STRATEGIC CONFORMITY, STOCK LIQUIDITY AND FINANCIAL DISTRESS AMONG LISTED FIRMS IN NAIROBI SECURITIES EXCHANGE, KENYA.

BY

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A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY IN BUSINESS MANAGEMENT IN THE DEPARTMENT OF ACCOUNTING AND FINANCE, SCHOOL OF BUSINESS AND ECONOMICS, MOI UNIVERSITY.

APRIL, 2018

DECLARATION

Declaration by the candidate

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DEDICATION

To my loving parents, Lucina and Joseph; your unconditional love and support during every stage of my life and always believing in me went a long way in making this possible. You have taught me many important things in life which have been most essential for my achievements.

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ABSTRACT

Over the years, numerous cases of financial distress have been witnessed among listed firms in Nairobi Securities Exchange. This has been evidenced by companies facing defaulted financial obligations, assets shrinking, financial restructuring and others being placed under receivership and subsequently delisted. Consequently, a method of determining corporate financial distress is clearly a matter of considerable interest to investors, creditors, employees and other stakeholders. Although studies have been done on predicting financial distress of firms, the aspect of strategic conformity and the role of stock liquidity have received little attention in empirical investigations of financial distress. In view of the aforementioned, the objective of the study was to determine the relationship between strategic conformity dimensions and prediction of financial distress of firms and how stock liquidity moderates the relationship between strategic conformity dimensions and financial distress prediction among listed firms in Kenya. This study was informed by trade-off theory, agency theory, institutional and feedback theory. The study adopted positivism research philosophy and explanatory research design. The study employed panel analysis for a period covering ten years from 2006-2015. The target population comprised all 62 listed firms in Nairobi Securities Exchange. The sample size was 40 firms which were listed for the entire period of study and had complete data. Secondary firm-level panel data was gathered from year-end financial reports for the period 2006-2015. Data was analyzed using both descriptive and inferential statistics. Specifically, Pearson's correlation coefficient, standard multiple regression analysis and hierarchical moderated multiple regression analysis were used to analyze and test the hypotheses. The study found a positive and significant effect of nonproduction overhead (β=0.914; p<0.05), financial leverage (β=0.824; p<0.05) and inventory levels (β =0.678; p<0.05) on the prediction of financial distress while plant and equipment newness had a negative and significant effect on the prediction of financial distress (β=-0.580; p<0.05). Subsequently, when the independent variables were moderated with stock liquidity the findings indicated that stock liquidity moderated the relationship between non-production overhead and financial distress (β=-1.979; p<.05), financial leverage and financial distress (β=-1.998; p; < 0.05), inventory levels and financial distress (β=-1.890; p < 0.05) and plant and equipment newness and financial distress (β=-2.376; p<0.05), hence presence of moderating effects of stock liquidity on the relationship between strategic conformity and financial distress. The findings that nonproduction overhead, inventory levels and plant and equipment newness accounted for a significant variance on the prediction of financial distress and that stock liquidity significantly moderates the relationship between strategic conformity and financial distress presents major contributions of this study as they extend both institutional and feedback theories. This is by centering strategic conformity on the empirical testing of institutional theory as well as the influence of stock liquidity on the empirical testing of feedback theory. This study recommends that firms should have control on their nonproduction overheads, have reversion of excess debt to an optimum, establish inventory reduction policies, invest in plant and equipment and initiate stock liquidity enhancing policies so as to reduce the likelihood of financial distress. Further research should focus on using different samples like private non-listed firms which may provide additional insights and add to the existing understanding of the issues explored in this study.

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OPERATIONAL DEFINITION OF TERMS

Strategic conformity – This refers to the extent to which a firm's strategy is equivalent to the average strategic profile of other firms in its industry (Deephouse, 1996; Geletkanycz & Hambrick, 1997).

Financial distress – The term financial distress is used in this study to refer to the identification/prediction of a financially distressed firm (Inekwe *et al.*, 2018). That is the identification of the positioning of the firm as to whether the firm is likely to fail to meet its financial obligations as and when they fall due or not (Altman, 2000; Sanz & Ayca, 2006; Pindado *et al*., 2008).

Stock liquidity – This refers to the extent to which a company's securities can be traded (Amihud & Mendelson, 2012).

Nonproduction Overhead – This is the proportion of the costs of business operations represented by selling, general and administrative costs which captures compensation to the senior managers and their staff (Capozza & Seguin, 1998; Chen *et al.*, 2012).

Financial leverage – In this study, the term financial leverage is used to refer to the extent of liabilities in a firm's financial structure (Munoz, 2013; Kim & Partington, 2014).

Plant and equipment newness - This term is used in this study to refer to the net value of plant and equipment in a firm's asset structure (Finkelstein & Hambrick, 1990: Adam & Goyal, 2008).

Inventory levels – This term is used in this study to refer to the amount of inventory in stock as compared to sales levels (Maccini & Pagan, 2008).

Legitimacy - Legitimacy is used to refer to a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values and beliefs (Dacin *et al.*, 2007; Scott, 2005).

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter presents the background of the study, statement of the problem, research objectives, hypotheses, significance and scope of the study. The key concepts of each construct are defined and a brief background along with the dimensions of each variable of the study is provided.

1.1 Background of the Study

Research on financial distress of firms has received an increasing attention in the recent past (Liao & Mehdian, 2016, Mselmi *et al.*, 2017). This upsurge in research attention could be attributed to the increase in the number of companies that suffer from financial distress over the years and the need of firms to understanding financial dimensions that are revealed in moments of crisis. Furthermore, the financial crisis of 2008 caused by the global credit crunch and high profile failures such as Enron and Worldcom have contributed to increased interest in assessment of financial distress (Al-khatib & Al-Horani, 2012; Tinoco & Wilson, 2013; Shahwan, 2015). In Kenya, listed firms continue to experience financial distress witnessed by the increase in delisting of companies and the placement of some firms under statutory management. Several firms have been delisted from the stock market which include; Mumias Sugar Company, Eveready, Lonrho East Africa, Pearl Dry Cleaners, East African Packaging, Uchumi Supermarkets, Kenya Corporative Creameries and CMC Kenya Ltd., among others (Gathecha, 2016).

Past researchers have explained financial distress in many ways. For instance, Mselmi *et al.,* (2017) define financial distress as the situation where a firm's cash flows are lower than contractually required payment. Agrawal (2015) defined financial distress as the inability of a firm to satisfy its financial obligations as and when they fall due. Sanz and Ayca (2006) define financial distress as a situation where cash flow is insufficient to cover current financial obligations. Furthermore, financial distress is indicated by a firm's inability to raise capital to finance projects (Bandyopadhyay, 2006). Review of literature shows that the market value of the financially distressed firms declines substantially prior to their ultimate collapse (Charalambous *et al*., 2000). The most noticeable effect of financial distress is missed principal or interest payments under borrowing agreements, unpaid debts to suppliers and employees, cutting capital expenses, liquidating fixed assets and downsizing (Jabeur & Fahmi, 2017; Sanz & Ayca, 2006). A retrospective analysis of the economic and financial crisis during 2007–2013 period highlights the important consequences of businesses' financial distress on stakeholders (that is; financial creditors, managers, shareholders, investors, employees, government regulators and society in general). Therefore, the revision of financial distress prediction models and the development of models adapted to particular characteristics of countries have an important role in order to prevent and manage economic and financial crisis situations **(**Manzaneque *et al.,* 2016).

The event of default of a firm's financial obligations indicates deterioration in the financial health of a firm, which needs to be identified in time (Agrawal & Maheshwari, 2014). According to Miller *et al.,* (2013) the financial health of a firm may be affected by a firm's attempt to conform to the average strategic profile of organizations in its industry, indicating that strategic conformity may have an effect on financial distress of firms. The institutional environment within which firms operate can and often does lead firms to pursue common strategies (Buchko,

2011). Consistent with institutional theory, researchers have argued that firms whose strategies conform to industry norms will secure greater legitimacy which plays a key role in allowing firms to access critical resources such as technology, economic and social capital, markets, partners, and customers. This may enhance organizational performance (Choi & Shepherd 2005, Deephouse 1999, Higgins & Gulati 2006, Miller & Chen 1996). Therefore, Miller *et al.*, (2013) indicates that strategic conformity may generate superior financial returns.

A number of reasons have been advanced by different studies on why research on predicting financial distress is important. Several studies find that analysis of financial distress will provide timely information on the default risk of corporates to lenders and other stakeholders in the corporate sector along with regulators (Wruck, 1990; Pindado *et al*., 2008; Tinoco & Wilson, 2013). According to Mousavi *et al.* (2015) research on financial distress prediction is crucial as it might serve as a predictive tool to managers, and assist stakeholders to assess and select firms to collaborate with or invest in, therefore the significance of this study. Figini *et al.*, (2018) further indicates that timely and accurate assessment of default risk can help avoid the potential direct as well as indirect costs of financial distress. These studies have argued that the ability to predict financial distress requires an evaluation of the company's capacity to satisfy its financial obligations (Grice and Ingram, 2001; Tsun-Siou and Yin-Hua, 2004, Fejer-Kiraly, 2015).

A review of previous research indicates that the deterioration in profitability of listed companies not only makes investors face significant financial loss, but also threatens the interests of the enterprise and internal staff (Geng *et al*., 2015). Therefore, it is important to establish an effective early warning system for the determinants of financial crisis, for better corporate governance (Chen *et al*., 2013, Geng *et al*., 2015). A better understanding of a firm’s financial dimension and its financial distress is permitted by analysis of its default risk (Altman, 2000;

Pindado *et al*., 2008; Huang *et al*., 2012; Tinoco & Wilson, 2013). Financial distress can be costly to a firm as well as other stakeholders. The indirect costs, such as lost profits and higher costs of capital are incurred by a firm due to financial distress (Agrawal, 2015). The economic cost of business failures is significant, evidenced by the substantial decline in the market value of the distressed firms prior to their ultimate collapse. This severely affects the suppliers of capital, investors and creditors, as well as management and employees (Charitou *et al.,* 2004).

A review of the previous studies shows a trend of changes in the choice of variables in the assessment of financial distress of firms. Attempts have been made to incorporate some dynamics by the inclusion of data reflecting changes in the macroeconomic environment, non-financial data and other time variant predictors (Mousavi *et al*., 2015; Nouri & Soltani, 2016; Tinoco & Wilson, 2013). Tinoco and Wilson (2013) propose a combination of accounting data, stock market information and proxies for changes in the macro-economic environment to explain financial distress. Mousavi *et al*. (2015) points out that corporate financial distress may result from one or a combination of internal and external factors, which include; managerial errors due to refusal or failure to adjust managerial and operational structures of the firm to new realities, inefficient or inappropriate corporate policies, economic climate, changes in legislation, and industry decline. The findings of their study indicate that most financial distress modeling frameworks improved in performance by taking account of a mixture of account-based and market-based information (Mousavi *et al.,* 2015). Nouri and Soltani (2016) attempted to overcome the shortcomings of the earlier studies by examining firm failure in the Cyprus Stock Market using a complete set of variables affecting bankruptcy (accounting, market and macroeconomic variables). The results showed that accounting and market variables were significant determinants while macroeconomic variables were not significant.

According to Purves *et al. (*2016) studies on organizational financial crises have identified the symptoms rather than the causes of financial distress (Altman, 2000; 1968; Charitou *et al*., 2004; Chen *et al*., 2013; Huang *et al*., 2012; Tinoco & Wilson, 2013; Ohlson, 1980; Ooghe & Prijcker, 2008), highlighting the need for alternative approaches. A number of studies have examined causes of financial distress such as examination of cash flow information within relevant sections of company financials (Charitou *et al*., 2004), while others have examined corporate governance practices (Daily & Dalton, 1994; Johnson *et al.,* 2000; Mohd-Mohid, *et al.,* 2004; Fich & Slezak, 2008; Cheng *et al.,* 2009).

Although many researchers have examined financial distress using a variety of accounting variables, they have overlooked the potential explanatory power of strategic conformity dimensions in assessing a firm's financial distress. The review of literature revealed that there is scarcity of empirical research that specifically focuses on the relationship between strategic conformity and financial distress. This study attempts to fill this gap by analyzing the relationship between strategic conformity and financial distress of listed firms in Nairobi Securities Exchange.

A fundamental assertion of researchers building turnaround models for firms facing financial crisis is that firm-threatening performance declines (such as organizational crises) are an inevitable consequence of managers failing to maintain the alignment of the firm's strategy with the demands of an evolving and changing environment. The declining firm's core problem could either be inefficient strategy or weak strategic position relative to competitors (Barker & Duhaime, 1997). According to Ridge *et al*., (2014) strategic conformity is the degree to which a firm's strategy is equivalent to the average strategic profile of other organizations in its industry.

The topic of organizational strategic conformity has received a good deal of attention (Miller *et al*., 2013).

Empirical evidence on the effect of strategic conformity on the prediction of financial distress of firms is limited. Therefore, the current study investigated the effect of strategic conformity on financial distress of listed firms in Kenya. Since studies on the relationship between strategic conformity and financial distress is limited, except for the studies that capture financial leverage, a dimension of strategic conformity by Andrade and Kaplan (1998), Fitzpatrick and Ogden, (2011), Kim and Partington, (2014) among others, the current study utilized much theoretical literature from the strategic conformity dimensions.

Strategic decision patterns in the firm have been assessed using the strategic resource allocation profiles (SRAP) developed by Finkelstein and Hambrick (1990). Finkelstein and Hambrick (1990) indicate that these are composed of variables which were chosen because; they may have an important effect on firm performance; they are complementary, each focusing on an important but specific aspect of the firm's strategic profile and have relatively reliable comparability across firms within an industry (Finkelstein & Hambrick, 1990). These indicators when observed over time represent strategic decision patterns in the firm. Strategic dimensions that capture conformity in strategy includes nonproduction overhead, financial leverage, plant and equipment newness and inventory levels (Ridge *et al.,* 2014).

According to Miller (2002) an extreme focus on current markets, technologies, and administrative structures and a lack of awareness of opportunities external to the firm restricts the search for other opportunities by organizational decision makers. As such, this impedes the array of strategic alternatives that a firm considers which influences strategic conformity (Ridge

et al., 2014). Buchko (2011) suggests that institutional forces inherent in inter-organizational networks generate isomorphic process that can cause firms to pursue similar strategies. The results of Buchko (2011) indicated that greater firm dependence did seem to cause firms to exhibit greater strategic conformity. Consistent with institutional theorists, mimesis and the resulting conformity in organizational strategy is a means of securing legitimacy and thereby valuable resources (Fiss & Zajac 2004; Miller & Chen 1996, Thornton & Ocasio 2008).

Although research has shown determinants of strategic conformity dimensions and a positive relationship between financial leverage and financial distress, there is scarcity in empirical research investigating the role of stock liquidity on the relationship between these measures and financial distress. Specifically, studies have overlooked the potential of non-production overhead, plant and equipment newness and inventory levels measures of strategic conformity in predicting financial distress. Similarly, the effect of stock liquidity on the relationship between strategic conformity and financial distress has particularly not been explored by social science researchers. Therefore, the current study examined the role of stock liquidity on the relationship between strategic conformity dimensions and financial distress among listed firms in Kenya.

Stock liquidity is the extent to which a company's shares can be traded in the stock market (Amihud & Mendelson, 2008). Researchers such as Subrahmanyam and Titman (2001) and Khanna and Sonti (2004) show that stock liquidity can positively affect firm performance. Subrahmanyam and Titman (2001) argue that feedback arises because outside stakeholders of a firm, like its workers, suppliers and customers, are more willing to do business with the firm if it has a rising stock price and is perceived to be a winner. Consistent with feedback theory, shares are the currency which commands both cash flow and control rights of firms and the tradability of this currency plays a central role in the governance, valuation, and performance of firms (Fang

et al., 2009). Hirshleifer *et al*. (2006) argues that feedback from stock prices to future cash flows can arise for a variety of reasons. For example, a higher stock price may help firms attract customers and employees and may provide a cheap currency for making acquisitions; thus, feedback arises because higher stock prices encourage increased investment. Feedback from investor perceptions to corporate investment could similarly be captured within a setting with a single firm that can realize greater growth opportunities when its stock price is higher (Goldstein & Guembel, 2008).

According to Amihud and Mendelson (2012) the liquidity of the company's own securities is another important factor affecting a company's value. The liquidity of a company's stocks and bonds can reduce its cost of capital and increase its market value (Cheung *et al.*, 2015; Loukil, 2015). This is noted as a reflection for further research and points to the need for investigation on the possibility that stock liquidity can be a moderating variable on the relationship between strategic conformity and financial distress. Therefore, this study examined the effect of stock liquidity on the relationship between strategic conformity and financial distress among listed firms in Nairobi Securities Exchange, Kenya.

Decision-support systems are vital for stakeholders who need to distinguish between firms that will perform well and those that will underperform, and therefore may have difficulties in meeting their financial obligations as and when they fall due. The predictive methods give early signals of potential financial distress and are often regarded as early warning systems. Therefore, there is need to understand and explain the risk drivers or factors that affect the probability of financial distress (li *et al*., 2017). However, most studies on estimating the probability of financial distress used cross-sectional models that fail to capture temporal changes, and yet internal and external conditions associated with company performance do change over time. Li,

et al. (2014), Premachandra *et al.* (2011), Shumway (2001) among others argue that dynamic models, in contrast to cross-sectional or static models, are preferred in financial distress prediction. These studies strongly suggested using dynamic models to predict the risk of bankruptcy or financial distress. Yet so far, to the best of my knowledge, no study has conducted an analysis of strategic conformity on financial distress as a dynamic prediction model. This study fills this gap by assessing the effect of strategic conformity on the prediction of financial distress using longitudinal/panel data. Therefore, this study explores whether strategic conformity over the period 2006 to 2015 affects the chance that a listed firm in Nairobi Securities Exchange will suffer financial distress.

1.1.1 Nairobi Securities Exchange (NSE)

Shares trading in Kenya started growing in 1954 when the Nairobi Stock Exchange was constituted as a voluntary organization of stockbrokers to facilitate trading of securities (Bodicha, 2016). The company is the sole securities exchange in Kenya, licensed by the Capital Markets Authority to promote, develop, support and carry on the business of a securities exchange and to discharge all the functions of a securities exchange. The market operates through a Central Depository and Settlement Corporation (CDSC) to provide central clearing, settlement and depository services for securities listed on the NSE. The Nairobi Stock Exchange changed its name in the year 2010 to the Nairobi Securities Exchange reflecting its growing role as a platform for issuance and trading of multiple securities (NSE 2014).

Nairobi Securities Exchange is playing a vital role in the growth of Kenya’s economy by encouraging savings and investment, as well as helping local and international companies access cost-effective capital. Nairobi Securities Exchange operates under the jurisdiction of the Capital Markets Authority of Kenya. Nairobi Securities Exchange has been operating currently with 62

listed firms which are expected to meet the set criteria set by Nairobi Securities Exchange (NSE, 2015). However, despite meeting the set listing requirements, firms are exposed to market dynamics which affect them either positively or negatively. These dynamics may be caused by the government policies, risk perceptions, management decisions and investment decisions (NSE, 2014). The rapid development of the capital market and the integration of the global economy have increased the number of companies that suffer from financial distress over the years (Geng *et al.*, 2015).

In the past few years, many firms have been delisted due to financial difficulties with others being placed under receivership and therefore the need for this study. This has been witnessed by defaulted financial obligations such as defaulted principal and interest payments on loans, defaulted payment to suppliers and delayed/nonpayment of staff salaries which is evidence that listed firms could be facing financial distress. Several firms in Nairobi Securities Exchange, Kenya, have been delisted from the stock market including Mumias Sugar Company, Eveready, Lonrho East Africa, East African Packaging, Uchumi Supermarkets while other firms have been placed under statutory management due to financial difficulties (Gathecha, 2016). Despite good rating and aggressive strategies, firms still encounter financial distress problems, as business success depends heavily on the ability of financial managers and the stakeholders in the execution of business operations (Wamugo *et al.*, 2014). This study therefore sought to determine the relationship between strategic conformity and financial distress and determine the moderating effect of stock liquidity among listed firms in Nairobi securities Exchange.

1.2 Statement of the Problem

Corporate sound financial health is important and good performance is needed to ensure corporate sustainability and growth (Liang & Pathak, 2016). However, the number of companies

that suffer from financial distress have increased over the years, therefore the need for this study. Numerous companies have faced consecutive years of loss, business damage, defaulted interest payments, assets shrinking and suspension of listing every year due to financial distress (Geng *et al*., 2015). Jabeur (2017) points out that the current conditions of economy have led to an increasing number of companies that are facing economic and financial difficulties.

Firms financial crises could be a consequence of weak strategic positioning relative to industry competitors and therefore the strategic similarity of firms may have an effect on the financial health of a firm. Given suggestions by prior studies like Barker and Duhaime (1997) who identified this literature gap while building turnaround models for firms facing financial crisis by wondering whether firms financial crises are a consequence of inefficient strategy or weak strategic position relative to its competitors and Miller *et al.,* (2013) who further argues that the financial health of a firm may be affected by a firm's attempt to conform to the strategic profile of its industry competitors, strategic conformity could have an impact on the financial health of a firm. Institutional theorists view conformity in organizational strategy as a means of securing legitimacy and thereby valuable resources (Fiss & Zajac 2004, Thornton & Ocasio 2008). Arguments in institutional theory suggest that conformity increases bottom-line performance (Chen & Hambrick, 1995; Deephouse, 1999**;** Eapen & Krishnan, 2009). Therefore, it would be important to assess whether strategic conformity has an effect on financial distress. Finkelstein & Hambrick, 1990 developed indicators which when observed over time represent strategic decision patterns in the firm. Strategic dimensions that capture conformity in strategy includes nonproduction overhead, financial leverage, plant and equipment newness and inventory levels (Ridge *et al.,* 2014).

The liquidity of the company's own securities affects a company's value. Previous studies show that secondary markets have feedback effect and implications for firms. Specifically, that stock liquidity can influence default risk (Brogaard *et al.*, 2017), that stock liquidity improves firm value as measured by Tobin's *q* (Fang *et al.*, 2009). Wu and Liu (2011) show that liquidity positively affects firm performance and that firms with high stock liquidity not only have better firm performance, but also have more equity percentage in their capital structure and higher operating profitability levels. According to Amihud and Mendelson (2012), this relationship between liquidity and expected return implies that corporate managers can increase the market value of their companies by adopting liquidity-increasing corporate financial policies, including lower leverage ratios, more effective disclosure, and increases in the investor base. These are noted as a reflection for further research underpinning the view that stock liquidity can have feedback effect and can thus be a moderating variable on the relationship between strategic conformity and financial distress. Therefore, the moderating role of stock liquidity can be assessed by drawing on the feedback theory (Subrahmanyam & Titman, 2001). This study examined the effect of strategic conformity dimensions on financial distress and the moderating effect of stock liquidity on the relationship between strategic conformity and financial distress among listed firms in Nairobi Securities Exchange.

1.3 Research Objectives

1.3.1 General Objective

The general objective of the study was to determine the effect of strategic conformity on financial distress and the moderating effect of stock liquidity on the relationship between strategic conformity and financial distress among listed firms in Nairobi Securities Exchange.

1.3.2 Specific Objectives

1. To analyze the effect of nonproduction overhead on financial distress of listed firms in Nairobi Securities Exchange.
2. To evaluate the effect of financial leverage on financial distress of listed firms in Nairobi Securities Exchange.
3. To establish the effect of inventory levels on financial distress of listed firms in Nairobi Securities Exchange.
4. To determine the effect of plant and equipment newness on financial distress of listed firms in Nairobi Securities Exchange.

5a. To analyze the moderating effect of stock liquidity on the relationship between nonproduction overhead and financial distress of listed firms in Nairobi Securities Exchange.

5b. To evaluate the moderating effect of stock liquidity on the relationship between financial leverage and financial distress of listed firms in Nairobi Securities Exchange.

5c. To establish the moderating effect of stock liquidity on the relationship between inventory levels and financial distress of listed firms in Nairobi Securities Exchange.

5d. To determine the moderating effect of stock liquidity on the relationship between plant and equipment newness and financial distress of listed firms in Nairobi Securities Exchange.

1.4 Hypotheses

H_{01}: Nonproduction overhead has no significant effect on financial distress of listed firms in Nairobi Securities Exchange.

H_{02}: Financial leverage has no significant effect on financial distress of listed firms in Nairobi Securities Exchange.

H_{03}: Inventory levels has no significant effect on financial distress of listed firms in Nairobi Securities Exchange.

H_{04}: Plant and equipment newness has no significant effect on financial distress of listed firms in Nairobi Securities Exchange.

H_{05a}: Stock liquidity has no significant moderating effect on the relationship between nonproduction overhead and financial distress of listed firms in Nairobi Securities Exchange.

H_{05b}: Stock liquidity has no significant moderating effect on the relationship between financial leverage and financial distress of listed firms in Nairobi Securities Exchange.

H_{05c}: Stock liquidity has no significant moderating effect on the relationship between inventory levels and financial distress of listed firms in Nairobi Securities Exchange.

H_{05d}: Stock liquidity has no significant moderating effect on the relationship between plant and equipment newness and financial distress of listed firms in Nairobi Securities Exchange.

1.5 Significance of the Study

This study is of significance since it enhances the financial distress prediction literature by providing a dynamic model that offers insights into the strategic conformity position of a business, in addition to accurate distress predictions. The value of the information content of the research findings of this study will be of significance to the development of policy and practice in the securities market to investors, regulatory bodies and researchers.

Secondly, the results of this study will be informative to investors, potential investors, regulatory bodies and policy makers in their quest to have insight into the securities market with special attention to the effect of strategic conformity on financial distress and the role of stock liquidity in the firms. Consequently, market structures that can enhance firm performance are valuable and should be considered by regulators.

The findings of the study extended both institutional and feedback theories. This is by centering stock liquidity on the empirical testing of feedback theory as well as the influence of strategic conformity on the empirical testing of institutional theory. Stock liquidity plays a central role in the valuation and performance of firms as it has a feedback effect on cash flows. This study contributes to the growing literature showing that secondary markets have implications for firms as it enhances firm performance.

The study is also useful for various stakeholders in the corporate sector. The study is of benefit to lenders and other investors in the corporate sector along with regulators who require timely information on the default risk of corporates. It can also be of help in the credit risk management process, as it can be used for estimating default probabilities and supporting credit-granting decisions. The study is also of benefit to creditors as it can help the creditors avert some of the costs associated with bankruptcy filing when timely prediction of financial distress is made.

This study adds to the existing body of knowledge in financial distress research by providing some empirically tested insights on the effects of strategic conformity on financial distress and the moderating effect of stock liquidity on this relationship, thereby extending the factors that may have an effect on financial distress. Specifically, this study extended financial distress research by examining the relationship between strategic conformity and financial distress using

financial leverage, inventory levels, non-production overhead and plant and equipment newness dimensions of strategic conformity. The study also investigated the effect of stock liquidity as a moderator on the relationship between strategic conformity and financial distress.

Finally, this study contributes to further academic research based on the recommendations for further research made in the study. This study would welcome further research addressing other factors that may prompt a firm into financial distress, using different samples and using other analysis approaches like structural equation modelling

1.6 Scope of the Study

The study examined the effect of strategic conformity on financial distress among listed firms in Nairobi Securities Exchange with the moderating effect of stock liquidity on the relationship between strategic conformity and financial distress. The strategic conformity dimensions investigated include nonproduction overhead, financial leverage, inventory levels and plant and equipment newness. The firm specific characteristics that have possible confounding effects were controlled in the study. The study focused on listed firms in Nairobi Securities Exchange for the period 2006 to 2015. The study used secondary data and panel approach as it involved observing a broad cross section of firms over time.

1.7 Limitations of the study

The study incorporated data collected for listed firms over the period 2006-2015. Firms that were included in the study were only those that were trading over the entire period of study. Firms that were listed after 2006 and those that were suspended from listing during the period 2006-2015 were not included in this study. Further, in the process of collecting the secondary data, the

researcher experienced instances whereby some firms had data for some years missing resulting to exclusion of these firms in the study. Therefore, the study could not gain insight into those firms that were excluded from this study, that is, firms that were listed after 2006, firms that were delisted in the period 2006-2105 and listed firms that had missing data.

The other limitation of this study arose from the source of the data used in this study. The data is mainly collected from the annual reports of each public company and COMPUSTAT database. If the information is not disclosed completely or there are mistakes in the database, those will affect the accuracy rate of this study.

Lastly, in this study, only strategic conformity and stock liquidity variables are applied to produce a predictive model, while corporate governance, ownership structure and macroeconomic factors might also have impacts on the probability for financial distress. Hence, future studies can also be conducted by adopting other variables.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents an overview of literature relating to this study. The chapter begins by giving an overview of the key concepts of the study and the theoretical framework. The literature also captures a review of previous research regarding each construct and a conceptual framework provided at the end of the chapter. Since there is limited empirical evidence on the effect of strategic conformity on financial distress and the moderating role of stock liquidity on this relationship, this study utilized much theoretical literature from the concepts of the study.

2.1 The Concept of Financial Distress

Financial distress is a significant issue investigated by researchers, credit institutions and banks (Fallahpour *et al.,* 2017; Mselmi *et al.,* 2017). Over the decades, researchers and theoreticians have investigated this subject by developing new approaches to predict financial distress and bankruptcy. Altman (2000) argues that financial distress prediction identifies those unique characteristics of business failures that will lead to corporate distress. The event of default indicates likelihood of financial distress of a firm, which needs to be identified in time. Therefore, prediction of financial distress has drawn considerable attention of researchers over the years (Agrawal & Maheshwari, 2016).

An identification of the financial distress status for listed companies is important for decision makings of managers as the managers can initiate remedial measures to avoid deterioration before the crisis (Geng *et al.,* 2015). Jabeur and Fahmi, (2017) argue that research on forecasting firm financial difficulties is of great importance for all partners of a company. They state that

from a manager's point of view, having forecasting tools would allow time for strategy to be revised and appropriate corrective steps to be taken. Similarly, for other stakeholders, these tools contribute to reducing information asymmetries and allow for quick detection of vulnerable companies and optimization of their capital. Therefore, the ability to assess firm financial difficulties can help prevent firm difficulties from being exacerbated by a financial crisis and set up the necessary measures before it is too late (Oz & Yelkenci, 2017). The earlier the company will be aware about their financial position, the better decision they can take to turn around the company, since corporate failure is not a sudden incident but a long term phenomenon. It is therefore important for the companies to check their financial health regularly to avoid sudden corporate failure (Bal, 2016). Other researchers have argued that predicting financial distress can improve corporate performance and advocate changes in corporate form (Wruck 1990; Huang *et al*., 2012).

The prediction of financial distress for listed companies is important for decision makings of investors so that they can recognize risk early enough (Chen *et al*., 2013). Zhou *et al*., 2016 in their study in China's stock market argued that estimating the financial distress of firms are signals for different risk levels. Therefore, it is vital for investors and other stakeholders to assess the likelihood of distress of firms. According Pindado *et al*., (2008) financial distress prediction would permit a better understanding of the financial dimension of firms that is revealed in moments of crisis. Therefore, timely and accurate assessment of default risk has important implications for lending and investment decisions, as it serves as a warning signal to the creditors and investors for managing their exposures to a particular class of firms, which might be more vulnerable to experiencing financial distress than others (Chen *et al*., 2013; Agrawal and Maheshwari, 2014; Geng *et al*., 2015).

Financial distress has been viewed in finance literature as the company's failure to meet its financial obligations as and when they fall due. This occurs when a company's financial expenses and liabilities exceed its earnings and assets (Wruck, 1990; Asquith *et al*., 1994; Andrade & Kaplan, 1998; Sanz & Ayca, 2006; Pindado *et al*., 2008; Agrawal, 2015). Grice & Ingram (2001) defined a financially distressed firm as the company's inability to satisfy its financial obligations as and when they fall due, which permits the prediction of financial distress situations. Furthermore, a firm is considered financially distressed whenever financial resources are lower than financial expenses (Tsun-Siou *et al*., 2004; Pindado *et al*., 2008).

Brogaard *et al.*, (2017) indicates that default occurs when a firm's cash flows are insufficient to cover its debt service costs and principal payments and is among the most disruptive events in the life of a corporation. Therefore, financial distress adversely affects productivity through supply chain interruptions and employee attrition, incurs legal and administrative costs, and harms customer retention. Financial distress is also indicated by fall in the market value of a firm or due to a firm's fall in the ability to finance its projects due to insufficient capital (Bandyopadhyay, 2006). Distressed firms confront diverse circumstances affecting their value and the welfare of shareholders and creditors (Mselmi *et al.*, 2017), which justifies the vast body of literature devoted to financial distress. Prior to a corporate failure, a firm's financial status is frequently in distress. Therefore, a method of determining corporate financial distress is clearly a matter of considerable interest to investors, creditors, employees and other stakeholders (Baimwera and Muriuki, 2014).

The business condition of either small or large firms not only concerns the local community, industry participants and investors, but also influences policy makers and the global economy. Therefore, the high social and economic costs as a consequence of corporate bankruptcies have

attracted attention of researchers for better understanding of bankruptcy causes and eventually prediction of financial distress (Zhang *et al.,* 2013). According to Pindado *et al*., (2008) assessment of financial distress would permit a better understanding of the financial dimension of firms that is revealed in moments of crisis. Altman (2000) argues that evaluating financial distress of firms identifies those unique characteristics of business failures that will lead to corporate distress. The event of default indicates financial distress of a firm, which needs to be identified in time (Chen *et al*., 2013; Agrawal & Maheshwari, 2014).

The prediction and prevention of financial distress and bankruptcy is very important for the stakeholders as they need a less expensive alternative like the reorganization of the company (Fejér-király, 2015). The suppliers of capital, investors and creditors, as well as management and employees, are severely affected by business failures. Hence, there is need to assess financial distress of firms to enable the parties concerned to take either preventive or corrective action (Charitou *et al.*, 2004). Financial distress has been portrayed as a costly event because it creates a tendency for firms to do things that are harmful to stakeholders (that is debtholders, customers, suppliers and employees), impairing access to credit and raising costs of stake holder relationships. In addition, financial distress can be costly if a firm's weakened condition induces an aggressive response by competitors seizing the opportunity to gain market share (Opler and Titman, 1994).

A firm in financial distress usually falls in a tight cash situation in which it is difficult to pay the owed amounts on the due date. If prolonged, this situation can force the owing entity into bankruptcy or forced liquidation. It is compounded by the fact that banks and other financial institutions refuse to lend to those in serious distress (Altman, 2000). When a firm is under financial distress, the situation frequently sharply reduces its market value, suppliers of goods

and services usually insist on cash on delivery terms, and large customer may cancel their orders in anticipation of not getting deliveries on time (Almeida & Philippon, 2006).

Financially distressed public firms are motivated to engage in positive and aggressive earnings management to escape accounting-based default triggered by debt covenant violations, and to avoid a delisting threat and special government monitoring (Cheng *et al.*, 2010; Charitou *et al*., 2011**;** Jacoby *et al.*, 2016). According to Huang *et al.* (2012) estimating the possibility of financial distress has a threefold benefit: depositors can diversify assets to reduce deposit risks; the government can use bank examination rules and deposit insurance to manage operational risks; and international cooperation can reduce possible occurrences of financial distress. This study points out that financial distress can improve firm values by forcing managers to make value-maximizing choices, which they would otherwise avoid.

Financial distress is a broad concept that contains several situations in which firms face financial difficulty. The most common terms used to describe these situations are bankruptcy, failure, insolvency and default (Geng *et al*., 2015). Scholars have used bankruptcy prediction over time (Huang *et al*., 2012; Tinoco & Wilson, 2013), credit rating (Treacy & Carey, 2000; Doumpos, 2015), default risk prediction (Agrawal & Maheshwari, 2014; Agrawal, 2015) and listing status (Zhou *et al*., 2016) to capture financial distress.

Research has also indicated that other factors might lead a firm into situations of financial distress. Agrawal & Maheshwari (2014) argue that sensitivity to changes in inflation have a significant impact on the default probability of a firm. This establishes the fact that each firm is uniquely affected by the changes in the overall macroeconomic environment. According to Figlewski *et al.* (2012) increases in interest rates put a strain on the debt servicing capacity of the

firm, thereby affecting the probability of default. Brigham and Ehrhardt (2005) indicate that excessive debt and insufficient capital are the main financial factors of distress. Furthermore, Newton (2009) suggests that firms become unable to meet their liabilities due to overextend debts. Liang and Wu (2005) support that indicators essential to identify financial distress are associated with conditions of cash flow which are situation in which there is not enough cash to pay off the debt at term. Similarly, Chen (2011) shows that cash flow ratio and cash flow to total debt ratio contribute significantly to the prediction of financial distress. Pindado and Rodrigues (2004) indicate that closer inspection of insolvency indicators facilitates getting a preventive diagnosis of corporate financial distress. This highlights the importance of detecting firm's insolvency situation since several economic agents hold an interest in the insolvent companies.

Research on assessing financial distress has evolved over time due to its importance in corporate finance. Although several studies have made an attempt to use different variables in the form of accounting ratios, pioneering works have been those of Beaver(1966), Altman (1968) and Ohlson (1980). Beaver (1966), pioneered the studies on financial distress prediction using a univariate analysis model by applying different financial ratios one at a time. In his study of 79 failed and 79 non– failed firms in the US over the period 1954 – 1964, he performed a dichotomous classification test of the predictive ability of the 30 selected financial 43 ratios. Based on the results of the study, Beaver (1966) derived six ratios which were considered the most powerful predictors of corporate failure. The parameters included: cash flow to total debt, net income to total assets, total debt to total assets, working capital to total assets, current ratios and the no-credit interval. He showed that the chosen financial ratios were considerably depressed among the failed firms in comparison to non-failed firms up to five years prior to bankruptcy.

However, despite the simplicity of the univariate model, it was criticized on various fronts. Altman (1968) criticizes the use of an individual financial ratio to predict failure and considered it as a limited approach that may give inconsistent and confusing classification results for different ratios in the same firm. Altman (1968) employed the multivariate discriminant approach to financial distress prediction. In a study that sampled 33 bankrupt and 33 non–bankrupt firms in the US's manufacturing sector during the period 1946–1965, he examines the unique characteristics of business failures in order to specify and quantify the variables which are effective indicators and predictors of corporate financial distress. Specifically, a set of financial and economic ratios were analyzed in a corporate distress prediction context using multiple discriminant analysis to create a composite measure of financial distress prediction commonly referred to as Altman's Z-score model. This model comprises indicators which when observed over time show the positioning of the firms as to whether they are distressed or not. Z-score model was found to be approximately 90%–95% accurate in predicting financial distress and bankruptcy one year before the event (Altman, 2000). Altman's (1968) multivariate study to predict financial distress using multivariate discriminant analysis to develop a model to predict financially distressed firms christened the "Z-score" model showed that five ratios, namely, working capital to total assets, retained earnings to total assets, profit before interest and tax to total assets, market value of equity to book value of total debt and sales to total assets can be used to measure financial distress status of firms. These ratios are summarized into liquidity, cumulative profitability, productivity, share value and activity. The "Z-score" model has received support from various researchers (Altman, 1968; Altman, 2000; Bandyopadhyay, 2006; Huang *et al.*, 2012; Tinoco & Wilson, 2013).

In an effort to alleviate the limitations of multiple discriminant analysis models, Ohlson (1980) derived the O-score model that predicted financial distress by using the probabilistic approach. In contrast to the multiple discriminant analysis model, the O-score model adopted the logistic regression technique based on a cumulative probability function and produced the probability of a firm being classified as belonging to an a priori group according to the financial characteristics of the firm (Ohlson, 1980). This was done by producing a non-linear probability model in which the dependent variable is not continuous, but performs discrete characteristics such as distressed or non-distressed firms. By analyzing 105 bankrupt and 2058 non-bankrupt US firms during the period 1970–1976, Ohlson (1980) uses conditional logit analysis for bankruptcy prediction to develop a default predictor and identifies four basic factors which are statistically significant in assessing the probability of default within one year. These factors include; the size of the company, a measure(s) of the financial structure, performance measure and liquidity and observed that they formed the most powerful predictors of financial distress in the analyzed firms. Size of the company was found to be the most significant predictor of financial distress (Ohslon, 1980).

Charitou *et al*., (2004) examined the incremental information content of operating cash flows in assessing financial distress in UK. The results indicate that a parsimonious model that includes three financial variables; operating cash flow, profitability and financial leverage can predict financial distress. To explain financial distress in China, Chen *et al.,* (2013) studied Chinese listed manufacturing companies using accounting ratios classified into five categories; solvency, operation ability, growth ability, profitability and general variables. The results demonstrate that the financial variables do have predictive power in financial distress warning. Bandyopadhyay (2006) in a study of financial distress in Indian firms, reviewed and validated Altman's (1968) z-

score model for predicting corporate default of which a high classification power on the estimated sample was depicted by the model and a high predictive power of the z-score model was exhibited in terms of its ability to distinguish distressed firms in the hold out sample.

Beaver *et al*., (2005) and Yi (2012) noted that financial researchers developed quantitative models that help firms making financial decisions in the face of risk and uncertainty and the Z-score model is one of the most frequently used risk early warning models in financial research. Hillegeist *et al.,* (2004) extends this argument and states that many of the studies on financial distress have used composite measures that statistically combine several different accounting variables with Altman's Z-score model being the most popular. The wide usage of the Z-Score Model as a measure of financial distress in the economic and financial research points out that Z-score is widely accepted as a reasonable, simple and consistent measure of the distressed firms at risk (Altman *et al*., 2014). The study by Gang and Xiaomao (2009) further confirms the usefulness of the financial accounting information, which also helps investors, creditors and administrating authority to recognize the company's financial status as well as the prediction of financial distress. The present study adopts the Z-score model in assessing financial distress status of listed firms in Nairobi Securities Exchange.

Several studies have used the Altman's Z-score model to capture financial distress (Altman 1968; 2000; Wruck, 1990; Huang *et al.,* 2012; Yi, 2012; Shahwan, 2015) bankruptcy prediction (Cardwell *et al.,* 2003; Huang *et al*., 2010) and corporate bond default risk (Bandyopadhyay, 2006). Yi (2012) uses financial data of China's 40 listed real estate companies so as to judge the effectiveness of Z-score model on financial risk early warning of China's listed real estate companies. The empirical analysis indicates that the Z-score model is suitable for early warning of China's listed real estate companies. Using a sample of 86 non-financial listed firms on the

Egyptian Exchange, Shahwan (2015) examines the financial distress of the Egyptian-listed companies on the basis of the Altman *Z*-score. Cardwell *et al.* (2003) examined the use of the Altman's Z-Score in predicting bankruptcy in the textile industry. They found that the revised Altman's Z-Score accurately predicts firms that are bankrupt in the first and second years prior to the bankruptcy filing. Bandyopadhyay (2006) assessed the default risk for Indian corporate bonds using three different modified versions of the original *Z*-score model. He also estimated the default probabilities by combining both financial and non-financial variables, such as, firm age, International Organization for Standardization (ISO) certification and group affiliation. Bandyopadhyay concluded that such a combination leads to more accurate default prediction.

Wruck (1990) defines financial distress as a situation where cash flow is insufficient to cover current financial obligations. These obligations can include defaulted principal or interest payments under borrowing agreements and unpaid debts to suppliers and employees. Asquith *et al.*, (1994) define financial distress based on interest coverage ratios. They classified a firm as financially distressed if its earnings before interest, taxes, depreciation and amortization (EBITDA) are less than its reported financial expenses for two consecutive years, or, if in any other year, EBITDA is less than 80% of its interest expense. Whitaker (1999) states that the likelihood of financial distress can be detected before the firm defaults as a proportion of the loss in firm value occurs before default or bankruptcy. Similarly, Andrade and Kaplan (1998) define financial distress as the first year that a firm's EBITDA is less than financial expenses. Ross *et al.*, (2005) defines financial distress as a situation where a firm's operating cash flows are not sufficient to satisfy current obligations and thus the firm is forced to take corrective action. According to Sanz and Ayca (2006), financial distress is experienced when business firms face insufficient liquidity to meet their financial liabilities. Pindado *et al*. (2008) points out that a firm

is considered financially distressed when operational cash flows are lower than financial obligations and also whenever its market value persistently falls. Agrawal (2015) argues that a state of financial distress occurs when a firm is not able to meet its payment obligations on time.

Following Altman (2000), Pindado *et al*. (2008), Sanz and Ayca (2006) and Whitaker (1999) conceptualization of financial distress as a situation where the likelihood of financial distress can be detected before the firm defaults as a proportion of the loss in firm value occurs before default or bankruptcy, the present study adopts a definition of financial distress as the identification of the positioning of the firm as to whether the firm is likely to fail to meet its financial obligations as and when they fall due or not. That is, the identification of whether a firm is in financial distress or not.

2.2 The Concept of Strategic Conformity

Strategic conformity is defined as the degree to which a firm's strategic profile is similar to the strategy profiles of other firms in its industry (Buchko, 2011; Geletkanycz & Hambrick, 1997; Deephouse, 1999). Because similar organizations experience similar social expectations and pressures of conformity, they tend to adopt similar strategies and managerial arrangements (Raynard *et al.*, 2015). Similarly, the sanctioning power of rules and regulations, the stabilizing influence of dominant social beliefs and norms and the social construction of shared frameworks of meaning, offer the means to explain social conformity and field-level cohesion (Delbridge & Edwards, 2007). Conformity, in essence, has been defined as doing what the majority are doing (Deephouse 1999, Miller & Chen 1996, Zajac & Westphal 2004).

Organizations reinforce the need to embrace conformity in their strategic behavior so as to gain acceptance among their stakeholders, commonly referred to as legitimacy (Miller *et al.*, 2013).

Hence, the pursuit for acceptance/legitimacy is said to lead to conformist strategic behavior. Institutionalists argue that an organization's behavior is driven by a quest for acceptance from crucial regulators, suppliers of resources, or other stakeholders (Deephouse & Suchman 2008). Following an institutional rationale, public firms will be associated with greater pursuit for legitimacy and therefore conformity in their strategy (Miller *et al.,* 2013). As a practice becomes more prevalent and, thus, implicitly more accepted, it gains greater legitimacy and induces further mimetic behavior (Carroll & Hannan 1995, Strang & Soule 1998). Therefore, a primary predecessor of legitimacy is conformity (Deephouse 1996, Westphal *et al*., 1997). According to Suchman (1995) the best source of legitimation is to conform or mimic the environments in which the firm interacts with.

Institutional theorists view conformity as a powerful mechanism to cope with environmental uncertainty, regulate competitive rivalry, increase the legitimacy of both the firm and its management, raise capital for growth and generate above average returns (Stomp, 1998). According to Lieberman and Asaba (2006) strategic conformity is an important phenomenon since firms may conform to avoid falling behind their rivals or because they believe that others' actions convey important information. Furthermore, the consequences of strategic conformity are held by institutional theorists to be positive outcomes which include enhanced resources (Cohen & Dean 2005, Higgins & Gulati 2006), better stock market prices (Zuckerman 2000), and more support from stakeholders (Choi & Shepherd 2005). The pursuit of legitimacy, through conformity, suggests that firms, despite the vision of more unique alternatives, may consciously opt for imitative strategies (Miller & Chen, 1995; Fligstein, 1991).

The benefits of following institutionalized norms of competitive behavior for field members range from access to resources and stable and often collaborative relations with competitors to

enhanced profitability and increased chances of survival in the face of uncertainty (DiMaggio & Powell, 1983; Miller & Chen, 1995; Oliver, 1996). Greenwood and Hinings (1996) indicate that the access to resources gained from conformity increases the probability of survival, though on the other hand, the performance of an organization may be undermined by strategic conformity. The pursuit of legitimacy, may be at the cost of economic efficiency, effectiveness or both (O'Neill, Pouder & Buchholtz, 1998).

The above arguments paint a positive picture of strategic conformity for firms within the business setting. Yet there are two streams of strategy literature that provide strongly differing views, that is, the institutional and strategic perspectives in the expected performance repercussions of strategic conformity (Deephouse 1999, Miller and Chen 1996). In contrast with institutional literature, the strategic management literature argues that differentiation, unique market positioning, and unique resources and capabilities, and not conformity, are the best ways for firms to respond effectively to their environments and to outperform (Porter, 1980). For a firm to succeed, it requires differentiation strategies and unique resource allocation patterns that depart from competitive norms. Therefore, by not conforming (by being different), a firm is able to enter market niches with fewer competitors or to adopt differentiated strategies that confer competitive advantage (Baum and Mezias 1992, Deephouse 1996). Thus, conformity might limit that capability.

The strategy literature suggests that firms will only do well if and only if they can differentiate themselves from their rivals to take advantage of distinctive attributes such as particularly astute marketing and innovation, especially effective operations, and generous investment in the future (Miller and Le Breton-Miller 2005,). Therefore, conformity along many of the strategy

dimensions, for example, nonproduction overhead, inventory levels, plant and equipment newness and financial leverage might well restrict the advantages of differentiation.

Although all organizations must pursue some forms of legitimacy, there are particular contingencies that may make that quest more pressing and compelling. Therefore, some parties are especially likely to seek legitimacy. Powell (1995) indicates that organizations that are highly visible are inclined to pursue legitimacy since their deviations and misdeeds may be broadly noticed and therefore particularly penalizing Similarly, organizations that are in some sense unorthodox or unusual may have to balance that unusualness with more exacting conformity in a different realm (Suddaby & Greenwood 2005). In addition, the public perception of governance practices such as nepotism, entrenchment, cronyism, family control, and other behaviors viewed with suspicion by the investors and suppliers of resources may attract scrutiny from investors and other stakeholders, and thereby increase a firm's desire to justify their presence in the business and mitigate doubt through strategic conformity (Morck *et al.*, 2005; Gómez-Mejía *et al.*, 2010). Finally, organizations that lack resources or rely on an uninterrupted stream of key resources may be especially driven to appear legitimate to those upon whom they depend (Deephouse & Suchman 2008, Miller & Chen 1996, Pfeffer & Salancik 2003). The organizations thus are less likely to be dictated by market norms or by a drive to seek legitimacy through strategic conformity. Therefore, the choice between innovative, incremental and imitative strategic behavior is a result of the interaction between environmental influences and organizational factors. The key external determinant of strategic behavior is the prevalence of institutional norms of strategic behavior (Stomp, 1998).

These commonly used strategies, structures, and practices often emerge from the interactions of organizations within an industry or field and other stakeholders (Edelman, 1992). They may also

be imposed by powerful entities like the state, implying strong incentives to conform (Scott, 1995). Brunetta *et al.* (2017), Buchko (2011), Delbridge and Edwards (2007) and DiMaggio and Powell (1983) argue that strategic practices are more likely to be duplicated when firms are more dependent on the institutional environment, face higher levels of uncertainty and/or rely extensively on professionals. Therefore, organizations may become more homogeneous over time (Scott, 1995), however, the degree of strategic conformity between organizations will vary (Delbridge & Edwards, 2007). Thus, strategic conformity is likely to be evident in Kenyan listed firms since they are more dependent on the institutional environment, inherently rely on professionals and face a dynamic and uncertain business environment.

Finkelstein and Hambrick (1990) developed strategic dimensions which when observed over time represent strategic decision making patterns of the firm over time. The indicators included are controllable by top management, are important strategic choices and each is an indicator of a distinct aspect of a firm's strategy (Finkelstein & Hambrick, 1990; Ridge *et al.*, 2014). The dimensions include advertising intensity, research and development intensity, plant and equipment newness, nonproduction overhead, financial leverage and inventory levels. As such, the assessment of these dimensions allows the testing of an organizations strategy on multiple aspects and provides an opportunity to establish the effects of an array of strategic resource allocations of an organization.

According to Finkelstein and Hambrick, (1990) strategic conformity was created by summing items 3 through 6 that is plant and equipment newness, nonproduction overhead, financial leverage and inventory levels due to non-reporting by firms on the first two strategic dimensions (advertising intensity, research and development intensity). Similarly, Ridge *et al.* (2014) used four of the strategic dimensions that is nonproduction overhead, financial leverage, inventory

levels and plant and equipment newness to capture strategic conformity. Following this development, several studies have used these strategic dimensions to capture strategic change (Tarus & Aime, 2014; Zhang, 2006; Zhang & Rajagopalan, 2010), strategic persistence (Finkelstein & Hambrick, 1990) and strategic and deviation (Carpenter, 2000). This method of measuring firm-level strategic conformity developed and validated by Finkelstein and Hambrick (1990) has close analogues in research examining strategic homogeneity at the industry level (Miles *et al.*, 1993; Dooley *et al.*, 1996). Key studies measure conformity as the conformity of a firm's practices to industry medians (Deephouse 1999, Miller & Chen 1996).

Thus for the purpose of this study, strategic conformity is defined as conformity to industry norms (i.e., proximity to industry medians) in investment in nonproduction overhead, financial leverage, inventory levels and plant and equipment newness. Scholars have used strategic conformity over time (Geletkanycz & Hambrick, 1997; Lieberman & Asaba, 2006; Ridge *et al.*, 2014), strategic isomorphism (Deephouse, 1996) and homogeneity of strategy (Buchko, 2011) to capture strategic conformity.

Buchko (2011) argues that the concept that might best account for the observed conformity in strategy of firms is the constraining process by laws, rules and structures that forces one unit in a population to resemble other units that face the same set of environmental conditions. This occurs when units operating within or subject to similar environmental arrangements will develop similar forms of structure and action. In the organizational sciences, isomorphism occurs as firms modify their characteristics in a direction of increasing compatibility with the environment (Aldrich, 1979; Boccardelli & Brunetta 2014). A review of literature shows that there are two types of isomorphism: competitive isomorphism and institutional isomorphism (Buchko, 2011; DiMaggio & Powell, 1983; Fennell, 1980, Raynard *et al.*, 2015).

Dominant perspectives on strategy assert that competitive isomorphism among organizations is due to the effects of forces within the organization's competitive environment (Carroll, 1984). The environment changes independently of the organization, and forces in the competitive environment determine the structural forms that will survive (DiMaggio & Powell, 1983). As organizations seek to gain control over scarce resources, competition arises among firms (Barney, 1991), and in turn competitive forces lead to isomorphism as the market selects those firms which possess the requisite characteristics for survival, and likewise selects out those firms that lack the necessary qualities (McKelvey & Aldrich, 1983). Over time, there is a tendency for similar types of firms to survive, resulting in strategies and structural forms that appear homogeneous (DiMaggio & Powell, 1983).

There are two elements that define institutional perspectives on organizations (Zucker, 1987). The first are rule-like social fact qualities of organized patterns of interaction, and the second is embedding of these interactions in formal structures that are not tied to particular actors or situations. Institutions are both the medium for and the result of social action as they enable and constrain what firms and other agents wish to accomplish as it struggles to formulate and implement strategy (Brunetta *et al.*, 2017). Different institutional settings are likely to give rise to distinctive conventions or forms of collective social order. The interactions are constrained, or facilitated by laws, rules, or informal norms and by the structures that allow for the enforcement of such rules (Boccardelli & Brunetta 2014). Organizations accept recommendations regarding what the appropriate behaviors are as they become rationalized rules that are not empirically made but are legitimated by the presumption of their effectiveness (Meyer & Rowan, 1977). Organizations tend to conform to rules, giving rise to homogenous behaviors, in order to publicly signal their conformity to the institutional schemas and gain legitimacy (Brunetta *et al.*, 2017).

Institutional theories of organizations suggest that organizations are influenced by normative pressures which may arise from the government or state, from other organizations or from within the organization. These pressures can cause organizations to be directed by elements which are seen as in some way legitimate, such as standardized operating procedures, professional certifications and legislative requirements. The adoption of these legitimated elements leads to isomorphism within the institutional environment (Zucker, 1987).

Institutional forces arise through a process of structuration (Giddens, 1979). As organizations interact over time, the structuration process can lead to structures of interrelationships that become embedded within and among the firms and formalized patterns of interaction that are independent of individual firms, and as such, firms become participants in institutional arrangements (Zucker, 1987). Organizations may try constantly to change or alter firm strategies, but at some point in the structuration process, the aggregate of these individual changes may be to lessen the strategic diversity of these organizations (DiMaggio & Powell, 1983). In effect, organizations in highly structured relationships are responding to an environment which consists of other organizations responding to their environment, leading to a situation in which organizations are responding to an environment of organizations' responses. In these circumstances, strategists construct for themselves an environment in which choice behavior is constrained by the relationships among organizations, and such constraints increase the likelihood that firms will pursue similar strategies by limiting the strategic alternatives available to strategic decision makers. In highly structured networks of inter-organizational relationships, as may be found in many industries and markets, strategic activities may be driven less by competition for scarce resources or the need for efficiency than by the structure of the inter-organizational network. As relationships among organizations are understood, innovations are

quickly diffused throughout the network, production methods are standardized or generally known by all firms, and strategies are discernable (Buchko, 2011). As strategies are developed within these highly structured institutional arrangements, homogenization of strategy may result. Such homogenization is due to three isomorphic processes present in these institutional arrangements: coercive isomorphism, mimetic isomorphism, and normative isomorphism. Each of the three institutional forces for isomorphism derive from separate sources; coercive from dependence, mimetic from uncertainty, and normative from professionalization (DiMaggio & Powell, 1983).

Coercive isomorphism results from both direct and indirect pressures exerted on firms by other organizations upon which firms are dependent, and by the expectations of the societies in which firms operate (DiMaggio & Powell, 1983). These pressures are viewed by firms as forces for action or persuasion. One such coercive force would include the government through such mechanisms as regulation and legislation; purchasing of goods and services; control of resources; and fiscal policy (Buchko, 2011). For example, the recent government bailouts of Kenya Cooperative Creameries, Mumias Sugar Company, Pan Paper among others in 2017 demonstrate the ability of the government to influence the environments of organizations. Jennings and Zandbergen (1995) argue that following growing awareness of ecological crises and the introduction of more stringent regulations and enforcement policies, US firms across a variety of industries were pressured to adopt environmental management practices. Likewise, the presence of powerful customers or suppliers can constrain the strategic choices of managers, leading to similarity in firm strategies. When managers are faced with the requirement to respond to very powerful constituents, they may have little choice in developing strategy but to acquiesce to these demands and adopt strategies that are consistent with the expectations of these powerful

actors. The nature of asymmetrical dependencies among organizations in highly institutionalized inter-organizational networks can subject firms to pressures to conform their strategic behaviors to the demands of powerful constituents, with the result that the strategies of the firms become homogeneous (Buchko, 2011).

A second force for homogeneity in strategy arises from uncertainty which leads to mimetic isomorphism. When an organization's goals are ambiguous or poorly understood, or when the environmental turbulence or dynamism create uncertainty, organizations may seek to model their strategies after those of other organizations. This process is referred to as mimetic isomorphism, as firms seek to "mimic" the strategies of other organizations (DiMaggio & Powell, 1983). Under circumstances of ambiguity and uncertainty, managers copy organizations perceived to be more successful and more legitimate (Raynard *et al.,* 2015). Barreto and Baden-Fuller (2006), for example, show how Portuguese bank branching decisions were influenced by mimetic pressures to imitate legitimacy-based groups such that banks even expanded into unattractive locations at the expense of profitability. Such modeling provides a rationale for action and can establish premises for decision making and strategy formulation. As a result, managers who feel overwhelmed by the turbulence, dynamism, and complexity of their situation may opt to copy what other firms are doing (DiMaggio & Powell, 1983). Several studies have noted the effects of such mimicry in firm strategy (Han, 1994; Haveman, 1993; Tingling & Parent, 2002), suggesting that imitation may prove to be a sincere form of strategy as well, leading to strategic conformity.

Normative isomorphism is the third and final of the institutional isomorphic processes. Normative isomorphism is largely thought to be due to professionalization, defined as the collective struggle of members of an occupation to define the conditions and methods of their work, to control the production of producers and to establish a cognitive base and legitimation

for their occupational autonomy (DiMaggio & Powell, 1983). Raynard *et al.* (2015) indicate that professional firms and professionals behave in similar ways because of the essentially normative pressures promulgated by the profession and its institutional infrastructure of constitutive agencies, practices, norms, and associations. For example, requiring firms to meet ISO certification standards or other quality metrics would tend to lead to similarity across all firms, as these standards are the table stakes necessary to participate in the industry and therefore are common to all firms. Two aspects of professionalization are important sources of isomorphism. The first is the use of formal education requirements, in this manner, business schools and business education serves as a source of isomorphism. As more organizations hire managers from business schools, or as more individuals in organizations pursue business degrees, there is a tendency for common norms of behavior, analytic models, and frameworks for strategic decision making to be diffused throughout organizations. The second source of professionalization is the growth of professional networks which span organizations and which allow information and models to be diffused quickly. These would include inter-organizational transfers of personnel, trade associations, the use of common consultants, and the interlocks among boards of directors, to name a few. Through these and other similar mechanisms, norms for firm strategies and strategic behaviors are spread among organizations (Lawrence, 1999; Mizruchi & Fein, 1999; St. John *et al.*, 2001). The result is that managers are operating from similar frames of understanding, use similar analytic tools, and employ similar processes in the development of firm strategies; and thus the strategies that results often bear a remarkable similarity to those of other organizations within the network (Buchko, 2011).

2.2.1 The Concept of Nonproduction Overhead

Nonproduction overhead has been viewed in strategy and finance literature as the proportion of the costs of business operations not directly attributable to the production process but relating to selling, general and administrative functions which are represented by selling, general and administrative costs (Yükçü & Özkaya; 2011).

Selling, general and administrative costs capture most of the overhead costs incurred in the corporate offices such as salespersons' salaries and commissions, office payroll and expenses, travel and entertainment. Empire building managers are likely to increase selling, general and administrative costs too rapidly for example; by adding office payroll and expenses too quickly when sales go up or to decrease selling, general and administrative costs too slowly by delaying the reduction of office payroll and expenses when sales go down (Chen *et al*., 2012).

Administrative expenses can be regarded as a close proxy for perquisite consumption and managerial discretion in allocating corporate resources (Wang & Deng, 2006). Nonproduction overhead has implications because, first, job perks cause shrinkage in company resources; second, higher management discretion, to a large extent, suggests greater agency conflicts (Singh & Davidson 2003). It is argued that one additional dollar of these expenses results in one-dollar reduction in corporate level net cash flows available to shareholders (Capozza & Seguin, 1998). Agency costs arise when the interests of the firm's managers are not aligned with those of the firm's owners and take the form of preference for making self-interested and entrenched decisions that reduce shareholder wealth (Ang *et al*., 2000).

2.2.2 The Concept of Financial Leverage

Existing literature has associated financial leverage to the extent of liabilities in the firm's financial structure (Das *et al*., 2009; Munoz, 2013; Kim & Partington, 2014). Leverage shows the degree to which a firm is utilizing borrowed money and the firm may be at risk if the firm is unable to make payments on their debts (Liargovas & Skandalis, 2010). Firms with higher leverage level will require a greater cash flow to pay interest and principal of their debt contracts, thereby reducing its financial resources (Ang *et al*., 2000; Munoz, 2013).

Increase in leverage is likely to impose greater constraints on the firm's financial resources. Consequently, higher amount of debt leads to increased risk of defaulting and hence a positive relationship is expected between leverage and financial distress (Agrawal, 2015). On the other hand, leverage can be a proxy for investment opportunities because firms may become highly leveraged to undertake capital investment. Thus, high leverage and firm performance can exhibit a positive relationship on average (Berger & Udell, 2006).

2.2.3 Inventory Levels

Inventory levels is the proportion of a firm stock levels of inventories compared to sales which indicate production cycle time and working capital management (Maccini & Pagan, 2008; Ridge *et al*., 2014). Inventories comprise a substantial percentage of the total assets of a firm (Deloof, 2003; Baños-Caballero, 2014).

Inventory levels of the firm have received significant attention in the operations management literature in as far as evaluating the profitability of firms (Elsayed & Wahba, 2016). Mantrala and Raman (1990) maintained that when actual sales greatly exceed the inventory levels, it may strain production capacity or result in stock-outs. This is because stocking out of materials

inventories entails costs associated with production disruptions that are distinct from the costs associated with lost sales. On the other hand, firms avoid holding costly stocks of inventories by selling more on credit and accumulating accounts receivable when future demand is uncertain (Caglayan *et al*., 2012) which might lead to increased level of debtors and bad debts.

2.2.4 The concept of Plant and Equipment Newness

Plant and equipment newness has been associated with the net value of plant and equipment in the firm's asset structure (Finkelstein & Hambrick, 1990: Adam & Goyal, 2008). The total spending on new fixed investment such as property plant and equipment replaces depreciated capital goods. This gives a sense of how much money a company is spending on capital items used for operations (Liargovas & Skandalis, 2010).

Continued investment in the capital items of a firm is crucial because the useful life of existing capital items diminishes over time. New investment in capital items such as plant and equipment expand the production and cash flow generating capacity of the firm thus positively related to firm performance (Liargovas & Skandalis, 2010).

2.3 The Concept of Stock Liquidity

Stock liquidity is defined as the degree to which a security or an asset can be purchased or sold in financial markets (Switzer & Picard, 2016). Stock liquidity is also defined as the extent of trading of a firm's securities. A company's shares/stocks are liquid to the extent that they can be traded quickly (Amihud *et al.,* 2006: Amihud & Mendelson, 2012). A liquid market provides investors with the ability to trade stocks quickly and at minimal cost (Brogaard *et al.,* 2017). Amihud and Mendelson (2012) further indicate that a company's securities are liquid to the extent they can be traded quickly.

Xiong (2016) argues that stock liquidity can tackle with information asymmetry by raising information embedded in stock price and improve payment-performance sensitivity and investment efficiency. Therefore, listed companies should strive to improve equity and capital structure to safeguard outside shareholders' benefit and stock liquidity. Fang *et al*., (2009) document that stock market liquidity enhances firm performance due to the feedback effect. This is because trading activity affects market prices and consequently provides feedback from security prices to cash flows (Hirschleifer *et al.*, 2006).

Stock liquidity is an important phenomenon since stock price and trading volume affects how the firm is perceived by its stakeholders. These perceptions will influence their purchase, supply, or investment decisions, which ultimately affect the firm's cash flow (Subrahmanyam & Titman, 2001; Khanna & Sonti, 2004; Edmans *et al.*, 2013). Loukil (2015) further indicates that stock liquidity affects corporate financial decisions by reducing cost of capital and facilitating access to more funds on the capital markets. Therefore, management can institute efficiency enhancing actions that can reverse an increasing trend in financial distress, such as having liquid stocks.

2.4 Theoretical Background

Generally, strategic conformity has been associated with the extent of similarity of a focal organization's strategy to the strategies of other organizations in its industry (Deephouse, 1996; Geletkanycz and Hambrick, 1997). Organizations within an institutional field may conform to the rules and requirements, not necessarily for reasons of efficiency, but rather for increasing their acceptability, resources and survival capabilities. The extent of alignment with the institutional norms enhances an organizations likelihood of survival as this plays a significant role in how the stakeholders portray the organizations legitimacy (Kostova *et al.*, 2008). The

institutional theory, trade-off theory, agency theory, and feedback theory will provide the theoretical basis for this study. This section describes the theoretical orientations that provide insight on strategic conformity dimensions and their interaction with stock liquidity in relation to financial distress.

2.4.1 Institutional Theory

The starting point for contemporary institutional research was the seminal paper of Meyer and Rowan (1977) who argued that organizations are confronted with pressures emanating from arenas other than the task environment. Specifically, organizations use strategies, structures and practices that are socially expected of them and as such, confer legitimacy upon the organization. This also increases the likelihood that external constituents will assist the organization by conferring grants and resources and favorably appraising them publicly. Meyer and Rowan (1977) defined these pressures of social expectation as arising from the institutional environment through which managers have to navigate. Managers are constrained by socially derived norms and expectations that contain assumptions about their organizational world and of appropriate conduct.

Institutional theory offers insights into the continuity and conformity of organizational practices through an appreciation of organizational-level processes (Delbridge & Edwards, 2007)**.** According to Raynard *et al.*, (2015) institutionalists point out that: all organizations exist within a context of institutional rules, all organizations are set within a context of social expectations, which constrain acceptable actions and all managers are socialized into seeing the world in certain ways, thus constraining their understanding of opportunities.

Institutional theory hypothesizes that institutions are variously comprised of “cultural-cognitive, normative and regulative elements that, together with associated activities and resources, provide

stability and meaning to social life" (Scott, 2005). Institutional theory is playing a major role in helping to explain the forces that shape organizational success, apart from organizational resources (Peng, 2003; Bruton *et al*., 2010). Institutional theory is traditionally concerned with how various groups and organizations conform to the rules and norms of the institutional environment to better secure their positions and legitimacy (Scott, 2005). Glynn and Abzug (2002) propose that the resemblance of an organization's symbolic attributes to those of other organizations within its institutional field, increases organizational legitimacy.

Scott (1995) argued that institutional theory emphasizes the influences of the systems surrounding organizations that shape social and organizational behavior. Institutional forces affect organizations' processes and decision making and provide the rules that structure organization interactions and those organizations are the players bounded by those formal and informal rules (Hoskisson *et al*., 2000). DiMaggio and Powell (1983) argued that organizations within an organizational field may conform to the rules and requirements, not necessarily for reasons of efficiency, but rather for increasing their legitimacy, resources, and survival capabilities. As a result, values and beliefs external to the organization play a significant role in determining organizational norms (Kondra & Hinings, 1998). Organizational survival is determined by the extent of alignment with the institutional environment; hence, organizations have to comply with external institutional pressures. This allows organizational actors to portray the organization as legitimate, thereby enhancing its likelihood of survival (Kostova *et al*., 2008). This makes it important to review the effect of strategic conformity on financial distress.

2.4.2 Trade-off Theory

Myers (1977) formulated the trade-off theory which hypothesizes that capital structure is a trade-off between tax savings and distress costs of debt. The optimum debt-equity ratio is that which

maximizes the tax savings and minimizes the cost of financial distress for the firms (Shyam-Sunder & Myers, 1999) which include maximizing tax savings and minimizing distress costs of debt during times of financial distress. Therefore, the trade-off theory predicts a cross-sectional relation between average debt ratios and asset risk, profitability, tax status and asset type, and it also predicts reversion of the actual debt ratio towards an optimum (Shyam-Sunder & Myers, 1999).

Pindado *et al*. (2008) indicates that the theoretical debate about financial distress is rooted in the trade-off theory. The results of their study demonstrate that the company's efficiency in extracting returns from its assets, and the trade-off between the way of generating funds and the need to comply with its financial expenses during the financial year, significantly explain the likelihood of financial distress. The tradeoff theory, which postulates that firms choose their capital structures by trading off the benefits of debt financing (such as tax shields) against the costs associated with financial distress and bankruptcy, has been tested in the past by regressing various ratios on firm characteristics that proxy for the costs of bankruptcy and the tax benefits of debt (Hovakimian *et al.*, 2012).

Strebulaev (2007) argues that the trade-off theory captures the dynamics of firms' financing behavior and produces quantitative predictions about leverage ratios. Strebulaev (2007) suggests that firms arrive at their optimal capital structure by balancing the corporate tax advantage of debt against financial distress costs, thereby mitigating financial distress. Shyam-Sunder and Myers, (1999) argue that according to the trade-off theory, costs of distress decrease with higher profitability and allow firms to increase their tax benefits by increasing leverage. Kayhan and Titman (2007) indicates that firm cash flows, investment expenditures, and stock price histories affect debt. This may in turn affect a firm’s financial position and the financial deficit has a

stronger effect on capital structure. Corporate finance theory has long supported the virtues of debt policy which include tax deductibility, mitigation of agency problems and disciplinary role. (Boubaker *et al.*, 2016).

Myers (1977) suggests that although debt financing benefits the firm through debt tax-shield, the benefits from use of debt are not infinite. The author argues that debt introduces the risk of financial distress that may ultimately lead to bankruptcy. This is associated with the fact that financial leverage is associated with the possibility of defaulting on debt repayment. Myers (1977) postulates that as a firm uses more debt, the financial risk increases and equity-holders become less motivated to provide more capital to the firm. Further, stockholders demand higher rate of return in terms of dividends pay-out ratios as a compensation for bearing more risk.

Ultimately, the trade-off theory postulates that as debt levels increases, the firm value also increases proportionately until a certain point where further increase in debt levels increases the distress costs of debt thereby reducing the firm value. This makes it important to review the potential relationship between financial leverage and financial distress.

2.4.2 Agency Theory

Agency theory was formulated by Jensen and Meckling (1976) in their seminal paper evaluating the agency cost of free cash flow. The agency theory hypothesizes that managers seek to maximize their own interests, but these interests may not be aligned to the interest of shareholders. Agency theory predicts that the misalignment of interests between managers and shareholders could lead to agency problems. Managers engage in activities for their own benefits rather than the benefits of the firm's shareholders (Jensen & Meckling 1976). Agency theory relates to the principal-agent relationship that exists between firm managers and shareholders.

The theory states that, with low monitoring level to the organization and low discipline in decision making, managers might decide to invest in projects with negative net present value (Jensen & Meckling, 1998). A well-documented agency problem is managerial ‘‘empire building’’. This refers to managers’ tendencies to maintain unutilized resources or to grow the firm beyond its optimal size with the purpose of increasing personal utility from power, compensation, status and prestige (Jensen 1986; Stulz 1990; Hope & Thomas 2008).

The agency problem can be alleviated by good corporate governance and restrain managers’ incentives to further their own interests at the expense of the shareholders (Shleifer & Vishny 1997). Jensen and Meckling (1976) further argue that managerial agency costs increase with the separation of ownership and control. Managers as the agents of shareholders are inclined to waste the corporate resources to satisfy their self-interests. Consistent with the literature, Chrisman *et al*., (2004) noted that agency problems arise when principal-agent relationships are characterized by divergent interests and informational asymmetries. Their findings show that agency-related costs arise from the expenses incurred for the activities and systems set up by principals to control agents’ behavior and from the consequences of agents’ behaviors that are not in the interests of principals. This makes it important to review the effect of nonproduction overhead on financial distress.

2.4.4 Feedback Theory

This study explores the moderating role of stock liquidity on the relationship between strategic change and financial distress by drawing on feedback theory. The feedback theory was first formulated by Subrahmanyam and Titman (2001) in their seminal paper examining the feedback from stock prices to cash flows. In Subrahmanyam and Titman (2001), the feedback from stock prices to firm cash flows occurs because stakeholders like employees, suppliers and customers

condition on price levels when deciding whether to stay with the firm or leave. The feedback theory hypothesizes that, a firm's stock price affects how the firm is perceived by its stakeholders. In turn, these perceptions ultimately affect the firm's cash flow as they influence the stakeholder's investment decisions (Subrahmanyam & Titman, 2001).

Khanna and Sonti (2004) and Fang *et al*., (2009) assert that liquid market stimulates trading of informed investors, which makes prices more informative and facilitates decision making within the firm, thereby improving firm performance. Cheung *et al* (2015) extended this argument by arguing that stock liquidity can enhance the informativeness of stock prices and consequently, managers learn from informative stock prices and make value-enhancing corporate decisions. Hirschleifer *et al*., (2006) argue that feedback from stock prices to future cash flows can arise for a variety of reasons. For example, a higher stock price may provide a cheap source of finance for making investments and may help firms attract customers and employees. This is because trading activity affects market prices and consequently provides feedback from security prices to cash flows.

Attari *et al*., (2006) explore the role of feedback by assessing trading by institutional investors around corporate control changes and point to the possibility of manipulation when a value enhancing action is taken by a large trader conditional on stock price movements. They argue that a price drop triggers shareholder activism consequently leading to increased firm value. In discussing the role of feedback in a model with irrational traders, Hirshleifer *et al*., (2006) show that such traders may survive in financial markets when their trades affect firm value. Loukil (2015) explores how feedback prices influence firms' investment on asset liquidity through stock liquidity. The empirical results show that high stock liquidity encourages firms to invest more

thus demonstrate the link between stock markets and the current business activity of the firm. Therefore, stock liquidity strengthens feedback prices effects on managerial decisions and investment choices. Nyborg and Wang (2014) argue that when stock liquidity increases, prices are more informative but the information may have either a positive or negative effect. If prices increase (positive feedback effect), they reflect good information and this may attract capital providers and reduce cost of capital. On the contrary, if prices decrease (negative feedback effect) firms support the high cost of capital and have more financial constraint. In this situation, firms must use their cash to limit the negative feedback effect of prices.

Feedback theories imply that the effect of liquidity is proportional to the sensitivity of firm operations to the information content of stock prices. Fang *et al*., (2009) document that stock market liquidity enhances firm performance due to the feedback effect. Their findings are attributed to the effect of liquidity in increasing the information content of market prices. According to Khanna and Sonti (2004) informed traders trade more aggressively and thus make prices more informative to firm managers and other stakeholders. This signals improved prospects to firm managers which potentially affect their investment decisions and firm value. In addition, higher stock prices increase the value of a firm's stock currency thereby relaxing its budget constraint.

Therefore, it is seen that stock liquidity improves firm performance through a feedback effect where liquidity makes prices more informative. Consequently, managers learn from informative stock prices and make value-enhancing corporate decisions. Moreover, a higher stock price may help firms attract customers and thus may provide funds for financing investment activities. Thus, it is important to review the moderating role of stock liquidity on the relationship between strategic conformity and financial distress.

2.5.0 Strategic Conformity and Financial Distress

A firm is deemed to be in financial distress when it is identified as being unable to meet its payment obligations as and when they fall due (Grice & Dugan, 2001). Financial distress is also viewed as the identification of a firm faced with negative cumulative earnings for at least a few consecutive years (Pindado *et al*., 2008**;** Tsun-Siou & Yin-Hua, 2004). Financial distress is a broad concept that contains several situations in which firms face financial difficulty. The most common terms used to describe these situations are bankruptcy, failure, insolvency, and default (Ruibin *et al.*, 2015).

Sudarsanam and Lai (2001) argue that decline of a firm from a superior performance position to an extremely poor performance criterion normally points to fundamental problems with its management and strategies. According to Francis and Desai (2005) downturns in organizational financial performance were a result of unfavorable environmental shifts combined with inappropriate strategies. Institutional theorists view strategic conformity as having positive organizational outcomes as it is a means of securing organizational legitimacy and thereby valuable resources (Miller *et al.*, 2013). DiMaggio and Powell (1983) argue that a strategy becomes legitimate if it is acceptable within its institutional field and firms whose strategies fall outside this range of acceptability are subject to challenge and penalties. Therefore, conformity to strategy within an organizations' institutional field may generate superior financial returns (Deephouse, 1999) thereby affecting firm value.

In absence of strategic conformity by firms and hence lack of legitimacy, firms have a harder time attracting resources from investors, customers, suppliers, and regulators (Deephouse & Suchman, 2008). Zuckerman (1999) points out that organizational actions/activities that deviate too far from social expectations or the boundaries of what constitute acceptable behaviour, lead

to penalties and the loss of external support which can threaten organizational survival over the longer term. Moreover, stakeholders or potential stakeholders who view an organization's strategy as aberrant may be reluctant to provide resources, or they may pose restrictive terms and demand risk premiums to compensate for the greater uncertainty and that too may hurt performance (Miller & Bromiley 1990).

Review of research indicates support for a positive relationship between strategic conformity and firm performance. The consequences of conformity held to be positive outcomes include enhanced resources, better stock market prices and more support from stakeholders (Choi & Shepherd 2005; Cohen & Dean 2005, Higgins & Gulati 2006). The above arguments paint a positive picture of strategic conformity for firms (Miller *et al*., 2013) and therefore prompting an examination as to whether strategic conformity will have an effect on financial distress of firms.

Some scholars support the above arguments and suggest that there are economic returns from being perceived as a legitimate member of the organizational field (Deephouse, 1999; Scott, 1995; Staw & Epstein, 2000). That is, firms that deviate from the generally accepted norms and behaviors face legitimacy challenges that negatively affect their ability to access resources, thus resulting in poor economic performance. Deephouse (1999) laid out three ways in which illegitimate firms are disadvantaged in accessing resources. Firstly, nonconforming firms might face a limited supply of resources as potential suppliers do not comprehend or perceive the deviant firm's strategies as acceptable. Secondly, even if a deviant firm finds a willing exchange partner, it may have to accept less than favorable terms of exchange. Thirdly, since deviant firms are perceived as more likely to fail, exchange partners may demand high risk premiums while contracting. Therefore, some scholars positively link strategic conformity and economic performance with empirical evidence that supports this.

Eapen and Krishnan (2009) examines whether there are economic rewards to mimicking strategic actions of other firms. Their findings show that strategic conformity has a significant positive impact on performance. Deephouse (1999) examines asset strategies of commercial banks in Minneapolis, St. Paul over 1985 to 1992. They found that nonconformity to the industry mean for a given asset strategy initially resulted in better economic performance. But this positive effect declined with increased nonconformity. Chen and Hambrick (1995) examined competitive strategies of US airlines and found similar results.

Following Geletkanycz and Hambrick (1997) conceptualization of strategic conformity as the degree to which the firm's strategy profile adheres to central tendencies of the industry, this study conceptualizes strategic conformity as the similarity of an organization’s strategy to that of other organizations in its industry. That is, the degree to which a firm’s strategy is equivalent to the average strategic profile of its industry competitors. Strategic conformity measure for each strategic indicator in the firm's strategic resource deployments is arrived at by standardizing each indicator by industry mean and then calculating the absolute differences of each firm's score from the industry averages and multiplied by minus one to convert the construct's meaning to one of conformity (Eapen & Krishnan, 2009; Finkelstein & Hambrick, 1990).

Following Ridge *et al.*, (2014) the strategic dimensions that capture conformity in strategy includes; nonproduction overhead, financial leverage, plant and equipment newness and inventory levels. Plant and equipment newness are indicators of the allocation and management of firm resources across capacity expansion activities. Nonproduction overhead captures the expense structure of the firm, while financial leverage reflects the organization's approach to capital management. As noted earlier, each constitutes a salient dimension of business strategy (Geletkanycz & Hambrick, 1997).

2.5.1 The Relationship between Nonproduction Overhead and Financial Distress

Nonproduction overhead and its effect on firm value have received significant attention in management and finance research (Huang 2006; Baumgarten *et al.,* 2010; Janakiraman, 2010). It can be argued that nonproduction overheads increase with the separation of ownership and control. Managers as the agents of shareholders are inclined to waste the corporate resources to satisfy their exploitative purposes (Li *et al*., 2008). According to Singh and Davidson (2003) higher levels of selling, general and administrative expenses are a close approximation of managerial pay and perquisite consumption in terms of higher salaries, large office complexes, and other organizational support facilities which may cause a shrink to company resources. Ang *et al*., (2000) also maintained that agency costs are a proxy for the loss in revenues attributable to inefficient asset utilization, which can result from poor investment decisions or from management's shirking by exerting too little effort to help generate revenue.

Studies interrogating the role of nonproduction overhead have not established a clear link between the level of selling, general and administrative expenses and firm's profitability (Yükçü & Özkaya, 2011; Anderson *et al.*, 2007). Anderson *et al.* (2007) argued that contrary to the conventional expectation that increase in the ratio of selling, general and administrative costs to sales between two periods was a negative signal about firms future profitability and firm value, an increase in selling, general and administrative costs might signal about the favorable expectations of the managers as managers tended to retain nonproduction overheads when revenues declined only if they believed that revenues would increase in the future (Yükçü & Özkaya, 2011).

Other studies such as Janakiraman (2010), Huang (2006) and Huang *et al.,* (2011) demonstrates that selling, general and administrative expenditure creates intangible assets that have a positive

impact on operating earnings. Baumgarten *et al.,* (2010) extended this perspective and argued that intended increase of selling, general and administrative expenditures by management partially represent investments in operating efficiency that significantly enhance future earnings. On the contrary, excessive selling, general and administrative expenditure may indicate loss of managerial control over the selling general and administrative costs that lead to poor operating performance (Janakiraman, 2010). Companies that trim selling, general and administrative costs were found to enjoy far reaching benefits through cost savings and a reduction on corporate overhead as every dollar reduction goes into net income (Lazere**,** 1996). According to Aerts and Van Caneghem (2011) spending on non-production expenditure is often to a significant extent discretionary in nature, while the relationship between this expenditure and revenue is inherently ambiguous.

Scholars such as Anderson *et al*., (2003) argue that there need not be a proportional relation between the committed resources provided for managerial consumption and the level of activity of the firm. Therefore, if the committed resources demanded exceed the committed resources provided, the available activity resources will be strained and this may lead to financial distress. Balakrishna and Gruca (2008) further argue that when activity levels decreases, managers face a choice between decreasing the expenditure of resources and delaying cutbacks. Delaying cutbacks might be appealing because of the psychological reasons for avoiding painful decisions and may in turn cause strain on finances of the firm. Increases in the selling, general and administrative cost ratio are treated as evidence that resources are being used less efficiently and that managers are unable to effectively control costs (Anderson *et al*., 2007). Banker *et al*., (2011) noted that the extent to which managers react to long-term incentives depends on the future value they can create in their operating context.

An increase in the ratio of selling, general and administrative costs to sales revenue between the previous and current periods is customarily interpreted to be a negative signal about future profitability (Lev & Thiagarajan, 1993). Cappozza and Seguin (1998) found that higher levels of nonproduction overheads are significantly negatively related to firm value. Consistent with the literature, nonproduction overheads reduce the amount of free cash flow and may lead to a strain in the financial resources of a firm that would have otherwise been used for investment (Siregar *et al*., 2015). Therefore, it would be necessary to evaluate whether nonproduction overhead has an effect on the prediction of financial distress of firms.

2.5.2 The Relationship between Financial Leverage and Financial Distress

A firm is identified as financially distressed if it defaults its debt payments obligations. This indicates that debt contracts strain financial resources and thus lead to financial distress in firms (Koh *et al*., 2015). Tsun-Siou and Yin-Hua (2004) argued that on average, the debt ratio of financially distressed companies is higher compared to that of healthy firms. Thus, debt ratio is related to financial distress. In an attempt to examine the factors that drive the sample firms into financial distress, Andrade and Kaplan (1998) found that high leverage is the primary cause of financial distress. This points out that high financial leverage reduces the operating margins of firms that would have otherwise appeared to be healthy.

Scholars such as Chancharat *et al*., (2010) find that differences exist in the factors which determine whether companies enter different states of financial distress. Specifically, distressed companies have a higher leverage compared to active companies. Of the significant variables, a higher level of financial leverage increases financial distress (Kim and Partington, 2014). Similarly, Tsun-Siou, and Yin-Hua, (2004) argue that debt ratio significantly influences financial distress.

Scholars such as Shumway (2001) have argued that using theoretical frameworks that are based on perfect-market assumptions, it can be demonstrated that, ceteris paribus, a firm's risk of failure increases with leverage. On the contrary, Baker and Wurgler (2002) argue that firms time their external financing to equity market conditions, and that current capital structures reflect the cumulative effect of equity market timing. Hovakimian (2006) extended this perspective and argued that firms that currently have high leverage are currently underpriced and if they seek external financing, they are likely to issue debt. Then, it is not clear that a firm with higher market leverage has a higher risk of future failure, because the associated underpricing suggests that they will be relatively more profitable in the future, which presumably will reduce their failure risk (Hovakimian 2006).

Early studies interrogating the role of financial leverage on firm financial health found varied results. In a study aimed at investigating the impact of debt financing on financial distress of firms listed in Palestine stocks exchange, Abu-Rub (2012) used a sample of 28 firms over a five-year period. In this study, total debt to total assets and total debt to total equity were used as proxies of financial leverage while return on equity represented corporate financial distress. The results showed that debt financing had a positive and significant effect on return on equity. Abu-Rub (2012) argued that companies that employed debt to finance their operations benefited from interest-tax savings that helped in building up more reserves for shareholders. This finding is in line with those by Nerlove (1968) and Baker (1973) who found a positive and significant relationship between use of debt and return on assets of industries in Bangladesh and Turkey respectively. The finding indicated that increasing use of debt in the companies resulted in significant increase in productivity of the firms' assets.

In another study of the 210 Sri-Lankan firms listed in the Colombo stock exchange by Pratheepkanth (2011) with a view of establishing how leverage affected financial distress of the firms, the study spanned over the period 2005 – 2009. In undertaking the study, leverage was measured by debt-equity ratio and total debt-total capital ratio while gross profit and net profit margins were adopted as measures of financial distress. The study found a negative but insignificant relationship between the key study parameters. The implication of the finding was that increasing debt use reduced the firms‟ level of productivity but to a lesser extent. The research result was in line with that by Perinpanathan (2014) whose study in Sri Lanka's largest listed firm during the seven-year period 2006-2012 concluded that debt financing had a negative but insignificant impact on the firm's profitability as represented by earnings before interest and tax to total assets ratio. These findings were however at variance with those by Yat *et al.,* (2002) whose findings indicate that financial leverage has a positive effect on financial distress of firms in the property and construction sectors in Hong Kong as measured by return on equity. Chancharat *et al.,* (2007) found that financially distressed companies have higher leverage compared to active companies. Giacomini (2015) found that levered returns are significantly higher than unlevered returns, suggesting a positive relation between leverage and returns for public real estate firms. Caskey *et al.,* (2012) generally found that leverage positively predicts the probability of distress as firms with high leverage are more exposed to a systematic distress factor.

In another study, Gupta *et al*. (2014) investigated the effect of financial leverage on financial distress of the 100 firms listed in the Indian National Stocks Exchange over the period 2006 – 2010. Both the market and book value of debt and equity were adopted as proxies of leverage, while financial distress was measured by return on assets. Gupta *et al*. (2014) finds a negative

and significant relationship between debt financing and financial distress but a positive and significant relationship between equity capital and financial distress. This implies that highly geared companies exhibit reduced financial distress while firms with high levels of equity increasing corporate financial distress. This finding mirrored the result by Krishnan and Moyer (1997) whose study among 81 Asian corporations showed a negative and significant effect of total debt on return equity. However, the findings differed with that by Shehla Akhtar *et al*. (2012) whose similar study on firms in the energy and fuel sectors listed in Karachi Stocks Exchange, Pakistan showed that there was a positive relationship between financial leverage and financial performance, corporate growth and firm size.

Ebaid (2009) carried out an empirical study to investigate the impact of borrowed capital on financial distress of firms listed in Egypt. Financial distress was operationalized using profitability measures that included return on equity and return on assets, and gross profit margin while borrowing level was represented by total debt to total assets ratio. The findings by Ebaid (2009) indicated that debt use had insignificant to no impact on the financial distress of the firms. The findings is in agreement with the findings of the study conducted by Baimwera and Muriuki (2014) for non-financial firms listed in the Nairobi Securities Exchange for a three year period 2007 to 2010. The key objective of their study was to examine the determinants of corporate financial distress as postulated by Altman (1968) which are liquidity, leverage, growth and profitability in relation to financial distress. Liquidity and financial leverage were found to have no significant influence in determining corporate financial distress. This result was however inconsistent with similar empirical studies carried out by Ghosh *et al.*, (2000) which postulated a positive relationship between financial leverage and financial distress of the firm. In a study of firms in the U.S banking industry, Berger and Di Patti (2006) examined the dualistic relationship

between leverage and firm distress. They used a parametric measure of profit efficiency as an indicator of the agency costs. The study found that higher debt levels were associated with higher firm financial distress.

In Kenya, Muigai (2016) conducted a study to establish the effect of financial leverage on financial distress of non-financial firms listed in Nairobi Securities Exchange for the ten-year period covering 2004–2013. This was achieved by analyzing how employment of debt as opposed to equity capital affected the Altman's Z-score index of financial distress. The study found that during the analysis period, financial leverage had a negative and significant effect on financial distress of listed non-financial corporations. This finding conquers with the findings by Mwangi *et al*. (2014) who undertook a study of the 42 non-financial firms quoted at the Nairobi Securities Exchange to identify the relationship between financial leverage and profitability over the period 2006 – 2012. Financial leverage was measured by current assets to total assets ratio and total debt to total capital ratio while profitability was observed through both return on assets and return on equity. The study found a statistically significant negative relationship between financial leverage and profitability. This implies that financial leverage reduced firm profitability as measured by return on assets and return on equity. This finding is in agreement with those by Zeitun and Tian (2014) and Maina and Ishmail (2014) who showed a negative and significant relationship between debt and profitability among the Jordanian and Kenyan listed firms. The findings however differ with that by Kiogora (2000) whose study among the Kenyan listed firms showed a positive relationship between financial leverage and financial distress as represented by return on equity. Kodongo *et al.* (2014) undertook a study that sought to find out the effect of financial leverage on firm value of firms listed in Nairobi securities exchange, Kenya. The study that covered the period 2002 – 2011 adopted debt equity ratio, total debt to total assets ratio and

long-term debt to equity ratio as proxies of leverage while Tobin's Q ratio was used to measure the firm value. The study found that financial leverage had no effect on the Tobin‟s Q. This finding differed with that by Zeitun and Tian (2014) whose similar study of 167 Jordanian companies during the period 1989 – 2003 showed a significant negative relationship between financial leverage and Tobin's Q.

Hoque *et al.,* (2014) conducted a study on 20 manufacturing firms listed in Dhaka Stocks Exchange over the period 2008-2012 aimed to determine the effect of capital structure on firm value. The study found a negative relation between the debt ratios and firm value measures. These findings are in line with that by De Jong (2002) who found a significant negative relationship between leverage and Tobin‟s Q measure of firm value for the Dutch listed non-financial firms over the period 1992-1997. This finding is also in agreement with that by Rayan (2010) who conducted a 10-year longitudinal study of 113 firms listed in the Johannesburg Stocks Exchange, South Africa with a view to determine the relationship between financial leverage and firm value. The debt-equity ratio was used as a converse for financial leverage while return on equity, return on assets, earnings per share, price earnings ratio were used as a measure of firm value. The study found a negative relationship between use of debt and all measures of firm value this implying that with the increase in financial leverage reduced the firm value among the Southern African firms. Rayan (2010) attributed this negative relationship to excessive use of debt financing by firms in a bid to benefit from tax shields.

Graham *et al.,* (2011) found that firms with more debt became financially distressed more frequently during the depression, consistent with the trade-off theory of leverage and the information production role of credit rating agencies. Habib *et al.,* (2013) found a negative coefficient on leverage across the distress measures and argued that this is contrary to

expectation because highly-leveraged firms are more likely to manipulate earnings upwards to avoid debt covenant violations. Boubaker *et al.,* (2016) examines whether financial distress risk is systematic risk among French listed firms over the period January 1995 to December 2012. Their findings show that the leverage risk premium is positive for highly leveraged firms. Shaked and Plastino (2012) further argued that leverage consists of obligations that require mandatory payment and if the company fails to earn enough to satisfy these obligations, the firm may face financial distress.

On the other hand, Di Patti *et al*., (2015) found that, ceteris paribus, a 10 % point increase in leverage is associated with almost a 1 % point higher probability of default. Tsuruta (2016) found that leverage has a negative effect on average firm performance which shows that highly leveraged firms have a greater probability of financial distress. Opler and Titman (1994) find that highly leveraged firms lose substantial market share to their more conservatively financed competitors in industry downturns. Specifically, firms in the top leverage decile see their sales decline more than do firms in the bottom leverage decile. Therefore, an evaluation of a firm's financial leverage is important in the establishment of the prediction of financial distress.

2.5.3 The Relationship between Inventory Levels and Financial Distress

Larger stocks of inventories may indicate higher sales uncertainty which may exert indirect effects on the fixed capital investment of a firm through firm's leverage, cash holdings or cash flows (Caglayan *et al*., 2012). Potential lenders cannot accurately evaluate the firm's creditworthiness in an environment with heightened uncertainty. Sales uncertainty will limit the firm's ability to raise external funds by potential lenders raising the risk premium they require (Caglayan *et al*., 2012). Furthermore, inventory reduction programs are also widely established in order to release cash for alternative uses. The logic behind this argument is that decreasing

inventories leads ceteris paribus to reduced capital requirements, causing profitability measures such as return on assets to increase (Obermaier & Donhauser, 2012).

There are also possible adverse effects of over-investment in working capital which may lead to a negative impact on firm value at certain working capital levels. Kim and Chung (1990) and Maccini and Pagan, (2008) argue that keeping stock available increases costs such as warehouse rent, insurance and security expenses, which tend to rise as the level of inventory increases. On the one hand, companies that hold a higher working capital level also face more interest expenses as a result (Kieschnick *et al*., 2013) and, therefore, more depletion of financial resources. As working capital increases, it is more likely that firms will experience financial distress and face the threat of bankruptcy. Furthermore, large investment in inventories might also hamper the ability of firms to take up other value-enhancing projects (Baños-Caballero, 2014), which would have otherwise improved their financial resources.

Inventory-performance relationship is a research area that has grown considerably in the operations management literature, and provided mixed findings. Specifically, while various studies have reported the positive effect of inventory reduction on organization performance, other studies found no clear evidence for this relationship (Elsayed & Wahba, 2016). The results of Lieberman and Demeester (1999) supported the positive relationship between inventory reduction and productivity growth. They concluded that inventory reduction can be considered as an important driver of process improvement. Fullerton and McWatters (2001) further observed a positive effect of inventory reduction on organization performance in a Just in Time context. They demonstrated that organization performance has been enhanced through inventory reduction, as well as reduction in quality costs thus increasing customer responsiveness.

In addition, Demeter (2003) reported a positive effect of inventory turnover on organization performance. Furthermore, Deloof (2003) observed that lower inventory and higher performance are positively correlated. Shah and Shin (2007) examined inventory as a mediator variable, and analyzed its effect on the relationship between investment in information technology and performance. They concluded that there is a positive and significant effect of inventory reduction on performance. Swamidass (2007) found that organizations that have outstanding performance carry lower inventory level. Similarly, Koumanakos (2008) revealed that the higher the organization inventory level, the lower its profitability rate. The results of Capkun *et al.*, (2009) indicate that total inventory levels have a positive effect on firm performance. The positive effect on the relationship between inventory levels and firm performance was further supported by the results of Ramachandran and Jankriaman (2009), Pong and Mitchell (2012) and Elsayed (2015a). In addition, the results of Shin *et al.*, (2015) show that a lower ratio of inventory to sales for a firm is associated with higher profit margin for the firm.

However, in other studies, the results were not as supportive of inventory's robustness in evaluating the performance of firms. For example, the analysis of Balakrishnan *et al., (*1996) was not able to detect a significant difference in return on assets between just-in-time firms and non-just-in-time firms. Consistent with this finding, Cannon (2008) and Eroglu and Hofer (2011) revealed that inventory and organization performance have no significant relationship. However, Chen *et al.,* (2005) reported that firms with abnormally high inventories have abnormally poor long-term returns. Firms with slightly lower than average inventories have good stock returns, but firms with the lowest inventories have ordinary returns. Boute *et al.,* (2007) found that organizations that have high inventory levels are more likely to achieve bad financial performance. Obermaier and Donhauser (2012) further demonstrated that organizations that have

the lowest inventory level have also the worst performance level. Recently, Elsayed and Wahba (2016) show that inventory to sales ratio has exerted a negative and significant coefficient on organization performance.

According to Cannon (2008) inventory is viewed as fundamentally a driver of costs that manifest themselves in forgone investment opportunities as the result of tied-up capital. It also creates ancillary costs incurred in moving, storing or otherwise simply handling inventory or unsolved process problems that are covered up by the inventory. In this view, systematic reductions in inventory would be viewed as evidence of successful management. Therefore, an evaluation of whether inventory levels has an effect in predicting financial distress of firms is conducted.

2.5.4 The Relationship between Plant and Equipment Newness and Financial Distress

Entrepreneurs find it easier to raise outside capital in industries which employ more tangible assets that can serve as collateral, such as plants and machinery (Claessens and Laeven, 2003). Altman (2000) and Geng *et al*. 2015 maintain that a firm's ultimate existence is based on the earning power of its assets. Furthermore, insolvency in a bankruptcy sense occurs when the total liabilities exceed a fair valuation of the firm's assets with value determined by the earning power of the assets (Altman, 2000).

This study examines the link between effective tax rates and capital intensity and finds that asset values reduce payable taxes because of accelerated depreciation charges relative to asset values (Adhikari, 2006), thus higher depreciation tax savings. Manova (2008) argues that the availability of collateralizable assets determines a firm’s ability to raise outside capital, which is enhanced by the value of plant and equipment. This suggests that the lack of collateral makes it costly for firms to obtain funding and is strong evidence of a credit constraints channel. In the

presence of financial frictions, the investment opportunities open to firms with insufficient private capital are limited (Manova, 2008).

Plant and equipment represents the fixed costs that have been allocated to the company cost structure. Most of the capital investments are greatly regressive in the short-time and thus they restrict the company's ability to adjust its costs to the revenue (Pourali *et al.*, 2013). Specifically, smaller firms that have fewer tangible assets may have higher transaction and information costs and hence may be more susceptible to negative profitability and market value shocks. They may also find it more difficult to raise equity or sell assets when doing poorly. Such financially constrained firms are likely to have a higher financial distress for any given debt ratio (Hovakimian *et al.*, 2011).

Greater capital intensity tends to increase firm's risk which originates from the notion that the firm with a higher level of fixed assets naturally experiences more fixed expenses that do not vary according to the firm's sales level (lee *et al.*, 2011). Pourali *et al*. (2013) finds that there is a negative significant relationship between capital intensity and degree of financial distress, while Lee *et al*. (2011) finds that capital intensity reduces financial distress thus having a negative relationship.

Kane and Richardson (2002) find that when management invests in property plant and equipment, financial distress is intensified. This is because increasing the asset base amplifies the need for borrowing money to facilitate the purchase/expansion of property, plant and equipment which increases the necessary uses of working capital as debt must be serviced. Conversely, Bhat (2000) provided evidence that age of a plant is one of the most significant factors that can influence maintenance costs. Older machines require replacement of parts and more intensive

maintenance. Consequently, companies with older plant, equipment and building spend more on maintenance.

Liargovas and Skandalis (2010) extended this perspective and argued that continued investment in capital items used for operations (such as property, plant and equipment) of a firm is crucial because the useful life of existing capital diminishes over time. The amount of net investment is positively related to firm performance since new investments expand the production and cash flow generating capacity of the firm.

2.6 The Moderating Role of Stock Liquidity

Past empirical studies have overlooked the potential role of stock liquidity as a moderator in financial distress research. Stock liquidity is an important variable in organizational outcomes. For example, Fang *et al.* (2009) observed that the tradability of stock shares plays a central role in the governance, valuation, and performance of firms. Because stock shares represent investors commands for a firm‘s cash flow and control rights, the liquidity of stock shares plays an important role in the governance effectiveness, operating performance, and valuation of the firms (Wu & Liu, 2011). Loukil (2015) argues that stock liquidity affects corporate financial decisions by reducing cost of capital and facilitating access to more funds on the capital markets. Hence, firms with more liquid stocks have less financial constraints and may pursue investments even if their projects are risky. An increase in stock liquidity may help managers to attract new funding for investment projects and support value-enhancing activities such as corporate governance and market monitoring (Cheung *et al.,* 2015).

Maug (1998) argues that a liquid stock market lowers the cost of acquiring shares and helps investors to accumulate the blocks that generate sufficient incentives to voice or intervene. By

gathering and trading on private information, block stock holders cause the stock price to more closely reflect the firm's fundamental value. If the manager is compensated according to the stock price, the threat of exit induces him to maximize fundamental value, for example, by exerting effort and investing efficiently (Edmans, 2009). If high liquidity leads to better monitoring and/or more efficient prices, managers may be willing to forgo short-term profits to invest in long-term investments such as innovation (Fang *et al.*, 2014). Consistent with this perspective Subrahmanyam and Titman (2001) argue that how the firm is perceived by its stakeholders can be influenced by a firm's stock price and trading volume. These perceptions will influence investment decisions of stakeholders, which ultimately affect the firm's cash flow. (Subrahmanyam & Titman, 2001; Khanna & Sonti, 2004; Hirshleifer *et al*., 2006; Amihud & Mendelson, 2012). Thus, stock liquidity can act as a catalyst to reduce financial distress.

Holmström and Tirole (1993) argue that stock liquidity has been recognized as an important phenomenon because stock markets can play an important role in monitoring management and that public trading of a firm's stock can influence managerial incentives. Public trading allows managerial incentives to be provided according to the continuing performance of the firm's share price thus increase firm value and thereby reduce financial distress. Another argument is that stock liquidity can enhance the informativeness of stock prices. Consequently, managers learn from informative stock prices and make value-enhancing corporate decisions. An increase in stock liquidity may help managers to attract new funding for investment projects and may support value-enhancing activities such as corporate governance and market monitoring (Cheung *et al*., 2015). Fang *et al*., (2009) find that stock liquidity has an effect on firm value, which is due to more informative stock prices and better managerial incentives. Amihud and Mendelson (2012) find that increases in the liquidity of a company's stocks and bonds led to a reduction in

the company's cost of capital and increase in its market value. Edmans *et al*., (2013) and Maug (1998) use the setting of activist hedge funds to demonstrate that stock liquidity enhances block holder governance through the mechanisms of exit as well as voice. These studies find that liquidity allows investors to accumulate large amounts of stocks, become block holders, and capitalize on monitoring activities to boost firm performance. The findings of Xiong (2016) indicate that stock liquidity has a positive effect on firm investment.

Brogaard *et al.* (2017) find two mechanisms through which stock liquidity reduces firm default risk; improving stock price informational efficiency and facilitating corporate governance by block holders. The act of selling one's shares can be a governance mechanism in itself as block holders cause the stock price to more closely reflect the firm's fundamental value by gathering and trading on private information. If the manager is compensated according to the stock price, the threat of exit induces him to maximize fundamental value by exerting effort and investing efficiently (Admati & Pfleiderer, 2009; Edmans, 2009). There is also substantial evidence that firms raise more external funds when stock prices are high. Thus, higher stock prices appear to relax a firm's budget constraint and also impact firm value if they signal information to firm managers and other stakeholders, allowing the latter to make more informed decisions. Liquid market stimulates trading of informed investors, which makes prices more informative and facilitates decision making within the firm, thereby improves firm performance (Subrahmanyam & Titman, 2001; Khanna & Sonti, 2004). Moreover, Subrahmanyam and Titman (2001), Khanna and Sonti (2004) and Fang *et al.* (2009) among others link the stock liquidity, feedback prices and managerial firms' decisions together. They advance that the entry of informed investors in the market increases with stock liquidity. Thus, informed trading makes prices more informative to investors, employees, customers and other stakeholders. This feedback effect improves firm

performance by increasing operating performance on the one hand, and relaxing financial constraints on the other. Therefore, liquid stocks lead to higher feedback on firms.

Higher liquidity permits informed investors to profit more from their private information, thus incentivizing investors to acquire more information and trade on it, leading to more informed stock prices (Holmström & Tirole, 1993; Subrahmanyam & Titman, 2001). Consequently, managers learn from stock prices and use it to guide corporate investments (Luo, 2005; Chen *et al.*, 2007; Bakke & Whited, 2010). Therefore, managers make better investment decisions, generate higher cash flows, and reduce cash flow volatility, resulting in lower default risk (Brogaard *et al.*, 2017).

A pricing-based mechanism explains the relationship for higher liquidity–higher firm value result. If investors value liquidity, liquid stocks should be traded at higher prices, which lead to higher market value for the firms (Nguyen *et al*., 2016). Moreover, liquidity has a positive relationship with investment, because liquidity facilitates the financing of investments. Thus, those firms that have greater financial constraints should be more sensitive to liquidity, because liquidity enables external financing (Munoz, 2013). Bharath *et al.*, (2013) study the role of liquidity in block holder's threat of exit and conclude that stock liquidity magnifies the effect of block ownership on firm value. Edmans *et al.* (2013) show that greater stock liquidity results in governance shifting from block holder's voice to the threat of exit. In light of the aforementioned studies, there is evidence of an interaction between stock liquidity and firms' financial resources in many ways such that stock liquidity could inhibit the likelihood of financial distress. Therefore, it is expected that stock liquidity serves as a boundary condition moderating the effect of strategic conformity on financial distress.

2.7 Control Variables

Possible confounding factors that may have an effect on financial distress were controlled. *Firm size* has been viewed in finance literature as the logarithmic value of total assets (Boyd *et al*., 2005; Xiaozhou *et al*., 2008; Tinoco & Wilson, 2013; Brad *et al*., 2015; Doumpos *et al.*, 2015). Research studies point out the fact that the size of the companies significantly influences the financial performance that the companies have. Large firms can be more efficient than smaller ones and can be more competitive in a competitive market. Large firms have larger resources to adapt their strategy in such a way that they can obtain a performance at least as small as the market performance value (Majumdar, 1997; Xiaozhou *et al*., 2008). Larger firms have greater credibility in financial markets and thus have a better chance of reorganizing than small firms and are in a better position to survive. Larger firms tend to be financially distressed at a much lower rate than small firms because they can get loans and other resources to enable them to survive. Furthermore, larger firms can have more resources to sell and regain liquidity even if temporarily distressed (Moulton & Thomas 1993; Brad *et al*., 2015). Smaller firms that have fewer tangible assets may have higher transaction and information costs, find it more difficult to raise equity or sell assets when doing poorly. Such financially constrained firms are likely to have a higher risk of being financially distressed (Charitou *et al*., 2004; Hovakimian *et al*., 2011; Tinoco & Wilson, 2013).

Industry differences which refers to attributes common to an industry was also controlled in the study (Mauri & Michael, 1998; Lieu & Ching-Wen, 2006; Short *et al*., 2007). Early studies interrogating the effect of industry factor have established a clear link between industry factor and firm performance (McGahan & Porter, 1997; Douma *et al*., 2006) and this can be linked to financial distress of firms. Thornhill and Amit (2003) further argued that whether firms are old

and trying to maintain or grow as the environment changes, or younger and trying to establish a viable competitive position, the match between strategic industry factors, resources and capabilities is paramount. It is emphasized that even companies with a similar financial profile, and in different industries, have a different financial distress (Ooghe & De Prijcker, 2008). Consistent with the literature, industry effects should be an important component in assessing financial distress, so according to Chava and Jarrow (2004), different industries face different levels of competition and, therefore, financial distress can differ for firms in different industries with otherwise identical balance sheets. In addition, different industries may have different accounting conventions, again implying that financial distress can differ for firms in different industries with otherwise identical balance sheets. Nwachukwu and Mohammed (2012) observed that firms in the manufacturing industry have assets with a collateral value that improves their capacity to borrow which have a bearing on financial distress of firms.

Firm age was also controlled in this study. Existing literature has associated firm age to the number of years that have elapsed since the year of the company's listing (Shumway, 2001; Graham *et al.,* 2011; Hovakimian *et al.,* 2011). Financial distress has been associated to the age of the firm with young firms being more financially constrained. The ability to obtain external finance is a key factor in the development, growth and survival of young firms. Collateral problems may be more severe for firms in their early age, resulting in a greater potential for credit constraints for such firms (Binks & Ennew, 1996). It can be argued that new organizations depend on new roles and tasks that have to be learned at some costs. Sometimes new roles have to be invented, and this may conflict with constraints on capital or creativity. Moreover, stable links to clients, supporters, or customers are not yet established when an organization begins operation which may lead to financial distress (Bruderl & Schussler, 1990; Ooghe & De Prijcker,

2008). Studies of patterns of business failure found that newly founded companies with ineffective control procedures and poor cash flow planning are more vulnerable to financial distress than well-established public firms (Hovakimian *et al.*, 2011). Therefore, it is expected that financial distress rates and the mean growth rate of successful firms decline with size and age (Farinas & Moreno, 2000).

2.8 Conceptual Gaps in the Reviewed Literature

The review of literature on financial distress identified the following conceptual research gaps. The first gap relates to scarcity of empirical research on the relationship between strategic conformity and financial distress of firms. Although past research shows that some studies such as Fitzpatrick and Ogden, (2011), Kim and Partington, (2014) among others, did focus on the relationship between financial leverage and financial distress, they did not capture the concept of strategic conformity. The other dimensions of strategic conformity that comprise of non-production overhead, inventory levels and plant and equipment newness have not been considered in empirical investigations of financial distress. The review of literature also revealed that there was limited research that specifically focuses on the relationship between strategic conformity and financial distress.

The second conceptual gap relates to the lack of an empirical study on the moderating effects of stock liquidity on the relationship between strategic conformity and financial distress. The only study that has focused on default risk, but from a direct relationship was a recent study by Brogaard, Li and Xia (2017). In particular, this study examines the effect of stock liquidity on expected distance to default. The other studies that have focused on stock liquidity but from a direct relationship have assessed the stock liquidity effect on the value of the firm (Amihud & Mendelson, 2008; Cheung *et al*., 2015; Fang *et al.*, 2009; Wu & Liu, 2011). Despite an increased

interest in research in stock liquidity, so little empirical research has actually been conducted on the topic, especially from the perspectives of the moderating effect of stock liquidity on the relationship between strategic conformity dimensions and financial distress.

The third gap in the literature reviewed emanates from the scarcity of any empirical research to date on the effect of strategic conformity on financial distress and the moderating effect of stock liquidity on this relationship in the context of listed firms in Nairobi Securities Exchange. Therefore, this study attempts to fill the gaps identified by testing the effects of strategic conformity dimensions on financial distress and the moderating effect of stock liquidity on the relationship between strategic conformity and financial distress. The findings from this study are therefore of new value to the literature related to strategic conformity, stock liquidity and financial distress. To the best of my knowledge, this is the first study to systematically examine the role of strategic conformity as an independent variable and stock liquidity as a moderator variable in financial distress research.

2.9 Conceptual Framework

The conceptual framework of this study suggests that the dependent variable financial distress is based on the independent variable strategic conformity dimensions namely nonproduction overhead, financial leverage, inventory levels and plant and equipment newness. Stock liquidity was looked into as the moderating variable on the relationship between these measures of strategic conformity and financial distress. The control variables included in the study were firm size, firm age and industry. The variables are shown in figure 2.1 below

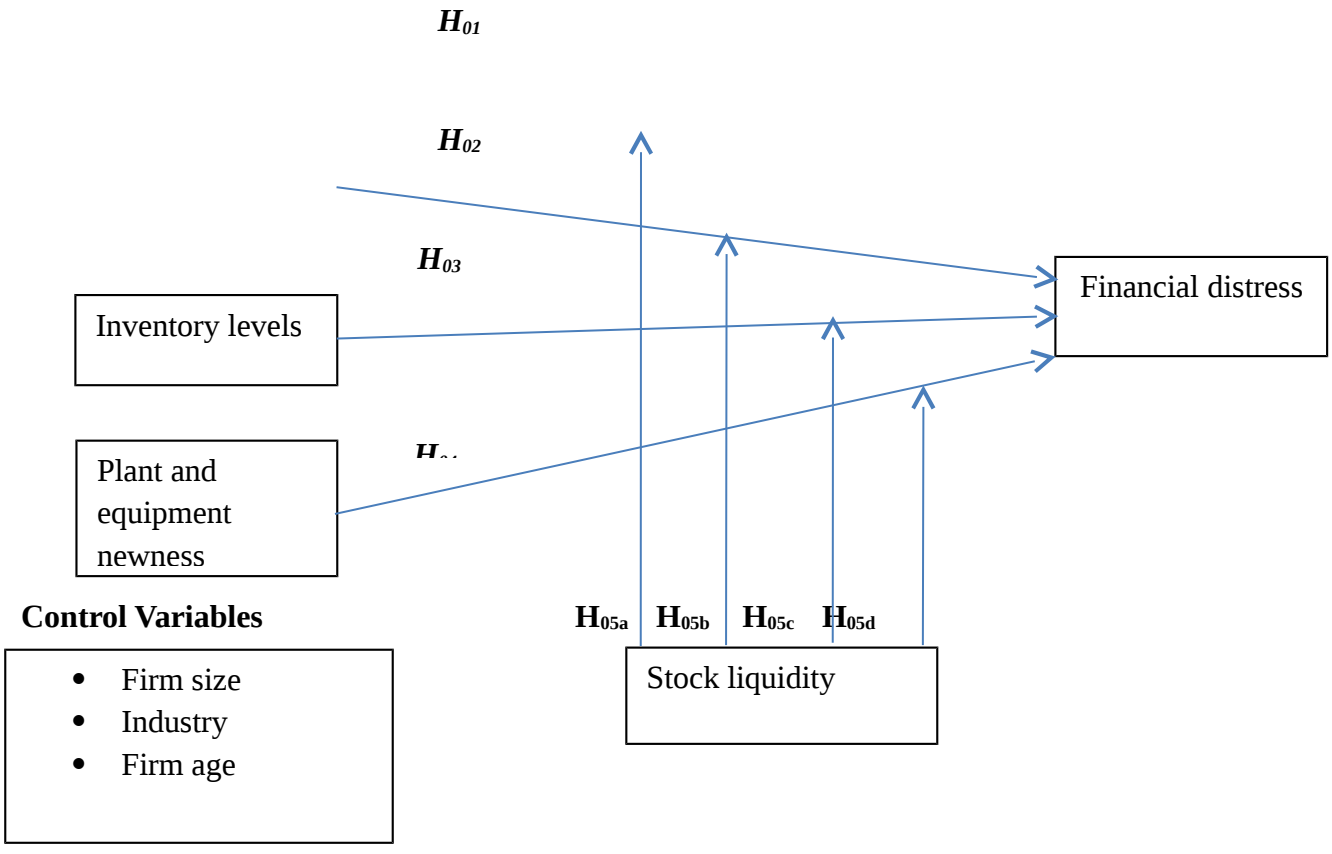

Figure 2.1: Conceptual Framework of Hypothesized Relationships

Source: Researcher 2016

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the methodology of the study. It presents in detail the research philosophy, the research design, the target population and sample, the data types and sources, measurement of the variables, data analysis and presentation, model specification, underlying assumptions of the regression model and tests for the regression assumptions. The chapter also specifies the empirical models estimated by the study and provides the techniques of estimating and analyzing the model.

3.1 Research Philosophy

This study aimed at working with observable phenomenon, that is; strategic conformity, stock liquidity and financial distress among listed firms in Nairobi securities exchange. In addition, the end product of this research was on causality and law-like generalizations. Therefore, this study was based on positivism research philosophy. In this case the research was undertaken in a value-free way such that the researcher was external to the process of data collection. The researcher collected data independently and neither did the subject of the research influence the researcher nor did the researcher influence the subject of the research.

Research philosophy is defined as the philosophical concepts in research that assist in specifying research design and strategy (Erickson & Kovalainen, 2015). Positivism involves working with an observable social reality and that the end product of such research can be on causality and law-like generalizations. Only observable phenomena will lead to the production of credible data and incorporates the use of existing theory to develop hypotheses (Saunders *et al.,* 2009). The

hypotheses developed lead to the gathering of facts consistent with the notion of observable social reality that provide the basis for subsequent hypothesis testing (Bhattacherjee, 2012). The research is undertaken in a value-free way such that the researcher is external to the process of data collection in the sense that there is little that can be done to alter the substance of the data collected. The assumption is that the researcher is independent of and neither affects nor is affected by the subject of the research (Saunders *et al.*, 2009; Bhattacherjee, 2012).

3.2 Research Design

A research design is a plan that specifies the collection and analysis of data in a manner that aims to combine relevance to the research purpose and procedure. It provides a framework for the collection, measurement and analysis of data (Zikmund *et al.*, 2013). The hypotheses in this study were examined using explanatory research design since the study was concerned with analyzing and interpreting relationships among variables, that is, the effect of strategic conformity on financial distress and the moderating effect of stock liquidity on the relationship between strategic conformity and financial distress. Explanatory research seeks causal explanations through test of hypotheses. Causal effect occurs when the variation in the independent variable leads to or results in variation in the dependent variable (Saunders *et al.*, 2009). Zikmund *et al.*, (2013) indicates that because of explanatory design, the researcher can make an educated prediction about the cause-and-effect relationships that will be tested. Ideally, researchers want to know how a change in one event will change another event of interest.

In addition, the study employed panel data regression. Panel regression involves a series of successive observations of the study variables over a period of time (Frees, 2004; Baltagi, 2008). Panel designs can be used to assess the same set of firms at different times, and is a representation of events over a given period of time (Saunders *et al*., 2009; Bhattacherjee, 2012).

Panel design has the potential to offer a much more powerful evidence base, as it enables researchers to control for unobservable organization-specific effects (Baltagi, 2008). Panel analysis represents a marriage of cross-section and time-series analysis, as it is composed of a cross section of subjects observed over time (Frees, 2004). Observing a broad cross section of subjects over time allows us to study dynamic, as well as cross-sectional, aspects of a problem (Frees, 2004).

The study also adopted the use of quantitative research design. This research design was selected for the study since the data collected on the study variables was of financial nature and hence of quantitative nature. This approach is useful for this kind of study where both the cross-sectional and longitudinal characteristics of the units being analyzed constitute an important ingredient of the study (Gujarati, 2004).

3.3 Target Population and Sample

The population of interest in this study includes public listed firms in Nairobi Securities Exchange, Kenya.

Selection Criteria

This study focused on individual listed firms in Nairobi Securities Exchange over the period 2006-2015. The total number of listed firms in Nairobi Securities Exchange at the end of 2015 is 62.

Inclusion Criteria

However, listed firms to be included in the study were those that were trading on the Nairobi Securities Exchange during the period 2006-2015.

Exclusion Criteria

Therefore, the study did not consider firms that were listed after 2006 and those that were suspended or delisted during the period 2006-2015.

Sample of Study

This means that 40 firms were studied as the other firms commenced operations during the period of study or were delisted at one point during the period of study. This translated to ten firm years and a total of 400 firm-year observations. Appendix 5 provides a list of the firms studied.

Time period

The study period is from 2006 to 2015. The literature puts forward the argument that studying financial distress requires long data series. In addition, the period must also be characterized by different macroeconomic conditions and industry shocks (Boubaker *et al.*, 2016). Consistent with this view, the study period contains long periods and industry shocks which is mainly characterized by the global financial crisis.

3.4 Data Types and Sources

This study utilized secondary data which was extracted from a number of secondary sources which include the companies' year-end financial reports in Compustat-Capital IQ and annual reports lodged in the Capital Markets Authority (CMA) library. The main data source used to obtain firms' financial information is the Global Compustat database. Global Compustat is an international financial database, provided by Wharton Research Data Services (website: https://wrds-web.wharton.upenn.edu/wrds/). Global Compustat has a wide coverage on countries and this greatly facilitates studies on the international market (Tian and Yu, 2017).

To formally construct the study's database, each firm's annual financial information is collected. The data on strategic conformity was drawn from end year financial reports in Global Compustat. The data on stock liquidity was drawn from trading volume data reported in Global Compustat. All the data on control variables was collected from year-end financial reports in Global Compustat. The data on the dependent variable was extracted from the companies' year-end financial reports in Global Compustat and the Capital Markets Authority and calculated based on the Altman Z-score formula.

3.4.1 Data Collection Procedure

The data was panel in nature as it was collected for the firms repeatedly for ten years. This is in line with other studies by Cheng and Shiu (2007) and Chen (2004) which made use of panel data. Shumway (2001) advocates that single period models are inconsistent due to the fact that a firm's risk for distress changes over time and its health is a function of its latest financial data.

Collection of data involved visiting the Global Compustat website of the global listed firms and the information for the specific study components for Kenyan listed firms was extracted and downloaded in an Excel format for firms listed for the period 2006-2015. The extraction of data was done in three broad stages. The first stage involved choosing the date range, in this case, the date range was from 2006-01 to 2015-12 followed by the company codes in this case is SIC for Kenya listed companies. The second stage involved selecting the items/variable types to be included in the search. This were available on a drop-down list of which variables needed in this study were marked followed by selecting the country of interest from the global drop down list of countries, in this case Kenya was selected. The third stage involved selecting the query output which involved selecting the desired format of the output file when the data request is finished processing. The output format selected for this study is the excel spreadsheet (*.xlsx) which was

followed by selecting the “search the entire database” option then followed by selecting the submit query button to process the data queried which was then availed in the excel format once the data processing is done followed loading of the control variables, then loading of the controls and independent variables in a hierarchical regression analysis to determine the direct effects. The third stage involved loading the control variables, the independent variable and the moderator variable and lastly the introduction of the interaction variables one at a time to test moderated effect.Detailed financial data was extracted from the Global Compustat annual industrial file and the Center for Research in Security turnover file. All firms represented on the Global Compustat tapes were first ranked in descending order from 2006-2015. Firms that did not have at least ten years of data for the period 2006-2015 were then eliminated. The 40 firms that remained on the list provided data for the study, making 400 firm-year observations.

For those firms whose reports did not provide adequate information, the same information was collected from the firm’s website and from annual reports lodged in the Capital Markets Authority (CMA) library. In order to verify the authenticity of the collected data, the same was cross-checked by visiting the websites of the listed companies and downloading the published financial statements for the 10-year period studied. There were no differences noted and the data was then uploaded and coded in Excel format and various calculations done to get strategic conformity measure, the interactions and z-score data for analysis.

3.5 Measurement of Variables

The study adopted financial distress as the dependent variable. Nonproduction overhead, financial leverage, inventory levels and plant and equipment newness constituted the explanatory variables for the study. Stock liquidity was looked into as the moderating variable. In addition, the

study controlled for firm size, firm age and industry. This section provides details of how each of the study variables were measured and operationalized.

3.5.1 Independent Variables

Nonproduction overhead was measured by selling, general and administrative costs divided by sales revenue for firm *i* in year *t*. This measure is more relevant since it captures not only compensation to the senior managers, but also compensation to their staff (Capozza & Seguin, 1998). Nonproduction overhead has been viewed in strategy and finance literature as the proportion of the costs of business operations represented by selling, general and administrative costs which captures compensation to the senior managers and their staff (Capozza & Seguin, 1998; Chen *et al*., 2012). Other studies have also used a similar approach to measure non-production overhead (Singh & Davidson, 2003; Anderson *et al*., 2007; Li *et al*., 2008; Chen *et al*., 2012; Siregar *et al*., 2015). Strategic conformity measure for Nonproduction overhead was constructed in three steps following Geletkanycz and Hambrick (1997). First, Nonproduction overhead variable for all firms in the industry was standardized by industry mean; next the absolute difference between a firm's score on the variable and the average score for all firms in the industry was calculated and multiplied by minus one to bring the measure in line with conformity (Geletkanycz & Hambrick, 1997).

Financial leverage was measured by total liabilities divided by total assets for firm *i* in year *t*. Financial leverage has been associated to the extent of liabilities as compared to total assets in a firm (Das *et al*., 2009; Munoz, 2013; Kim & Partington, 2014). Other studies have used a similar approach to measure financial leverage (Munoz, 2013; Kim & Partington, 2014) Strategic conformity measure for financial leverage was constructed in three steps following Geletkanycz and Hambrick (1997). First, financial leverage variable for all firms in the industry was

standardized by industry mean; next the absolute difference between a firm's score on the variable and the average score for all firms in the industry was calculated and multiplied by minus one to bring the measure in line with conformity (Geletkanycz & Hambrick, 1997).

Inventory levels indicate production cycle time and working capital management (Maccini & Pagan, 2008; Ridge *et al*., 2014). Thus following studies by Geletkanycz and Hambrick (1997) and Ridge *et al.,* (2014) inventory levels was measured by inventories divided by sales for firm *i* in year *t*. Strategic conformity measure for inventory levels was constructed in three steps following Geletkanycz and Hambrick (1997). First, inventory levels variable for all firms in the industry was standardized by industry mean; next the absolute difference between a firm's score on the variable and the average score for all firms in the industry was calculated and multiplied by minus one to bring the measure in line with conformity (Geletkanycz & Hambrick, 1997).

Plant and equipment newness is defined and measured as net plant and equipment/gross plant and equipment (Finkelstein and Hambrick, 1990) for firm *i* in year *t*. Several studies have used this dimension to measure strategic conformity (Geletkanycz & Hambrick, 1997; Ridge *et al*., 2014). Strategic conformity measure for plant and equipment newness was constructed in three steps following Geletkanycz and Hambrick (1997). First, plant and equipment variable for all firms in the industry was standardized by industry mean; next the absolute difference between a firm's score on the variable and the average score for all firms in the industry was calculated and multiplied by minus one to bring the measure in line with conformity (Geletkanycz & Hambrick, 1997).

3.5.2 Dependent Variable

To assess the impact of strategic conformity on financial distress, the Altman Z-score is used as a proxy of the converse for the prediction of financial distress. Financial distress was measured using the Z-score for emerging markets for firm *i* in year *t*, developed and validated by Altman (1968) and reviewed by Altman and Hotchkiss (2006). The original model has been enhanced to make it applicable for private companies, non-manufacturers and emerging markets (Altman & Hotchkiss, 2006). The Z-score is examined in order to make predictions about firms' financial distress (Altman, 2004; Altman & Hotchkiss, 2006).

The study considers the financial distress predictor models to be relevant for the study. This is because the target population consists of entities that are still in operation and are therefore considered to be in one level of financial distress or another as encapsulated under the multi-staged hypothesis of firm failure. This choice is based on the finding that the model is able to provide superior accuracy in predicting financial distress (Zouari & Abid, 2000). Further, it has been empirically found to be effective in predicting financial distress among listed firms in Kenya (Sitati & Odipo, 2011). The Z-score model is of the form:

$Z = 6.56\ (X1) + 3.26\ (X2) + 6.72\ (X3) + 1.05\ (X4)$

Zones of discriminations:

$Z > 2.6$ – Non-distressed (Safe) zone

$1.1 < Z < 2.6$ - Gray zone (Potential distress)

$Z < 1.1$ – Distress zone

Where: Z is the overall index measuring financial distress.

The components of the Altman's Z-Score model, X1, X2, X3, X4 and X5 are highlighted below;

Where: X1 = Working Capital/Total Assets. Working capital is defined as the difference between current assets and current liabilities. This is a measure of the net liquid assets of the firm relative to the total capitalization. When a firm is experiencing consistent operating losses, it will have shrinking current assets in relation to total assets. This explicitly considers liquidity and size dimensions (Altman and Hotchkiss, 2006; Altman *et al.*, 2014).

Where: X2 = Retained Earnings/Total Assets. The retained earnings/total assets refer to the earned surplus of a firm or the total amount of reinvested earnings of a firm over its entire life. This considers implicitly the age of the firm due to its cumulative nature and the use of leverage in the firm's financing of its asset growth (Altman *et al*., 2014). Those firms with high retained earnings relative to total assets have financed their assets through retention of profits and have not utilized as much debt. This highlights the use of either internally generated funds for growth or debt. This is a measure of cumulative profitability over time (Altman & Hotchkiss, 2006).

Where: X3 = Earnings before Interest and Taxes/Total Assets. The earnings before interest and taxes/total assets is a measure of the true productivity or profitability of the assets of a firm. It reflects the earning power of the assets that determines the value of assets. It is a measure of the productivity of the firm's assets, independent of any tax or leverage factors. Since a firm's ultimate existence is based on the earning power of its assets, this appears to be particularly appropriate (Altman & Hotchkiss, 2006).

Where: X4 = Book Value of Equity/Total Liabilities. The book value equity/ total liabilities shows how much the assets of a firm can decline in value (measured by book value of equity)

before the liabilities exceed the assets and the firm becomes insolvent (Altman, 2000; Altman *et al.*, 2014).

Altman postulated that companies with a Z-Score <1.10 were likely to experience distress, companies with a Z-score of 1.10 to 2.6 were in a grey zone in which distress may be impending and companies with a Z-Score of >2.60 were likely to be financially sound (Altman & Hotchkiss, 2006). The determined Z-scores are then compared to Altman's predetermined cutoffs.

In spite of the vast research on financial distress and bankruptcy, the original Z-Score model introduced by Altman (1968) has been the dominant model applied over time. Thus, although the Z-Score model has been in existence for more than 45 years, it is still used as a main or supporting tool for financial distress or bankruptcy analysis, both in research and practice (Yi, 2012; Altman *et al*., 2014). Several studies confirm the usefulness of the Z-score in predicting financial distress, which also helps investors, creditors and administrating authority to recognize the company's financial distress status (Wruck, 1990; Daily & Dalton, 1994; Altman, 2000; Bandyopadhyay, 2006; Gang & Xiaomao, 2009; Huang *et al*., 2012; Yi, 2012; Tinoco & Wilson, 2013; Shahwan, 2015; Gameel & El-Geziry, 2016).

3.5.3 Control Variables

Firm size represents how large or small the studied firm is (Babalola, 2013). Firm size was measured by taking the natural log of total value of firm assets (Back, 2005; Boyd *et al*., 2005; Agarwal & Taffler, 2008; Brad *et al*., 2015; Doumpos *et al.*, 2015) for firm *i* in year *t*.

Industry differences refer to attributes common to an industry (Mauri & Michael, 1998; Lieu & Ching-Wen, 2006; Short *et al*., 2007). Industry was measured as a dummy variable by assigning

"1" to firms in the manufacturing sector and "0" to the rest. This is consistent with the approach used by Barroso *et al.*, (2011) and Plambeck and Weber (2010).

Firm age is defined and measured as the natural log of the number of years since the firm was first listed (Shumway, 2001; Hovakimian *et al*., 2011) for firm *i* in year *t*. Shumway (2001) argues that the most meaningful measure of firm age is the number of years since listing. Firm age is therefore the number of years elapsed since the year of the company's listing plus one. Consistent with studies by Shumway (2001) and Hovakimian *et al*., 2011 one year is added to avoid ages of zero for firm *i* in year *t.*

3.5.4 Moderating Variable

Stock liquidity was measured using trading volume that is number of shares traded in the whole year divided by number of shares outstanding at the end of the year (Amihud & Mendelson, 2012; Wu & Liu, 2011; Munoz, 2013) for firm *i* in year *t*. Stock liquidity is defined as the firm's fundamental value reflected by stock prices and trading volume (Subrahmanyam & Titman, 2001; Edmans *et al*., 2013).

3.5.5 Operationalization of the Research Variables

The study has four independent variables, a moderator variable and one dependent variable as shown in table 2.1 below.

Table 3.1 Operationalization of the Research Variables

Variable Type	Variable	Measurement	Notation	References
Dependent	Financial distress	Altman's Z-score model; Z = 6.56 (*X*1) + 3.26 (*X*2) + 6.72 (*X*3) + 1.05 (*X*4)	FD	Altman and Hotchkiss (2006).
Independent Variables	Nonproduction overhead	Selling, general and administrative costs divided by sales revenue for firm *i* in year *t*.	NPO	Anderson *et al*. (2007), Li *et al*. (2008), Chen *et al*. (2012) and Siregar *et al*. (2015).
	Financial leverage	Total liabilities divided by total assets for firm *i* in year *t*.	FL	Munoz (2013), Kim and Partington (2014).
	Inventory levels	Inventories divided by sales for firm *i* in year *t*.	IL	Maccini and Pagan (2008), Ridge *et al*. (2014).
	Plant and Equipment Newness	Net plant and equipment divided by gross plant and equipment for firm *i* in year *t*.	PEN	Finkelstein and Hambrick (1990), Geletkanycz and Hambrick (1997), Ridge *et al*. (2014).
Strategic conformity measure for each independent variable		First, the independent variable for all firms in the industry was standardized by industry mean; next the absolute difference between a firm's score on the variable and the average score for all firms in the industry was calculated and multiplied by minus one to bring the measure in line with conformity		Geletkanycz and Hambrick (1997), Ridge *et al*. (2014).
Moderating variable	Stock liquidity	Number of shares traded in the whole year divided by number of shares outstanding at the end of the year for firm *i* in year *t*.	SL	Amihud and Mendelson (2012), Wu and Liu, (2011), Munoz (2013).

Source; Researcher, 2016.

3.6 Data Analysis and Presentation

The data collected in the study was quantitative data in panel form. The entities in the panel data were the listed firms in Nairobi Securities Exchange while the years were the ten years under consideration in the study (2006-2015). The research employed both descriptive and inferential statistics. Data was entered into EViews version 7 for analysis. The main purpose of descriptive statistics was to reduce and summarize data and describe items and constructs. Inferential statistics was concerned with making predictions or inferences about the population from observations and analyses of a sample. It allowed generalization beyond the sample data to a larger population.

3.6.1 Descriptive Statistics

Descriptive statistics enable you to describe and compare variables numerically (Saunders *et al.*, 2009). According to Zikmund *et al.* (2013) descriptive statistics involves transformation of raw data into a form that would be easy to understand. The study thus used descriptive statistics to summarize and describe the population parameters by the use of mean and standard deviation and presented using tables. Descriptive statistics was analysed through the use of Pearson correlations, frequency distributions, mean, skewness and kurtosis and standard deviation and presented using tables. The descriptive statistics analyzed provided a basis for inferential analysis.

3.6.2 Correlation Analysis

This was done to establish whether there was an association between the study variables. According to Saunders *et al*. (2009) a correlation coefficient enables you to quantify the strength of the linear relationship between two variables. This coefficient can take on any value between -1 and +1. A value of +1 represents a perfect positive correlation which means that the two

variables are precisely related and that, as values of one variable increase, values of the other variable will increase. By contrast, a value of -1 represents a perfect negative correlation which means that the two variables are precisely related; however, as the values of one variable increase those of the other decrease. For data collected from a sample, probability of your correlation coefficient having occurred by chance alone needs to be evaluated. Most analysis software calculates this probability automatically. As outlined earlier, if this probability is very low (usually less than 0.05) then it is considered statistically significant. If the probability is greater than 0.05 then your relationship is not statistically significant (Saunders *et al.*, 2009). Therefore, to test the correlation of independent and dependent variables, correlation analysis was done using Pearson's Product Moment Correlation Coefficient. Hence, the direction and strength of the relationship between the independent variables (nonproduction overhead, financial leverage, inventory levels and plant and equipment newness) and the dependent variable (financial distress) was examined using Pearson's product moment correlation analysis. Correlation analysis was also conducted to establish the relationship between strategic conformity dimensions (nonproduction overhead, financial leverage, inventory levels and plant and equipment newness), stock liquidity and the prediction of financial distress.

3.6.3 Regression Analysis

Multiple regression analysis was performed to show the amount of variations explained by the independent variable on the dependent variable. According to Hair *et al.* (2010) the coefficient of determination, R^2, can be used as a measure of how good a predictor your regression equation is likely to be. The coefficient of multiple determination (R^2) represents the proportion of the variability in the dependent variable that can be explained by your multiple regression equation. Therefore, hypotheses' testing was conducted using hierarchical moderated regression analysis.

3.6.4 Moderated Regression

Baron and Kenny (1986) defined a moderator as a variable that affects the direction and/or strength of the relationship between an independent variable and a dependent variable. Moderation implies that causal relationship between two variables changes as a function of the moderator variable. This indicates that the statistical test of moderation must measure the differential effect of the independent variable on the dependent variable as a function of the moderator. A moderator effect could increase the effect of the independent variable on the dependent variable called enhancing moderator, decrease the effect of the independent variable on the dependent variable called buffering moderator or reverse the effect of the independent variable on the dependent variable called antagonistic moderator (Aiken & West, 1991).

Moderation is said to exist if the following three conditions are fulfilled. First, the amount of variance accounted for with the interaction should be significantly more than the variance accounted for without the interaction. Secondly, the coefficient for the interaction term should be different from zero. Lastly, the overall models with and without the interaction should be significant (Hayes, 2012).

Hierarchical moderated linear regression analysis was used to test the moderator effects. This is a regression method in which variable are entered one by one. At each stage, the R^2 that is calculated shows change in variance accounted for in the dependent variable with the addition of a new predictor (Little *et al*., 2012). Hierarchical regression method was chosen as it would show how the prediction of the independent variables and the moderator variable and interactions of the independent and moderator variable improves prediction.

Therefore, to evaluate whether stock liquidity had a moderating effect, regression analysis was done in four broad stages. The first stage involved loading of the control variables, then loading of the controls and independent variables in a hierarchical regression analysis to determine the direct effects. The third stage involved loading the control variables, the independent variable and the moderator variable and lastly the introduction of the interaction variables one at a time to test moderated effect. In conducting moderated regression, the independent and interaction variable was multiplied together to yield a product term that represented the interaction effect (Baron & Kenny, 1986; Cohen *et al.*, 2003; Jaccard & Turrisi, 2003; Saunders *et al.*, 2009; Little *et al*., 2012). If the cross interaction term has significant regression parameter then moderating variable is identified as having a significant effect on the nature of the relationship between the predictor variable and the criterion variable. To verify the results obtained through standardized establishment of the interaction effect, the moderator is introduced as a separate step in a hierarchical regression. The addition of the interaction term should be statistically significant in terms of the increment in variance explained (R^2) above and beyond a model without the product (Cohen *et al.*, 2003).

An additive transformation was performed on the predictor variables prior to the formation of the product term referred to as mean-centering. The values of the independent and moderator variables were mean-centered by standardizing the values into scores (Cohen *et al.,* 2003). The transformation for a given predictor variable involves subtracting the variable mean from each individual raw-score scaling to a deviation-score. If the first-order variables are mean-centered, the resulting product term will be minimally correlated or uncorrelated with the first-order variables (Cronbach, 1987; Jaccard & Turrisi, 2003; Little *et al*., 2012). Standardizing the variables enabled the study variables to avoid high multi-collinearity with the interaction term

(Cohen *et al.,* 2003). This reduction in collinearity reduces or eliminates the associated instability of regression estimates and standard errors when collinearity is not removed commonly known as the 'bouncing beta weight' problem (Cohen *et al*., 2003; Jaccard & Turrisi, 2003; Little *et al*., 2012). Moderation is confirmed with the interaction term being significant and supported when the addition of the interaction term provides a significant increment in variance (R^2) beyond the variance accounted for by the main effects (Cohen *et al*., 2003).

3.7 Model Specification

Model specification involves coming up with a combination of study variables that represents the empirical relationship between the dependent, independent and moderating variables. This was done in line with the conceptual framework illustrated under section 2.9. The study employed panel regression models to analyze secondary data as the secondary data collected exhibited both time series and cross-sectional dimensions. Since the study sought to determine both the main effects of strategic conformity on financial distress as well as the moderating effects of stock liquidity on this relationship, seven panel regression equations were specified. The study used hierarchical regression models to test the direct effects of strategic conformity dimensions on financial distress and the moderating effect of stock liquidity on this relationship. The investigated panel regression models are as follows:

$$FD_{it} = \beta_{0it} + \beta_{1it} Size_{it} + \beta_{2it} AGE_{it} + \beta_{3it} IND_{it} + \varepsilon_{it} \text{.....Model 1}$$

$$FD_{it} = \beta_{0\,it} + \beta_{1it} Size_{it} + \beta_{2it} AGE_{it} + \beta_{3it} IND_{it+} \beta_{4it} NPO_{it} + \alpha\, \beta_{5it} LEV_{it} + \beta_{6it} INVL_{it} + \beta_{7it} PE_{it} + \varepsilon_{it}$$

$$\text{.....Model 2}$$

$$FD_{it} = \beta_{0it} + \beta_{1it} Size_{it} + \beta_{2it} AGE_{it} + \beta_{3it} IND_{it+} \beta_{4it} NPO_{it} + \beta_{5it} LEV_{it} + \beta_{6it} INVL_{it} + \beta_{7it} PE_{it} + \beta_{8} STLi_{t} + \varepsilon_{it}$$

$$\text{.....Model 3}$$

$FD_{it} = \beta_{0it} + \beta_{1it}Size_{it} + \beta_{2it}AGE_{it} + \beta_{3it}IND_{it} + \beta_{4it}NPO_{it} + \beta_{5it}LEV_{it} + \beta_{6it}INVL_{it} + \beta_{7it}PE_{it} + \beta_{8it}STL_{it} + \beta_{9it}NPOC_{it}*STL_{it} + \varepsilon_{it}$…… *Model 4*

$FD_{it} = \beta_{0it} + \beta_{1it}Size_{it} + \beta_{2it}AGE_{it} + \beta_{3it}IND_{it} + \beta_{4it}NPO_{it} + \beta_{5it}LEV_{it} + \beta_{6it}INVL_{it} + \beta_{7it}PE_{it} + \beta_{8it}STL_{it} + \beta_{9it}NPOit*STL_{it} + \beta_{10it}LEV_{it}*STL_{it} + \varepsilon_{it}$…….*Model 5*

$FD_{it} = \beta_{0it} + \beta_{1it}Size_{it} + \beta_{2it}AGE_{it} + \beta_{3it}IND_{it} + \beta_{4it}NPO_{it} + \beta_{5it}LEV_{it} + \beta_{6it}INVL_{it} + \beta_{7it}PE_{it} + \beta_{8it}STL_{it} + \beta_{9it}NPO_{it}*STL_{it} + \beta_{10it}LEV_{it}*STL_{it} + \beta_{11it}INVL_{it}*STL_{it} + \varepsilon_{it}$…….. *Model 6*

$FD_{it} = \beta_{0it} + \beta_{1it}Size_{it} + \beta_{2it}AGE_{it} + \beta_{3it}IND_{it} + \beta_{4it}NPO_{it} + \beta_{5it}LEV_{it} + \beta_{6it}INVL_{it} + \beta_{7it}PE_{it} + \beta_{8it}STL_{it} + \beta_{9it}NPO_{it}*STL_{it} + \beta_{10it}LEV_{it}*STL_{it} + \beta_{11it}INVL_{it}*STL_{it} + \beta_{12it}PE_{it}*STL_{it} + \varepsilon_{it}$

…….. *Model 7*

FD_{it} = Financial distress, measured by Z-score for firm i in year t.

NPO_{it} = Nonproduction overhead measured by selling, general and administrative costs divided by sales revenue for firm i in year t.

LEV_{it} =Financial leverage, measured by total liabilities divided by total assets for firm i in year t.

$INVL_{it}$ =Inventory levels, measured as inventories divided by sales for firm i in year t.

PE_{it}= Plant and equipment newness measured by net plant and equipment divided by gross plant and equipment for firm i in year t.

STL_{it}= Stock liquidity, measured by the number of shares traded in the whole year divided by number of shares outstanding at the end of the year for firm i in year t.

$Size_{it}$ = Firm size measured by natural log of total value of firm assets for firm i in year t.

AGE_{it} = Age of the firm, measured by the natural log of the number of years since the firm first appeared in NSE for firm i in year t.

IND_{it}= Industry dummy, whereby each listed company for the study was classified into a specific industry as manufacturing or non-manufacturing.

β_0 = Constant

β_1 - β_{12}= Coefficients of Regression

ε_{it} = Error terms

i=Firm 1,…., 40

t=Time in years from 2006 to 2015

3.8 Underlying Assumptions of the Regression Model

Regression models rely upon certain assumptions about the variables used in the analysis. When these assumptions are not met the results may not be trustworthy and may lead to biased parameter estimates. These included the assumption that the errors have normal distributions. Non-normally distributed variables can distort relationships and significance tests (Chatterjee & Hadi, 2012; Osborne & Waters, 2002).

The next assumption is related to homoscedasticity also referred to as homogeneity of variance between variables. Homoscedasticity means that the variance of error terms is the same across all levels of the independent variable (Osborne & Waters, 2002). Homoscedasticity refers to the assumption that the dependent variables exhibit equal levels of variance across the range of independent variables. Homoscedasticity is desirable because the variance of the dependent variables being explained in the dependence relationships should not be concentrated in only a limited range of the independent variables values. The dependent variable has many different values at each value of the independent variable, and for this to be captured the variance of values of the dependent variable must be relatively equal at each value of the independent variable. If this variance is unequal across values of the independent variable, the relationship is

said to be heteroscedastic (Hair *et al.,* 2006). When the assumption does not hold, it leads to the heteroscedasticity or heterogeneity problem (Chatterjee & Hadi, 2012).

Assumption of independence of the error terms implies that each case or observation should be independent of one another. The regression model assumes that the errors from the prediction line are independent and there is absence of autocorrelation (Chatterjee & Hadi, 2012; Saunders *et al.,* 2009).

Assumption of a linear relationship between the independent and dependent variable(s). The model is assumed to be linear in the regression parameters (Chatterjee & Hadi, 2012). Linearity refers to the degree to which the change in the dependent variable is related to the change in the independent variables. Standard multiple regression can only accurately estimate the relationship between dependent and independent variables if the relationships are linear in nature (Saunders *et al.,* 2009; Cohen *et al.,* 2003). Two things may influence the linearity. First, individual cases with extreme values on one or more variables (outliers) may violate the assumption of linearity. It is, therefore, important to identify these outliers and, if appropriate, exclude them from the regression analysis. Second, the values for one or more variables may violate the assumption of linearity. For these variables the data values may need to be transformed (Saunders *et al.*, 2009; Cohen *et al.,* 2003).

The predictor variables are assumed to be linearly independent of each other, that is, there is absence of multicollinearity. Multicollinearity occurs when two (or more) independent/predictor variables are highly correlated, thus making it difficult to determine the separate effects of individual variables (Chatterjee & Hadi, 2012; Saunders *et al.,* 2009). It is also assumed that the variables are stationary and do not possess a unit root (Baltagi, 2010).

3.9 Tests for Regression Assumptions

3.9.1 Testing for Normal Distribution of Variables

Several statistical tests were performed before data was analyzed. Prior to using statistical tests, it is necessary to establish the distribution of values for variables containing numerical data. Goodness of fit test for normal distribution was done using the Jarque-Bera (JB) test proposed by Brys *et al*., (2004) and the normal probability plots recommended by Hair *et al*., (2010) to test for normality. In the normal probability plots the standardized plots are compared with the normal distribution which makes a straight diagonal line and the plotted residuals are compared with the diagonal. If a distribution is normal, the residual line closely follows the diagonal (Hair *et al.,* 2010).

Dealing with Non-normality

1. Data may appear not normal due to insufficient data. This can be overcome by collecting more data.
2. Skewed distribution in a dataset can result due to extreme values in a dataset. This may be due to outliers, measurement errors and data entry errors. In this case, normality can be achieved by cleaning the data.
3. The data distribution will skew to the left or right if the dataset has many values close to zero. In this case, transformation may help make the data normal such as transforming the data to their logarithmic values (Buthman, 2010).

3.9.2 Test for Homoscedasticity

Homoscedasticity refers to the assumption that the dependent variable exhibits similar amounts of variance across the range of values for independent variables. The statistical tests for equal variance dispersion assess the equality of variance within variables (Hair *et al*., 2006). The White test is used to assess whether the variances of a single variable are equal across any number of variables. White test tests the hypothesis that the variances of error terms are not equal. Therefore, if White test is significant at p is greater than 0.05, then it is concluded that the null hypothesis is incorrect and that the variances of error terms are the same, and so the assumption of unequal variance is violated. Regression errors whose variances are not equal across observations are said to be heteroscedastic (Greene, 2003).

How to Deal with Heteroscedasticity

When the assumption of homoscedasticity does not hold, the problem is called heterogeneity or heteroscedasticity. In this case, transforming the data may reduce the problem of heteroscedasticity.

3.9.3 Test for Linearity

Linearity refers to the degree to which the change in the dependent variable is related to the change in the independent variables. Linearity can easily be examined through residual plots. The residual plots reflect the unexplained portion of the dependent variable; thus any nonlinear portion of the relationship will show up in the residual plot. If a nonlinear relationship is detected, data values may need to be transformed to achieve linearity (Chaterjee & Hadi, 2012; Saunders *et al.,* 2009). The parameter linearity assumption was tested by plotting residuals against predicted values of the response variable, whereby the relationship should take a linear form for this condition to be met (Osborne & Elaine, 2002).

How to deal with collinearity

If the assumption of linearity is violated, the problem is referred to as the collinearity problem. In case a non-linear relationship or collinearity is detected, data values will need to be transformed to achieve linearity.

3.9.4 Testing for Independence of Errors

The errors in a regression model are assumed to be independent or not serially correlated across different observations. This is important for time series data where data points are observed in some sort of meaningful sequence (Chatterjee & Hadi, 2012). A common violation of this assumption occurs when each error term is related to its immediate predecessor. Even though the estimates of regression coefficients remain unbiased when this assumption is breached, the coefficients are rendered inefficient and estimates of standard errors and significance levels are biased (Chatterjee & Hadi, 2012). The Durbin-Watson statistic was used to test whether the value of the dependent variable at time *t* was related to its value at the previous time period, commonly referred to as t − 1. This situation, known as autocorrelation or serial correlation, is important as it means that the results of the regression analysis are less likely to be reliable. The Durbin-Watson statistic ranges in value from zero to four. A value closer to 2 indicates no autocorrelation whereas a value towards zero indicates positive autocorrelation. Conversely, a value towards four indicates negative autocorrelation (Anderson, 2003; Hair *et al*., 2006; Saunders *et al.*, 2009). The D statistic normally tests the null hypothesis that there are no residual correlation (H0: $\rho=0$) against the alternative hypothesis that positive residual correlation exist (Ha: $\rho > 0$).

How to Deal with Autocorrelation

In case the errors are not independent thus presence of autocorrelation, the variables can be lagged to reduce the problem of autocorrelation.

3.9.5 Testing for Multicollinearity

Multi-collinearity refers to the presence of correlations between predictor variables. In severe cases of perfect correlations between predictor variables, multi-collinearity creates a shared variance between variables thus decreases the ability to predict the dependent measure as well as ascertain the relative roles of each independent variable (William *et al.,* 2013). The diagnostic is to examine the correlation matrix for the independent variables. The rule of thumb is that the presence of high correlations (generally 0.90 and above) indicates substantial collinearity (Hair *et al.* 2006). Collinearity may also be due to the combined effect of two or more other independent variables. Multicollinearity was assessed by means of tolerance and Variance Inflation Factor (VIF). Hair *et al.*, (2006) recommends that a very small tolerance value (0.10 or below) or a large VIF value (10 or above) indicates high collinearity.

3.9.6 Unit Root Test

A unit root test tests whether a time series variable is non-stationary and possesses a unit root. Stationarity of data is necessary in panel and time series data analysis as it enhances forecasting and description of future behavior based on the analysis statistics. A stationary time series is one whose mean and variance are constant over time and the value of covariance between the two time periods depends only on the distance or gap or lag between the two time periods and not the actual time at which covariance is computed (Gujarati, 2004). In other words, the mean, variance and auto-covariance (at various lags) for a stationary time series are time invariant and the time series is mean reverting. A characteristic of stationary time series data is that it does not have unit roots and therefore, an initial step in panel data analysis is to conduct unit root tests to check for

the stationarity of the data (Gujarati, 2004). Bhargava *et al.* (1982) proposed a test for random walk residuals in a dynamic model with fixed effects. They suggested a modified Durbin–Watson statistic based on fixed effects residuals and two other test statistics based on differenced ordinary least squares residuals. In typical micro panels with $N \to \infty$, they recommended their modified DW statistic. Boumahdi and Thomas (1991) proposed a generalization of the Dickey–Fuller test for unit roots in panel data to assess the efficiency of the French capital market using 140 French stock prices over the period January 1973 to February 1986. Breitung and Meyer (1994) applied various modified Dickey–Fuller test statistics to test for unit roots in a panel of contracted wages negotiated at the firm and industry level for Western Germany over the period 1972–87. Quah (1994) suggested a test for unit root in a panel data model without fixed effects where both *N* and *T* go to infinity at the same rate such that *N/T* is constant. Levin *et al.* (2002), thereafter, generalized this model to allow for fixed effects, individual deterministic trends and heterogeneous serially correlated errors. They argued that individual unit root tests have limited power against alternative hypotheses with highly persistent deviations from equilibrium.

Therefore, this study incorporated the Levin-Lin test which tests the null hypothesis that the series contains a unit root (or H0: $\alpha = 0$) vs. the alternative hypothesis, the series is stationary. If the null hypothesis is rejected we simply conclude that the variable does not contain a unit root or the panels are stationary (or Ha: $\alpha > 0$) (Levin *et al.*, 2002). Non-stationarity can be an important determinant of the properties of a series. Also, if two series are nonstationary, we may experience the problem of spurious regression. A spurious regression is one in which the time-series variables are non-stationary and independent. This occurs when we regress one nonstationary variable on a completely unrelated (independent) non-stationary variable, but yield a reasonably high value of R^2, apparently indicating that the model fits well (Baltagi *et al.*, 2010).

Where a series is found to be non-stationary, it is differenced until it becomes stationary (Gujrati, 2004; 2003 & Baltagi, 2010).

3.9.7 Testing for Fixed or Random Effects

According to Greene (2003) if individual effects are unobserved but correlated with the regressors (x_{it}), then a fixed effect model is estimated. The fixed effects approach takes the individual effects to be a specific constant term indicating that the term does not vary over time in the regression model. On the other hand, if the unobserved individual effects can be assumed to be uncorrelated with the variables, then a random model is formulated. The random effects approach specifies that the individual effects is a random element, similar to disturbances (ε_{it}) except that for each group, there is but a single draw that enters the regression identically in each period. The random effects model can be viewed as a regression model with a constant term that varies randomly across individuals. The fixed effects model allows the unobserved individual effects to be correlated with the included variables. If the individual effects are strictly uncorrelated with the regressors, then it might be appropriate to model the individual specific constant terms as randomly distributed across units (Greene, 2003).

To decide between fixed or random effects, Hausman test was run where the null hypothesis is that the preferred model is random effects vs. the alternative model being fixed effects (Green, 2003). This was to test whether the unique errors (ei) are correlated with the regressors, the null hypothesis is that the unique errors are uncorrelated with the regressors. If the difference in coefficients is not significant ($p \geq 0.05$), then the null hypothesis is rejected and it is concluded that the unique errors are correlated with the regressors and thus the fixed effects regression model will be used and vice versa (MacManus, 2011). According to Baum (2001) the Hausman specification test tests the null hypothesis that the slope coefficients of the models being

compared do not differ significantly with the fixed effects being used when there are differences in the slope coefficients. Accordingly, the null hypothesis is rejected when Prob.>χ2 is less than the critical p-value and in such a case the fixed effects regression is appropriate.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.0 Introduction

This chapter provides a presentation of the empirical findings of the study and their interpretation. These include sample characteristics, descriptive statistics, diagnostic tests of regression assumptions, correlation analysis and the results of the regression models as well as their interpretations.

4.1 Sample Characteristics

The sample comprised of listed firms in Nairobi Securities Exchange (NSE). Secondary data was collected for a period of ten years from 2006 to 2015. The total number of listed firms in Nairobi Securities Exchange as at the end of 2015 was 62 (NSE 2015-2016). However, listed firms included in the study were those that were trading on the NSE during the period. Therefore, firms that were listed after 2006 and those that were suspended or delisted during the period were excluded from this study. Furthermore, firms were also excluded if the relevant financial information were unavailable either in Compustat-Capital IQ, annual report or on their corporate websites. As such, the final sample comprised of 40 firms which met the criteria making a total of 400 firm-year observations.

According to Hair *et al.* (2006) sample size affects the generalizability of the results by the ratio of observations to independent variables. A general rule is that the ratio should never fall below 10:1, meaning that 10 observations are made for each independent variable in the variate. When this level is reached, the results should be generalizable. However, if a stepwise procedure is

employed, the recommended level increases to 50:1 because this technique selects only the strongest relationships within the data set and tends to become sample-specific (Hair *et al.*, 2006). Hence, the ratio of observations in the study (400) to each independent variable as shown in Table 4.1, was greater than the minimum ratio. Therefore, the requirements for sample size were met. The sample of 400 was very good according to Comfrey and Lee (1992) argument that a sample of 50-100 is considered very poor, 100-200 poor, 300-400 good,400-500 very good and over 1000 is excellent.

Table 4.1: Distribution of Mean and Standard Deviation of the Independent variables

Variables	N	Mean	Std. Deviation
Nonproduction Overhead	400	1.947	0.831
Financial Leverage	400	5.103	0.848
Inventory Levels	400	1.334	0.315
Plant and Equipment Newness	400	5.552	0.428
Valid N	400		

Source: Research Data (2016)

4.2 Descriptive Statistics

The econometrics techniques require transforming the values of real variables into their logarithmic values (Harlow, 2005). Consequently, some of the real variables were transformed into logarithm form as transformation may reduce the problem of heteroscedasticity. This is because transformation compresses the scale in which the variables are measured, therefore reducing a tenfold difference between two values to a two-fold difference (Harlow, 2005). Thus, all real variables except the dummy variable for industry differences were transformed into

logarithmic form for the purpose of this study. The mean, minimum, maximum and standard deviations of the variables of this study are presented in Table 4.2 below.

Table 4.2: Distribution of the Mean and Standard Deviation of the Variables

	N	Mean	Std. Deviation	Min	Max
Financial Distress	400	3.158	1.534	-1.955	5.560
Stock Liquidity	400	0.097	0.064	0.002	0.371
Nonproduction Overhead	400	1.947	0.831	1.060	2.580
Financial Leverage	400	5.103	0.848	4.713	6.052
		1.334	0.315	-1.524	1.760
Inventory Levels	400	5.552	0.428	4.773	6.513
Plant and Equipment Newness	400				

Source: Research Data (2016)

Table 4.2 show the summary statistics for the secondary data observations of the original sample consisting of 40 firms over the period of analysis (2006-2015). The results indicate that during the analysis period, listed firms in Nairobi Securities Exchange had a mean of 5.552 for plant and equipment newness. This implies that listed firms engage in continuous investment of new plant and equipment. However, the corresponding standard deviation of 0.428 shows a low variability of plant and equipment newness among the firms. Financial leverage had a mean of 5.103 and a standard deviation of 0.848. This indicates that firms utilize borrowed money and this trend can be attributed to the fact that commercial bank loan is easier to arrange and acquire (Kodongo *et al.,* 2014). The corresponding high standard deviation of 0.848 supported by the wide range between minimum and maximum observations (04.713 – 6.052) of utilization of financial leverage show significant dispersion on leverage levels among listed firms.

Similarly, during the analysis period, listed firms had a mean financial distress index of 3.158. This depicts a fairly non-distressed status for the firms; signifying that majority of the firms were financially sound in relation to the Altman's distress zones (Z<1.10, distress zone; 1.10<Z<2.60, grey zone; Z>2.60, safe zone). The corresponding standard deviation of 1.534 show a moderate variability of distress levels among the firms. This is further evidenced by the extreme observations of a minimum of -1.955 and maximum of 5.560. The result implies that while some firms may be in severe distress, others are quite financially safe.

The results further showed that the average nonproduction overheads by listed firms during the period of study was 1.947 with a standard deviation of 0.831. The maximum observation was 2.580 while the minimum value was 1.060. The results also demonstrated that inventory levels had a mean of 1.334 with a standard deviation of 0.315. The standard deviation of 31.5% signifies significant variation in inventory levels as evidenced by the maximum observed inventory level of 1.760 and a minimum of -1.524. The results output displayed in Table 4.2 denote that the average proportion of the firms' stock liquidity is o.097 with a standard deviation of 0.064. The observation signifies that during the period of analysis, listed firms engage less in liquid stocks. The results further show a low dispersion on stock liquidity levels as signified by the standard deviation (0.064).

4.3 Statistical Tests of Regression Assumptions

According to Hair *et al.* (2006) the assumptions of regression analysis have to be met to ensure that the results obtained were representative of the sample so as to obtain the best results possible. These consist of normality of errors, linearity, homoscedasticity and independence of errors (William *et al.*, 2013). In addition, panel data requires testing for multi-collinearity and stationarity before it can be subjected to regression analysis (Gujarati, 2004). Violations of

assumptions can lead to biased estimates of interactions, over or under-confident estimates of the precision of regression coefficients, untrustworthy confidence intervals and significance tests (Chatterjee & Hadi, 2012; Cohen *et al.*, 2003). To determine the suitability of the panel data for statistical analysis, various tests were conducted. The tests that aimed at establishing if the panel data fulfilled the cardinal requirements of classical linear regression analysis included. These include: normality test, panel unit root test, multicollinearity test, panel-level heteroscedasticity test as well as serial correlation test. Where violation to these assumptions were detected, appropriate remedies were applied. This section therefore presents the results of various diagnostic tests carried out on the data together with the relevant remedial treatment undertaken to ensure suitability of the data.

4.3.1 Test for Normality of Errors

The assumption of normality is that the data distribution in each item and in all linear combination of items is normally distributed (Hair *et al.,* 2006). To test for normality of error terms Jarque-Bera test was used. According to Brys *et al*., (2004) the JB tests the hypothesis that the distribution of error terms is not significantly different from normal (H0: E (ε) ~N (μ=0, Var. =σ2). In this respect if the significance levels for the Jarque-Bera statistics is greater than 0.05, the data is normal. If it is below 0.05, the data significantly deviates from a normal distribution. The results of the tests are presented in Table 4.3. The results show that the significance levels for the Jarque-Bera statistics were greater than the critical p-value of 0.05 implying that the errors were not different from normal distribution (Tanweeer, 2011). This can also be confirmed from the normal P-P plots in Appendix 3.

Table 4.3: Test Statistics for Model Residual Normality

	***JB* (Prob).**	**Conclusion**

Model	$Z\text{-Score}_{it}$	
Model 1	3. 967 (0.137)	Normal
Model 2	1. 823 (0.401)	Normal
Model 3	1.638 (0.440)	Normal

Source: Research Data (2016)

4.3.2 Homoscedasticity Test for the Variables

Homoscedasticity refers to the assumption that the dependent variables exhibit equal levels of variance across the range of independent variables (Hair *et al.*, 2006). The White's test statistic for unequal variances was used to test for the presence of heteroscedasticity. White test tests the hypothesis that the variances of error terms are different. Therefore, if White test is significant at $p \leq 0.05$, then it is concluded that the null hypothesis is correct and that the variances of error terms are significantly different, and so the assumption of equal variance is violated. The results of White test indicated that chi-squared statistic was 28.755, p value of 0.8438 as shown in Table 4.4. The results of White test were above 0.05 indicating absence of heteroscedasticity. Therefore, the assumption of homoscedasticity of variance is supported in the study.

Table 4.4: White's Test of Homoscedasticity

White's test for Ho: Homoscedasticity Against Ha: Unrestricted Heteroscedasticity	
Chi^2	28.75
Prob > Chi^2	0.8438

Source: Researcher, (2016)

4.3.3 Tests for Linearity

A model relating the response variable to the predictors is assumed to be linear in the regression parameters (Chatterjee & Hadi, 2012). The parameter linearity assumption is often tested by

plotting residuals against predicted values of the response variable (Osborne & Waters, 2002). The test of linearity was necessary in order to check the actual strength of all the relationships. Therefore, the relationship should take a linear form for this condition to be met. As shown in Appendices 2 and 3, the linearity in parameter assumption was met for all models of Z score. The residual plots reflect the unexplained portion of the dependent variable; thus any nonlinear portion of the relationship will show up in the residual plot. If a nonlinear relationship is detected, data values may need to be transformed to achieve linearity (Saunders *et al.*, 2009).

4.3.4 Tests for Independence of Errors

Errors in a regression model are expected to be independent across different observations (Chatterjee & Hadi, 2012; Fox, 1997; Weisberg, 2005). The Durbin–Watson is a formal procedure developed for testing for serial correlation using the least squares residuals (Greene, 2003). The Durbin-Watson test of serial correlations was used to test for independence of error terms. The Durbin-Watson statistic (D) is used to test first order autocorrelations (ρ) with the null hypothesis that there are no residual correlations (H0: $\rho = 0$) against the alternate hypothesis that positive residual correlations (Ha: $\rho > 0$) exist (Lind *et al*., 2015). The error terms are independent when D is close to 2.00 (Sosa-Escudero, 2009; Lind *et al*., 2015). Hair *et al.* (2006) indicated that if values of D are found to be within 1.5-2.5, one may assume that there is no autocorrelation. Values of D closer to zero indicate positive autocorrelation whereas large values of D point to negative autocorrelations, which seldom occurs in practice (Lind *et al*., 2015). The results in Table 4.5 were found to be within the acceptable threshold of values between 1.5-2.5, indicating that the error terms were independent for the regression models of Z-score.

Table 4.5: Test Statistics for Independence of Errors

	Durbin Watson Statistic (D)

Model	Z- Score	Conclusion
Model 1	1.534	Error terms are independent
Model 2	1.698	Error terms are independent
Model 3	1.526	Error terms are independent

Source: Research Data (2016)

4.3.5 Testing for Multi-Collinearity

Multi-Collinearity means that two or more of the explanatory variables in a regression have a strong correlation (Field, 2009). This causes problems in the interpretation of regression results. Variance inflation factor (VIF) and tolerance were used in this study to assess for multi-collinearity in predictor variables. Multi-collinearity can also be tested by calculating the correlation coefficients for the predictor variables. A tolerance of below 0.10 or a VIF greater than 10 or a correlation coefficient above 0.8 is regarded as indicative of serious multi-collinearity problems (Field, 2009). The VIF is one popular measure of multicollinearity (Cohen *et al.*, 2003). Tolerance is equal to the inverse of VIF. According to Gujrati (2004) the closer Tolerance is to zero, the greater the degree of collinearity of that variable with other regressors. On the other hand, the closer Tolerance is to 1, the greater the evidence that the variable is not collinear with other regressors. This study followed the procedure set out by (Gujrati, 2004) that included the use of TOL and VIF. As shown in the Table 4.6, the tolerance statistics were all above 0.10 and VIF values were all below 10 implying that there was no problem of multicollinearity among the predictor variables. The results of the study showed that all variables, including the control variables had VIF values ranging from 1.158 to 6.735 indicating that there was no problem of multicollinearity as shown in Table 4.6

Table 4.6: Collinearity Statistics for Predictor Variables

Predictor Variable	Collinearity Statistics

	Tolerance	VIF
Non Production Overhead	.148	6.735
Financial Leverage	.740	1.351
Inventory Levels	.273	3.665
Plant and Equipment	.209	4.787
Stock Liquidity	.821	1.186

Source: Research data (2016)

4.3.6 Testing for Unit Roots

Before empirical estimations are conducted, the data series were subjected to unit root tests to establish their stationarity conditions. Data series must be primarily tested for stationarity in all econometric studies (Gujrati, 2003; Granger & Newbold, 1974). Where a series is found to be non-stationary at levels, it is differenced until it becomes stationary (Gujrati, 2004; 2003; Baltagi, 2010). Since panel data models were used in this study and the data set had a time dimension unit root existence was investigated by panel unit root tests.

This study conducted unit root test for the variables using the Levin-Lin unit root test. As shown in Table 4.7 the p-values for the Levin-Lin Chi-square statistic were less than theoretical values of 0.05 for non-production overhead, inventory levels, plant and equipment, firm age, firm size, stock liquidity and financial distress. The null hypothesis was rejected implying that the variables do not contain a unit root therefore suitable for modelling and forecasting (Levin *et al.*, 2002). To correct for non-stationarity in financial leverage the first difference of the variables [D (var)] were used in the regression models.

Table 4.7: Panel Unit Root Test Statistics

Series	(Lin- Fisher $\chi 2$),	P-value	Conclusion

Non Production Overhead	-6.351	0.000	Reject H_0
Financial Leverage	2.111	0.983	Do not Reject H_0
Inventory Levels	-34.728	0.000	Reject H_0
Plant and Equipment	-5.249	0.000	Reject H_0
Firm Age	-16.628	0.000	Reject H_0
Firm Size	-7.583	0.000	Reject H_0
Stock Liquidity	-6.659	0.000	Reject H_0
Financial Distress	-3.258	0.001	Reject H_0

Null Hypothesis: Unit root process
Cross sections: 40
Source: Research data (2016)

4.3.7 Testing for Fixed or Random Effects

In this study the random effects model was used in constructing the panel regression models. The decision for using random effects models in this study was based on the Hausman specification test (Wooldridge, 2002; Greene, 2003). According to Gujrat (2004) Hausman specification test should be used to determine between random and fixed effects. Hence, Hausman specification test was used to decide whether fixed or random effects regression models were appropriate for the study. Green (2003) indicates that Hausman specification test the null hypothesis that the individual effects are uncorrelated with the other regressors. Baum (2001) agrees that Hausman specification test tests the null hypothesis that the slope coefficients of the models being compared do not differ significantly with the fixed effects being used when there are differences in the slope coefficients. Accordingly, the null hypothesis is rejected when Prob.>χ2 is less than the critical p-value and in such a case the fixed effects regression is appropriate. Hausman test

results of these three models are presented along with panel regression results are shown in Table 4.8. All the models were run on random effects since the significance levels were greater than the critical value of 0.05.

Table 4.8: Model Specification Test Statistics for Z score

Model	χ2 Statistic	χ2 d.f.	Prob.	Appropriate Model
Model 1	2.548	2	0.846	Random Effects
Model 2	7.643	6	0.657	Random Effects
Model 3	4.314	7	0.997	Random Effects

Source: Research data (2016)

4.4 Correlation Analysis

A bivariate correlation is a measure of strength or degree of linear association between variables. The correlation between the independent variables and the dependent variable is a precursor for regression analysis. Correlation coefficients are used to determine the magnitude and direction of associations. In order to assess the effect of strategic conformity and stock liquidity on financial distress, Pearson's correlation analysis was performed. The correlation among the variables in this study was done and presented in Table 4.9 below.

The results for Pearson correlations on non-production overhead indicated a positive and significant correlation with financial distress (p<0.05). This shows that as non-production overheads go up the chances of firm facing financial distress also rises. The reason could be that when the nonproduction overheads increases it eats up a large portion of profits of the firm which could otherwise be used for investment purposes. Thus, as financial resources get utilized fewer resources are left up for investing hence the firm gets distressed.

The Pearson correlations results on financial leverage was found to have a positive and significant correlation with financial distress ($p<0.01$). This indicates that as financial leverage increases it raises the chances that the firm will face financial distress. The possible reasoning is that an increase in financial leverage is likely to inflict more constraints on the firm's financial resources hence it will be financially distressed.

Inventory levels was found to be positively and significantly correlated with financial distress ($P<0.01$). This finding indicate that during the period of analysis, increasing the level of inventories increases the chances of a firm going into financial distress. The logic behind this argument is that increasing inventories leads to increased capital requirements such as increase in inventory holing costs and more depletion of financial resources. In addition, investment in inventory is viewed as a driver of costs that manifest itself in foregone investment opportunities as a result of tied up capital causing profitability measures such as return on assets to decrease (Cannon, 2008). Shin *et al.*, (2015) show that a lower ratio of inventory to sales for a firm is associated with higher profit margin for the firm.

Plant and equipment newness correlation was found to be negatively and significantly correlated with financial distress ($p<0.01$). This means that when plant and equipment are new the chances of the firm facing financial distress is reduced. The probable reason is that assets determine a firm's ability to capital from outside sources; this is enhanced by the value of plant and equipment. Therefore, it means that lack of collateral makes it costly for firms to obtain funding and is strong evidence of a credit constraints channel.

Stock liquidity was found to be negatively and significantly correlated with financial distress ($p<0.01$). This implies that when stock liquidity is high it reduces the chances of the firm facing

financial distress. The reason behind this is that shareholders' perceptions are influenced by stock liquidity. These perceptions will hence influence investment decisions of stakeholders, which ultimately affect the firm's cash flow. Thus, firms with more liquid stocks are likely to have less financial constraints.

Firm size was found to be negatively and significantly correlated with financial distress ($P<0.01$). This implies that as the size of the firm increases, financial distress is decreased. Therefore, small firms are likely to be in financial distress than large firms. The reason could be that small firms get it difficult to access funding from outside the firm since they have limited assets to form a collateral security compared to large firms. These results were in agreement with those by Babalola (2013) whose study of 80 Nigerian manufacturing listed firms in the Nigerian stocks exchange showed a positive and significant relationship between firm size and financial position. Large firms are less likely to face financial constraints because they have larger resources, have greater credibility thus can get loans and other resources to enable them survive.

Industry was found to have a negative and significant correlation with financial distress ($P<0.05$). This indicates that financial distress of a firm decreases relative to the industry to which the firm belongs. The possible reason is that different industries have different policies, have different accounting conventions and face different levels of competition. In addition, firm age was found to have a negative and significant correlation with financial distress ($P<0.05$). This means that the age of the firm is negatively correlated with financial distress implying that as the age of the firm increases, financial distress is decreased. This indicates that older firms are less financially constrained since they have greater potential to get external financing due to accumulated collateral, have established stable links to clients and supporters thus have less

financial constraints. Therefore, financial distress rates of firms is expected to decline with age (Farinas & Moreno, 2000).

Inventory levels was found to be negatively and significantly correlated with non-production overhead ($P<0.01$). This implies that inventory levels form less or minimal proportion in the non-production overheads in the listed firms. The results for plant and equipment newness was found to be negatively and significantly correlated with non-production overheads. This simply means that the non-production overheads do not involve plant and equipment. Plant and equipment newness was found to be negatively and significantly correlated with financial leverage. This means that financial leverage does not play a role in procuring new plant and equipment.

Table 4.9: Pearson correlation Coefficient Results

	1	2	3	4	5	6	7	8	9
1.FINANCIAL DISTRESS	1								
2.NONPROD	.228**	1							
3.FIN LEVERAGE	.363**	.059	1						
4.INVENTORY LEVELS	.474**	-.712**	.166**	1					
5.PLANT & EQUIPMENT	-.579**	-.822**	-.026	.645**	1				
6.INDUSTRY	-.049	-.918**	-.059	.823**	.876**	1			
7.FIRMAGE	-.096	-.095	.156**	.034	.080	.058	1		
8.FIRMSIZ	-.187**	-.222**	-.446**	.320**	.143**	.250**	-.036	1	
9.STOCKLIQ	-.467**	-.489**	-.307**	-.445**	-.617**	-.133**	.084	-.204**	1

** Correlation is significant at 0.01 level * Correlation is significant at 0.05level; N=400

Source: Research Data, (2016)

4.5 Regression Results

Regression analysis was conducted to test the dependence of financial distress on control variables, independent variables and the interaction terms.

4.5.1 Regression Results for Direct Effects

Hierarchical regression method was used which involved entering variables in blocks. In model 1 the control variables were entered which included the firm age, firm size and industry. In model 2 the independent variables were entered. These included; nonproduction overhead, financial leverage, inventory levels and plant and equipment newness. Random effects regression models were run for all the models and the results are presented in Table 4.10.

Control Effects for the Study

Model 1 presents the results for control variables firm size, firm age and industry. The analysis results of the study revealed that1.3% variation in financial distress prediction was predicted by firm size, firm age and industry. This is based on the resultant coefficient of determination (R^2)

value equivalent to 0.013. Their joint value was significant as shown by the F value of 0.048, $p<0.05$. Furthermore, the results showed that firm size had a negative and significant effect on financial distress prediction (β=-0.064 $p<0.01$). This implies that as the size of the firm increases the likelihood of financial distress is reduced. Prior research done by Xiaozhou *et al*., (2008) suggested that large firms have larger resources to adapt their strategy in such a way that they can obtain a performance at least as small as the market performance value.

The analysis results of the study showed that firm age had a negative and significant effect on financial distress prediction (β=-0.177 $p<0.01$). This implies that older firms are less likely to be financially distressed as compared to recently established firms. Studies of patterns of business failure found that newly founded companies with ineffective control procedures and poor cash flow planning are more vulnerable to financial distress than well-established public firms (Hovakimian *et al.*, 2011).

Industry was found to have a negative and significant effect on financial distress (β=-0.016-$p<0.01$). This implies that the probability of a firm getting into financial distress decreases relative to the industry to which a firm belongs.

Direct Effects for the Study

Model 2 shows the analysis results after inclusion of the independent variables; nonproduction overhead, financial leverage, inventory levels and plant and equipment newness. Table 4.10 show that both the independent variables and control variables jointly explain up to 14.6 % of variations in predicting financial distress of listed firms in Nairobi Securities Exchange. This is based on the resultant coefficient of determination (R^2) value equivalent to 0.146. Their joint prediction was significant as shown by F value of 0.045, $p<0.01$. With an R^2 of 0.013 in model 1

and 0.146 in model 2, the analysis shows the change in R-Square statistic associated with the added variable (strategic conformity) is 0.133. This increase in R^2 means that the information provided by the added independent variable increased the prediction of financial distress and reduced the error in predicting financial distress by 0.003. This meant that including the independent variable improved the prediction of financial distress and reduced the prediction error.

Hypothesis Testing for Direct Effects for the Study

Hypothesis H_{01} stated that nonproduction overhead had no significant effect on financial distress prediction among listed firms in Nairobi Securities Exchange. However, the analysis results showed that nonproduction overhead has a positive and significant effect on the prediction of financial distress (β=0.914; p<0.05). These results therefore led to the rejection of hypothesis $H_{01.}$ Thus it is concluded that nonproduction overhead has significant effect on the prediction of financial distress of listed firms in Nairobi securities exchange. This suggested that there is up to 0.914 unit increase in the likelihood of financial distress for each unit increase in nonproduction overhead.

Hypothesis H_{02} indicated that financial leverage has no significant effect on financial distress of listed firms in Nairobi Securities Exchange. However, the analysis results showed that financial leverage has a positive and significant effect on financial distress of listed firms in NSE (β=0.824; p<0.05). The result therefore led to the rejection of hypothesis $H_{02.}$ This means that financial leverage has a significant effect on the likelihood of financial distress. This suggested that there was up to 0.824-unit increase in the likelihood of financial distress for each unit increase in financial leverage.

Hypothesis H_{03} postulated that inventory levels has no significant effect on financial distress of listed firms in Nairobi Securities Exchange. However, the analysis results of the study indicated a positive and significant effect of inventory levels on financial distress (β =0.678; p<0.05). The result therefore means that hypothesis H_{03} is rejected. This implies that inventory levels has a significant effect on the likelihood of financial distress. The results further suggest that there was up to 0.678-unit increase in the likelihood of financial distress for each unit increase in inventory levels.

Hypothesis H_{04} stated that plant and equipment newness has no significant effect on financial distress of listed firms in Nairobi Securities Exchange. The results however showed a negative and significant effect of plant and equipment newness on financial distress (β=-0.580; p<0.05). Based on these results hypothesis H_{04} is rejected, indicating that plant and equipment newness has a significant effect on the likelihood that a firm will face financial distress. The results further suggest that there was up to a 0.580-unit reduction in the likelihood of financial distress for each unit increase in plant and equipment newness.

4.5.2 Regression Results for the Moderating Effects of Stock Liquidity on the Relationship Between Strategic Conformity and Financial Distress

Moderation implies that causal relationship between two variables changes as a function of the moderator variable. Moderation is said to exist if the amount of variance accounted for with the interaction is significantly more than the variance without the interaction and the coefficient of the interaction term is different from zero (Hayes, 2012). As recommended by Fairchild and MacKinnon (2009), moderating effect is deemed significant if the coefficients of the moderated variables are statistically significant and the predictive power (R^2) of the moderated regression equation is higher than that of the initial model.

The moderating effects were tested in a series of hierarchical blocks. In model 3, stock liquidity which is the moderator was entered. In model 4 to 7 the interaction terms were hierarchically entered. These included nonproduction overhead*stock liquidity, financial leverage*stock liquidity, inventory levels*stock liquidity and plant and equipment newness*stock liquidity. Before getting the interaction terms, the predictor variables were standardized to z-scores so as to reduce the effect of multicollinearity. Then a cross product of the z-scores of the moderator with each independent variable was computed to derive the interaction term. Random effects regression models were run for all the models and the results are presented in Table 4.10.

Stock liquidity which is the moderator was entered in model 3 and the results indicate that stock liquidity had a negative significant effect on financial distress (β=-1.842; p<.05). Stock liquidity explained an additional 9.8% above the strategic conformity variables, indicating that the addition of a moderator variable did improve the prediction of financial distress. This finding revealed that there was up to a 1.842-unit decrease in the likelihood of financial distress for each unit increase in stock liquidity.

A comparison of panel regression results of the moderated equation against those of the model without moderation reveal that introduction of moderation resulted in improvement of the model's predictive power as evidenced by increase in the adjusted R^2 values. The moderated equation (Model 7) jointly explain up to 48.5 % of variations in predicting financial distress of listed firms in Nairobi Securities Exchange. This is based on the resultant coefficient of determination (R^2) value equivalent to 0.485. Their joint prediction was significant as shown by F value of 0.028, p<0.01. This increase in R^2 means that the information provided by the moderated variables increased the prediction of financial distress. Further, the results show that the coefficients of interactive variables (product terms) in the moderated equation are all

statistically significant at 5% levels. This statistical finding signify that the interaction between stock liquidity and strategic conformity has significant moderation effect on the likelihood of financial distress of listed firms in Nairobi Securities Exchange.

Specifically, Hypothesis H_{05a} postulated that stock liquidity does not moderate the relationship between nonproduction overhead and financial distress of listed firms in Nairobi Securities Exchange. To test the hypothesis, the interaction term nonproduction overhead*stock liquidity was entered. The results accounted for more variance (R^2 change = 0.115, F=3.879), indicating there was significant moderation between nonproduction overhead and stock liquidity. The result of the interaction term between nonproduction overhead and stock liquidity indicated a negative and significant effect on prediction of financial distress (β=-1.979; p<.05). The results thus led to the rejection of the hypothesis H_{05a} suggesting that stock liquidity significantly moderates the relationship between nonproduction overhead and financial distress of listed firms in Nairobi Securities Exchange. The results show a negative and significant effect of the interaction between stock liquidity and nonproduction overhead on financial distress prediction of listed firms. This is a significant antagonizing moderation effect considering the main effect of nonproduction overhead on financial distress prediction of listed firms is positive and significant.

Hypothesis H_{05b} stated that stock liquidity does not moderate the relationship between financial leverage and financial distress of listed firms in Nairobi Securities Exchange. To test the hypothesis, first the results of model 4 were noted which accounted for a variance in financial distress (R^2 = 0.359). The introduction of the interaction term for financial leverage resulted in significantly more variance (R^2 change = 0.017, F=3.694) indicating there was significant moderation. The results of the interaction term between stock liquidity and financial leverage as depicted by model seven showed a negative and significant relationship (β=-1.998; p; < 0.05).

This thus means that hypothesis H_{05b} is rejected suggesting that stock liquidity significantly moderates the relationship between financial leverage and financial distress. The results show a negative and significant effect of the interaction between stock liquidity and financial leverage on financial distress prediction of listed firms. This is a significant antagonizing moderation effect considering the main effect of financial leverage on financial distress prediction of listed firms is positive and significant.

Hypothesis H_{05c} indicated that stock liquidity does not moderate the relationship between inventory levels and financial distress of listed firms in Nairobi Securities Exchange. To test the hypothesis, the results of model 5 were first noted which accounted for a significant amount of variance in financial distress ($R^2 = 0.376$). The introduction of the interaction term for inventory level resulted in more variance (R^2 change = 0.080, F=3.762), indicating there was moderation between inventory levels and stock liquidity. The, results of the interaction term between stock liquidity and inventory levels as depicted by model seven was negative and significant (β=-1.890; $p < 0.05$). Thus, hypothesis H_{05c} is rejected indicating that stock liquidity significantly moderates the relationship between inventory levels and financial distress likelihood. This indicates that stock liquidity moderates the relationship between and inventory levels and financial distress. The results show a negative and significant effect of the interaction between stock liquidity and inventory levels on financial distress prediction of listed firms. This is a significant antagonizing moderation effect considering the main effect of inventory levels on financial distress prediction of listed firms is positive and significant.

Hypothesis H_{05d} stated that stock liquidity does not moderate the relationship between plant and equipment newness and financial distress of listed firms in Nairobi Securities Exchange. To test the hypothesis, first the results of model 6 were noted which accounted for a significant amount

of variance in financial distress (R^2 = 0.456). The introduction of the interaction term for plant and equipment newness accounted for slightly more variance (R^2 change = 0.029, F=3.827), the beta value being different from zero (β=-2.376 p ;< 0.05). The results showed a negative and significant effect of the interaction term between stock liquidity and plant and equipment newness on the likelihood of financial distress. Thus, hypothesis H_{05c} is rejected indicating that stock liquidity significantly moderates the relationship between plant and equipment newness and the prediction of financial distress. The results show a negative and significant effect of the interaction between stock liquidity and inventory levels on financial distress prediction of listed firms. This is a significant buffering moderation effect considering the main effect of inventory levels on financial distress prediction of listed firms is negative and significant (β=-0.580; p<0.05) and the interaction effect decreases the negative and significant effect (β=-2.376 p ;< 0.05.

Probing the Nature of the Interactions

In order to better understand the nature of the interaction of stock liquidity on the relationship between strategic conformity dimensions (nonproduction overhead, financial leverage, inventory levels and plant and equipment newness) and financial distress, Aiken and West (1991) suggests that the moderated results be presented on a moderation graph. Aiken andWest (1991) indicates that it is insufficient to conclude that there is interaction without probing the nature of that interaction at different levels of the moderator. Therefore, the significance of the coefficient of stock liquidity was assesed at low, medium and high levels of nonproduction overhead, financial leverage, inventory levels and plant and equipment newness.

Fairchild and MacKinnon (2009) wrote that moderation could either be enhancing, buffering or antagonistic. Enhancing moderation relates to a situation where increasing the moderator also in-

creases the primary effect of the predictor variable on the outcome variable. Buffering moderation effect is where increasing the moderator decreases the primary relationship between the explanatory variable and the explained variable. Antagonistic moderation results where increasing the moderator reverses the primary effect of the independent variable on the dependent variable.

The examination of the graphical plots on the moderating effect of stock liquidity on the relationship between nonproduction overhead and financial distress was antagonistic as at higher, medium and low levels of stock liquidity, the effect of nonproduction overhead on financial distress was reversed as shown in Figure 4.1. It further indicates that at high levels of nonproduction overhead, the high stockliquidity has a bigger moderating effect than at the medium and low levels. The slopes in the figure thus indicate that at high levels of stock liquidity, nonproduction overhead was associated with less financial distress as compared to when it is with medium and low stock liquidity as shown in figure 4.1 below.

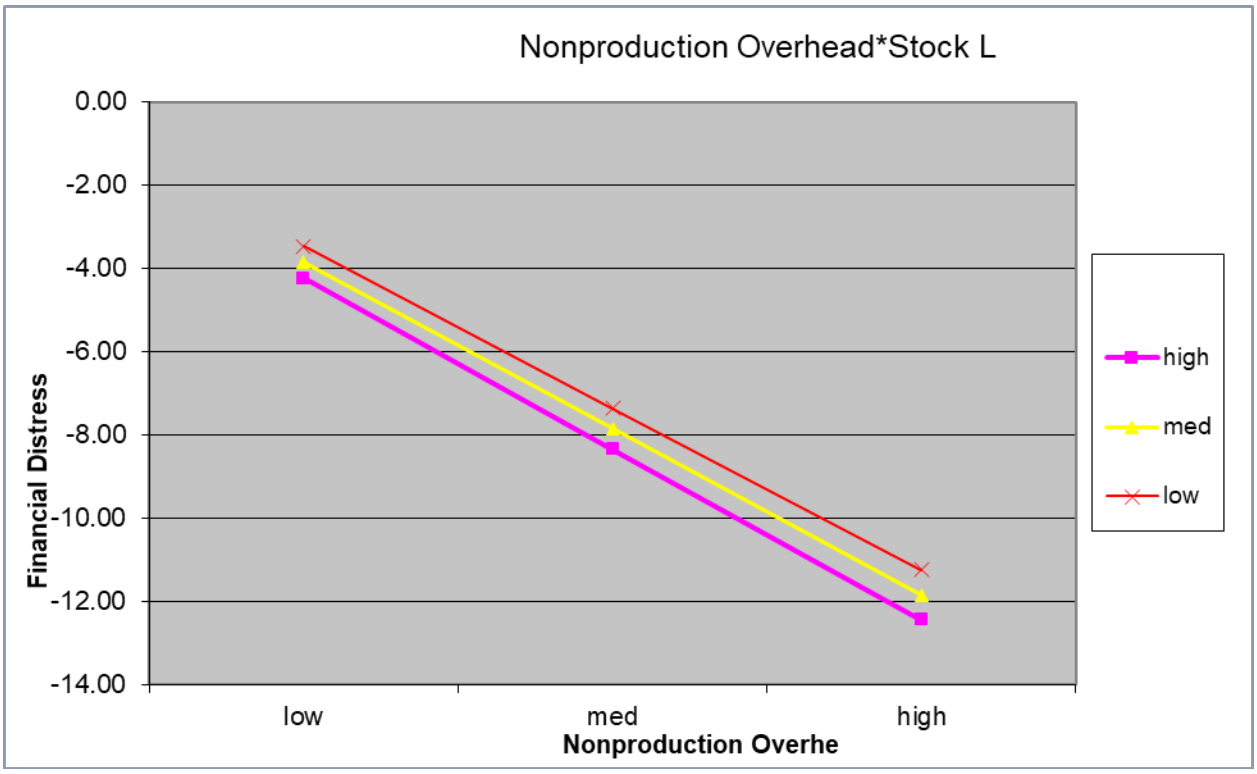

Figure 4.1: Moderation of Stock Liquidity on the Relationship Between Nonproduction Overhead and Financial Distress
Source: Research Data, (2016)

The examination of the graphical plots on the moderating effect of stock liquidity on the relationship between financial leverage and financial distress was antagonistic as at higher, mediumand low levels of stock liquidity, the effect of financial leverage on finacial distress was reversed as shown in Figure 4.2. It further indicates that at high levels of financial leverage, the high stockliquidity has a bigger moderating effect than at the low level. The slopes in the figure thus indicate that at high levels of stock liquidity, financial leverage was associated with less financial distress as compared to when it is with medium and low stock liquidity as shown in figure 4.2 below.

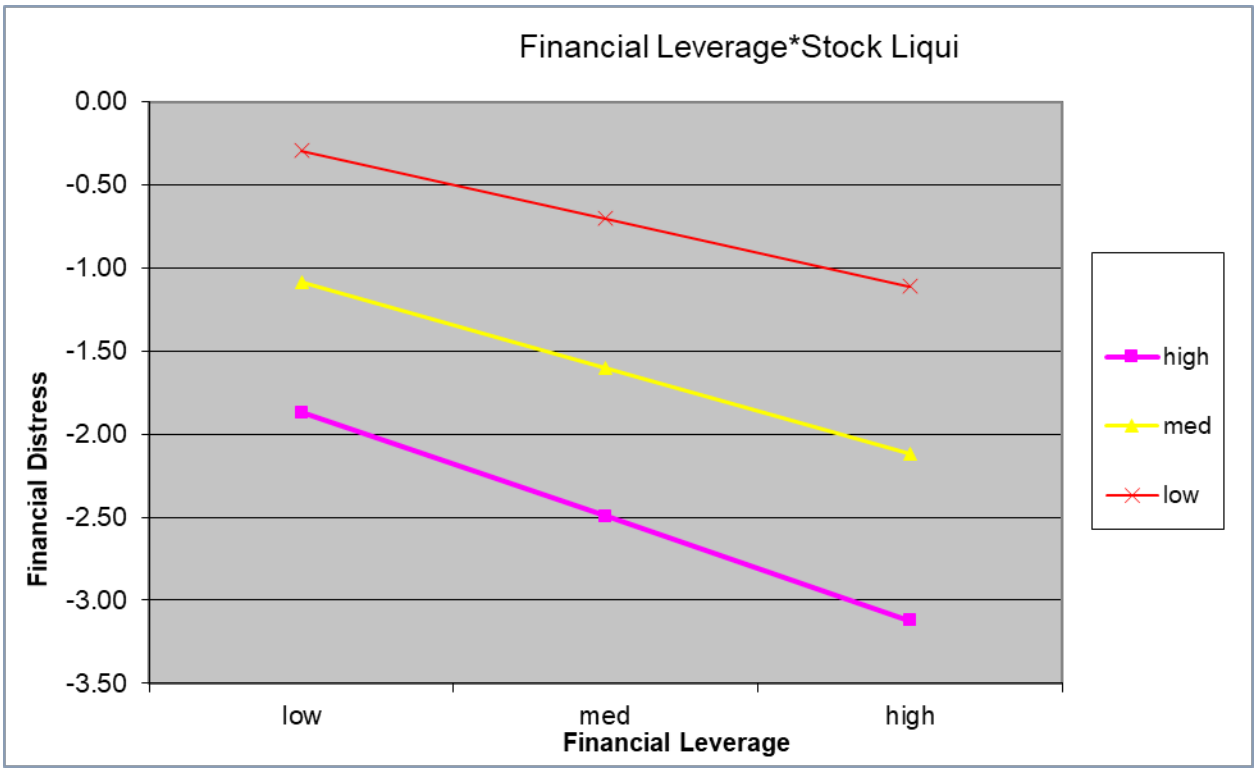

Figure 4.2: Moderation of Stock Liquidity on the Relationship Between Financial Leverage and Financial Distress

Source: Research Data, (2016)

The examination of the graphical plots on the moderating effect of stock liquidity on the relationship between inventory levels and financial distress was buffering as at high levels of stock liquidity, the effect of inventory levels on financial distress was reduced as shown in Figure 4.3. It further indicates that at high levels of inventory levels, the high stockliquidity has a bigger moderating effect than at the high level. The slopes in the figure thus indicate that at high levels of stock liquidity, inventory level was associated with less financial distress as compared to when it is with medium and high stock liquidity as shown in figure 4.3 below.

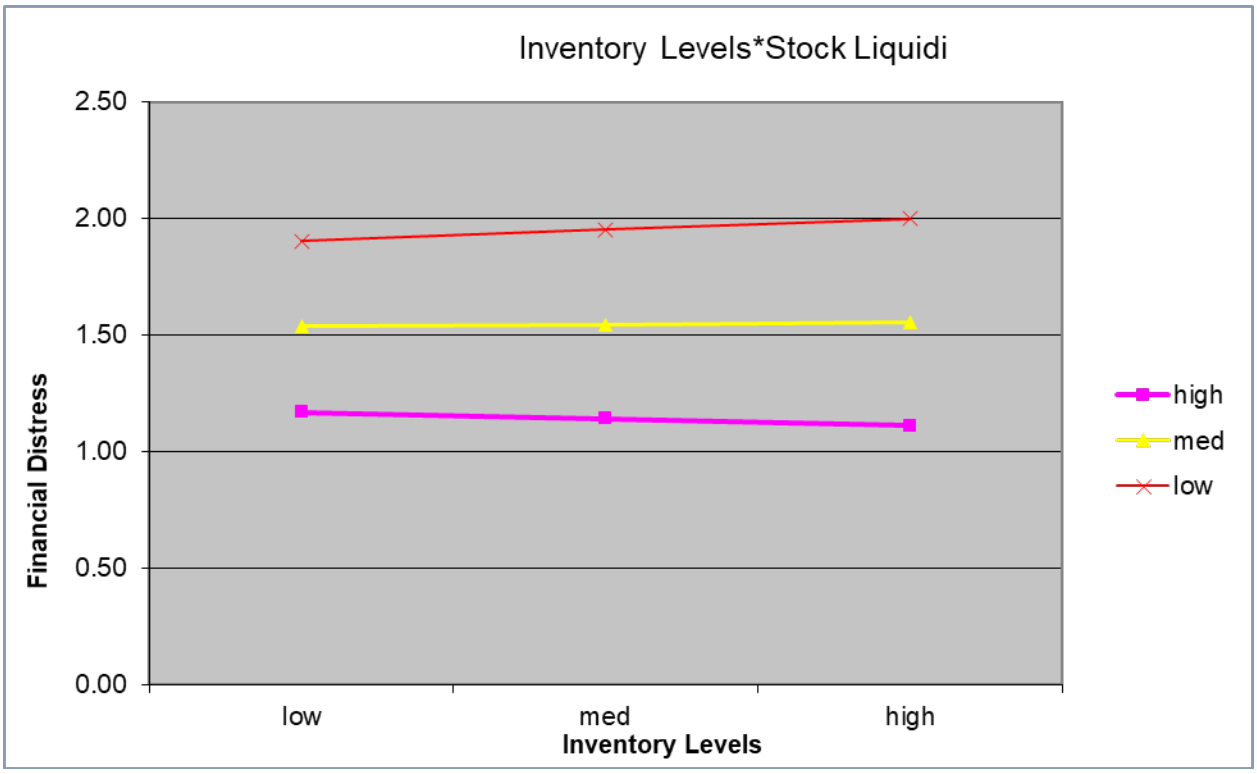

Figure 4.3: Moderation of Stock Liquidity on the Relationship Between Inventory Levels and Financial Distress

Source: Research Data, (2016)

The examination of the graphical plots on the moderating effect of stock liquidity on the relationship between plant and equipment newness and financial distress was buffering as at higher levels of stock liquidity, the effect of plant and equipment newness on financial distress was reduced as shown in Figure 4.4. It further indicates that at high levels of plant and equipment newness, the high stockliquidity has a bigger moderating effect than at the low level. The slopes in the figure thus indicate that at high levels of stock liquidity, plant and equipment newness was associated with less financial distress as compared to when it is with medium and low stock liquidity as shown in figure 4.4 below.

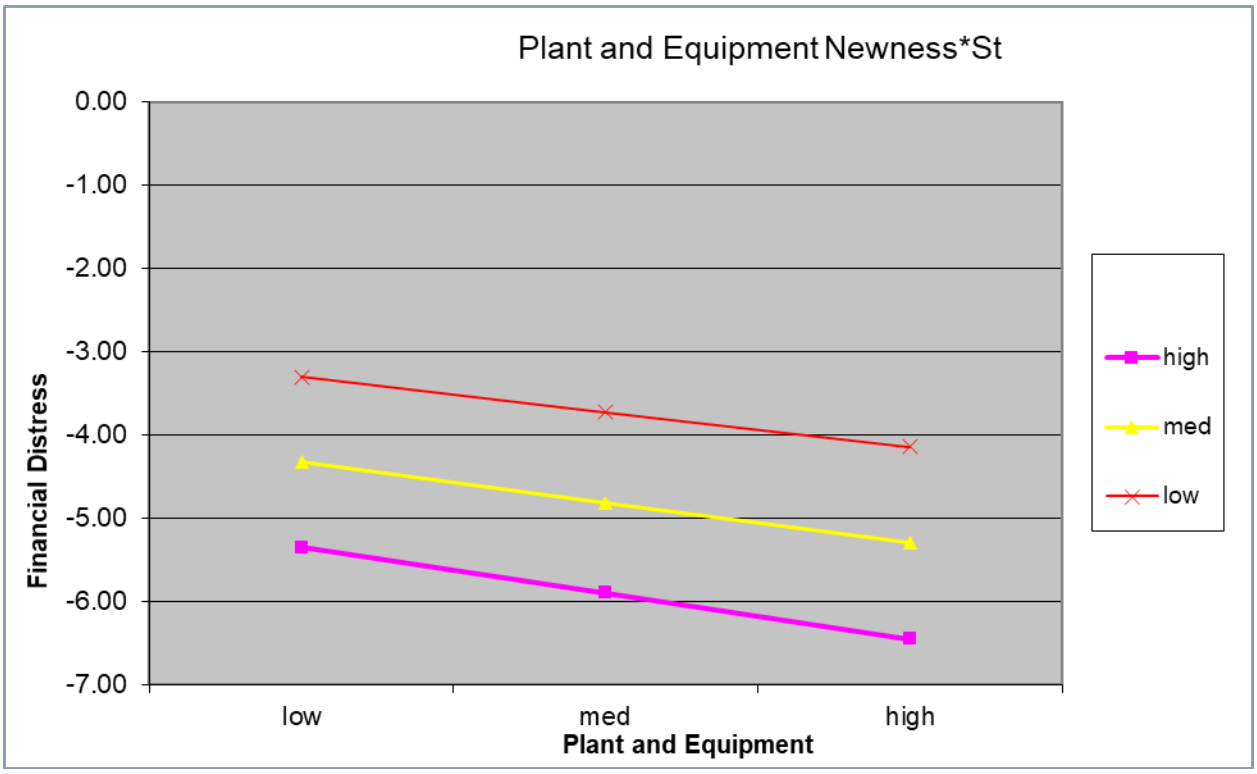

Figure 4.4: Moderation of Stock Liquidity on the Relationship Between Plant and Equipment Newness and Financial Distress

Source: Research Data, (2016)

Table 4.10: Regression Analysis Results

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Controls							
Constant	0.422 (0.699) **	0.687 (0.810)**	0.431 (0.644) **	0.981(0.541) **	0.929 (0.524) *	0.966 (0.560) **	1.877(1.276) **
Firm Size	-0.064 (-0.906) **	-0.066 (-0.084)**	-0.065 (-0.081)**	-0.066(-0.089)**	-0.073(-0.022) **	-0.076 (-0.073)**	-0.052 (-.075) **
Firm Age	-0.177 (-0.175) **	-0.091(-0.067) **	-0.095 (-0.094) **	-0.100(-0.620) **	-0.103 (-0.636)	-0.106 (-0.945)	-0.087(-0.054)
Industry	-0.016 (-0.074)**	-0.033 (-0.006)**	-0.059 (-.093)**	-0.053 (-0.032)*	-0.066 (-0.095)*	-0.132 (-0.264) **	-0.686(-1.287)
Predictors							
Non-Production Overhead		0.914 (0.869) *	0.874(0.910)*	-1.657 (-2.257)*	-1.570(-2.138)*	-2.876(-4.123)*	- 4.615(-6.982)*
Financial Leverage		0.824 (2.650) *	-0.181 (-0.251) *	- 0.283 (-0.376) *	-0.290(-0.387)*	-0.325 (-0.443) *	-0.415(-0.592) *
Inventory Levels		0.678(0.848)	0.640 (0.816) *	0.565 (0.796) *	0.567(0.687)*	0.313(0.544) *	0.212(0.378) *
Plant and Equipment Newness		-0.580 (-0.450)*	- 0.466 (-.423)*	-0.579 (-0.549)*	-0.894(-0.879)*	-0.895(-0.831)	-0.908(-1.060) *
Stock Liquidity			-1.842 (-1.741) *	-1.994 (-1.860) *	-2.816(-2.472)*	-2.946(-2.496) **	-3.809(-3.598)*
Interactions							
Non-Production Overhead *Stock Liq				-0.978 (-0.693)*	-1.504(-2.022)*	-1.730 (-2.304)*	-1.979 (-2.735) *
Financial Leverage * Stock Liq.					-1.498(-1.462)*	-1.564 (-1.757) *	- 1.998 (-2.489) *
Inventory Levels * Stock Liq.						-1.710(-2.144) *	-1.890(-2.715)*
Plant and Equipment Newness * Stock Liq.							-2.376(-3.151)*
Model summary statistics							
R Square	0.013	0.146	0.244	0.359	0.376	0. 456	0.485
Adjusted R^2	0.005	0.122	0.215	0.334	0.342	0. 354	0.442
R^2 Change	0.013	0.133	0.098	0.115	0.017	0. 080	0.029
F- Statistic	3.682	3.722	3.681	3. 879	3.694	3. 762	3.827
Sig. F-Stat.	0.048	0.045	0.038	0.024	0.047	0. 041	0.028
Durbin Watson Stat.	1.521	1.616	1.554	1.603	1.593	1. 519	1.701
Total Panel Observations	400	400	400	400	400	400	400

** Significant at 0.01 level * Significant at 0.05 level; Figures in parenthesis are t-statistics; Source: Research Data, (2016)

From the hierarchical regression beta coefficients, the following regression equation was obtained for predicting the relationship of the study variables as suggested in Chapter three of this study.

The general analytical model for the *direct relationship* was represented as follows:

$Y= 0.687 +0.914\ X1_{it} +0.824_{X2it}+0.678_{X3it}-0.580_{X4it}+e$

Where:

Y= Financial Distress

x_1= Nonproduction Overhead

x_2= Financial Leverage

x_3= Inventory Levels

x_4= Plant and Equipment Newness

Specifically, the hierarchical regression models were as follows:

1. The equation for model one as specified in chapter three was testing the effects of the control variables. All the control variables were significant and hence their inclusion in Model 1.

   $Y= 0.422-0.064_{C1it}-0.177_{C2it}-0.016_{C3it}+\varepsilon_1$……Model 1

   Where:

   Y= Financial Distress and $_{C1,C2,C3}$ and $_{C4}$ were Firm Size, Firm age and industry and ε_1 is the error term associated with this model.

2. Model two had the inclusion of the direct effects variables (nonproduction overhead, financial leverage, inventory levels and plant and equipment newness). All the variables were significant and hence the equation for model 2 was:

$$Y= 0.687-.066_{C1it}-0.91_{C2it}-0.033_{C3it}+0.914_{X1it}+0.824_{X2it}+0.678_{X3it}-0.580_{X4it}+\varepsilon_2$$ .....Model 2

Where:

Y= Financial Distress and $_{C1,C2,C3}$ and $_{C4}$ were firm size, firm age and industry and ε_2 is the error term associated with this model. $_{X1,\ X2,\ X3}$ and $_{X4}$ were nonproduction overhead, financial leverage, inventory levels and plant and equipment newness.

3. Model three had the inclusion of the moderating variable stock liquidity which was significant. The direct variables nonproduction overhead, financial leverage, inventory levels and plant and equipment newness were all significant. Hence the equation for model three was:

$$Y= 0.431-0.065_{C1it}-0.095_{C2it}-0.059_{C3it}+0.874_{X1it}+0.181_{X2it}+0.640_{X3it}-0.466_{X4it}-1.842_{X5it}+\varepsilon_3$$ .....Model 3

Where:

Y= Financial Distress

$_{C1,\ C2,\ C3}$ and $_{C4}$ were firm size, firm age and industry. $_{X1,\ X2,\ X3,\ X4}$ and $_{X5}$ were nonproduction overhead, financial leverage, inventory levels, plant and equipment newness and stock liquidity and ε_3 is the error term associated with this model.

4. Model four had the inclusion of the interaction between the moderator (stock liquidity) with nonproduction overhead which was significant. Hence the equation for model four was:

$Y=0.981-0.066_{C1it}-0.100_{C2it}-0.053_{C3it}-1.657_{X1it}+0.283_{X2it}-0.565_{X3it}+0.579_{X4it}-1.994_{X5it}-0.978_{X1*X5it}+\varepsilon_4$ ………………………………………………………………. ….Model 4

$_{C1,\ C2,\ C3}$ and $_{C4}$ were firm size, firm age and industry. $_{X1,\ X2,\ X3,\ X4}$ and $_{X5}$ were nonproduction overhead, financial leverage, inventory levels, plant and equipment newness and stock liquidity and ε_4 is the error term associated with this model.

$_{X1*X5}$ is the interaction between stock liquidity and nonproduction overhead.

5. Model five had the inclusion of the interaction between the moderator (stock liquidity) with financial leverage which was significant. Hence the equation for model five was:

$Y=0.929-0.073_{C1it}-0.103_{C2it}-0.066_{C3it}-1.570_{X1it}-0.290_{X2it}+0.567_{X3it}-0.894_{X4it}-2.816_{X5it}-1.504_{X5*X1it}-1.498_{X5*X2it}+\varepsilon_4$ ………………………….………………………. …….Model 5

$_{C1,\ C2,\ C3}$ and $_{C4}$ were firm size, firm age and industry. $_{X1,\ X2,\ X3,\ X4}$ and $_{X5}$ were nonproduction overhead, financial leverage, inventory levels, plant and equipment newness and stock liquidity and ε_5 is the error term associated with this model.

$_{X1*X5}$ is the interaction between stock liquidity and nonproduction overhead and $_{X5*X2}$ is the interaction between stock liquidity and financial leverage.

6. Model six had the inclusion of the interaction between the moderator (stock liquidity) with inventory levels which was significant. Hence the equation for model six was:

$Y=0.966-0.076_{C1it}-0.106_{C2it}-0.132_{C3it}-2.876_{X1it}-0.325_{X2it}+0.313_{X3it}-0.895_{X4it}-2.946_{X5it}-1.730_{X5*X1it}-1.564_{X5*X2it}-1.710_{X5*X3it}+\varepsilon_6$………….……………………. …….Model 6

$_{C1}$, $_{C2}$, $_{C3}$ and $_{C4}$ were firm size, firm age and industry. $_{X1}$, $_{X2}$, $_{X3}$, $_{X4}$ and $_{X5}$ were nonproduction overhead, financial leverage, inventory levels, plant and equipment newness and stock liquidity and ε_6 is the error term associated with this model.

$_{X1*X5}$ is the interaction between stock liquidity and nonproduction overhead, $_{X5*X2}$ is the interaction between stock liquidity and financial leverage and $_{X5*X3}$ is the interaction between stock liquidity and inventory levels.

7. Model seven had the inclusion of the interaction between the moderator (stock liquidity) with plant and equipment newness which was significant. Hence the equation for model seven was:

$Y=1.877-0.052_{C1it}-0.087_{C2it}-0.686_{C3it}-4.615_{X1it}0.415_{X2it}+0.212_{X3it}-0.908_{X4it}-3.809_{X5it}-1.979_{X5*X1it}-1.998_{X5*X2it}-1.890_{X5*X3it}-2.376_{X5*X4it}+\varepsilon_7$………………………. …….Model 7

$_{C1}$, $_{C2}$, $_{C3}$ and $_{C4}$ were firm size, firm age and industry. $_{X1}$, $_{X2}$, $_{X3}$, $_{X4}$ and $_{X5}$ were nonproduction overhead, financial leverage, inventory levels, plant and equipment newness and stock liquidity and ε_7 is the error term associated with this model.

$_{X1*X5}$ is the interaction between stock liquidity and nonproduction overhead, $_{X5*X2}$ is the interaction between stock liquidity and financial leverage, $_{X5*X3}$ is the interaction between stock liquidity and inventory levels and $_{X5*X4}$ was the interaction between stock liquidity and plant and equipment newness.

Table 4.11: Summary of the Study Results

Hypotheses		Beta	p-Value	Decision
H_{01}:	Nonproduction overhead has no significant effect on financial distress of listed firms in Nairobi Securities Exchange.	0.914	$p<0.05$	Reject H_{01}
H_{02}:	Financial leverage has no significant effect on financial distress of listed firms in Nairobi Securities Exchange.	0.824	$p<0.05$	Reject H_{02}
H_{03}:	Inventory levels has no significant relationship effect on financial distress of listed firms in Nairobi Securities Exchange.	0.678	$p<0.05$	Reject H_{03}
H_{04}:	Plant and equipment newness has no significant effect on financial distress of listed firms in Nairobi Securities Exchange.	-0.580	$p<0.05$	Reject H_{04}
H_{05a}:	Stock liquidity does not moderate the relationship between nonproduction overhead and financial distress of listed firms in Nairobi Securities Exchange.	-1.979	$p<.05$	Reject H_{05a}
H_{05b}:	Stock liquidity does not moderate the relationship between financial leverage and financial distress of listed firms in Nairobi Securities Exchange.	-1.998	$p< 0.05$	Reject H_{05b}
H_{05c}:	Stock liquidity does not moderate the relationship between inventory levels and financial distress of listed firms in Nairobi Securities Exchange.	-1.890	$p < 0.05$	Reject H_{05c}
H_{05d}:	Stock liquidity does not moderate the relationship between plant and equipment newness and financial distress of listed firms in Nairobi Securities Exchange.	-2.376	$p < 0.05$	Reject H_{05d}

Source: Research Data, (2016)

4.12 Discussion of the Research Findings

4.12.1 Effect of Nonproduction Overhead on Financial Distress

The study sought to analyze the effect of nonproduction overheads on financial distress of listed firms in Nairobi Securities Exchange. The findings of the study indicated that nonproduction overhead had a positive and significant effect on the prediction of financial distress (β=0.914; p<0.05). This finding indicates that during the period of analysis, increasing the level of nonproduction overheads increased the listed firms' likelihood of financial distress. This implies that the non-production overheads play a significant role in the financial distress status of firms. The probable reasoning could be the likelihood of nonproduction overheads eating into the profits of the firms hence leading to less financial reserves for investment. Thus, firms get strained leading to financial distress of the listed firms in Nairobi Securities Exchange.

Cappozza and Seguin (1998) found that higher levels of nonproduction overheads are significantly negatively related to firm value. This indicates that nonproduction overheads reduces the amount of free cash flow leading to a strain on the financial resources of a firm that would have otherwise been used for investment (Siregar *et al*., 2015). The study by Janakiraman (2010) indicated that excessive selling, general and administrative expenditure may indicate loss of managerial control over the selling general and administrative costs that lead to poor operating performance.

However, the results of this study were contrary to the study by Lazere**,** (1996) who found that companies that trim selling, general and administrative costs were found to enjoy far reaching benefits through cost savings and a reduction on corporate overhead as every dollar reduction goes into net income**.** This finding further contradicted prior studies that non-production

overhead has unclear link to firm value. This is supported by Yükçü and Özkaya (2011) that studies interrogating the role of nonproduction overhead have not established a clear link between the level of selling, general and administrative expenses and firm's profitability.

4.12.2 Effect of Financial Leverage on Financial Distress

The second objective of the study was to establish the effect of financial leverage on financial distress among listed firms in Nairobi Securities Exchange. The results in Table 4.10 showed that financial leverage has a positive and significant effect on the prediction of financial distress of listed firms in NSE (β=0.824; p<0.05). This finding indicates that increasing financial leverage in firms will lead to an increase in the likelihood of financial distress in firms.

The research findings could be attributed to the high cost of debt financing prevailing in Kenya in terms of high fixed charges (interest) applied on borrowed capital. This is further explained by the fact that majority of Kenyan firms utilize the expensive loans as their main source of capital; due to lack of alternative sources of debt capital (Bitok *et al*., 2011). According to a study by Shaked and Plastino (2012) leverage consists of obligations that require mandatory payment and if the company fails to earn enough to satisfy these obligations, the firm may face financial distress. This could lead to an increase in the financial burden (through loan interest payments) to the firm and hence low levels of free cash flow. This finding supports the notion that financial leverage plays a role in influencing a firm's financial soundness. Leverage in the firm affects the firm's debt service coverage and results in financial distress. The financial leverage impacts on firms and leads firms to being unable to pay current financial obligations on scheduled time and may lead to bankruptcy, liquidation or reorganization. In addition, the policy of the government to borrow domestically alongside the corporate sector increases demand for available capital and further raise the cost of leverage (Vermoesen *et al.*, 2013).

The finding is consistent with past research findings which showed positive relationship between financial leverage and financial distress. This finding is consistent with Caskey *et al.,* (2012) who found that leverage positively predicts the probability of distress as firms with high leverage are more exposed to a systematic distress factor. In addition, Graham *et al.,* (2011) finds that firms with more debt became financially distressed more frequently. Furthermore, the finding of this study is in agreement with those studies conducted by Hung, Chuen, and Eddie (2002) who observed that financial leverage had a positive effect on financial distress of firms in the property and construction sectors in Hong Kong. The finding is also consistent with that by Akhtar *et al*., (2012) whose study on firms in the energy and fuel sectors listed in Karachi Stocks Exchange, Pakistan showed that there was a positive relationship between financial leverage and financial performance. The findings also support a study by Kiogora (2000) and Abu-Rub (2012) whose studies showed a positive relationship between financial leverage and financial distress as represented by return on equity among the Kenyan listed firms. Di Patti *et al.,* (2015) find that, ceteris paribus, a 10 % points increase in leverage is associated with almost a 1 % point higher probability of default.

The findings of this study are however contrary to the results by Muigai (2016) whose findings indicate a negative and significant effect of financial leverage on financial distress. This indicates that the interest expense associated with use of debt being tax-deductible results in significant tax-savings that boosts the firm's assets future productivity. Furthermore, the study also contradicts the results of Gupta *et al.* (2014) whose study ascribed a negative and significant association between use of debt capital and financial distress of Indian listed firms to high cost of debt capital in the Indian economy. The results also differ from those of Baimwera and Muriuki (2014) whose study concluded that there is no significant relationship between financial leverage

and financial distress among the Kenyan listed firms. The results also differ with the studies undertaken by Ebaid (2009), Pratheepkanth (2011) and Kodongo *et al.,* (2014) that concludes that financial leverage has no effect on financial distress.

4.12.3 Effect of Inventory Levels on Financial Distress

The third objective of the study was to establish the effect of inventory levels on financial distress of listed firms in Nairobi Securities Exchange. Research findings showed that inventory levels has a positive and significant effect on the prediction of financial distress (β =0.678; p<0.05). It therefore implies that the levels of inventory significantly affect the likelihood of financial distress of listed firms in NSE in the period of study.

Maccini and Pagan, (2008) argue that keeping stock available increases costs such as warehouse rent, insurance and security expenses, which tend to rise as the level of inventory increases. The results of this study are in agreement with studies by Delavar *et al.,* (2015) who studied the relationship between working capital, firm's performance and financial distress in listed firms in Tehran stock exchange in Iran and found a positive effect of working capital on financial distress. Recently, Elsayed and Wahba (2016) show that inventory to sales ratio has exerted a negative and significant coefficient on organization performance.

The result of this study is however contrary to the study by Steinker *et al.,* (2016) who found a positive relationship between inventory levels and financial performance of German firms. This indicates that firms facing reduction in their financial health tend to reduce their inventory levels to free up cash and to achieve long-term efficiency gains from inventory optimization. The study findings also contradict the results by Ukaegbu (2014) who studied the relationship between working capital efficiency and corporate profitability to determine their role across countries with differential industrial levels. The study revealed that there is a strong negative relationship

between profitability, measured through net operating profit, and cash conversion cycles across different industrialization typologies. In addition, the result of this study is contrary to the study by Capkun *et al*., (2009) who found a positive and significant relationship between inventory and financial performance of manufacturing firms in the United States of America.

4.12.4 Effect of Plant and Equipment Newness on Financial Distress

The fourth objective was to determine the effect of plant and equipment newness on financial distress of listed firms in Nairobi Securities Exchange. The study found that plant and equipment newness has a negative and significant effect on the prediction financial distress of the listed firms in Nairobi Securities Exchange in the period of study (β=-0.580; p<0.05). The findings indicated that a firm with new plant and equipment is less likely to be identified as being in financial distress. The possible explanation for this could be that newness of plant and equipment increases chances of the firm to get access to funds since they act as collateral. In addition, Liargovas and Skandalis, (2010) indicate that new investment in capital items such as plant and equipment expand the production and cash flow generating capacity of the firm thus positively related to firm performance. This finding supports the notion that firms with plant and equipment is likely to attract capital from external sources since plant and equipment act as collateral which raises the firm's ability to raise funds. To back this argument, Manova (2008) argues that the availability of collateralizable assets determines a firm's ability to raise outside capital, which is enhanced by the value of plant and equipment. This means that the lack of collateral makes it costly for firms to obtain funding and is strong evidence of a credit constraints channel.

Furthermore, Bhat (2000) argues that older machines require replacement of parts and more intensive maintenance. Consequently, replacement and maintenance expenditures will increase with age of plant and equipment. This also supports this finding that a firm with new plant and

equipment will have lower maintenance and replacement costs thus not likely to get into financial distress. According to Liargovas and Skandalis (2010) the amount of net investment is positively related to firm performance since new investments expand the production and cash flow generating capacity of the firm. On the contrary, Kane and Richardson (2002) find that when management invests in property plant and equipment, financial distress is intensified. This is because increasing the asset base amplifies the need for borrowing money to facilitate the purchase/expansion of property, plant and equipment which increases the necessary uses of working capital as debt must be serviced.

4.12.5 Moderating Effect of Stock Liquidity on Financial Distress

The study investigated the interaction effect after determining the influence of the moderating variable as a direct effect. This formed the precursor to the establishment of the interaction terms in the model. This study looked at stock liquidity as the moderator on the relationship between strategic conformity dimensions and financial distress of listed firms in Kenya. The results in this study showed a negative and significant effect of the effect of stock liquidity on financial distress (β=-1.842; p<0.05). The finding revealed that stock liquidity plays an important role in enabling firms to be financially stable and reduces chances of firms being identified as financially distressed. This supports the notion by feedback theory that stock liquidity influences corporate financial decisions by enhancing the informativeness of stock prices and consequently, managers learn from informative stock prices and make value-enhancing corporate decisions (Cheung *et al.,* 2015). Informed traders trade more aggressively and thus makes prices more informative to firm managers and other stakeholders. This signals improved prospects to firm managers which affect their investment decisions which consequently affect firm value (Khanna & Sonti, 2004). Cheung *et al.* (2015) extended this argument and stated that an increase in stock liquidity may

help managers to attract new funding for investment projects and may support value-enhancing activities such as corporate governance and market monitoring

The study indicated that the interaction term between non-production overhead and stock liquidity was negative and significant (β=-1.979; p<.05). The results imply that increasing nonproduction overheads with stock liquidity reduces the likelihood of a firm entering financial distress; signifying lower levels of financial distress likelihood. Holmström and Tirole (1993) argue that stock liquidity has been recognized as an important phenomenon because stock markets can play an important role in monitoring management and that public trading of a firm's stock can influence managerial incentives. Public trading allows managerial incentives to be provided according to the continuing performance of the firm's share price thus increase firm value and thereby reduce financial constraints of nonproduction overheads.

This finding further implies that firms with liquid stocks can manage their non-production overhead enabling the firms to be financially sound. This therefore means that in the presence of liquid stocks, non-production overhead is not likely to cause the firms to enter into financial distress. The reason for this argument could be that due to stock liquidity of these firms, investors are influenced to make investment decisions which will favorably affect the firm decisions including efficiency in non-production overhead. Thus, the advantage of liquid stock offsets the disadvantage of non-production overheads. Probably the other reason could be that the liquid stocks are a source of capital to firms hence the firms are able to make influential decisions regarding its growth.

The findings of the study established that the interaction term between financial leverage and stock liquidity was negative and significant (β=-1.998; p<0.05). This means that leveraged firms backed with liquid stock will negatively impact on the likelihood of financial distress situations.

It therefore implies that with stock liquid firms will continue accessing external sources of capital which will enhance the firms to make decisions which positively influence the financial outcome. The probable reason for this result could be liquidity enhances firm performance by increasing the incentive effects of managerial pay-for-performance contracts as argued by Fang *et al. (*2009).

When the firms' stock is liquid it is perceived positively by the stakeholders hence influencing their decisions regarding the firm. Loukil (2015) observed that stock liquidity influences corporate financial decisions by reducing cost of capital and facilitating access to more funds on the capital markets. In addition, Fang *et al.,* (2009) also argue that liquidity improves firm performance by increasing the efficiency of performance-sensitive managerial compensation. This argument is in support of feedback theory that through feedback effect liquidity stimulates the entry of informed investors who make prices more informative to stakeholders thus improving firm performance (Fang *et al.,* 2009).

The results of the study indicate the interaction term between stock liquidity and inventory levels was negative and significant on financial distress (β=-1.890; p<0.05). This implies that with stock liquidity of firms, the disadvantages of inventory levels will be offset and hence firms will not likely be identified as financially distressed. Probably when the firms' stocks are liquid it will be able to invest into various opportunities which will create profits.

Lastly, the results of the study indicate that the interaction term between plant and equipment newness and stock liquidity was negative and significant (β=-2.376; p<0.05). The finding thus shows that when firm's plant and equipment are new coupled with liquid stock, that firm is less likely to face financial distress. This implies that stock liquidity and plant and equipment newness of the firm will be negatively related with financial distress. The ideal reason for this

argument is that when the firm's plant and equipment are new they act as a security/guarantee for the firm to access funds for further investment. Plant and equipment newness also indicates lower maintenance and replacement expenditure as this increase with age. This enables the firms to make favorable investments which will influence the stock liquidity of the firms and hence less likelihood of financial distress.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary of empirical findings derived from the study, conclusions drawn from the findings and the relevant recommendations on the implications of the research on theory, policy and practice. The overall objective of the study was to establish the effect of strategic conformity on financial distress and the moderating effect of stock liquidity on this relationship among listed firms in Nairobi Securities Exchange. Presentation of the chapter is organized around the specific objectives and hypotheses enumerated in sections 1.3 and 1.4. The conclusions are also aligned with the specific objectives with a particular focus on whether the research hypotheses were accepted or rejected by the study. The recommendations encapsulate suggestions meant to add value at both managerial and regulatory policy levels in accordance with the study findings. Finally, the chapter proposes areas for further research.

5.1 Summary of Findings

The purpose of this study was to determine the effect of strategic conformity on financial distress and the moderating role of stock liquidity on the relationship between strategic conformity and financial distress. The study was conducted across 40 firms that were listed in NSE for the period 2006 to 2015. This involved investigating the effect of nonproduction overhead, financial leverage, inventory levels and plant and equipment newness on financial distress. In addition, the study also sought to establish how stock liquidity moderated the relationship between nonproduction overhead, financial leverage, inventory levels and plant and equipment newness and financial distress. The theories that supported this study were institutional theory, tradeoff theory, agency theory and feedback theory. The results of the study advanced knowledge on the

role of stock liquidity in enhancing firm's financial health. The summary and discussion followed the study hypothesis formulated in chapter one and highlight key findings of the study.

5.1.1 Effect of Nonproduction Overhead on Financial Distress

The first objective of the study was to analyze the effect of nonproduction overhead on financial distress among listed firms in Nairobi Securities Exchange. The hypothesis postulated that nonproduction overhead has no significant effect on financial distress of listed firms in Nairobi Securities Exchange. The analysis results show that nonproduction overhead has significant positive effect on financial distress (β=0.914; p<0.05). This finding led the study to reject the stated null hypothesis with 95% confidence level. By rejecting the null hypothesis, the study concluded that that nonproduction overhead has significant effect on financial distress of listed firms in Nairobi Securities Exchange.

5.1.2 Effect of Financial Leverage on Financial Distress

The second objective of the study was to evaluate the effect of financial leverage on financial distress among listed firms in Nairobi Securities Exchange. The second hypothesis postulated that financial leverage has no significant effect on financial distress among listed firms in Nairobi Securities Exchange. The analysis results of the study indicated that financial leverage has a positive and significant effect on financial distress among listed firms in Nairobi Securities Exchange (β=0.824; p<0.05). This finding led the study to reject the stated null hypothesis with a 95% confidence level. By rejecting the null hypothesis, the study concluded that financial leverage has a significant effect on financial distress among listed firms in Nairobi Securities Exchange.

5.1.3 Effect of Inventory Levels on Financial Distress

The third objective of the study was to determine the effect of inventory levels on financial distress of listed firms in Nairobi Securities Exchange. The null hypothesis postulated that inventory levels has no significant effect on financial distress of listed firms in Nairobi Securities Exchange. Statistical analysis results showed that inventory levels had a positive and significant effect on financial distress (β =0.678; p<0.05). This finding led the study to reject the stated null hypothesis with 95% confidence level. By rejecting the null hypothesis, the study accepted the

alternative hypothesis and concluded that inventory levels has significant effect on financial distress of listed firms in Nairobi Securities Exchange.

5.1.4 Effect of Plant and Equipment Newness on Financial Distress

The fourth specific objective of the study was to establish the effect of plant and equipment newness on financial distress among listed firms in Nairobi Securities Exchange. The null hypothesis postulated that plant and equipment newness has no significant effect on financial distress of listed firms in Nairobi Securities Exchange. The study found that during the analysis period, plant and equipment newness had a negative and significant effect on financial distress of the listed firms in Nairobi Securities Exchange (β=-0.580; p<0.05). This finding led the study to reject the stated null hypothesis with 95% confidence level. By rejecting the null hypothesis, the study accepted the alternative hypothesis and concluded that plant and equipment newness has significant effect on financial distress of listed firms in Nairobi Securities Exchange.

5.1.5 Moderating Effect of Stock Liquidity on Financial Distress

The study further sought to determine how stock liquidity moderated the relationship established between strategic conformity and financial distress of listed firms in Nairobi Securities Exchange. The study found that the stock liquidity had a significant moderating effect on the

relationship between strategic conformity and financial distress of listed firms. Specifically, the study found that stock liquidity had a significant buffering effect on the relationship between both nonproduction overhead, financial leverage as well as plant and equipment newness and the prediction of financial distress. The study also found that stock liquidity exerted a significant enhancing effect on the primary effect of inventory levels on the prediction of financial distress.

Hypothesis five (a) postulated that stock liquidity has no significant moderating effect on the relationship between nonproduction overhead and financial distress of listed firms in Nairobi Securities Exchange. The results of the study indicated that the interaction term between non-production overhead and stock liquidity on financial distress was negative and significant (β=-1.979; p<0.05). This finding led the study to reject the stated null hypothesis with 95% confidence level. By rejecting the null hypothesis, the study accepted the alternative hypothesis and concluded that stock liquidity has a significant moderating effect on the relationship between nonproduction overhead and financial distress of listed firms in Nairobi Securities Exchange.

Hypothesis five (b) postulated that stock liquidity has no significant moderating effect on the relationship between financial leverage and financial distress of listed firms in Nairobi Securities Exchange. The analysis results of the study show that the interaction term between financial leverage and stock liquidity on financial distress was negative and significant (β=-1.998; p<0.05). This finding led the study to reject the stated null hypothesis with 95% confidence level. By rejecting the null hypothesis, the study accepted the alternative hypothesis and concluded that stock liquidity has a significant moderating effect on the relationship between financial leverage and financial distress of listed firms in Nairobi Securities Exchange.

Hypothesis five (c) postulated that stock liquidity has no significant moderating effect on the relationship between inventory levels and financial distress of listed firms in Nairobi Securities

Exchange. The analysis results of the study indicate that the interaction term between stock liquidity and inventory levels on financial distress was negative and significant (β=-1.890; p<0.05). This finding led the study to reject the stated null hypothesis with 95% confidence level. By rejecting the null hypothesis, the study accepted the alternative hypothesis and concluded that stock liquidity has a significant moderating effect on the relationship between inventory levels and financial distress of listed firms in Nairobi Securities Exchange.

Hypothesis five (d) postulated that stock liquidity has no significant moderating effect on the relationship between plant and equipment newness and financial distress of listed firms in Nairobi Securities Exchange. The analysis results of the study indicate that the interaction term between stock liquidity and plant and equipment newness on financial distress was negative and significant (β=-2.376; p<0.05). This finding led the study to reject the stated null hypothesis with 95% confidence level. By rejecting the null hypothesis, the study accepted the alternative hypothesis and concluded that stock liquidity has a significant moderating effect on the relationship between plant and equipment newness and financial distress of listed firms in Nairobi Securities Exchange.

5.2 Conclusions of the Study

Following the study findings, the following conclusions are made. First, nonproduction overhead was found to have a significant effect on the prediction of financial distress of listed firms in Nairobi Securities Exchange. This finding led to the conclusion that nonproduction overhead can determine the likelihood of financial distress in listed firms in Nairobi Securities Exchange.

Secondly, the analysis results of the study indicated that financial leverage had a positive and significant effect on the prediction of financial distress among listed firms in Nairobi Securities

Exchange. This finding led to the conclusion that financial leverage can determine the likelihood of financial distress in listed firms in Nairobi Securities Exchange.

The results of the study further revealed that inventory levels had a significant effect on the prediction of financial distress of listed firms in Nairobi securities Exchange. This finding led to the conclusion that inventory levels can establish the likelihood of financial distress in listed firms in Nairobi Securities Exchange.

In addition, the results of the study indicated that plant and equipment newness had a significant effect on the prediction of financial distress of listed firms in Nairobi Securities Exchange. This finding led to the conclusion that plant and equipment newness can determine the likelihood of financial distress in listed firms in Nairobi Securities Exchange.

The study through its empirical findings concluded that there is a significant relationship between strategic conformity and the prediction of financial distress. The study also concluded that stock liquidity significantly moderates the relationship between strategic conformity and the likelihood of financial distress among listed firms in Nairobi Securities Exchange. The findings of the study established that stock liquidity moderates the relationship between non-production overhead, financial leverage inventory levels and plant and equipment newness with the prediction of financial distress. The study concludes that when the firm has liquid stocks, the investors tend be influenced by stock liquidity of the firms to invest and influence the financial position of the firms. Furthermore, with liquid stocks firms will continue accessing external sources of capital which will enhance the firms to make decisions which positively influence the financial outcome.

Based on the findings of this study, the following conclusions can be drawn; most importantly, the study concludes that the strategic conformity dimensions play an important role in the decision making of the firm. The findings of the study indicated that nonproduction overhead had a positive and significant effect on the prediction of financial distress. This indicates that nonproduction overheads reduces the amount of free cash flow leading to a strain on the financial resources of a firm that would have otherwise been used for investment. This study therefore concludes that companies should trim selling, general and administrative costs so as to enjoy far reaching benefits through cost savings and a reduction on corporate overhead thus reduce the likelihood of a firm being classified as financially distressed.

Financial leverage was found to have a positive and significant influence on the likelihood of financial distress. This indicates that financial leverage invariably drives listed firms in Nairobi Securities Exchange into being classified as financially distressed. Firms with higher leverage level will require a greater cash flow to pay interest and principal of their debt contracts, thereby imposing greater constraints on the firm's financial resources. This study therefore concludes that firms should utilize the relatively cheap sources of finance since they tend to reduce the probability of firms' financial distress.

The findings of the study indicated that inventory levels had a positive and significant effect on the likelihood of financial distress. Inventory is viewed as fundamentally a driver of costs that manifest themselves in forgone investment opportunities as the result of tied-up capital. It also creates ancillary costs incurred in moving, storing or otherwise simply handling inventory or unsolved process problems that are covered up by the inventory. Therefore, this study concludes firms should establish inventory reduction programs in order to release cash for alternative uses.

The logic behind this argument is that decreasing inventories leads ceteris paribus to reduced capital requirements, causing profitability measures such as return on assets to increase.

Plant and equipment newness was found to be negatively and significantly related with the prediction of financial distress for the listed firms in Nairobi Securities Exchange in the period of study. Continued investment in plant and equipment is crucial because the useful life of existing capital items diminishes over time. New investment in capital items such as plant and equipment expand the production and cash flow generating capacity of the firm thus positively related to firm performance. This study therefore concludes by suggesting that firms with new plant and equipment are likely to reduce the chances of the firm's likelihood of financial distress. Thus, firms should invest in new plant and equipment as it tends to influence the decisions of investors and lenders.

The impact of stock liquidity on financial distress cannot be overemphasized given the negative and significant effects of stock liquidity on financial distress. The finding of this study thus qualified stock liquidity to be treated as a moderator for testing the interaction between strategic conformity and the likelihood of financial distress. This result showed that with liquid stocks there is less chances of financial distress among firms. Fang *et al.* (2009) observed that the tradability of stock shares plays a central role in the governance, valuation, and performance of firms. Because stock shares represent investors commands for a firm‘s cash flows and control rights, the liquidity of stock shares plays an important role in the governance effectiveness, operating performance and valuation of the firms. This finding is in support of the notion that stock liquidity influences the decision of the investors. The study therefore concludes that the firms should aim to have liquid stock as it raises certainty among the investors, acts as a source of capital and public trading of a firm's stock can influence managerial incentives. Public trading

allows managerial incentives to be provided according to the continuing performance of the firm's share price thus increase firm value and thereby reduce the likelihood of a firm’s classification as financially distressed.

In conclusion, the findings of this study have significant implications for both academic, finance and corporate governance. As scholarly inquiries into the notion of strategic conformity, stock liquidity and the prediction of financial distress have remained conceptual to date, this study is one of the first to attempt to test the concept in empirical setting. The policy makers will find useful implications that are relevant and can be used to endorse the findings of this research in financial policies.

5.3 Recommendations of the Study

Following the findings and conclusions made by the study, several recommendations are proposed. These recommendations are made both in managerial and policy perspectives. At managerial level, the recommendations provide guidelines to managers of listed firms on how corporations ought to configure their strategic conformity so as to mitigate instances of financial distress and subsequent bankruptcy. At policy level, the recommendations are aimed at bringing to light the need to institute appropriate regulatory mechanisms meant to cushion investors from loss of their hard earned wealth and hence restore confidence in the capital markets. These recommendations will create vital insights to both scholars and practitioners in finance and corporate governance.

5.3.1 Theoretical Recommendations

Notably, the findings of this study have enhanced the body of knowledge on strategic conformity dimensions and financial distress by providing empirical evidence on the moderating role of

stock liquidity on the relationship between strategic conformity and the prediction of financial distress. The research study supported the feedback theory by Subrahmanyam and Titman (2001) which hypothesizes that have a feedback effect on a firm's cash flows. Feedback theory is a theory for understanding the feedback effect of stock/shares to future cash flows (Hirschleifer *et al.,* 2006). Stock trading activity affects market prices and consequently provides feedback to cash flows by providing a cheap source of finance for making investments and may help attract customers and employees (Hirschleifer *et al.,* 2006), stimulating trading of investors (Fang *et al.,* 2009) and triggers shareholder activism in case of a price drop (Attari *et al.,* 2006) consequently leading to increased firm value. By incorporating stock liquidity as a moderator in strategic conformity dimensions and financial distress relationship, this study has widened the theoretical prism of stock liquidity effects. Consequently, the study upheld the prescriptions of feedback theory that stock liquidity plays a significant role in minimizing the likelihood that a firm will be in financial distress.

Thus, firms should ensure that they have significant amounts of tradeable shares since stock liquidity affects corporate financial decisions by reducing cost of capital and facilitating access to more funds on the capital markets. Stock liquidity can also enhance the information content of stock prices and consequently, managers learn from the informative stock prices and make value-enhancing corporate decisions. Hence, firms with more liquid stocks have less financial constraints and may pursue investments even if their projects are risky. The study therefore has boosted the existing literature on the prediction of financial distress, stock liquidity and strategic conformity which provide a reference point for academic discourse and future reference.

5.3.2 Policy Recommendations

As the corporate financial health issues are frequently debated in Kenya, this study provides insights into the roles of strategic conformity in financial soundness. As such the findings of this study provide valuable insights to regulatory authorities, managers and stakeholders on the prediction of financial distress in the securities market. Specifically, these findings can be beneficial to regulatory authorities that formulate policies, mainly the Capital Market Authority and Nairobi Securities Exchange.

First, the study found that nonproduction overhead has a positive and significant effect on the prediction of financial distress. This indicates that excessive nonproduction overheads (β=0.914; p<0.05) may lead a to a firm being classified as financially distressed. Therefore, management need to have control of the nonproduction overheads so as to enjoy far reaching benefits through cost saving and a reduction on corporate overhead. Management can have budgeted levels of nonproduction overheads basing on availability of funds to ensure that the financial distress level is not reached.

Secondly, the study found the relationship between financial leverage and the prediction of financial distress to be positive and significant. This point to the fact that financially leveraged firms are more likely to be predicted as financially distressed compared to unleveraged firms. Therefore, the firms should take keen scrutiny of their financial structures. Hence, the study recommends that the managers should put structures that aid in evaluating the extent of leverage in its capital structure as financial leverage will positively influence the likelihood of financial distress.

Thirdly, since inventory levels was found to have a positive effect on the prediction of financial distress, this indicates that higher levels of inventory levels in firms will lead to a firm’s

classification as financially distressed. Therefore, the study recommends that firms should establish inventory reduction policies such as having just in time policies as this will lead to reduced capital requirements and a reduction in inventory holding costs.

In addition, the study takes cognizance of the value of plant and equipment newness in the prediction of financial distress. The study concludes that new plant and equipment influences investors and potential lenders to advance funds to the firms since the new plant and equipment act as security/collateral. Consistent with feedback hypothesis, new plant and equipment sends positive message to would be investors that the firm will be able to provide collateral to the finance advanced to the firm. Therefore, the study recommends that there is need for firms to invest in plant and machinery as it was found to negatively influence the likelihood of financial distress.

Lastly, the results indicate that stock liquidity significantly moderates the relationship between strategic conformity and the prediction of financial distress. This implies that the effects of nonproduction overhead, financial leverage, inventory levels and plant and equipment newness can be mitigated by firms having liquid stocks. Therefore, the study recommends that management should initiate policies that enhance stock liquidity in their firms. In addition, fims should hold significant amounts of tradeable securities since stock liquidity was found to have a negative and significant influence on the likelihood of financial distress. This recommendation is in line with feedback theory which postulates that stock liquidity sends positive signals to the potential inventors and other stakeholders who intend to have engagement with the firm.

5.3.3 Implications for Practice

Several practical applications of the model were suggested. These include business credit evaluation, internal control procedures, and investment guidelines. Inherent in these applications

is the assumption that signs of deterioration, detected by an index, can be observed early enough to take profitable action. The potentially useful applications of financial distress predictive model are not limited to internal considerations but analysts can utilize these predictions to recommend appropriate corrective policies.

The task of corporate management to periodically assess correctly the firm's present condition is extremely important, but often very difficult. By carrying out an assessment of the firm’s financial condition, important strengths and weaknesses may be recognized and, in the latter case, changes in policies and actions will usually be in order. The suggestion here is that the financial distress prediction model, if used correctly and periodically, has the ability to predict corporate problems early enough so as to enable management to realize any distress signals in time to avoid failure. For instance, observations suggest that while investors are somewhat capable of anticipating declines in operating results of selective firms, there is an overwhelming tendency to underestimate the financial plight of the companies which eventually get into financial distress. If an investor already owns stock in a firm whose future appears not promising according to the model, the investor should sell in order to avoid further price declines. The sale would prevent further loss and provide capital for alternative investments.

The study establishes the utility of strategic conformity dimensions as having a significant effect on Altman’s Z-score predictor of financial distress model. This indicates that strategic conformity has the ability to capture important information relating to the financial distress situations of a firm. This might serve as a predictive tool to lenders, particularly banks and financial institutions and investors for managing their exposures efficiently and determining the appropriate measures to be taken. The findings of the study also have important implications for managers and other

stakeholders. The potential direct as well as indirect costs of financial distress can be avoided by timely and accurate assessment of default risk.

Another potential presents itself for utilization in the business sector. The significant point is that the financial distress model contains variables common to business-loan evaluation and these can be used for consumer-loan evaluation. The evaluation of business-loans is an important function in our society, especially to commercial banks and other lending institutions. A fast and efficient device for detecting unfavorable credit risks might enable the loan officer to avoid potentially disastrous decisions.

5.3.4 Recommendations for Further Research

The following suggestions were made for further research based on the findings of this study;

First, this study only incorporated listed firms in Nairobi Securities Exchange. Given the ostensible concerns of financial distress and since strategic conformity is a relatively new construct in financial distress research, the study recommends future research using different samples (such as private non-listed firms or Small Market Enterprises) which may provide additional insights and add to the existing understanding of the issues explored in this study.

Secondly, the study found that when further probing was done on the interactions, the moderating effect of stock liquidity differed at different levels of the moderator. Further research is recommended to establish the reason for this type of finding. Thirdly, this study found unexpected significance of the control variables. A replication of this study is recommended with the establishment of firm age, firm size and industry as independent variables of study.

Lastly, given the ostensible concerns of financial distress, future researchers may incorporate some other variables in the analysis such as the quality of accounting information and financial reporting and the quality of management in predicting financial distress.

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Appendix 1: Data Collection Schedule

1.0 Dependent variable

X1 = Working Capital/Total Assets; X2 = Retained Earnings/Total Assets; X3 = Earnings Before Interest and Tax/Total Assets; X4 = Book Value of Equity/Total Liabilities

Year	Amount in financial year (Sh. 000,000)											
	Current Assets = CA	Current Liabilities = CL	Working Capital (WC) = CA-CL	Total Assets = TA	Retained Earnings = RE	Earnings Before Interest and Tax = EBIT	Book Value of Equity = TA-TL	Total Liabilities = TL	X1 = WC/TA	X2 = RE/TA	X3 = EBIT/TA	X4 = BVE/TL
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

1.1 Independent Variables

i). Nonproduction overhead (NPO) = Selling General and Administrative expenses/Sales Revenue

ii). Financial Leverage (LEV) = Total Liabilities/Total Assets

iii). Inventory Levels (INVL) = Inventories/Sales Revenue

iv). Plant and Equipment Newness (PE) = Net Plant and Equipment/Gross Plant and Equipment

Name of company

Year	Amount in financial year (Sh. 000,000)										
	Selling General and Administrative expenses = SGA	Sales Revenue = SR	Total Liabilities = TL	Total Assets = TA	Inventories = I	Net Plant and Equipment = NPE	Gross Plant and Equipment = GPE	NPO= SGA/SR	LEV = TL/TA	INVL = I/SR	PE= NPE /GPE
1.											
2.											
3.											
4.											
5.											
6.											
7.											
8.											
9.											
10.											

1.2 Moderating Variable

Stock liquidity (STL) = Shares Traded in the whole year (Trading volume)/Shares Outstanding at the end of the year

Name of company

Year	Amount in financial year (Sh. 000,000)		
	Shares Traded in the whole year = ST	Shares outstanding at the end of the year = SO	STL = ST/SO
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

1.3 **Control Variables**

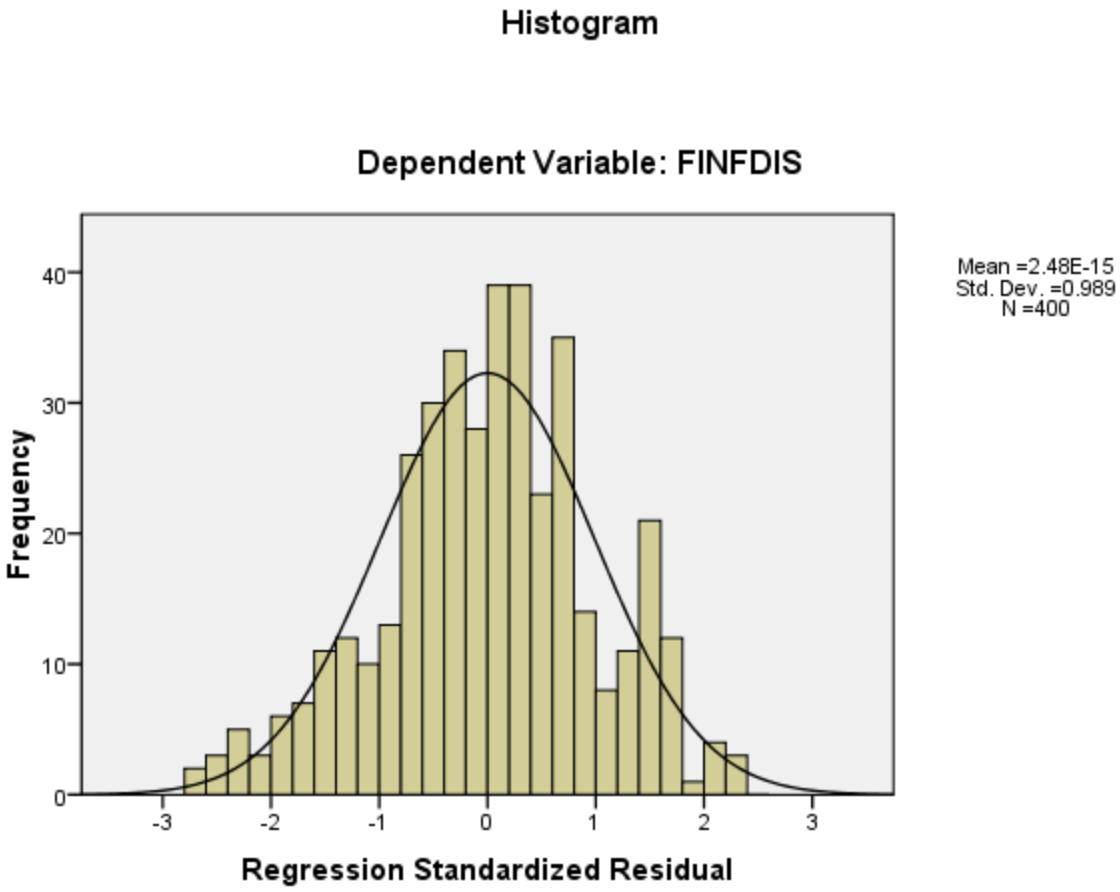
i). Firm Size (SIZE) = Log of Total Assets

ii). Firm Age (AGE) = Log of number of years since the firm was first listed

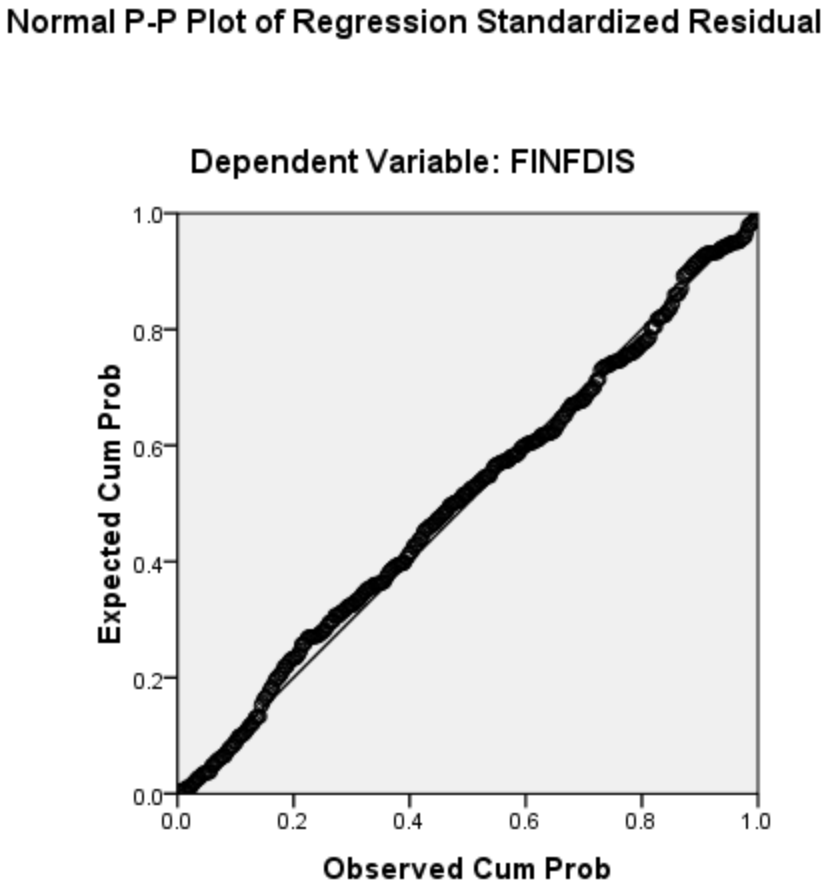
Name of company

Year	Amount in financial year (Sh. 000,000)		Age in financial year	
	Total Assets = TA	SIZE= Log of TA	Number of years since first listing = YRS	AGE = Log of YRS
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

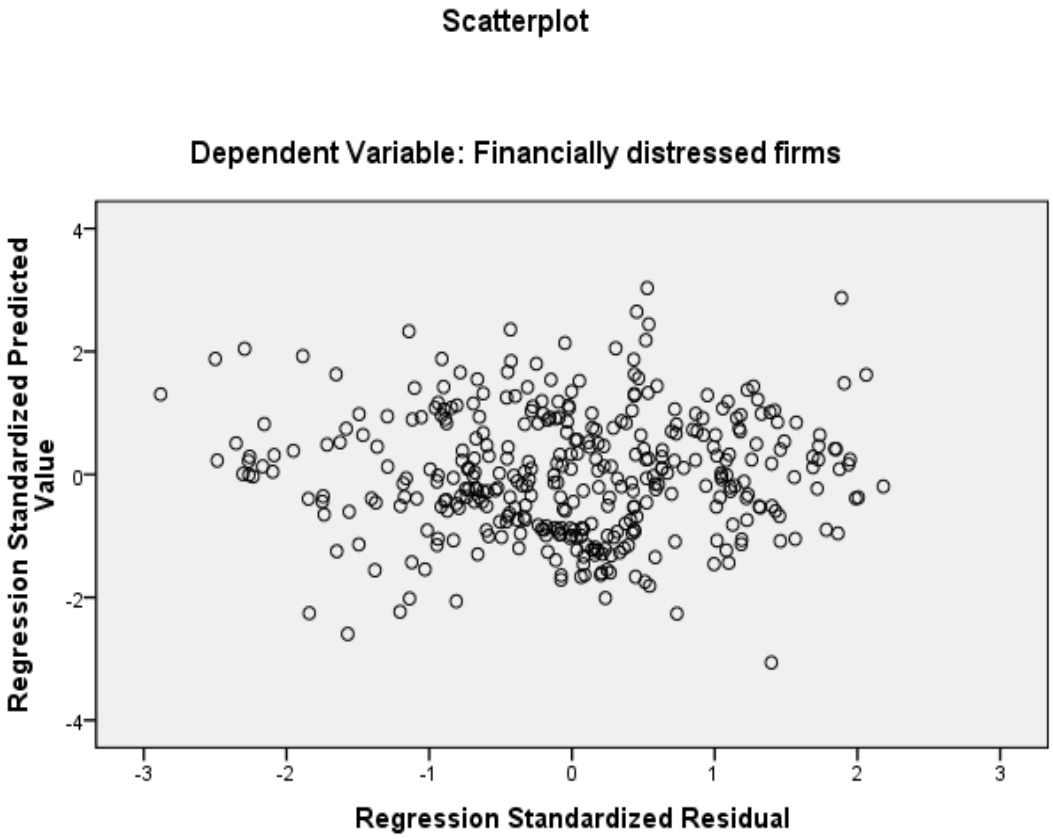
Appendix 2: Histogram



Appendix 3: Normal P-Plots



Appendix 4: Scatter-Plot



Appendix 5: List of Studied Companies

1. BAMBURI CEMENT CO LTD
2. BRITISH AMERICAN TOBBACCO KENYA
3. CAR & GENL(KENYA)
4. EAST AFRICAN BREWERIES LTD
5. EAST AFRICA CABLES
6. SAMEER AFRICA LTD
7. SANLAM KENYA PLC
8. SASINI LTD
9. KAKUZI LTD
10. ARM CEMENT LTD
11. MUMIAS SUGAR COMPANY LTD
12. KENYA ELECTRICITY GENERATING COMPANY
13. UNGA GROUP LTD
14. WILLIAMSON TEA KENYA
15. REA VIPINGO PLANTATIONS LTD
16. CARBACID INVESTMENTS LTD
17. CROWN PAINTS KENYA LTD
18. OLYMPIA CAPITAL HOLDINGS
19. DIAMOND TRUST BANK KENYA
20. KENYA POWER & LGHT
21. NIC BANK LTD
22. KENOLKOBIL LTD
23. KCB GROUP PLC
24. NATIONAL BANK OF KENYA
25. STANDARD CHARTERED BANK
26. TOTAL KENYA
27. NATION MEDIA GROUP LTD
28. WPP SCANGROUP LTD
29. KENYA RE-INSURANCE CORP LTD
30. SAFARICOM LTD
31. ACCESSKENYA GROUP LTD
32. EXPRESS KENYA LTD
33. BRITISH AMERICAN INV (KENYA)
34. CIC INSURANCE GROUP LTD
35. COOPERATIVE BANK OF KENYA LTD
36. HOUSING FINANCE CORP
37. JUBILEE HLDGS LTD
38. EQUITY GROUP HOLDINGS LTD
39. KENYA POWER & LIGHTING
40. CAR & GENL(KENYA)