analysis result are oulined in table 5.34.

Table 5.34: Pooled OLS Regression on the Moderating Effect of Entity Size on the Ownership Structure on Firm Value

Unbalanced Panel: n = 54, T = 2-8, N = 397

Coefficients	Estimate	Std. Error	t-value	Pr(>|t|)
Intercept	1.3243350	1.1979854	1.1055	0.2696347
MO	-1.3520241	0.3639821	-3.7145	0.000233 ***
IO	1.1994142	0.6102349	1.9655	0.0500624
FO	1.0118205	0.4361900	2.3197	0.0208713 *
log (Assets)	-0.0199077	0.0509049	-0.3911	0.6959534
MOTA	-0.2054247	0.0779369	-2.6358	0.0087276 **
IOTA	0.1398651	0.2175728	0.6428	0.5207020
FOTA	0.0035727	0.1898212	0.0188	0.0389901*

Signif. Codes: '***' 0.001 '**' 0.01 '*' 0.05

Total Sum of Squares: 670.75

Residual Sum of Squares: 609.8

R-Squared: 0.090832

Adj. R-Squared: 0.074597

F-statistic: 5.59479 on 7 and 392 DF, p-value: 3.6666e-06

Source: Author 2019

The results of step two of the moderation effect of firm size (total assets) shown in Table 5.34 indicate that the value of R-squared of the regression improved prediction power from 0.0641 to 0.0746 which signify that the variance accounted for in the model with product term is greater than model without the product term and hence a sign that moderating effect is feasible. In addition, the F-statistic of the model incorporating product term (F-statistic: 5.59479, p-value: (0.0000)) is statistically significant. Furthermore, entity size (moderator) based on overall assets did not have a significant effect (β=-0.2887, ρ =0.0546) on firm value.

Moreover, the results show that upon addition of the interaction terms, the coefficient of the product term of managerial (β=-0.2054, p=0.0002) and foreign holdings (β=0.0036, ρ =0.0389) were statistically significant. Therefore, the results denote that the size of an entity has an interaction effect on the relationship between managerial ownership, and foreign equity holding and entity value. This signify that different level of entity sizes influences the link between ownership by managers and foreign investors and value. Specifically, the size of entity strengthens the negative effect of managerial equity holding on the value of firm. This suggests that large firms in the scenario for manager owners, reduce further the value of an entity. Meanwhile, as the size of a corporation increases, the relationship between foreign equity holdings and entity value is strengthened. On the contrary, the coefficient of the product term between institutional holding and size (β= 0.1399, ρ = 0.5207) was not significant. Thus varying the entities sizes does not influence the institutional holding -value link. This is a pointer that an entity size does not modify the nature of the relationship between institutional holding and value of entity.

The model for the moderating role of size of an entity on the link between ownership structure and firm value is provided by the model;

FV= 1.3243 - 1.3520 MO + 1.1994 IO + 1.0118 FO - 0.0199 TA - 0.2054 ($MO^{c}_{it}.TA^{c}_{it}$) + 0.1399 IO + 0.0036 ($FO^{c}_{it}.TA^{c}_{it}$)

Moreover, the model after considering the significant coefficient of the regression, the model was restated as follows:

FV= - 1.3520 MO + 1.0118 FO - 0.2054 ($MO^{c}_{it}.TA^{c}_{it}$) + 0.0036 ($FO^{c}_{it}.TA^{c}_{it}$)

5.6 Joint Effect of Ownership Structure, Agency Costs (Managerial Monitoring Cost and Managerial Discretionary Expenses) and Firm Size on Entity Value

The fourth objective was to ascertain the combined role of ownership structure, agency costs (managerial monitoring cost and managerial discretionary expenses) and the firm size (total assets) on the value of listed firms.

The ensuing null hypothesis was tested.

H_4: The joint effect of ownership structure, agency costs and entity size on weath of listed companies at the Nairobi Securities Exchange is not significant.

The role of ownership structure, agency costs and size of an entity is confirmed if the Wald statistics of overall significance establishes that the coefficients are significant jointly. The Wald statistic consolidates the sum of predictive power of ownership holdings, costs of agency and entity size and thus determines the overall significance. The assumptions of the ordinary least squares of multicollinearity, linearity, autocorrelation and heteroskedasticity were tested so as to inform the appropriate estimator model fit. Table 5.35 outline the

multicollinearity test of managerial, institutional and foreign ownership, monitoring cost, discretionary expenses and firm size.

Table 5.35: Multicollinearity Diagnostics Result

	VIF	Tolerance
Managerial ownership	1.3204	0.7573
Institutional ownership	2.8996	0.3449
Foreign ownership	3.2472	0.3080
Managerial Monitoring Cost	1.3093	0.7638
Managerial Discretionary Expenses	1.2535	0.7978
Firm size	1.5027	0.6655

Author: 2019

The test outcomes as per table 5.35 show VIF values all within the benchmark value of less than 10 and therefore no instance of multicollinearity problem was identified. Subsequently, autocorrelation test was also undertaken and the analysis summary are displayed in Table 5.36

Table 5.36: Wooldridge Test for Serial Correlation

Data: TQ ~ MO + IO + FO + MMC + MDE+ log (total assets)

Chisq = 178.49, df = 2, p-value < 2.2e-16

Author: 2019

The results (χ^2=178.49, p=0.00) in Table 5.36 indicate that serial correlation of the error terms was detected by Woodridge test. The ensuing test was for the verification of the status of the residue variances by conducting Breusch-Pagan heteroskedasticity test and the analysis outcomes are tabulated in Table 5.37.

Table 5.37: Studentized Breusch-Pagan Test

Data: TQ ~ MO + IO + FO + MMC + MDE+ log (total assets)

BP = 38.192, df = 6, p-value = 0.000

Author: 2019

The heteroskedasticity test results (BP = 38.192, ρ =0.00) presented in table 5.37 indicate that the error term variance was changing. This is due to the fact that ρ > 0.05 thus lead to reject the null that variance of the residuals was constant. Subsequently, to address both autocorrelation and heteroskedasticity problem detected by the tests, generalized least squares estimator of Prais–Winsten panel corrected standard errors transformation was implemented in the estimator analysis. The output of the joint effect of managerial monitoring cost, managerial discretionary expenses on the link between equity holdings proportions and firm value are given in Table 5.38

Table 5.38: Panel Regression with Prais-Winsten Autocorrelation Correction and Panel-Corrected Standard Errors

Beta:	Estimate	Std. Error	t value	Pr(>|t|)
Intercept	-0.35637	1.2707	-0.280	0.7792
MO	-1.34205	0.40430	-3.319	0.0009***
IO	1.22252	0.23952	5.104	5.21e-07 ***
FO	1.00441	0.29475	3.408	0.0007***
MMC	29.26408	9.26669	3.158	0.0017**
MDE	-1.05166	0.28170	-3.733	0.0002***
Firm Size	0.06487	0.05506	1.178	0.2394

Signif. Codes: '***' 0.001 '**' 0.01 '*'0.05

R-squared: 0.5956

Wald statistic: 197.2998, Pr (>Chisq (6)):0

Data: TQ ~ MO + IO + FO + MMC + MDE+ log (assets)

Author: 2019

The regression results for the joint effect of ownership structure, managerial monitoring costs, managerial discretionary expenses and firm size (total assets) on value of listed companies are tabulated in Table 5.38. The results manifest a statistically significant Wald statistic (χ^2=197.2998, p=0.00). Thus the null hypothesis was rejected implying that the combined impact of ownership proportions, managerial monitoring cost, managerial discretionary expenses and firm size on entity value is significant. The results further show positive relationship for the jointly regressed coefficients of institutional and foreign ownership structures and managerial monitoring variables on entity value. Firm size based on the logarithm of assets indicate a positive but not statistically significant link on the value of companies. Managerial ownership depicts a negative but statistically significant connection with the entity value. Managerial discretionary expenses depict a negative and statistically significant connection with the companies value The respective approximation betas (β) and estimation errors of the independent variables are managerial holdings (β =-1.3421, ρ = 0.00), institutional ownership (β= 1.2225, p=0.00), foreign holdings (β= 1.0044, ρ = 0.0007), managerial monitoring costs (β = 29.2641, p= 0.0017), managerial discretionary expenses (β = -1.0517, ρ =0.0002) and firm size based on assets (β= 0.0648, ρ = 0.2394). Moreover, the intercept regression coefficient was not statistically significant but had a positive effect (β= -0.3564, ρ = 0.7793) on the companies value.

Moreover, on controlling for the effects of managerial monitoring costs, managerial discretionary costs and entity size in the primary direct relationship between equity holdings and value of firm, institutional holdings (β=0.8687, ρ = 0.0058) and foreign equity holdings (β = 0.9836, ρ =0.0262) still depict a positive and significant link (FO: β= 1.0044, ρ = 0.0007 and IO: β= 1.2225, ρ = 0.000) respectively with value. Similarly, the relationship between managerial equity holdings (β =-1.4745, ρ = 0.000) and firm value is still negative

and significant (β =-1.3421, ρ = 0.0010) even in presence of costs of agency and entity size in the same estimation model. In contrast, size of the entity signify a positive relationship with value (β= 0.0649, ρ = 0.2394), a case which is a reverse link to the main regression for ownership structure and entity size on value (β=-0.2887, ρ = 0.0546) without controlling for managerial monitoring costs and managerial discretionary expenses. Likewise, in presence of size of firm and managerial monitoring costs, the effect of managerial discretionary expenses in the primary model (β=-0.4881, ρ = 0.0192) still depict a negative but significant effect (β = -1.0517, ρ = 0.0002) on the value of entity. The equation for the joint effect of ownership structure, managerial monitoring costs, managerial discretionary costs, firm size on value of listed firms is provided by the model;

FV = -0.3564 - 1.3421 MO + 1.2225 IO + 1.0044 FO + 29.2641 MMC -1.0517 MDE + 0.0648 FS

The predicator model after taking into account the significance levels is summarised as;
FV = - 1.3421 MO + 1.2225 IO + 1.0044 FO + 29.2641 MMC -1.0517 MDE
Therefore managerial ownership, foreign equity holding, institutional ownership and managerial discretionary expenses exhibit significant influence on the value of listed entities.

5.7 Discussion of Findings

The main objective of the study was to establish the connection among ownership holdings, agency costs, entity size and value of companies quoted at the Nairobi Securities Exchange. The results for the hypotheses testing and research findings are discussed in this section.

5.7.1 The Relationship between Ownership Structure and Firm Value

Objective one of the study was to investigate the association between ownership holdings and value of companies listed at the Nairobi Securities Exchange. It was hypothesized that the connection between ownership holdings and value of companies listed at the Nairobi Securities Exchange was not significant. Managerial ownership revealed a significant negative effect on entity value. This connotes that ownership by management reduces the value of listed corporations. This findings suggest that ownership by management lead to executives possible pursuit of own interests of expropriating firm benefits that reduce shareholder wealth.

On the contrary, institutional equity holdings revealed a significant positive effect on firm value. This findings indicate that increasing ratio of ownership institutions in listed companies, enhances value. This may be attributed to the fact that the institutional owners may take an active role in regard to managerial monitoring. In addition, active institutional shareholders who invest through portfolios are appraised on their portfolio performance and in such a case can streamline the interest between large and small investors in the process improve the firm performance. Further, it can point to a case of active institutional owners who hold position in firms' board so as to participate in monitoring. In an alternative case, the investors may appoint representatives to boards in attempt to streamline corporate governance and create shareholders' value. Similarly, foreign ownership exhibited significant positive effect on value. In this case higher proportions of foreign holdings, enhance the value of listed firms. The foreign owners probably exhibit an influential role in the decision making practise and may have incentive to monitor corporates management. Indeed, this scenario, exhibit that foreign shareholders nurture indigenous stakeholder relationships and can extend value benefits to locally-owned firms.

This study findings of a negative relationship between managerial proprietorship and value of firms is consistent to the finding by Andow and David (2016) of negative connection of ownership by managers and performance of entities in Nigeria. This revelation is supported by the managerial entrenchment hypothesis that managers may pursue their own interest, increase agency problems and hence reduce value of entities. However, the findings conflicts those of Mokaya and Jagongo (2015), and Gugong, Arugu and Dandago (2014) who reported a positive link between management holdings and entities performance in Kenya and Nigeria respectively, as a sign of interest alignment between managers and owners. This study finding is also inconsistent with one by Hossain (2016) who found out that managerial holding improves profitability by reducing agency conflicts and enhances value of equity holders. Further, Fahlenbrach and Stulz (2009) provided empirical evidence that when managers reduced their equity ownership, firms still showed exceptional performance and it did not reflect adverse influence on entity value. Moreover, the study findings is inconsistent with agency theory suggestion that managers-owners interest may be streamlined by rewarding executives with share ownership schemes.

A further finding by this study that foreign holdings is positively connected to value of firm is similar to study results by Mishra (2014) on foreign ownership which indicates that an increase in foreign investors improves on value for Australian firms. Likewise Ferreira and Matos (2008) findings reveal a significant positive impact of foreign institutions on firm valuation. This can be an indicator that presence of foreign investors' interest may involve effective monitoring or transfer of superior managerial skills that may improve shareholders wealth. The findings are in contrast to the study of Malik (2015) who established that foreign investors reduce value for pharmaceutical firms in India. Additionally, the findings contradict the study by Gurbuz and Aybars (2010) who found

that presence of foreign investors diminishes value of Turkey entities. This could imply foreign investors who are not active in monitoring role.

Besides, this study also found that institutional equity stakes has a significant positive effect on value of firm. This may be linked with set up mechanisms of active managerial monitoring that streamline management and owners interest thereby enhancing value of firm. The findings agree with the study by Thanatawee (2014) who found a positive link between institutional holding and value of Thailand entities. Similarly, Ongore (2011) reported positive connection between institutional holdings and performance for listed firms in Kenya. A further analysis by Ahmad and Jusoh (2014) similarly reported a positive and significant relation between institutional equity holdings and performance of Malaysian firms. This implies that active monitoring by institutional investors reduce agency problem. The finding is inconsistent with the study by AL-Najja (2015) who found no link between institutional holding and value for Jordan listed firms. Similarly, Demsetz and Villalonga (2001) found no link between variations in equity holdings and changes in value for US entities. This connotes that since the objective of an entity is to maximize value, changes in equity holding should not affect value and that ownership holdings vary across firms due to regulatory issues, industry and motives for economies of scale.

5.7.2 The Effect of Agency Cost on link between Ownership Structure and Firm Value

The second objective involved establishing the mediating effect of agency costs on the relationship between ownership structure and investors wealth. The hypothesis tested for this objective was that the mediating influence of agency costs on the link between equity holding and value of companies quoted on the Nairobi Securities Exchange is not significant. Managerial discretionary expenses and monitoring costs were the indicators of

agency costs adopted in this study. Managerial discretionary expenses turnover ratio was adopted to capture the utilization of organizational resources while audit cost and non-executive directors' remuneration turnover ratio capture the managerial monitoring costs. Separate regression models featuring discretionary expenses and managerial monitoring costs at different instances were utilized to estimate the effect of costs of agency on the link between ownership and value for the listed firms.

The study found that the influence of ownership holdings on value of entity is partially explained (transmitted) through the efficiency mechanism in the utilization of managerial discretionary expenses in an entity. The influence of managerial discretionary expenses indicates that the value of entity is influenced via a direct effect of equity holdings on value and also through an indirect effect of ownership holdings on the utilization of managerial discretionary expenses onto the value of entity. Specifically, ownership by management has negative influence on value of entity that is transmitted through managerial discretionary expenses. There is a marginal decline in effect of managerial holdings on value of companies when incorporating agency costs (managerial discretionary expenses) in the primary managerial ownership-value relationship. This confirms that managerial discretionary expenses is a mediator and as such the influence of owner managers through the utilization of managerial discretionary expenses (mediator), manifest subsequently in changes in valuation of entity. In cases of prudent utilization and cost control mechanisms of managerial discretionary expenses, the value of firm is improved in line with the views of stakeholder and institutional theories. On the contrary, the negative influence of ownership by management on value of firm can be transmitted through misappropriation of managerial discretionary expenses where no mechanisms for internal checks are put in place.

This findings that the influence of ownership holdings on value of entity is transmitted through the efficiency mechanisms in the utilization of managerial discretionary expenses in an entity is in line with the entrenchment of interest proposition where managers misappropriate firm resources and the alignment of interest where resources are utilized prudently. Moreover, the findings are consistent with the study by Ang, Cole, and Lin (2000) who argue that discretionary expenses varies inversely with managerial equity holding. Similarly, Lin and Chang (2007) results show that discretionary expenses reduced with higher proportion of managerial shareholders. Equally, McConnell and Servaes (1990) opine that raising managerial holding beyond a certain level; management turns to entrenchment that magnifies agency costs. Nevertheless, the findings are inconsistent with the results of Sign and Davidson (2003) who reported that managerial equity holding is positively related to efficient resource utilization.

Further findings on mediating effect of utilization of managerial discretionary expenses show that foreign and institutional equity holdings transmit a positive influence on the value of quoted companies through efficacy in the utilization of managerial discretionary expenses. Foreign and institutional equity holdings sets up control mechanisms of achieving efficient cost to income ratios which in return maximize the value of firms. This findings is replicated in the study by McKnight and Weir (2009) that institutional ownership mitigate agency costs perhaps due to the fact that they can effectively monitor management and have processes that can mitigate management sub optimal actions in the application of discretionary expenditure.

When agency costs is defined as managerial monitoring costs; the study findings reveal that managerial equity holdings influence value of firm through managerial monitoring costs. This signifies that the impact of managerial equity holdings through the quality of

auditors and non-executive directors of monitoring (ratio of remuneration proxy) reflects on the value of firm. The study results are similar to Kallamu (2016) who found that a majority ownership by managers promote their personal interest but presence of self-governing directors on the board can impact on the value due to the fact that they influence the level of monitoring costs incurred by a firm. Thus, the effect of managerial equity holdings passes through independent directors.

Another finding on mediation of monitoring costs show that the effect of institutional and foreign equity holding does not influence firm value through monitoring costs. This point to heterogeneous owners contrast in opinion on the monitoring orientation. In essence, the findings suggest that auditors and non-executive board members are independent of institutional and foreign owners influence in boosting firm value.The finding conflict with the study of Mustapha and Ahmad (2013) argument that there exists a connection between institutional holding and monitoring. This suggests that greater ratio of institutional investors call for increased scrutiny costs due to demand for extra monitoring by minority equity holders.

5.7.3 The Moderating Effect of Firm Size on the Relationship between Ownership Structure and Firm Value

The third objective set out to establishing the effect of firm size on the relationship between ownership holdings and entity value. The study hypothesized that the moderating effect of entity size on the relationship between equity holding and value of companies quoted on the Nairobi Securities Exchange is not significant. A regression considering firm assets as an indicator of size of an entity and product terms between ownership holdings and size of firm were incorporated as the predictor variables to establish the moderating effect of entity size on the relationship between ownership and value.

The initial step in moderation allow fitting ownership structure indicators in a regression model as independent variables to predict the entity worth. This model presents the primary direct effects of ownership holdings predicting the worth of firm. In the subsequent step, ownership structure, entity size and product term formed as a composite between the ownership structure and size were jointly regressed against the firm value. The product terms were established by mean centering the indicators of ownership and size of entity.

The study findings confirm that the size of an entity strengthens the relationship between managerial ownership, and foreign equity holding and entity value. Hence, the slope of the regression lines between ownership holdings and value are unique for different firm sizes. In this way, the effect of ownership holdings on value is different for varying firm sizes. Specifically, the size of entity enhances the negative influence of managerial shares holding on the wealth of firm. Meanwhile, the effect of foreign holding on entity value is strengthened in case of large corporations. On the contrary, size of an entity has no effect on the link between institutional holding and value of corporation. That is, the relationship does not depend on size.

The study finding reveal an enhancing effect of size of an entity on the link between managerial equity holdings and value. The coefficient of the product term of managerial equity holdings is negative which is similar to the primary effect of a statistically significant negative link of managerial equity holdings on value of firm. This signifies that for bigger firms where managerial equity holdings proportions are substantial, value of firm is greatly reduced. In this case, large firms owned by management, the executives seem to pursue their own interests that can diminish value. Further, the findings implies that manager owned large firms are valued less as approximated by total assets. On the contrast,

managerial holding for smaller firms would enhance the value of firm. The findings concur with Nazir and Afza (2018) study analysis that increased insider ownership by board members manifest negative impact on value for large firms. Similarly, a study by Ratnawati, Hamid and Popoola (2016) who reported a significant negative interaction of size of entity on the bond between managerial equity holdings and management of earnings. The findings of increasing enhancing effect of entity size on the link between equity holdings and value, are in support of Helwege, Pirinsky and Stulz (2009) study findings that as size of firm increases, it were plausible to experience a great decrease in managerial ownership and in return boosting the corporate value.

Moreover, the findings show an amplifying effect of corporate size on the link between foreign equity holdings and the value of entity. This can probably be a sign of effective monitoring by the large firms owned by foreign investors. Large firms owned by foreign can deploy adequate resources to set up effective monitoring mechanisms. In that case, as the size of firm increases, it enriches the link between foreign equity holdings and value of corporations. The positive link between interaction of size and foreign equity holdings and value can be attributed to the ability of large entities to setup operational mechanisms for monitoring and in essence improve the value of firm. In a similar manner, Mishra (2014) found that foreign investors' interest for big firms can transfer superior managerial skills and attract international capital to enhance value for entities. The findings of amplifying positive effect of entity size are also in agreement with results by Nazir and Afza (2018) who reported that ownership by foreigners was positive and statistically significant in respect to large corporates value. Moreover, Kansil and Singh (2017) reported that stake of foreign institutional equity holders in bigger firms enhances the corporation value due to foreign investors' ability to mitigate agency costs. Similarly, Nakano and Nguyen (2013) provide evidence of the synergy interaction between foreign ownership and size that

strengthen the positive link with the entities value. However, the findings contradicts study by Mishra (2014) who found that as firm increases in size and attracted higher foreign holdings, the performance of such firms declined. This can be attributed to an expropriation of resources and entrenchment by foreigners which diminish the value of firms.

As regards the institutional holding-value, the findings confirm that size of an entity has no effect on the link between institutional holding and wealth of corporation. This is premised on the fact that the primary effect of institutional equity holdings on corporate value was positive as well as significant while the coefficient of product term of institutional equity holdings and size was positive but not significant. Hence the slope of the regression plot of institutional holdings and value does not vary as a function of size of the entity. In essence, the nature of relationship between institutional holdings and entity value does not change for all levels of firm sizes since it does not depend on size. In this way, institutional equity holders actively engage in monitoring so as to mitigate misappropriation of shareholders wealth irrespective of the size of the firm. The findings contrast Nazir and Afza (2018) study result for listed corporations in Pakistan that institutional equity ownership manifest negative impact on the value for big as well as small entities. This can be the case where institutional shareholders of large corporations extract private benefits from an entity and hence shrinks the value of firm.

5.7.4 The Joint Effect of Ownership Structure, Agency Costs and Firm Size on Value

The final study objective was to ascertain the joint effect of ownership holdings, agency costs and entity size on value. The study hypothesized that the relationship among ownership holdings, costs of agency (managerial monitoring cost and managerial

discretionary expenses) and firm size on value was not significant. The findings show that joint effect of ownership structure, managerial discretionary expenses, managerial discretionary expenses and corporate size on entity value is significant.

Managerial holdings exhibit a negative while institutional and foreign holdings manifest a positive statistically significant joint effect on value of firm. Managerial discretionary expenses depict a negative but significant joint effect on the value of entity. This denotes the ownership holdings, utilization of managerial discretionary expenses are significant predictors of the value of firm. Firm size and managerial monitoring cost have negative and positively respectively joint effect though not significant.

The findings are consistent with Kao, Hodgkinson and Jaafar (2019) results that institutional, and foreign equity stakes confirm a direct positive relationship with value of firm, a sign that foreign and institutional owners are significant in monitoring owner managers to maximize value of firm. The fraction of independent directors, a proxy for agency cost monitoring show no linkage to value. However, the corporate size is significant and negatively interrelated to market to nominal worth of equity unlike the positive and not significant relation reported in this study. This is evidence that large firms have greater agency perhaps due to firms complexity that reduce value due to the existence of agency costs. Managerial monitoring costs has a positive but statistically nonsignificant effect on value. This is an indication that independent directors and external auditors monitoring mechanisms can mitigate agency costs by streamlining managers and shareholders' interests. The findings confirm Owusu and Weir (2017) results that show in the presence of audit and remuneration committees, agency costs decreased. This finding conflicts with Singh and Davidson (2003) results where ownership streamlines greater insider ownership

streamlines managerial and shareholders' welfares and mitigates agency costs when agency is defined way of discretionary expenses incurred in generating revenues.

The findings of significant combined effect of ownership profiles and managerial discretionary expenses on the value are supported by the views of stewards, institutional and stakeholder theories. Stewards are motivated by the best interest of the firm unlike the agency theory premised on instituting control mechanisms (Donaldson & Davis, 1991). In extending the steward theory, Freeman (1984) and Davis, Schoorman and Donaldson (1997) contend that managerial monitoring costs (found not to be significant in this study) are not driver of value of firm but a premise of cost rationalization to realise savings and improve revenue (utilization of managerial discretionary costs). However, DiMaggio and Powel (1993) hold the view that independent directors and external auditors monitoring mechanisms are a practise adopted from institutional norms so at to protect the interest of not only the shareholders but extended to all stake holders. Similarly, external audits are prescribed so as to oversight management excesses and thus institutional theory provide a key input in this thesis.

Chapter Summary

This chapter has provided an overview of study hypothesis testing on the relationship among ownership holdings, costs of agency, firm size and value of companies quoted at the Nairobi Securities Exchange. The coefficient of determination was adopted in testing the study hypothesis. The researcher conducted diagnostic testing to assess the conformity of the research data with assumptions of ordinary least squares to enable fit robust regression model and mitigate on type 1 and type 2 errors. Later, the regressions were conducted and results of the analysis are then displayed for the four hypothesis tested. The

chapter also presents a discourse on the results of hypothesis testing. A summary discussion of the hypotheses and research outcomes are documented towards the end of the chapter.

Table 5.39 Summary Results of the Specific Hypothesis

Objectives	**Hypotheses**	**Test result**
To establish the relationship between ownership structure and entity value of companies quoted on the Nairobi Securities Exchange	**H_1:** The relationship between ownership structure and value of quoted firms at the Nairobi Securities Exchange is not significant.	Rejected
To establish the effect of agency costs in mediating the relationship between ownership structure and firm value of companies listed at the Nairobi Securities Exchange	**H_2:** The mediating effect of agency costs on the bond between ownership structure and value of listed corporates at the Nairobi Securities Exchange is not significant	Rejected
To establish the effect of corporate size in moderating the relationship between ownership structure and value of companies listed at the Nairobi Securities Exchange	**H_3:** The moderating effect of corporate size on the relationship between ownership structure and value of listed firms at the Nairobi Securities Exchange is not significant	Rejected
To establish the joint effect of ownership structure, agency costs, corporate size and value of companies listed at the Nairobi Securities Exchange	**H_4:** The joint effect of agency costs and corporate size on the relationship between ownership structure and listed firm value is not significant.	Rejected

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This study lay out to ascertain the relationship among ownership structure, agency costs, firm size and value of companies quoted on the Nairobi Securities Exchange. This thesis chapter documents a summary of findings of the study for both the descriptive statistics and research hypothesis testing. Moreover, the drawn conclusions from the hypothesis of the study tested and policy recommendations are then outlined. The chapter also pinpoints the study limitations and prospective trends for future research.

6.2 Summary of Findings

The broad objective of the study was to ascertain the effect of agency costs and firm size on the relationship between ownership structure and value of companies quoted at the Nairobi Securities Exchange. The thesis study considered four sets of the study variables in an attempt to fulfill the general objective of the study. Ownership structure was adopted as the independent variable of the study; agency costs as the mediating (intervening) variable; entity size as the moderating variable and the value of quoted corporates as the dependent variable. The independent variable indicators adopted for the study were managerial, institutional and foreign equity holdings. The agency costs mediating variable was represented by the dimensions of managerial discretionary expenditures and monitoring costs. The moderating variable of firm size considered the total assets of the listed companies. Tobin's Q ratio was the only attribute adopted to represent the value of quoted entities.

The study specifically intended to establish the connection between ownership holdings and the value of listed corporates; the intervening effect of agency costs on the link between ownership holdings and value of corporates quoted at the NSE; the moderating (interaction) role of firm size on the connection between ownership holdings and value of corporates listed at the NSE and the joint effect of ownership structure, agency costs and firm size on value of companies at the NSE. To accomplish the stated objectives, the hypotheses formulated were: the relationship between ownership structure and worth of corporates quoted on the NSE is not significant; the mediating (intervening) role of costs of agency on the relationship between ownership holdings and value of entities listed at the NSE is not significant; the moderating impact of entity size on the relationship between ownership holdings and value of companies quoted at the NSE is not significant; and the joint role of ownership holdings, costs of agency and size of entity on value of companies at the NSE is not significant

This study was anchored on agency theory. In addition, stewardship theory, institutional theory and stakeholder theory also explain the nexus between ownership holdings, costs of agency, size and value. Agency theory asserts that firms have separate ownership from management and hence occasion aspects of agency problems that affect firm value. Although equity holders strive to maximize firm value, managers of firms might seek to pursue their own interests. Indeed, ownership structure can either help to align management and shareholder interests via monitoring of managers actions so as extinguish agency costs or shareholding by foreigners, block holders and institutional holdings possibly pursue their personal motive at the cost of minority stock holders. Agency theory emphasize that managers compensated in the form of shares can realize goal congruence of wealth maximization with that of the shareholders. However, listed firms managers might seek to

pursue their own interests thereby magnify agency costs which affect value. Moreover, stewardship theory was valuable in this study as it suggests that executive and controlling owners stewards deeds are desirable to all shareholders as it improves efficiency of resource utilization in effect creates value for listed firms.

This thesis assumed a positivist research philosophy. This is so as the research was theory-based and involved a review of extant literature to develop a conceptual frame of logical relationships. It further entailed testing of hypothesis, collection of quantitative data and carrying out analysis in order to draw conclusions on the subject of the thesis. The population of the thesis study were the 65 firms quoted on the Nairobi Securities Exchange as at 31st December 2017. Data was available for a sample of 54 firms that yielded 397 company-year observations for the duration of thesis from 2010 to 2017. The data was obtained from an in-depth content review of published annual reports for eight years. The data was also gathered from the Nairobi Securities Exchange, Capital Market Authority statistical bulletins, share registrars, respective company offices, websites and periodic circulars to shareholders.

Data sets descriptive statistics were based on the minimum, mean, maximum, standard deviation, kurtosis and skewness. Correlation analysis was adopted to establish the link between ownership holdings, costs of agency, corporate size and the value of listed firms. Diagnostics tests of normality, linearity, multi-collinearity, heteroscedasticity, panel data stationarity and serial correlation were undertaken to prepare the data for ordinary linear regression analysis. In case of non-conformity with the assumptions of the ordinary linear regression model, panel linear data analysis that included a determination of whether to fit a fixed effect estimator, pooled ordinary least squares, or a random effect approximation

was used. On other instance, a recalculation of the panel-corrected standard errors of OLS regression model was undertaken. In an alternative case, a transformed regression model-feasible generalized least squares that purges autocorrelation and or heteroscedasticity was adopted. Specifically a regression with autocorrelation Prais Winsten modification and panel-corrected standard errors transformation was used to describe data generalization where cases of heteroskedasticity and autocorrelation were detected.

The lead objective was to ascertain the relationship between managerial equity holding, institutional equity holding and foreign equity holding, and value of the entity measured through Tobin's Q. Due to detection of serial correlation and heteroscedasticity, fixed effects, random effects and pooled OLS approximation could not be fitted when OLS assumptions do not hold. Therefore, the feasible generalized least squares estimator of Prais winsten panel corrected standard errors transformation was adopted. The findings revealed a statistically significant negative effect of managerial indicator of ownership on value while institutional equity holding had a statistically significant positive effect on value. Similarly, foreign ownership structure had also a statistically significant positive effect on value of listed entities.

The second objective was to ascertain the mediating role of agency costs (managerial discretionary expenditures and managerial monitoring costs) on the relationship between ownership holdings and value of entity. The mediating effect of managerial discretionary expenditures was tested first. The study found that the impact of ownership structure on value of corporate is transmitted through the efficiency mechanism in the utilization of managerial discretionary expenses as a mediator in an entity. The influence occurs via a direct effect of predictor ownership holdings on to value and also through an indirect effect

through utilization of managerial discretionary expenses onto the value of entity. Specifically, ownership by management has a negative influence on value of firm that is transmitted through managerial discretionary expenses. There is a marginal decline in effect of managerial equity stake on value of entity after incorporating managerial discretionary expenses in the primary managerial ownership-value relationship. Foreign and institutional equity holdings transmit a positive impact on the value of quoted entities through efficacy in the utilization of managerial discretionary expenses. Therefore, the mediating effect of managerial discretionary expenses on the connection between ownership holdings and wealth worth is significant.

When costs of agency is defined as managerial monitoring costs, the study findings reveal that managerial equity holdings negatively influence value of firm through managerial monitoring costs. The effect of managerial equity stake reflects through the actions of auditors and non-executive directors of monitoring on the value of firm. On the contrary, the effect of institutional and foreign holding has a direct effect on value and does not influence value through managerial monitoring costs. Auditors and non-executive board are independent of institutional and foreign owners influence in boosting firm value.Thus, the finding confirms that managerial monitoring costs has no significant mediating effect on ownership-value link.

The third objective set out to establishing the effect of entity size on the relationship between ownership holdings and entity value. Firm assets was adopted as the indicator of firm size. A regression of ownership holdings, firm size and product terms between ownership holdings and size of entity were incorporated as the predictor variables to ascertain the moderating role of entity size on the bond between ownership and entity value.

The product terms were established by mean centering the indicators of ownership and size of entity. The size of an entity has an interaction effect on the link between managerial holdings; and foreign equity holding and entity value. Specifically, the size of entity aggravates (magnifies) the negative effect of managerial share holdings on the value of firm but it increases the positive effect of relationship between foreign equity holding on entity value. On the contrary, size of an entity does not modify the nature of the link between institutional holding and value of corporation.

The final study objective was to estimate the joint role of ownership structure, agency costs and firm size on value. The findings show that joint effect of ownership structure, managerial discretionary expenses, managerial discretionary expenses and firm size on entity value is significant. Managerial holdings has a negative while institutional and foreign holdings have a positive statistically significant joint effect on value of entity. On the other hand, managerial discretionary expenses depict a negative but significant joint effect on the value of entity. However, managerial monitoring costs show a positive significant link with value. This denotes the ownership holdings, discretionary expenses utilization and monitoring costs are significant predictors of the value of firm. Firm size has positive though not significant effect on value.

Moreover, institutional holdings and foreign equity holdings still depicted a positive and significant link with value, even on controlling for the effects of managerial monitoring costs, managerial discretionary costs and entity size in the primary direct link between ownership holdings and value of entity. Similarly, the relationship between managerial equity holdings and entity value is still negative and significant in presence of costs of agency and entity size in the same estimation model. On the other hand, size of firm signify

a negative connection with value, a case that is similar to the main regression for ownership structure and entity size on value without controlling for managerial monitoring costs and discretionary expenses.

6.3 Conclusions

The study examined the relationship among ownership holdings, costs of agency, corporate size and value of companies quoted on the NSE. Managerial ownership indicator of shareholdings manifest statistically significant negative effect on value of corporate. This is contrary to agency theory proposition that firm executives ought to join share ownership scheme and craft a logic of belongingness. However, the conclusion from the finding means that investor managers may have opportunist behaviour that entrench own personal interests and expropriate shareholder wealth. On the contrary, institutional investor holdings positively influence the value of listed firms. This is a sign of benefit of active monitoring by institutional investors that enhance value. Further, the presence of foreign investors has a positive and statistically significant effect on entity value. This is probably in line with a fact that since the objective of entities is to maximise investors' wealth, the foreign equity holdings integrate skills set and inject capital to create value. A further justification is a case where foreign owners take active role in the decision making process and are motivated to monitor entities executive.

On scenario one of hypothesis two on the effect of managerial discretionary expenditures on the relationship between equity holding and value, the null hypothesis was rejected. Ownership by management has a negative influence on value of firm that is transmitted through managerial discretionary expenses. This indicates that in cases of imprudent utilization and deficient cost control mechanisms of managerial discretionary expenses,

executives expropriate resources. Since foreign and institutional equity holdings transmit a positive influence on the value of listed firms through efficacy in the utilization of managerial discretionary expenses, it denotes that foreign and institutional equity holdings are capable of setting up discretionary expense control mechanisms so as to achieve efficient cost to income ratios which maximize the value.

The hypothesis on mediating role of monitoring costs is confirmed and it is established that heterogeneous owners contrast in opinion on their monitoring orientation. To one side, findings reveal that managerial equity holdings influence value of firm through managerial monitoring costs. Thus it is concluded that through auditors and non-executive directors monitoring of managerial activities, the value of firm can be improved. This confirms that non-executive directors do not necessarily enjoy huge company perks and owners do seek to pay competitive audit fees in return to creating value. On the contrary, the effect of institutional and foreign shares holding has a direct effect on value and does not influence (mediate) value of firm through managerial monitoring costs. Thus, the finding confirms that managerial monitoring costs has no significant effect on value and as such monitoring costs do not mediate the relationship between equity holdings and value of firms.

The results of objective three confirm that the size of an entity influences the relationship between managerial holdings, and foreign equity holding and entity value. Specifically, the size of entity aggravates (strengthens) the negative influence of managerial equity holding on the value of firm. This signifies that the inverse link between managerial holding and value is dependent on entity size and that the negative relationship is enlarged when it involves big firms. Meanwhile, the size of a corporation increases the positive effect that subsists between foreign equity holding and entity value. This denotes that for big firms

with foreign equity holdings, the value is enhanced. On the contrary, size of an entity has no effect on the link between institutional holding and value of corporation. Therefore, the nature of relationship between institutional holdings and entity value does not change for all levels of firm sizes because the relationship does not depend on size. Institutional holders actively engage in monitoring to protect value irrespective of size of entity. Generally, the size of entities and proportions of holdings by different constitutes of owners are determinates of the value of firm.

The joint effect of ownership structure, managerial discretionary expenses, monitoring costs and firm size on entity value is significant. This is a confirmation that entities should concentrate on all dimensions of ownership, managerial discretionary expenses, monitoring costs and firm size to estimate the value of firm. Listed firms with ideal ownership structures, utilizing resources efficiently and having optimal firm size influences value.

6.4 Implications of Research Findings

The study findings provide numerous contributions to knowledge on ownership structure, agency costs, firm size and value of entities. Moreover, it makes significant contribution to the finance theory and knowledge by showing interaction mechanisms among the variables. In addition it advances several implications on policy along with practice.

6.4.1 Contribution to Theory and Knowledge

The findings of this thesis contribute to the existing body of knowledge on ownership structure, agency costs, size and value of listed firms. This section documents the findings of the study as regards contribution to knowledge.

A significant contribution of this study is the enlightenment of the nature of relationship between ownership holdings, agency costs and size. The main bond between managerial, institutional and foreign equity holdings on value depicted that managerial holdings have a statistically significant negative effect on entity worth. This is an indication that variation in equity holdings by the management seem to reduce entity value. The depicted relationship confirms the entrenchment hypothesis dimension of the agency theory where management seem to pursue their personal benefits. On the contrary, institutional and foreign holdings have a positive effect on value of entity. In this instance, equity holdings by institutions and foreign investors strengthens entity value. Thus, this current study furnish evidence to settle the empirical discoveries inconsistences of the previous research studies conducted on the relationships between equity holdings and value of firm.

In an attempt to improve on entity value, a contribution of the study is that firms need to efficiently check on the utilization of managerial discretionary expenses. Managerial holdings has a negative bearing on value of firm that is transmitted through managerial discretionary expenses. Therefore, imprudent resource utilization and deficient cost control mechanisms of the discretionary expenses manifest in form of reduced value of firm where executives expropriate entities resources. However, foreign and institutional equity holdings transmit a positive influence on the value through discretionary expense mechanisms and hence are capable of setting up discretionary expense control processes aimed at achieving efficient cost to income ratios that maximize the value. In addition, managerial equity holdings influence value of firm indirectly through managerial monitoring costs. Through quality auditors and non-executive directors monitoring of managerial activities, the value of entity can be enriched. In contrast, the effect of institutional and foreign equity holding has a direct bearing on value and does not indirectly influence value of firm through monitoring processes of a mediator.

An additional enlightenment of the thesis was evaluating the moderating effect of size on the relationship between equity holdings and entity value rather than merely the direct influence of entity size on value. The effect of managerial and foreign holdings on value is different for varying level of firm sizes. Specifically, the size of entity amplifies the negative influence of managerial equity holding on the value of firm. Meanwhile, the size of a corporation enhances the positive relationship that subsists between foreign equity holding and entity value. On the contrary, irrespective of the size of an entity, size does not influence the link between institutional holding and value of corporation. In this case, the relation between institutional share holdings and value do not change across all the levels of entity size

A further contribution of the study is on the joint effect of ownership equity holdings, managerial discretionary expenses, monitoring costs and size of listed companies. The study established that ownership structure, agency costs and size jointly predict value of listed firms. Managerial holdings has a negative while institutional and foreign holdings have a positive statistically significant joint effect on value of firm. Managerial discretionary expenses depict a negative but significant combined effect on value of entity. This study presents a significant contribution to theory by enlightening the relations among the study variables. Agency theory explains the relationships between agents and principals. The agency problem subsists where the welfares of a principal and representative are in conflict. Listed firms pursue means of mitigating the conflict between variation of ownership holdings and agency costs. Since income ratio to discretionary costs influences the ownership-value relationship, a theoretical contribution is that investors ought to intensify monitoring and foster efficient utilization of resources in an attempt to realign principal-agent interests so as maximize shareholders' value.

6.4.2 Recommendations for Policy and Practice

The study findings have significant contributions to corporate executives, regulators, board of directors and the investors in general. The effect of equity holdings on firm value established in this study has implications to board of directors and firm management. The point that a link exist between equity holdings and value depict that executives activities, institutional owners and foreign investors directly impact on value of entities. The board of directors should engage in activities that maximize value and hence attract different ownership identities to own equities in the listed firms. Indeed, heterogeneous owners contrast in opinion on their monitoring orientation and thus implying that ownership equity holding is a key driver of value and as such, it is imperative to continually streamline the interest between owners (principals) and executives so as to reduce agency costs and in return enhance value of firm.

A finding from the study that an inverse relation exist between manager owners and worth of firm, rekindles debate on the effectiveness and policy relevance involving stock options compensation schemes for top managers. Based on this study finding, ownership of stock by managers may not be beneficial to listed firms. A probable policy intervention and practice by listed firms is to put in place an active monitoring mechanism to check on the managerial entrenchment practises that erode the value of firm.

The study provides expanded insight to board of directors and management on governance instruments of agency cost chain connecting ownership to value that is beyond the mere nature of link between ownership and value of firm. The finding that managerial holdings has a negative bearing on the worth of firm transmitted through managerial discretionary expenses, is an indicator that operating cost influences the entity value. Managerial actions

that involve sub-optimal resource utilization reduce the value of the firm. Therefore, the discovery provides support for contemporary practices of designing costs control mechanism and prompt firms to continually enhance the cost control mechanism and processes that ensure discretionary expenses are utilized in revenue generating activities. Moreover, agency costs mitigation practices of the proportions of managerial discretionary expenses to income ratio can be adopted in attempt to ensure operating expenses are directed towards income generating activities. Lower expense to income ratio can signify adherence to cost control instruments and thus an indication of reduced agency costs.

Further, the study support and enrich existing practices of scheduling audits and nominating non-executive directors on boards since managerial monitoring function are effective in influencing the link between equity holding and entities value. In this case, non-executive directors need to draw modest compensation perks and the owners to pay competitive audit fees so as to achieve efficacy in monitoring role that mitigates the agency problem and harness value. Meanwhile, the entities need to reinforce independence of the non-executive board members so as to align them to efficient monitoring function. The demand for quality audit that is effective in mitigation of agency conflict maximize shareholders wealth.

The study also provides insight to policy makers and regulators such as Capital Markets Authority and Nairobi Securities Exchange in executing their supervisory mandate and drafting corporate governance codes. The key motive of the policy makers is to improve investor protection and enhance corporate governance mechanisms. This is by continuously reviewing and re-evaluating guidelines aimed at eliminating agency costs between owners and entities executives so that shareholders objective of value maximization is always achieved. The presence of foreign investors means that they are active in monitoring of

entities and do seem to affect the value of listed entities. Similarly, there is need for practise and policy review of equity holdings by management so as to contain the shareholding negative influence on value.

This study finding extends vital insight to management of firms and investors in general on the argument that size influences the relationship between equity holding and firm value rather than the mere main effect of size on the value of entity. Certainly, the findings reveal that the effect of ownership holdings on value of entity changes for varying level of firm sizes. The interaction effect in case of large firms owned by the managerial team reflects a potent additive effect that further reduces value. As the size of a corporation increases, it strengths the link between foreign equity holdings and value. In that case, policy makers can design policies that promote and attract foreign investors including continual to cross list so as to boost value for firms. Further, management executives can pursue growth strategies and practices which results in increase in size of firms owned by foreigners which has been found to maximize the value of firms. Meanwhile, the relation between institutional holdings and value do not change across all levels of firm size. In this way, policy guidelines can stimulate ownership for firms by institutional equity holders who enrich value irrespective of the size of the firm.

6.5 Limitations of the Study

The thesis concentrated on the effect of equity holding, costs of agency and corporate size on the value of listed firms. The findings document insight into the linkage among these study variables useful in policy formulation and practise. Although safeguards were laid in place to guarantee that the study quality was not compromised and reported findings are robust, some limitations related to the study arise.

The first limitation concerns the operationalization of agency costs. A review of the extant literature on measurement of agency costs, various proxy measures of agency costs exists. This study adopted managerial discretionary selling and administrative expenses to sales ratio and managerial monitoring costs. However, other measures such as asset utilization efficiency, free cash flows, earnings volatility and board composition and independence ratio are feasible indicators of agency costs. In this case, the results of this study do not provide a comprehensive insight on the relations with respect to entity value but are as precise and specific as the variables investigated.

Second, the study employed Tobin's Q as a market measure. However, the derivation of the Tobin's Q value incorporates an aspect of a book value (book value of equity) that indicate that Tobin's Q is not a pure market value measure. Accounting practises and policies of reporting book values may differ marginally from one firm or from one industry to another. Though listed firms follow the International Financial Reporting Standards when preparing financial statements, limited subjective cases in accounting judgement practices can bring about variations in reported values. In this case, if pure market measures are adopted, it would capture price information sets and as such are an ideal market value measure to result in rigor finding. Nevertheless, the adopted proxy offer reliable measure that achieved rigor for this study.

Third, the study targeted all listed firms except for cases where data was not available. For other cases and for some firms, data was inaccessible for some years thus resulting in varying firm year observations from 2 to 8 years. However, the study adopted panel data for 8 years to enlarge the depth and quality of captured inform that yield adequate firm year observations. Specifically, the drawback was addressed through employing unbalanced panels approximation, a scientific modelling that do not compromise findings quality.

6.6 Suggestions for Further Research

The study findings and limitations trigger some extensions for future research interest. To start with, this study reports that foreign holdings has a significant positive bearing on entity worth. A further research effort could be extended to a scenario where the foreign equity holdings are split into individual investors and institutional equity holding and evaluate ownership-value effect. The different indicators of foreign owners that either call for increased monitoring of entities executives or lack incentives at all to monitor the entities can broaden the scope of the current study. Further, the finding that negative effect subsist between managerial stakes and value of entity prompts the need for in depth review. It follows therefore need to disaggregate managerial ownership into executive management and non-executive board members ownership holdings in attempt to establish the rigor link between ownership and value of corporates.

The researcher established that managerial discretionary expenses influences the relationship between ownership structure and value of entities. Further discourse efforts may focus on the intervention effect of specific investment activities including corporate diversification, mergers and risk governance. Another extension can focus of establishing the mediating effect of managerial bonding costs including executive compensation as a contingent contracts compensation on the connection between ownership holding and value of entities. Further mediating aspects such as board composition or leverage that also act as proxies for the scope of monitoring activities can be adopted.

The discoveries of the study enlighten of positive relationship between institutional equity holding and entity value but size had no effect on the bond existing between institutional ownership and value. A study that disaggregates institutional equity holding into its

constituents such as insurance companies, mutual funds, banks and financial institutions investors can be studied separately. This is guided by the fact that institutional owners can either be investors who actively monitor firms activities; the case of investment advisers and fund managers or alternatively, may comprise the passive investors such as insurance companies, banks, and other institutions. A study in this direction would be useful to provide additional insight on the effect of institutional holdings and value.

Discourse extensions can also focus on the different choice of proxy for operationalization of agency costs. Although this study targeted managerial discretionary selling and administrative expenses and managerial monitoring costs, other measures such as asset utilization efficiency, free cash flows, earnings volatility and board composition ratio can also be applied to empirically test effect of agency costs on firms value.

A further study could establish the ownership-value relationship by considering the annual changes managerial, foreign and institutional equity holdings dynamics. The ownership changes can then be regressed against annual changes in firm value. This extension can provide more information pertaining to the bearing of ownership holdings on entity value. Moreover, future research dimension may involve extending the findings on the relationship between equity holdings and value of entity by incorporating different moderating variables such as entity age and industry. Also, a probe on the manner different owner structures interaction shape governance in Kenyan context could elevate the precision of ownership and value prediction. Further, a dynamic panel data model could be explored that captures a dependent variable as one of the explanatory variables so as to enable provide ancillary comprehension of the link between ownership identities and value of listed firms.

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APPENDICES

APPENDIX 1: COMPANIES LISTED AT NSE AS AT 31st DEC 2017

AGRICULTURAL

1. Eaagads Ltd
2. Kakuzi Ltd
3. Kapchorua Tea Co. Ltd
4. The Limuru Tea Co. Ltd
5. Sasini Ltd
6. Williamson Tea Kenya Ltd

AUTOMOBILES & ACCESSORIES

7. Car & General (K) Ltd

BANKING

8. Barclays Bank of Kenya
9. CFC Stanbic of Kenya Holdings
10. Diamond Trust Bank Kenya
11. Equity Group Holdings
12. HF Group Ltd
13. I&M Holdings
14. KCB Group Ltd
15. National Bank of Kenya
16. NIC Bank Ltd
17. Stanbic Holdings Plc
18. Standard Chartered Bank Kenya
19. The Co-operative Bank of Kenya

COMMERCIAL AND SERVICES

20. Atlas African Industries Ltd
21. Deacons (East Africa) Plc
22. Eveready East Africa Ltd
23. Express Kenya Ltd Ord

24. Kenya Airways Ltd
25. Longhorn Publishers Ltd
26. Nation Media Group Ltd
27. Sameer Africa Ltd
28. Standard Group Ltd
29. TPS Eastern Africa Ltd
30. Uchumi Supermarket Ltd
31. WPP Scangroup Ltd

CONSTRUCTION & ALLIED

32. ARM Cement Ltd
33. Bamburi Cement Ltd
34. Crown Paints Kenya Ltd
35. E.A.Cables Ltd
36. E.A.Portland Cement Co. Ltd

ENERGY & PETROLEUM

37. KenGen Co. Ltd
38. KenolKobil Ltd
39. Kenya Power & Lighting Co Ltd
40. Total Kenya Ltd
41. Umeme Ltd

INSURANCE

42. Britam Holdings Ltd
43. CIC Insurance Group Ltd
44. Jubilee Holdings Ltd
45. Kenya Re Insurance Corporation Ltd
46. Liberty Kenya Holdings Ltd
47. Pan Africa Insurance Holdings Ltd

INVESTMENT

48. Centum Investment Co Ltd
49. Home Afrika Ltd

50. Kurwitu Ventures Ltd
51. Olympia Capital Holdings ltd
52. Trans-Century Ltd

INVESTMENT SERVICES

53. Nairobi Securities Exchange Ltd

MANUFACTURING & ALLIED

54. B.O.C Kenya Ltd
55. British American Tobacco Kenya Ltd
56. Carbacid Investments Ltd
57. East African Breweries Ltd
58. Eveready East Africa Ltd
59. Flame Tree Group Holdings Ltd
60. Kenya Orchards Ltd
61. Mumias Sugar Co. Ltd
62. Unga Group Ltd

TELECOMMUNICATION & TECHNOLOGY

63. Safaricom Ltd

REAL ESTATE INVESTMENT TRUST

64. STANLIB FAHARI I-REIT

EXCHANGE TRADED FUNDS

65. NEW GOLD ETF

Source: Listed Companies (accessed, 19 August, 2017) available from http://www. nse.co.ke / listed Companies.

APPENDIX 2: DATA COLLECTION FORM

Serial Number ……..

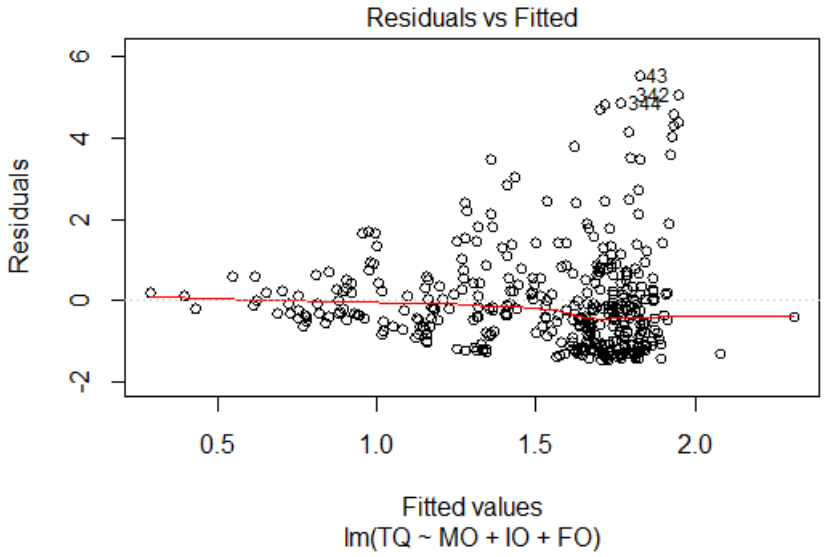
Name of the Company …….

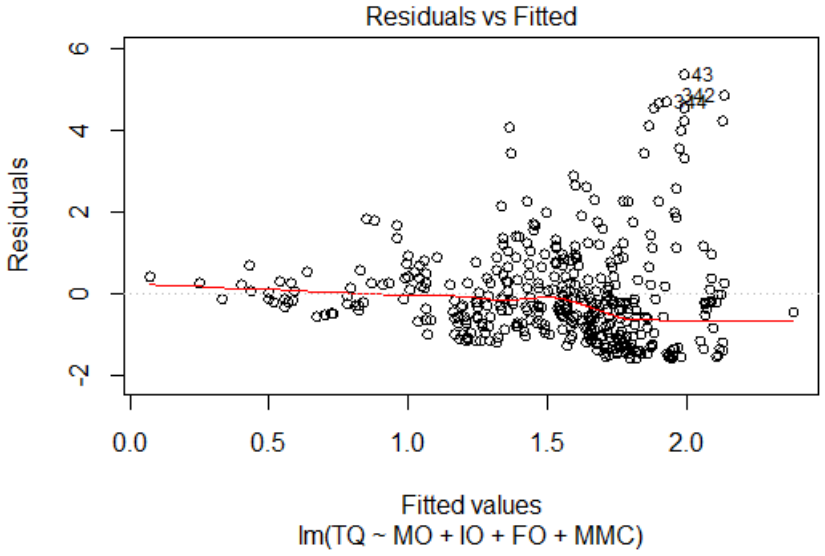
		Year							
Variable and Indicator	**Period/Date**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
1.Ownership Structure									
Managerial Ownership (CEO and Board members) (Number of shares)	31st Dec								
Foreign Ownership (Number of Shares)	Quarter 1 31st Mar								
	Quarter 2 30th Jun								
	Quarter 3 30th Sep								
	Quarter 4 31st Dec								
Institution Ownership (Number of Shares)	Quarter 1 31st Mar								
	Quarter 2 30th Jun								
	Quarter 3 30th Sep								
	Quarter 4 31st Dec								
2.Agency Costs									
Auditors Remuneration (Kshs)	Period ending 31st Dec								
Non-Executive Directors Emoluments (Kshs)	Period ending 31st Dec								

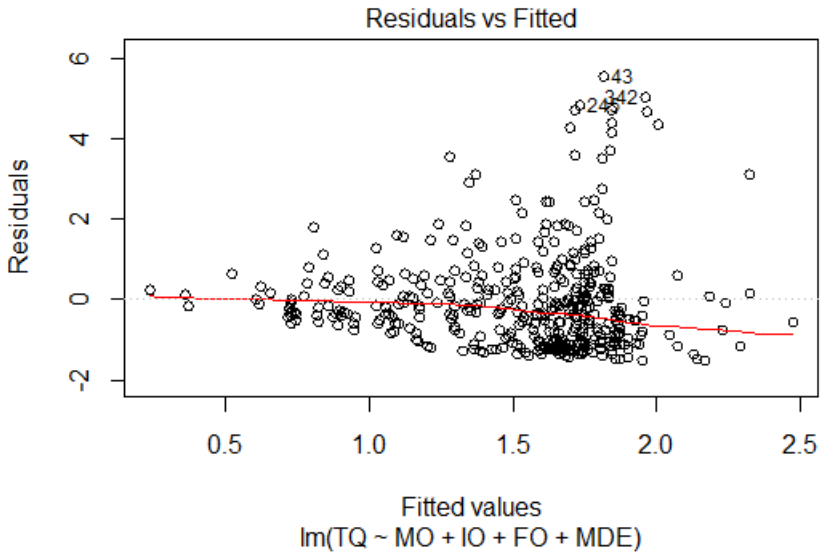
		Year							
Variable and Indicators	**Period/Date**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Managerial Discretionary Expenses									
Selling & Distribution Expenses	31st Dec								
Administration Expenses	31st Dec								
Revenue/ Total Sales/ Income	31st Dec								
3.Firm Size									
Total Assets (Kshs)	31st Dec								
Number of Outstanding Ordinary Shares (Number of Shares)	31st Dec								
Ordinary Share Market Price (Kshs)	31st Jan								
	28th Feb								
	31st Mar								
	30th Apr								
	31st May								
	30th June								
	31st Jul								
	31st Aug								
	30th Sep								
	31st Oct								
	30th Nov								
	31st Dec								

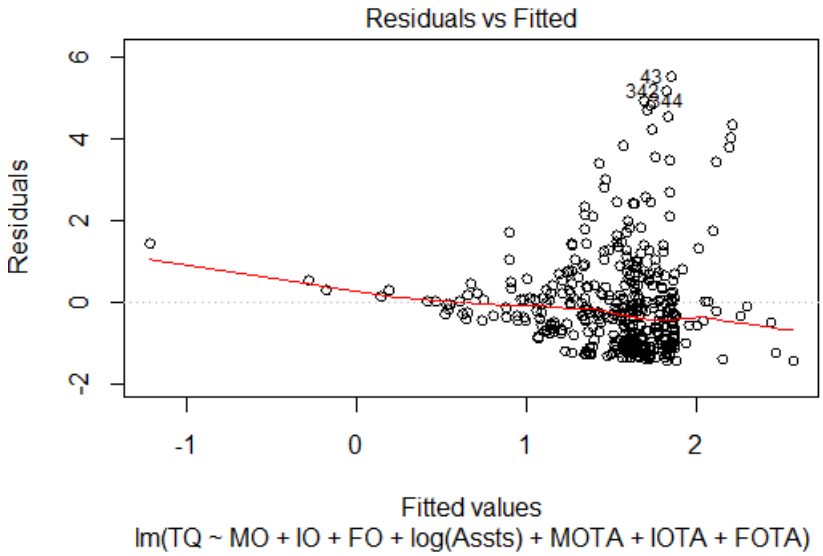
		Year							
Variable and Indicator	**Period/Date**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
4.Firm Value									
Number of Outstanding Ordinary Shares (Number of Shares)	31st Jan								
	28th Feb								
	31st Mar								
	30th Apr								
	31st May								
	30th June								
	31st Jul								
	31st Aug								
	30th Sep								
	31st Oct								
	30th Nov								
	31st Dec								
		Year							
Variable and Indicators	**Period/Date**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Ordinary Share Market Price (Kshs)	31st Jan								
	28th Feb								
	31st Mar								
	30th Apr								
	31st May								
	30th June								
	31st Jul								
	31st Aug								
	30th Sep								
	31st Oct								
	30th Nov								
	31st Dec								
Book value of Equity (Kshs)	31st Dec								

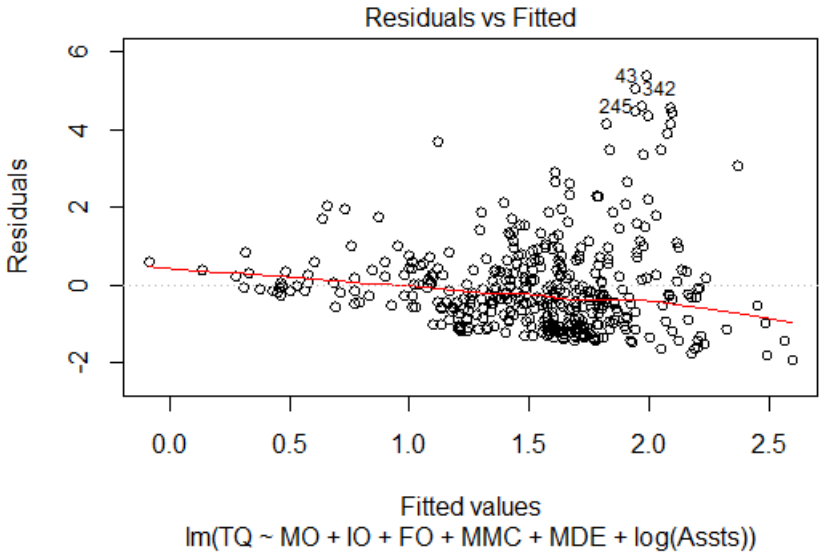
APPENDIX 3: RESIDUALS vs FITTED DIAGNOSTIC PLOTS






Residuals vs Fitted
Residuals
Fitted values
lm(TQ ~ MO + IO + FO + MDE)


Residuals vs Fitted
Residuals
Fitted values
lm(TQ ~ MO + IO + FO + log(Assts) + MOTA + IOTA + FOTA)


Residuals vs Fitted
Residuals
Fitted values
lm(TQ ~ MO + IO + FO + MMC + MDE + log(Assts))
430
342
245
-2
0
2
4
6
0.0
0.5
1.0
1.5
2.0
2.5

APPENDIX 4: RAW DATA

Firm ID	MO	IO	FO	MDE	MMC	Assets (Sh.'million')	Equity (Sh.'million')	Market Cap (Sh.'million')
1	0.19	0.66	0.17	0.15	0.002	16,564.90	4,926.86	14,387.74
1	0.19	0.48	0.29	0.12	0.002	20,515.94	6,102.53	17,078.73
1	0.19	0.52	0.23	0.10	0.001	26,953.10	7,120.52	17,974.36
1	0.19	0.50	0.25	0.09	0.001	29,705.25	8,223.73	35,020.07
1	0.18	0.50	0.25	0.13	0.001	36,970.05	9,420.81	42,366.65
1	0.18	0.53	0.23	0.14	0.001	51,936.66	16,845.77	31,171.37
1	0.15	0.48	0.33	0.18	0.002	51,058.80	27,795.12	18,346.57
1	0.09	0.41	0.46	0.35	0.003	42,699.07	20,815.52	17,726.90
2	0.00	0.73	0.66	0.30	0.006	1,905.00	1,406.57	2,727.05
2	0.00	0.24	0.66	0.31	0.006	1,989.54	1,328.55	2,242.17
2	0.00	0.23	0.66	0.40	0.005	1,775.79	1,454.81	2,171.39
2	0.00	0.13	0.74	0.36	0.007	2,390.15	1,574.08	2,382.10
2	0.01	0.12	0.74	0.35	0.007	2,058.48	1,747.19	2,826.31
2	0.01	0.10	0.76	0.39	0.010	2,108.00	1,714.11	2,452.07
2	0.05	0.06	0.77	0.39	0.011	2,215.30	1,689.45	1,749.15
2	0.06	0.04	0.77	0.51	0.013	2,228.67	1,611.08	1,884.21
3	0.00	0.26	0.65	0.06	0.000	33,306.00	21,626.00	69,809.17
3	0.00	0.26	0.66	0.04	0.000	33,502.00	24,174.00	60,160.50
3	0.00	0.27	0.67	0.04	0.000	43,038.00	30,861.00	59,011.13
3	0.00	0.28	0.69	0.05	0.000	43,016.00	31,510.00	76,433.17
3	0.00	0.29	0.67	0.06	0.000	40,991.00	29,119.00	62,459.24
3	0.00	0.29	0.67	0.09	0.000	42,030.00	29,706.00	57,317.32
3	0.00	0.29	0.67	0.06	0.000	40,811.00	29,819.00	62,580.23
3	0.00	0.31	0.65	0.09	0.001	47,203.00	33,200.00	62,580.23
4	0.00	0.14	0.70	0.48	0.001	172,690.00	31,465.00	81,331.59
4	0.00	0.14	0.76	0.51	0.001	167,304.00	29,223.00	125,213.88
4	0.00	0.12	0.71	0.52	0.001	185,100.00	29,586.00	75,317.30
4	0.00	0.12	0.72	0.55	0.001	207,011.00	32,372.00	93,422.42
4	0.00	0.12	0.73	0.52	0.002	225,841.00	38,355.00	91,566.64
4	0.00	0.12	0.73	0.53	0.001	240,877.00	39,716.00	79,798.32
4	0.00	0.12	0.73	0.53	0.001	259,718.00	42,388.00	55,573.67
4	0.00	0.12	0.73	0.55	0.002	271,572.00	44,098.00	50,151.18
5	0.29	0.12	0.50	0.52	0.004	25,639.24	8,557.45	10,497.56
5	0.25	0.28	0.47	0.19	0.002	35,820.17	12,472.32	10,237.48
5	0.25	0.32	0.47	0.21	0.002	46,902.58	14,752.34	17,409.24
5	0.24	0.40	0.29	0.22	0.005	72,450.35	21,439.67	43,765.51
5	0.19	0.41	0.28	0.33	0.005	77,632.35	17,674.45	39,341.76
5	0.19	0.53	0.16	0.32	0.003	83,642.61	17,877.60	21,815.25
5	0.19	0.65	0.06	0.26	0.003	99,024.86	22,670.01	24,806.22
6	0.00	0.23	0.69	0.18	0.002	11,121.56	5,114.31	23,300.00
6	0.00	0.22	0.70	0.19	0.001	13,750.55	6,412.07	25,425.00

Firm ID	MO	IO	FO	MDE	MMC	Assets (Sh.'million')	Equity (Sh.'million')	Market Cap (Sh.'million')
6	0.00	0.20	0.73	0.16	0.001	15,176.50	7,097.92	37,850.00
6	0.00	0.16	0.77	0.16	0.001	16,985.92	7,571.61	55,891.67
7	0.00	0.84	0.02	0.13	0.001	3,880.06	1,555.91	986.31
7	0.00	0.73	0.01	0.12	0.001	5,562.24	1,920.32	900.46
7	0.00	0.74	0.01	0.13	0.001	5,705.40	2,143.15	852.89
7	0.00	0.66	0.01	0.12	0.001	6,901.43	2,504.18	833.40
7	0.00	0.72	0.01	0.14	0.001	8,152.81	2,832.40	1,674.92
7	0.00	0.78	0.01	0.13	0.001	8,988.05	3,021.11	1,757.86
7	0.00	0.77	0.00	0.13	0.001	9,705.20	3,238.54	1,294.17
7	0.00	0.72	0.00	0.14	0.001	9,400.01	3,357.81	829.64
8	0.13	0.45	0.06	0.08	0.017	1,512.17	1,293.76	4,799.71
8	0.14	0.44	0.09	0.12	0.019	1,739.99	1,467.37	4,127.19
8	0.15	0.44	0.09	0.12	0.016	2,012.82	1,652.77	3,798.71
8	0.10	0.44	0.10	0.10	0.017	2,204.40	1,924.43	6,768.73
8	0.13	0.43	0.09	0.19	0.021	2,533.16	2,160.17	7,534.05
8	0.31	0.39	0.10	0.21	0.020	2,968.73	2,477.03	4,717.95
8	0.33	0.36	0.09	0.21	0.021	3,081.77	2,674.20	3,654.58
8	0.33	0.35	0.07	0.26	0.032	3,306.97	2,924.08	3,310.95
9	0.40	0.52	0.01	0.19	0.006	8,255.97	7,856.17	11,356.22
9	0.40	0.51	0.02	0.13	0.005	12,301.58	9,559.38	11,817.51
9	0.41	0.49	0.03	0.19	0.012	11,567.70	10,041.24	8,797.69
9	0.42	0.49	0.03	0.16	0.006	18,961.55	13,642.74	15,637.88
9	0.42	0.46	0.06	0.12	0.003	29,597.22	20,272.84	32,273.92
9	0.48	0.39	0.07	0.21	0.002	72,231.39	38,554.51	36,737.93
9	0.52	0.37	0.07	0.56	0.004	78,053.54	43,258.25	27,823.78
9	0.52	0.35	0.09	0.45	0.005	88,385.61	49,474.20	26,021.54
10	0.01	0.77	0.00	0.22	0.004	14,069.55	5,470.96	8,536.83
10	0.01	0.77	0.01	0.22	0.004	17,035.82	6,686.90	10,652.87
10	0.01	0.70	0.02	0.22	0.003	23,690.39	7,207.44	23,725.11
10	0.01	0.77	0.02	0.23	0.002	24,920.24	7,830.48	20,989.70
10	0.00	0.78	0.01	0.30	0.003	26,826.69	7,479.46	12,637.41
10	0.00	0.77	0.01	0.27	0.004	30,505.38	7,637.11	12,020.58
11	0.00	0.57	0.14	0.33	0.004	1,972.34	902.35	789.42
11	0.00	0.58	0.14	0.29	0.003	2,215.35	1,052.42	668.80
11	0.00	0.58	0.18	0.28	0.003	2,258.26	1,176.20	777.06
11	0.00	0.57	0.23	0.31	0.003	3,196.40	1,361.71	1,388.03
11	0.00	0.57	0.26	0.39	0.003	4,292.89	1,347.33	2,367.76
11	0.00	0.53	0.25	0.39	0.003	5,144.41	1,352.78	4,774.56
11	0.00	0.57	0.29	0.35	0.003	5,059.03	1,562.12	3,415.21
11	0.00	0.54	0.33	0.35	0.003	5,871.61	1,757.62	4,613.42
12	0.00	0.24	0.51	0.47	0.002	83,600.18	10,259.68	16,228.99
12	0.00	0.26	0.57	0.48	0.002	107,765.06	13,248.82	19,865.05

Firm ID	MO	IO	FO	MDE	MMC	Assets (Sh.'million')	Equity (Sh.'million')	Market Cap (Sh.'million')
12	0.00	0.23	0.53	0.41	0.001	135,461.41	18,626.92	20,795.72
12	0.00	0.27	0.52	0.43	0.001	166,520.35	23,744.30	36,518.27
12	0.00	0.31	0.51	0.43	0.001	211,539.41	32,263.56	55,808.37
12	0.00	0.33	0.50	0.40	0.001	271,608.60	38,305.39	52,396.66
12	0.00	0.33	0.51	0.36	0.001	328,044.50	45,876.55	42,257.12
12	0.00	0.33	0.51	0.41	0.001	363,303.40	53,619.76	42,409.37
13	0.00	0.78	0.03	0.14	0.006	4,518.45	2,246.31	3,986.72
13	0.01	0.81	0.01	0.11	0.004	4,993.03	2,273.83	3,100.21
13	0.01	0.78	0.01	0.12	0.004	6,248.64	2,925.03	2,774.88
13	0.01	0.77	0.01	0.14	0.004	6,840.06	3,066.54	3,985.66
13	0.01	0.76	0.02	0.13	0.004	7,889.50	3,091.88	3,969.84
13	0.01	0.75	0.03	0.20	0.007	8,384.14	3,149.99	3,478.36
13	0.01	0.75	0.02	0.23	0.007	7,548.41	2,556.41	1,760.27
13	0.00	0.76	0.01	0.27	0.010	7,038.42	1,878.80	1,455.47
14	0.52	0.69	0.30	0.19	0.000	12,037.57	5,701.20	9,532.50
14	0.52	0.69	0.30	0.17	0.001	13,530.87	5,702.92	6,930.00
14	0.51	0.69	0.30	0.20	0.001	14,158.59	4,839.39	4,687.50
14	0.51	0.69	0.30	0.41	0.001	15,790.73	7,090.26	5,248.13
14	0.51	0.69	0.30	0.41	0.001	16,160.36	6,704.68	6,877.50
14	0.52	0.69	0.30	0.27	0.001	23,112.58	13,809.59	4,888.13
14	0.52	0.69	0.30	0.25	0.001	27,842.12	17,946.76	3,033.75
14	0.52	0.69	0.29	0.29	0.001	27,357.39	16,890.98	2,463.75
15	0.00	0.63	0.21	0.19	0.001	38,218.44	23,952.63	142,998.36
15	0.00	0.61	0.24	0.22	0.001	49,712.13	26,755.18	142,273.49
16	0.04	0.32	0.37	0.42	0.002	143,018.00	27,204.00	82,124.51
16	0.04	0.33	0.40	0.41	0.002	196,293.90	34,285.00	84,377.03
16	0.04	0.35	0.45	0.39	0.001	243,170.00	42,916.00	79,517.14
16	0.04	0.35	0.48	0.40	0.001	277,729.00	51,555.00	119,877.41
16	0.04	0.35	0.49	0.42	0.001	344,572.00	63,776.00	158,833.71
16	0.04	0.38	0.44	0.43	0.001	428,062.00	72,136.00	173,589.04
16	0.04	0.40	0.45	0.42	0.001	473,713.00	81,976.00	132,827.06
16	0.04	0.45	0.42	0.40	0.001	524,465.00	93,142.00	137,110.18
17	0.00	0.63	0.11	0.20	0.003	1,195.82	403.40	804.13
17	0.00	0.62	0.11	0.23	0.004	1,010.86	279.41	435.75
17	0.00	0.60	0.11	0.26	0.004	1,150.73	349.49	361.38
17	0.00	0.58	0.11	0.18	0.005	940.65	395.92	542.50
17	0.00	0.59	0.11	0.23	0.008	930.06	218.46	756.00
17	0.00	0.60	0.11	0.26	0.005	1,333.80	682.49	763.00
17	0.00	0.60	0.11	0.47	0.014	1,082.81	486.58	497.88
17	0.00	0.60	0.11	0.72	0.022	772.65	549.37	504.88
18	0.01	0.69	0.00	0.08	0.011	1,139.51	412.52	332.06
18	0.01	0.68	0.01	0.17	0.022	769.30	155.28	182.03

Firm ID	MO	IO	FO	MDE	MMC	Assets (Sh.'million')	Equity (Sh.'million')	Market Cap (Sh.'million')
18	0.01	0.68	0.01	0.16	0.026	503.08	198.29	136.60
18	0.01	0.68	0.01	0.12	0.027	480.53	198.52	134.68
18	0.01	0.67	0.01	0.33	0.063	441.90	180.21	209.62
18	0.02	0.66	0.01	0.31	0.081	444.44	120.12	180.41
18	0.02	0.66	0.01	0.52	0.135	379.58	23.18	125.83
19	0.01	0.66	0.01	0.31	0.004	29,278.40	4,257.41	5,224.83
19	0.01	0.68	0.01	0.27	0.003	31,870.92	4,782.12	4,853.00
19	0.01	0.69	0.01	0.21	0.002	40,685.93	5,137.24	3,421.96
19	0.01	0.64	0.03	0.32	0.002	46,755.11	5,859.51	5,880.91
19	0.01	0.68	0.04	0.26	0.002	60,961.68	6,558.88	9,646.10
19	0.00	0.70	0.02	0.28	0.003	71,659.43	10,622.64	9,064.47
19	0.00	0.70	0.02	0.28	0.003	71,930.14	11,289.26	6,187.85
19	0.00	0.72	0.02	0.40	0.003	67,541.12	11,449.54	3,756.17
20	0.18	0.74	0.14	0.55	0.004	141,200.55	23,856.19	57,392.15
20	0.16	0.75	0.13	0.40	0.002	154,060.58	22,424.98	51,170.55
20	0.16	0.76	0.13	0.43	0.003	164,822.61	26,816.25	44,467.70
20	0.16	0.76	0.14	0.27	0.001	182,157.48	32,086.51	38,614.96
20	0.15	0.76	0.13	0.28	0.001	202,645.01	35,868.85	43,892.37
21	0.00	0.08	0.50	0.13	0.002	30,691.38	5,577.36	8,646.00
21	0.00	0.09	0.58	0.17	0.002	38,039.83	6,711.65	8,260.73
21	0.00	0.09	0.54	0.15	0.001	47,257.54	8,699.69	9,624.04
21	0.00	0.09	0.54	0.14	0.001	61,159.19	13,340.76	15,243.28
21	0.00	0.08	0.61	0.13	0.001	74,505.37	16,479.03	22,909.84
21	0.00	0.09	0.69	0.18	0.002	82,378.01	20,381.21	32,687.49
21	0.00	0.10	0.69	0.17	0.001	90,567.74	21,421.67	30,910.81
21	0.00	0.10	0.66	0.14	0.001	104,967.53	25,230.65	31,884.21
22	0.00	0.40	0.35	0.21	0.003	3,218.59	2,210.50	1,450.81
22	0.00	0.38	0.36	0.28	0.005	3,817.32	2,756.77	1,412.02
22	0.00	0.35	0.36	0.27	0.005	3,571.70	2,801.23	1,462.65
22	0.00	0.29	0.36	0.26	0.005	3,717.54	2,904.03	1,674.17
22	0.00	0.28	0.35	0.29	0.004	3,857.45	2,984.73	3,113.13
22	0.00	0.28	0.34	0.26	0.004	4,555.18	3,443.87	5,966.57
22	0.00	0.28	0.33	0.23	0.004	5,064.41	3,846.26	5,883.27
22	0.00	0.27	0.32	0.21	0.003	5,746.13	4,322.04	6,125.00
23	0.01	0.55	0.28	0.07	0.001	1,498.93	818.73	494.05
23	0.01	0.55	0.28	0.08	0.001	1,254.70	976.40	461.13
23	0.01	0.55	0.28	0.07	0.002	1,962.90	1,133.64	483.13
23	0.00	0.55	0.27	0.08	0.003	2,078.48	1,284.01	477.59
23	0.00	0.55	0.27	0.09	0.003	1,929.16	1,380.67	572.13
23	0.00	0.55	0.28	0.10	0.003	1,983.24	1,427.68	647.11
23	0.00	0.57	0.30	0.10	0.010	2,329.15	1,514.22	679.51
23	0.00	0.54	0.28	0.10	0.008	2,030.31	1,415.50	617.12

Firm ID	MO	IO	FO	MDE	MMC	Assets (Sh.'million')	Equity (Sh.'million')	Market Cap (Sh.'million')
24	0.20	0.53	0.07	0.50	0.002	251,356.20	39,129.77	61,597.07
24	0.22	0.62	0.15	0.48	0.003	330,716.16	44,486.83	57,349.32
24	0.18	0.53	0.19	0.68	0.003	368,018.79	54,295.06	72,793.91
24	0.18	0.49	0.24	0.64	0.003	390,851.58	63,354.97	126,518.82
24	0.18	0.47	0.34	0.60	0.004	490,338.32	75,633.56	154,744.64
24	0.17	0.50	0.31	0.51	0.003	558,094.15	81,253.61	155,609.42
24	0.18	0.44	0.29	0.48	0.002	595,240.00	96,566.00	103,297.90
24	0.18	0.44	0.29	0.49	0.001	646,668.00	105,965.00	112,741.46
25	0.71	0.81	0.01	0.74	0.001	150,566.89	70,530.87	36,016.49
25	0.70	0.83	0.01	0.63	0.001	160,993.29	69,418.59	27,241.36
25	0.70	0.82	0.01	0.63	0.001	163,144.87	70,179.55	18,502.88
25	0.70	0.82	0.02	0.63	0.001	188,673.28	74,128.74	32,883.82
25	0.70	0.80	0.02	0.65	0.001	250,205.52	76,709.67	23,614.07
25	0.70	0.81	0.02	0.50	0.000	342,520.00	141,594.09	19,776.09
25	0.78	0.58	0.04	0.50	0.000	367,248.80	172,742.68	40,362.78
25	0.70	0.78	0.13	0.53	0.000	377,196.54	183,162.79	51,107.55
26	0.00	0.47	0.32	0.03	0.000	30,421.50	11,209.20	34,843.18
26	0.00	0.50	0.40	0.02	0.000	45,974.30	11,650.46	14,907.71
26	0.00	0.50	0.41	0.04	0.000	32,684.17	6,445.73	19,819.72
26	0.00	0.46	0.44	0.03	0.000	28,121.67	6,666.29	14,693.08
26	0.00	0.41	0.48	0.03	0.000	23,915.17	7,330.50	13,319.44
26	0.00	0.38	0.52	0.04	0.000	17,377.10	8,555.64	13,172.26
26	0.00	0.34	0.55	0.03	0.000	24,201.71	9,865.15	17,121.49
26	0.00	0.33	0.56	0.03	0.000	24,099.03	11,214.84	20,788.63
27	0.23	0.40	0.38	0.22	0.000	73,263.00	19,973.00	22,869.20
27	0.23	0.39	0.39	0.20	0.000	78,743.00	23,143.00	14,858.25
27	0.23	0.45	0.46	0.18	0.000	77,432.00	23,023.00	16,716.51
27	0.30	0.44	0.43	0.20	0.000	122,696.00	31,209.00	16,193.04
27	0.30	0.43	0.43	0.20	0.000	148,675.00	28,229.00	15,775.28
28	0.42	0.81	0.05	0.20	0.000	85,025.89	28,740.88	35,810.33
28	0.50	0.81	0.05	0.24	0.000	119,878.99	39,606.38	34,598.79
28	0.45	0.77	0.05	0.21	0.000	134,131.98	43,511.55	30,645.26
28	0.50	0.81	0.09	0.24	0.000	184,212.54	47,405.68	30,808.79
28	0.50	0.82	0.10	0.22	0.000	220,109.35	54,743.82	28,662.17
28	0.50	0.80	0.11	0.23	0.000	275,493.15	61,449.03	31,134.03
28	0.50	0.79	0.11	0.26	0.000	297,542.18	64,021.81	19,018.67
28	0.50	0.79	0.10	0.29	0.000	341,653.23	69,961.66	16,676.91
29	0.60	0.79	0.01	0.18	0.001	17,240.93	10,573.50	7,417.50
29	0.60	0.80	0.02	0.17	0.001	19,096.44	11,526.49	5,315.00
29	0.65	0.81	0.02	0.15	0.001	23,787.96	14,613.16	6,662.50
29	0.60	0.82	0.03	0.10	0.001	27,628.31	16,993.63	10,648.75
29	0.60	0.77	0.08	0.08	0.001	32,174.25	19,991.40	12,788.65

Firm ID	MO	IO	FO	MDE	MMC	Assets (Sh.'million')	Equity (Sh.'million')	Market Cap (Sh.'million')
29	0.60	0.77	0.09	0.09	0.001	35,954.13	21,812.23	12,934.48
29	0.60	0.74	0.13	0.15	0.001	38,494.31	24,133.30	14,201.97
29	0.60	0.74	0.15	0.12	0.001	42,732.67	27,205.08	14,010.65
30	0.00	0.40	0.58	0.46	0.004	23,895.78	3,752.64	5,836.87
30	0.00	0.39	0.59	0.39	0.004	27,372.10	4,554.23	3,828.03
30	0.00	0.37	0.59	0.41	0.005	31,452.19	5,464.88	5,923.46
30	0.00	0.36	0.60	0.42	0.004	33,194.05	6,157.19	8,824.77
30	0.00	0.33	0.64	0.51	0.005	34,533.69	6,233.11	11,928.42
30	0.00	0.29	0.67	0.46	0.005	34,920.27	6,753.64	8,026.68
30	0.00	0.24	0.72	0.45	0.004	37,118.57	7,428.57	6,450.81
31	0.46	0.68	0.00	0.47	0.009	662.69	264.59	714.95
31	0.46	0.68	0.00	0.30	0.006	685.02	385.87	674.70
31	0.46	0.70	0.00	0.37	0.005	747.53	434.32	1,014.49
31	0.42	0.64	0.01	0.44	0.010	689.32	380.38	1,020.70
31	0.82	0.85	0.01	0.40	0.008	1,866.94	947.57	1,146.58
31	0.66	0.80	0.01	0.36	0.012	1,858.73	945.71	1,356.53
32	0.20	0.50	0.03	0.15	0.001	18,081.79	10,999.85	17,301.75
32	0.20	0.49	0.04	0.15	0.001	23,176.52	14,476.01	10,652.63
32	0.20	0.45	0.05	0.15	0.001	27,400.11	15,602.59	8,561.63
32	0.20	0.40	0.09	0.24	0.001	27,148.39	13,382.49	6,253.88
32	0.20	0.36	0.06	0.30	0.001	23,563.09	10,641.81	4,022.63
32	0.20	0.33	0.03	0.51	0.002	20,432.98	5,932.04	3,174.75
32	0.20	0.33	0.03	0.57	0.002	27,018.73	7,559.96	1,986.45
32	0.20	0.32	0.03	0.59	0.004	24,091.10	7,565.80	1,581.00
33	0.00	0.71	0.05	0.47	0.019	1,685.10	1,543.06	4,123.62
33	0.00	0.59	0.24	0.55	0.021	1,918.24	1,774.76	4,078.20
33	0.00	0.44	0.41	0.68	0.026	2,013.75	1,863.15	4,678.44
33	0.00	0.41	0.47	0.66	0.021	2,108.22	2,011.89	4,345.56
34	0.00	0.25	0.46	0.13	0.004	7,975.20	5,422.10	22,005.11
34	0.00	0.24	0.47	0.11	0.004	8,816.30	6,122.40	24,877.11
34	0.00	0.22	0.38	0.12	0.004	10,677.40	7,323.50	29,237.15
34	0.00	0.23	0.56	0.11	0.004	11,444.20	8,243.40	52,929.32
34	0.00	0.21	0.60	0.11	0.004	11,944.90	8,768.10	57,505.40
34	0.00	0.21	0.60	0.11	0.004	12,696.70	8,953.70	37,551.34
34	0.00	0.21	0.60	0.13	0.005	12,174.10	8,702.90	26,164.17
34	0.00	0.19	0.60	0.47	0.005	11,320.30	8,166.30	19,718.38
35	0.71	0.62	0.00	0.49	0.002	60,026.69	9,929.61	11,509.17
35	0.71	0.72	0.00	0.51	0.003	68,664.52	10,456.47	8,849.17
35	0.71	0.47	0.00	0.51	0.003	67,154.81	10,467.18	5,401.67
35	0.71	0.37	0.00	0.58	0.003	92,555.72	11,888.40	6,111.00
35	0.71	0.79	0.00	0.53	0.002	123,092.00	12,224.02	8,073.33
35	0.72	0.84	0.01	0.59	0.003	121,249.79	6,885.00	5,961.05

Firm ID	MO	IO	FO	MDE	MMC	Assets (Sh.'million')	Equity (Sh.'million')	Market Cap (Sh.'million')
35	0.71	0.79	0.01	0.55	0.002	112,086.13	6,910.45	3,024.82
35	0.76	0.83	0.00	0.61	0.003	109,873.14	7,233.91	2,655.10
36	0.37	0.72	0.01	0.44	0.003	59,013.92	8,353.23	14,756.30
36	0.35	0.76	0.02	0.41	0.002	78,984.01	10,522.95	14,742.84
36	0.31	0.78	0.01	0.44	0.003	108,348.59	15,481.62	14,061.28
36	0.24	0.79	0.02	0.46	0.003	121,062.74	17,569.53	29,671.82
36	0.23	0.82	0.02	0.44	0.004	145,780.51	22,234.92	36,882.48
36	0.25	0.81	0.02	0.47	0.005	165,788.27	26,337.14	32,837.21
36	0.13	0.81	0.02	0.50	0.007	169,458.99	30,345.36	21,298.46
36	0.13	0.82	0.01	0.53	0.007	206,172.46	34,716.24	20,864.89
37	0.13	0.57	0.00	0.26	0.007	974.12	598.20	300.50
37	0.13	0.54	0.01	0.25	0.008	1,074.24	647.26	179.00
37	0.13	0.54	0.01	0.26	0.007	1,867.62	1,067.23	143.67
37	0.13	0.55	0.01	0.26	0.007	1,897.41	1,074.36	170.17
37	0.12	0.54	0.01	0.44	0.015	1,538.34	1,169.84	207.67
37	0.12	0.50	0.01	0.35	0.015	1,531.41	1,168.56	202.17
37	0.12	0.50	0.02	0.35	0.009	1,613.37	1,226.40	137.67
37	0.12	0.50	0.02	0.32	0.010	1,606.66	1,265.74	113.33
38	0.00	0.86	0.06	0.30	0.000	104,120.85	62,295.12	208,333.33
38	0.00	0.84	0.09	0.31	0.000	113,854.76	67,454.09	141,000.00
38	0.00	0.83	0.11	0.26	0.000	122,575.85	72,081.70	152,000.00
38	0.00	0.81	0.13	0.23	0.000	130,030.30	80,265.13	308,264.60
38	0.00	0.82	0.13	0.22	0.000	134,600.95	91,235.98	506,116.05
38	0.00	0.83	0.13	0.22	0.000	156,957.63	104,276.53	623,852.10
38	0.00	0.83	0.13	0.21	0.000	159,182.49	116,739.04	728,189.15
38	0.00	0.83	0.13	0.21	0.000	161,687.00	107,489.24	911,488.49
39	0.00	0.65	0.18	0.19	0.003	2,845.31	2,168.14	2,237.18
39	0.00	0.64	0.18	0.17	0.003	3,125.04	2,249.79	1,424.19
39	0.00	0.64	0.18	0.10	0.003	3,399.65	2,326.72	1,119.17
39	0.00	0.68	0.14	0.16	0.003	3,668.49	2,105.61	1,407.95
39	0.00	0.79	0.02	0.27	0.003	3,857.39	2,536.44	1,919.40
39	0.00	0.80	0.03	0.27	0.003	3,751.23	2,492.45	1,336.04
39	0.00	0.80	0.03	0.50	0.004	3,290.87	1,835.19	872.14
39	0.00	0.82	0.03	0.30	0.004	2,969.87	1,837.85	763.12
40	0.20	0.73	0.01	0.12	0.003	10,671.62	1,832.52	3,034.00
40	0.24	0.68	0.01	0.19	0.004	11,513.86	2,122.64	3,726.67
40	0.20	0.63	0.01	0.11	0.002	16,473.52	2,628.91	3,109.60
40	0.20	0.63	0.02	0.11	0.002	21,157.51	3,338.44	5,862.00
40	0.20	0.63	0.02	0.12	0.002	24,599.41	3,777.63	11,864.00
40	0.24	0.67	0.02	0.20	0.004	27,109.28	3,802.05	10,633.00
40	0.20	0.63	0.02	0.23	0.003	28,442.59	3,932.24	5,727.00
40	0.20	0.63	0.02	0.25	0.004	29,811.48	4,051.95	3,816.00

Firm ID	MO	IO	FO	MDE	MMC	Assets (Sh.'million')	Equity (Sh.'million')	Market Cap (Sh.'million')
41	0.00	0.70	0.00	0.25	0.003	8,541.02	6,489.98	2,933.36
41	0.00	0.71	0.01	0.23	0.003	9,462.03	6,762.17	2,673.95
41	0.00	0.72	0.01	0.24	0.003	8,922.98	6,426.80	2,675.85
41	0.00	0.72	0.01	0.25	0.003	7,760.62	6,382.91	3,032.19
41	0.00	0.73	0.02	0.28	0.004	14,929.58	12,120.97	3,567.17
41	0.00	0.73	0.02	0.27	0.004	16,044.53	13,558.51	3,719.21
41	0.00	0.73	0.01	0.23	0.004	13,106.14	11,361.61	4,382.47
41	0.00	0.74	0.01	0.19	0.004	13,196.03	11,315.88	5,744.15
42	0.00	0.32	0.63	0.76	0.002	140,080.20	24,768.62	18,832.89
42	0.00	0.41	0.76	0.73	0.002	150,171.02	19,329.13	15,195.18
42	0.00	0.27	0.72	0.63	0.002	143,212.16	27,240.89	12,934.11
42	0.00	0.20	0.74	0.53	0.001	180,511.80	32,425.79	26,091.23
42	0.00	0.20	0.75	0.52	0.003	180,998.99	36,895.19	47,405.65
42	0.00	0.19	0.76	0.54	0.003	208,451.92	38,364.83	40,981.68
42	0.00	0.16	0.80	0.64	0.003	214,682.73	40,140.87	31,642.20
42	0.00	0.13	0.82	0.67	0.004	248,738.72	42,955.69	29,105.56
43	0.00	0.13	0.75	0.42	0.001	142,746.25	20,210.49	58,676.27
43	0.00	0.14	0.82	0.46	0.001	164,046.62	20,694.46	58,069.32
43	0.00	0.13	0.75	0.41	0.001	195,352.76	30,752.81	56,843.10
43	0.00	0.14	0.75	0.40	0.001	220,391.18	36,206.40	90,738.32
43	0.00	0.14	0.75	0.40	0.001	222,495.82	40,658.17	97,900.51
43	0.00	0.14	0.75	0.45	0.001	233,965.45	41,251.79	85,997.87
43	0.00	0.15	0.76	0.45	0.001	250,482.00	44,603.83	64,906.80
43	0.00	0.14	0.75	0.48	0.001	285,724.44	45,665.00	72,280.35
44	0.00	0.23	0.70	0.54	0.002	3,306.00	1,535.78	3,055.17
44	0.00	0.25	0.76	0.52	0.002	3,512.26	1,654.07	2,367.57
44	0.00	0.25	0.74	0.53	0.002	3,501.55	1,838.90	1,779.88
44	0.00	0.23	0.70	0.59	0.002	4,162.47	2,028.40	2,220.93
44	0.00	0.23	0.70	0.62	0.002	4,101.75	2,208.04	2,736.30
44	0.00	0.23	0.70	0.78	0.003	4,355.61	1,877.57	3,018.97
44	0.00	0.23	0.70	0.64	0.003	4,404.93	2,076.09	2,065.64
44	0.00	0.23	0.70	0.76	0.003	4,459.64	1,865.26	2,523.81
45	0.04	0.76	0.01	0.64	0.006	154,339.00	19,980.50	51,396.04
45	0.03	0.76	0.02	0.66	0.005	168,312.00	20,376.46	55,761.51
45	0.03	0.78	0.02	0.55	0.003	200,886.58	29,367.34	47,555.90
45	0.03	0.78	0.03	0.60	0.004	231,215.36	35,097.78	67,629.73
45	0.03	0.79	0.04	0.63	0.004	285,396.07	42,877.12	94,274.32
45	0.03	0.79	0.04	0.53	0.004	342,499.81	49,303.25	96,401.02
45	0.03	0.79	0.04	0.52	0.004	351,828.58	60,620.13	77,271.57
45	0.02	0.79	0.04	0.52	0.004	386,857.66	69,812.59	82,264.78
46	0.00	0.62	0.00	0.04	0.006	158.31	119.33	361.80
46	0.00	0.72	0.01	0.06	0.010	191.24	149.71	379.60

Firm ID	MO	IO	FO	MDE	MMC	Assets (Sh.'million')	Equity (Sh.'million')	Market Cap (Sh.'million')
46	0.00	0.70	0.01	0.04	0.005	309.49	242.23	513.00
46	0.00	0.67	0.01	0.05	0.006	343.01	260.35	570.00
46	0.00	0.68	0.01	0.07	0.007	338.60	251.72	901.60
46	0.00	0.95	0.01	0.06	0.005	342.16	229.87	1,609.00
46	0.00	0.95	0.01	0.07	0.007	282.19	205.71	1,309.35
46	0.00	0.78	0.01	0.07	0.014	262.01	187.78	1,246.03
47	0.00	0.03	0.88	0.06	0.000	30,375.68	9,579.85	8,937.63
47	0.00	0.02	0.88	0.04	0.000	35,198.17	9,194.82	6,612.73
47	0.00	0.01	0.81	0.04	0.000	32,980.60	14,192.68	9,629.38
47	0.00	0.01	0.94	0.03	0.000	39,984.17	15,379.06	11,376.36
47	0.00	0.01	0.94	0.03	0.000	32,541.80	16,425.42	15,410.67
47	0.00	0.01	0.94	0.04	0.000	34,225.04	17,599.75	13,889.28
47	0.00	0.01	0.94	0.06	0.000	36,185.37	19,349.29	11,099.88
47	0.00	0.01	0.94	0.05	0.000	38,012.12	21,417.22	13,440.73
48	0.00	0.33	0.54	0.71	0.003	11,923.14	7,496.39	7,630.20
48	0.00	0.36	0.41	0.65	0.002	13,131.84	8,046.82	9,102.60
48	0.00	0.35	0.54	0.70	0.003	13,357.69	8,181.41	6,289.69
48	0.00	0.28	0.66	0.73	0.002	16,239.88	11,032.28	8,451.61
48	0.00	0.26	0.66	0.81	0.003	15,939.18	10,412.49	7,100.99
48	0.00	0.25	0.66	0.81	0.003	15,815.80	9,685.35	5,791.62
48	0.00	0.25	0.66	0.76	0.004	16,983.12	9,367.52	3,855.26
48	0.00	0.24	0.66	0.77	0.004	17,486.82	9,164.62	4,577.12
49	0.17	0.09	0.03	0.24	0.005	21,742.26	11,472.47	8,789.24
49	0.17	0.08	0.04	0.22	0.005	21,845.75	12,068.60	6,363.64
49	0.17	0.12	0.07	0.27	0.005	23,840.27	13,218.39	8,355.48
49	0.22	0.10	0.17	0.32	0.007	19,463.66	11,481.70	6,444.68
49	0.21	0.10	0.20	0.31	0.007	21,817.98	3,545.77	4,002.23
49	0.12	0.10	0.20	0.49	0.011	18,911.55	3,829.87	1,626.62
50	0.30	0.95	0.00	0.17	0.001	3,153.51	1,538.93	2,610.00
50	0.25	0.60	0.03	0.17	0.001	4,004.72	2,279.17	2,373.90
50	0.21	0.41	0.09	0.20	0.001	4,914.89	2,657.81	3,960.39
50	0.21	0.36	0.27	0.22	0.001	5,573.53	2,925.41	5,312.96
50	0.22	0.32	0.25	0.18	0.002	6,918.85	3,337.34	3,373.10
50	0.17	0.49	0.17	0.27	0.001	6,302.25	739.36	3,570.52
51	0.03	0.03	0.01	0.16	0.004	39,638.49	10,260.48	27,037.57
51	0.01	0.03	0.02	0.15	0.004	53,804.13	15,271.65	29,933.48
51	0.01	0.04	0.03	0.13	0.004	63,108.90	17,698.39	25,359.56
51	0.01	0.06	0.02	0.13	0.003	66,722.32	17,541.38	21,902.05
52	0.00	0.67	0.02	0.07	0.001	5,064.42	3,364.70	858.98
52	0.00	0.57	0.03	0.06	0.001	5,708.90	3,744.95	757.09
52	0.00	0.57	0.04	0.07	0.001	6,410.26	3,967.89	899.67
52	0.00	0.57	0.05	0.06	0.001	8,108.38	4,291.30	1,216.70

Firm ID	MO	IO	FO	MDE	MMC	Assets (Sh.'million')	Equity (Sh.'million')	Market Cap (Sh.'million')
52	0.00	0.58	0.05	0.07	0.001	8,026.58	4,687.24	2,447.92
52	0.00	0.59	0.05	0.07	0.001	8,635.13	5,318.62	3,209.74
52	0.00	0.59	0.05	0.08	0.001	9,199.78	5,696.73	2,600.92
52	0.00	0.60	0.05	0.11	0.001	10,267.47	5,478.96	2,298.08
52	0.00	0.19	0.56	0.11	0.002	5,328.71	3,470.48	1,605.33
52	0.00	0.19	0.56	0.11	0.002	6,032.74	4,271.23	1,908.88
53	0.00	0.18	0.56	0.12	0.002	7,243.23	4,945.06	2,072.33
53	0.00	0.16	0.56	0.12	0.002	8,023.83	5,858.26	2,012.49
53	0.00	0.15	0.56	0.13	0.003	8,539.20	6,580.53	2,488.25
53	0.00	0.15	0.57	0.16	0.005	8,558.56	6,583.04	2,993.93
53	0.00	0.14	0.60	0.14	0.006	8,931.39	6,714.34	3,160.30
53	0.00	0.12	0.62	0.14	0.006	8,364.13	6,094.27	3,010.71
54	0.25	0.20	0.51	0.15	0.001	8,009.43	3,577.81	9,680.90
54	0.23	0.21	0.63	0.22	0.002	8,489.94	4,354.91	11,812.65
54	0.18	0.13	0.60	0.25	0.002	8,646.96	4,899.63	15,580.34
54	0.18	0.14	0.68	0.25	0.002	12,744.58	8,126.45	18,490.48
54	0.14	0.14	0.69	0.27	0.002	13,284.10	8,542.63	17,877.70
54	0.14	0.14	0.68	0.28	0.002	12,468.48	8,604.26	14,286.37
54	0.14	0.14	0.69	0.27	0.002	13,486.40	8,808.64	8,031.31
54	0.12	0.11	0.73	0.26	0.003	13,758.91	8,965.17	7,272.63

APPENDIX 5: NACOSTI AUTHORIZATION LETTER

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/18/54275/23828**

Date: **20th July, 2018**

Henry Kimathi Mukaria
University of Nairobi
P.O. Box 30197 - 00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Ownership structure, agency costs, firm size and value of companies listed at the Nairobi Securities Exchange"*** I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **19th July, 2019.**

You are advised to report to **the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

The County Director of Education
Nairobi County.

APPENDIX 6: NACOSTI RESEARCH PERMIT

THIS IS TO CERTIFY THAT:
MR. HENRY KIMATHI MUKARIA
of UNIVERSITY OF NAIROBI, 50856-100
Nairobi,has been permitted to conduct
research in *Nairobi County*

on the topic: *OWNERSHIP STRUCTURE, AGENCY COSTS, FIRM SIZE AND VALUE OF COMPANIES LISTED AT THE NAIROBI SECURITIES EXCHANGE*

for the period ending:
19th July,2019

Permit No : NACOSTI/P/18/54275/23828
Date Of Issue : 20th July,2018
Fee Recieved :Ksh 2000

.....
Applicant's Signature

.....
for Director General
National Commission for Science, Technology & Innovation

CONDITIONS

1. The License is valid for the proposed research, research site specified period.
2. Both the Licence and any rights thereunder are non-transferable.
3. Upon request of the Commission, the Licensee shall submit a progress report.
4. The Licensee shall report to the County Director of Education and County Governor in the area of research before commencement of the research.
5. Excavation, filming and collection of specimens are subject to further permissions from relevant Government agencies.
6. This Licence does not give authority to transfer research materials.
7. The Licensee shall submit two (2) hard copies and upload a soft copy of their final report.
8. The Commission reserves the right to modify the conditions of this Licence including its cancellation without prior notice.

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No.A 19586

CONDITIONS: see back page