DETERMINANTS OF FINANCIAL DISTRESS OF NON-FINANCIAL FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

BY

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DECLARATION

I declare that this is my work and has not been presented to any institution or university other than the University of Nairobi for examination.

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D63/5056/2017

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

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DEDICATION

This research project is dedicated to my dear family, my parents Susan Mburu and John Mburu, my brother and sisters for their financial and inspiration support and encouragement.

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LIST OF ABBREVIATONS

CDSC	Central Depository and Settlement Scheme
EBITDA	Earnings before Interest, Tax, Depreciation and Amortization
EBIT	Earnings before Interest and Tax
GDP	Gross Domestic Product
ICDC	Industrial and Commercial Development Corporation
IFRS	International Financial Reporting Standards
IPO	Initial Public Offering
NSE	Nairobi Securities Exchange
REIT	Real Estate Investment Trusts
ROA	Return on Assets
ROE	Return on Equity

ABSTRACT

The subject of financial distress on companies has become more important to stake-holders of businesses as management of this situation can lead to either turn-around or total collapse of the business. The purpose of this study was to establish the determinants of financial distress on non-financial firms listed at the Nairobi Securities Exchange. This will specifically study seek to: establish the effect of profitability (ROA), liquidity, leverage, asset-turn over and total assets on Altman Z score (dependent variable). A sample of 10 non-financial under the following segments in the NSE sector categorization; Automobile, Commercial and Services, Energy and Petroleum and Manufacturing and Allied, Construction and Allied, Agricultural sector and Telecommunication. These segments were selected because they possessed the required information and Altman's Z-score, a proxy for financial distress was applied for this companies. The research relied on secondary data. Secondary data was gathered from financial statements, NSE Investor Handbook, as well as websites of firms studied. Financial information of a five-year period between 2013 and 2017.The study used statistical packages for social sciences (SPSS) to generate the result findings. The correlation and regression result revealed that profitability (ROA) and total assets were significant. The study concluded that return on asset and profitability ratios were significant variables that measure a distress in non-financial firms. The results emphasize the need of non -financial firms to focus on their asset investment and efficiency so as not to have financial distress in their operations.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The main objective of any firm is the maximization of the wealth of its shareholders. This means that every corporate event undertaken by the firm should be geared towards achieving this goal. However, due to inability to fulfill its financial obligation, or in other terms financial distress, firms fail to meet this objective. An entity is said to be in a financial distress state if it faces operating, investing and financing difficulties to the extent that it is not able to settle its obligations when they fall due (Adeyemi, 2012). During the period of distress, the entity incurs various costs whether directly or indirectly which often affects its ability to generate returns and consequently lead to a reduction in the financial performance of the entity. According to Pandey (2010), when a firm is in financial distress, key suppliers of the firm suspend their supplies for fear of losing their funds or shy away from providing the all required capital injection to the entity or provide the funds at stringent terms making the already troubled entity unable to turnaround causing the firm performance to reduce. Non -financial firms are appropriate for this study because high leverage that is an indicator of financial distress may not have the same meaning for financial firms (Yahaya, 2016).

This study is anchored on Wreckers' theory of Financial Distress, Trade-off-Theory and Agency Theory. Wreckers' theory of Financial Distress was developed by Daniel, Hirshleifer and Subrahmanyam (1998). This theory explains how stocks of distressed firms outperform those of financially sound firms because as many investors opt out in wake of distress earning per shares of the firm will be high since profits will be attributable to low

number of shares outstanding. Trade-off-Theory was developed by Kraus and Litzenberger (1973). The theory is applied in a situation where the firm works towards striking a balance between taking advantage of tax shield on interest expense arising from debt financing and the actual cost of the debt. Therefore, there is a dilemma of taking advantage of tax shield and the adverse effects and costs of financial distress. Agency Theory was established by Jensen and Meckling (1976). The theory outlines the relationship between the agent and principal as one based on contrasting interests. It is therefore, necessary for B.O.D to oversight on the actions of the agent but, the board may be ineffective in its mandate and the organization may suffer financial distress because of poor financial decisions.

In the last decade, a number of entities listed at the NSE have had to deal with financial distress emanating from a myriad of systematic and unsystematic variables which has affected their financial performance (Muchiri, Muturi & Ngumi, 2016). More than 10 companies have been delisted from the Nairobi Securities exchange for the last one decade. Firms like Pan Paper Mills, Hutchings Biemer and Uchumi Supermarkets Ltd were put under legislative management. In September 2014, Eveready Ltd cut 100 jobs and closed its dry cell-making plant in Nakuru, in October 2014, chocolate maker Cadbury shut down its manufacturing plant in Nairobi, shedding about 300 jobs (NSE, 2017).

1.1.1 Financial Distress

According to Campbell et al. (2011), financial distress is the detrimental outcome of weakening in a firm's business caused by the quantity of things that may contain any of the following: unwise expansion, poor management, and cut-throat business competition, huge amounts of business debt, court lawsuit and unfavorable contracts. Labie and

Périlleux (2008) assert that financial distress is a situation where a company finds it difficult in paying off its financial obligations. It is a state that is experienced by firms due to internal and external challenges thus leading to bankruptcy and even liquidation. Outecheva (2007) argue that indicators of financial distress among firms can be; declined profits, declined market share, poor service delivery, demotivated employees and inability to adapt to changes. He also notes that, a company can be distressed without defaulting due to internal issues of corporate governance and policies of operation.

According to Altman and Hotchkiss (2014) financial distress presents a grave concern to stakeholders such as; stockholders, managers, lenders, government and employees. To the managers, their job security and personal reputation are in jeopardy should the firm fail. Financial distress lead to loss of the market share because of competition as the competitors may execute an aggressive strategy aimed at attracting customers of the troubled entity through price wars and the distressed entity may be driven out of the market.

Kemboi (2013), noted that in many cases, entities in financial distress strive to get out of the difficult situation by executing different turnaround strategies such as downsizing, elimination of loss making product lines, hiring of experts, restructuring, disposal of unproductive assets as well as improving the working capital cycle. Altman's Z-score is used to indicate the level of financial distress; whereby a firm with a score of less than 1.8 is considered to be financially distressed. The devastating effect of financial distress among firms listed in Kenya has been highlighted over and over again.

Altman's Z- score has been tested as valid way of forecasting the likelihood of financial distress in firms'. This is evident because of the many firms that have been placed under

receivership, undertaking financial restructuring or being delisted from NSE altogether. According to Makini (2015) there was a significant relationship of Z-score and the predictors that had been used. He concluded that the model was applicable for forecasting distress on firms listed at the NSE his findings were similar to those of Kipruto (2015) also supported the validity of the model in his work on Uchumi Supermarkets Limited. The Altman's Z-score is a useful measure for quick determination of the level of financial distress in an organization.

1.1.2 Determinants of Financial Distress

Financial distress can be determined through the following factors; firm profitability, firm liquidity, leverage, firm size and firm efficiency as discussed below. Profitability refers to the ability of the firm to keep realizing profits through increased sales and investment in capital assets Alemu (2015). Profits are therefore, revenues in excess of the firm's expenses. Profitability ratios are used to indicate the firm's level of profits and they include; the segment of an organization's profit assigned to each ordinary share (earning per share), a measure of net profit returned as a level of investors value (return on value (ROE), profit on investment (ROI), measure of the management efficiency in generation of the revenues by using the assets at their disposal (return on asset (ROA). Anwar (2014) found that good business strategies are necessary to firms in distressed position in order to enhance their profitability for a turn-around opportunity. Financial distress affects the firm profitability through associated direct and indirect costs. Accumulated debts are the largest indirect costs components in distressed firms while legal costs, lost market shares and administrative expenses are direct firm costs. Internal and external factors affect the firm's

profitability level and while internal factors are firm specific, external factors affect all firms in general. The common profitability measures employed in firms are ROA and ROE.

Levi, Russell and Langemeier (2013) noted that liquidity is a company's ability to finance increment in resources and meet money and collateral commitments at sensible costs and without causing unsuitable misfortunes. Cheluget et al. (2014) researched on liquidity and financial distress of insurance firms and found out that relationship exists. Therefore, they concluded that liquidity is an important factor of financial distress. Solvency and liquidity measures significantly affect enhancing cost efficiency; firms with bigger uses on sourced inputs with respect to capital are more likely to enhance the effectiveness (Mwangi, 2014)

Leverage refers to the proportion among cumulative assets and the cumulative of the firm that indicates the degree to which the cumulative assets are funded by borrowings (Cui, De Jong & Ponds, 2011). A rise in this proportion indicates the reliance on the firms on outside money owing funding and higher score being provided to the company by loan facilitators resulting in a financial distress to a business. Total liabilities to equity are normally used to evaluate leverage. Some liabilities such as financial borrowings and shares offered are owed to funding, other liabilities such as operation dues, delayed returns, and annuity liabilities arise from dealings with suppliers, clienteles and workers in carrying activities, (Bliss & Gul, 2012). Funding liabilities are usually transacted in proper operating principal markets where issuers are cost takers. On the contrary, companies are likely to increase the worth in business as operations entail transacting in raw materials and finished goods markets that are not much greater than businesses for capital. The commonly used measure of financial distress is gearing ratios i.e. (total debt to assets ratio and total debt to equity ratio). According to Andrade & Kaplan (1998) leverage affect financial distress negatively.

Firm size has a significant impact in establishing whether a firm is in distress or not. This is because of the way that extensive firms source funds efficiently because of their capacity to impact the rate interest further bolstering their advantage. Substantial firms can likewise survive in troubled times than little firms because of the level of retained earnings (Ooghe and Prijcker, 2008). Firm size is commonly measured as a natural logarithm of the total assets. However, existing literature show mixed results on the effect of firm size on finance distress. For instance Nyambura and Memba (2013) researched on effect of firm characteristics on financial distress where firm size was considered. The findings indicated that firm size was significant to financial distress. Yu (2006) concluded that firm size did not significantly affect financial distress.

Efficiency in firm indicates how well the assets are used for revenue generation (Pranowo et al. 2010). Activity ratios help in indicating how efficient the firm is in its resource utilization for cash generation purposes. Firm efficiency is through sales turnover, working capital to sales ratio, assets turnover, debtors' collection period among others. Debtors' collection period indicates the time it takes for debtors' to meet their credit liabilities. A low collection period shows that the firms' debt policies are efficient and it is not easy for firms' to experience cash flow difficulties while long period increases chances of bad debt which may result to financial distress in firms. Asset turnover ratio shows how well the company generates sales from its assets. A higher ratio shows how profitable the firm is and therefore, minimal investment in assets to raise revenue. A lower ratio is an indication of financial difficulties in firms' and a likelihood of financial distress. When a firm is financially distressed, managers may be tempted to misappropriate assets and misuse entity resources in the form of incentives and generally avoid risky investments. They may start

focusing on the short-term rather than long-term strategies which would be in the best interest of the firm (Pandey, 2010). These decisions often aggravate the already delicate situation of the company leading to further loss in value.

1.1.3 Financial Distress and its Determinants

Evaluating the capability of a company to remain a going concern in the foreseeable future is an area of concern to investors, auditors, creditors and other partners. Altman (1968) employed the multivariate discriminant approach to financial distress prediction and concluded that increasing the level of financial leverage enhances financial distress in the firms. The significance of this issue has stimulated a lot of research concerning financial distress and formulation of various theories such as the Credit Risk Theory hypothesized by Merton (1974). This theory asserts that a credit risk arises when a borrower does not repay the borrowed funds when they fall due and the lender is exposed to a potential loss due to default. Defaulting on settling obligations when they fall due is an indicator of financial distress, which leads to loss of value (Tan, 2012). Moreover Daniel et al (1998) argues that distressed firms outperform those of financially sound firms because as many investors opt out in wake of distress earning per shares of the firm will be high since profits will be attributable to low number of shares outstanding.

Thorley, Perry and Andes (2012) argued that financial distress factors are economic indicators, determinants and variables of financial distress that will affect performance of an organization as adopted by the current study. The study asserted that liquidity, profitability, leverage, firm's size, paying of dividends and quantified opinion are financial distress variables that measure a firm's performance (Khalid, 2017). Kariuki (2013) firms

with low distress level are in a good position to do better in comparison to those firms with a high level of distress and therefore, a negative connection between performance and financial distress of firms develops. Kosikoh (2014) argued that financially distressed insurance companies contribute to contagion effect in the economy and negatively affect economic stability of other sectors in a country. From the above review and analysis, the current study noted that identification of financial distress factors or indicators of financial distress had widely been identified by various studies globally and locally. This study will therefore focus on various determinants of financial distress of non-financial firms in Kenya.

1.1.4 Non-Financial Firms Listed at the Nairobi Security Exchange

Established in 1954, the Nairobi Securities Exchange remains as the main securities exchange market of Kenya and also the leading securities market in East Africa (Kioko, 2015). NSE is a body corporate established under the Companies Act (CAP 486) of the Kenyan law and comprises of all licensed stock brokers. The NSE was privatized in 1988 by the Kenyan government through the sale 20% of its holdings. The market operates through a Central Depository and Settlement Corporation (CDSC). The NSE is regulated by the Capital Market Authority of Kenya where the regulator ensures compliance of the listed companies. The NSE focuses on helping trade clearance arrangements of equities, debt derivatives and other related financial tools (Olang, 2017).

There exist 2 indices used to measure the performance in the NSE. NSE 20 share index is a yardstick that is used to track the best performing 20 companies in Kenya that are listed at the NSE. Although it is widely watched and cited because it is comprised of select 20

large companies, it cannot gauge fluctuations in smaller companies. The Nairobi Securities Exchange all share index (NASI) that is usually used to measure Market Capitalization other than the movements in price of few selected counters (Kioko, 2015). Non-financial firms' stocks are firms not involved in provision of financial services. There are 40 non-financial firms listed at the NSE under the following sectors: commercial and services, agriculture, industrial and telecommunication and technology, investment, automobiles and accessories, energy and petroleum (NSE, 2017). Currently, many firms have been delisted due to financial distress problem with others being placed on receivership and therefore the need for the study.

1.2 Research Problem

Firms are said to work on a going concern premise and subsequently have a never-ending life. In actuality, this may not be the situation as firms regularly flop under unanticipated conditions (Sporta, 2018). In spite of good evaluating and aggressive procedures, firms still experience capital related troubles. Business achievement depends intensely on the capacity of resource management and partners in the execution of business activities. Memba and Ngwa (2016) conducted a periodic research study before, during and after financial distress on customer loyalty and performance of United Kingdom banks and found out that the banks financial performance was high before and after the financial distress as compared to the performance during the period of the crisis.

Cases concerning financial distress on firms have been increasing both in developing and developed countries. Financial distress has characterized the corporate sector for many years. In recent times, the world has witnessed numerous instances of business failure

among large firms (Atosh, 2017). These corporations were regarded as icons of corporate financial stability and their collapse came with tremendous surprise to researchers and analysts alike. A number of organizations listed at the NSE such as Kenya Airways, Uchumi Supermarkets Limited, Mumias Sugar Limited, and Express Kenya Limited etc. have gone through cycles of financial distress in the recent past arising from a myriad of factors (NSE, 2017). These issues combined with the absence of a general theory set off the requirement for further research to investigate various factors determining financial distress, which motivated this research study.

In recent years a number of researches have been done to show the determinants of financial distress in a firm. Globally, Shah (2016) conducted a study that looked at the effect of corporate governance on financial distress in Pakistan and found that there was an insignificant relationship among corporate governance activities and the prospect of financial distress. Campbell, John, Hilscher and Jan (2011) conducted a study that focused on forecasting monetary distress and the cost effectiveness of distressed shares in the USA and established that distressed shares had bigger variable proceeds and that these shares tend to underperform secure shares by more now and then of greater market instability and risk avoidance. It is against this background that an investigation on the determinants of financial distress on non-financial firms listed in Kenya is necessary.

Locally, Sporta, (2018) conducted a research study on the effect of financial distress factors on financial performance for commercial banks in Kenya and found a significant relationship between liquidity, leverage, operational efficiency, asset quality and capital adequacy as financial distress factors on financial performance with operational efficiency being the most significant determinant of financial distress on financial performance of

commercial banks in Kenya. Atosh (2017) conducted research study to establish the effect of corporate governance practices on financial distress among listed firms at Nairobi Securities Exchange and found that net profit has a negative correlation effect on financial distress; management concentration and financial distress are negatively related. Muigai (2016) found that capital structure have a negative effect on financial distress of non-financial firms listed at NSE. Kanyugi (2016) conducted a research study targeting all listed firms at NSE to establish the impact of financial distress on firm value and found that a strong positive relationship of 74% between the log of market capitalization and the Altman's Z-score. Makini (2015) conducted a study to test the validity of Atman's Z-score model in predicting financial distress of firms listed at the NSE.

The lack of consensus among the various scholars both globally and locally on various determinants of financial distress in a firm is reason enough to conduct further examination on the area of the study. In addition most of the studies conducted in Kenya have focused on financial distress on commercial banks and this breeds the knowledge gap upon which this study seeks to fill. Therefore this study attempted to give an explanation to the question, what are the determinants of financial distress on non-financial firms listed at NSE?

1.3 Research Objective

The main objective of the study was to establish the effects of determinants of financial distress on non-financial firms listed at the Nairobi Securities Exchange.

1.4 Value of the Study

The study findings is of assistance to the NSE and CMA and other policy makers in formulating appropriate mechanisms necessary to continuously monitor and evaluate the financing aspect of corporations. This can be achieved by identifying specific industry-based debt thresholds that would ensure that firms are not unnecessarily exposed to risk of financial failure that results to erosion of investors' wealth.

Industry practitioners benefit from its this findings in making financing decisions by affording them a vital reference point on the need by corporations to determine and maintain optimal financing framework necessary to cushion firms against instances of financial distress. This not only maximizes the shareholders' wealth but also boost investor confidence in the Nairobi Securities Exchange.

Scholars and academicians in the finance discipline benefits from the study recommendations where they may conduct further studies to broaden the knowledge on financial distress. Furthermore, they can consider the methods and results of this research and possibly extend it in various directions. The study adds to the present information on corporate governance and financial distress in the Kenyan context. A developed conceptual framework has been tested to establish its applicability to the firms listed at NSE. This adds to the existing theoretical knowledge on financial distress and financial performance.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter examined the relevant literature relating to determinants of financial distress as well as their effects. It presents the theoretical literature review and the determinants of financial distress. Empirical literature from international and local studies, conceptual framework and summary based on the review is also discussed.

2.2 Theoretical Literature Review

This presents review of the relevant theories that explains the associations between various determinants of financial distress. This study is anchored by the following theories; Wreckers theory of Financial Distress, Agency theory and Trade-off Theory.

2.2.1 Wreckers Theory of Financial Distress

The theory was developed up by Daniel, Hirshleifer and Subrahmanyam (1998). The developers freely investigated the idea that securities of troubled firms reliably beat those of stable firms. This is ordinarily persuaded by the craving among financial specialists to quit before the firm eventually fizzles and they lose their speculation. The demonstrations of pulling back assets from as of now financially troubled firms who vary in actuality severely require those assets is alluded to as "wrecking". The activity can likewise be clarified as the procedure of pre-emptive pulverization of an organization before its value at last plunges to a point of no rescue.

Financial specialists pull back assets from the firm as private, non-profit benefits. Financially troubled firms investors will just endure opportunity cost if the firm

recuperates, be that as it may on a chance that it defaults on its commitments, the withdrawal of assets is regarded to be a free source of capital which can be reinvested elsewhere for a satisfactory return. This demonstration is contrasted with the traditional idea of tearing separated an old ship which excessively costly to repair, using its individual parts to put another more up to date one thus not financially worth (Kalckreuth, 2005). Therefore this theory is relevant to this study because wrecking affect distressed firms turn around strategies because of reduced capital resulting from investors opt out.

2.2.2 Agency Theory

This theory was established by Jensen and Meckling (1976). The theory discusses agency relationship where a principal hires an agent to carry out services on his behalf. Managers in a firm are agents of shareholders who are guided by the principle of maximizing the shareholder wealth. However, there are several factors that affect the relationship. First, is the conflict of interest between the principals, the existence of information asymmetry amongst the principal and agent and the inability of the principal to ensure that agent acts in compliance to his/her wealth maximization goal (Jensen, 1986).

Therefore, these divergent behaviors of the agent results in to agency costs such as; allowances of board of directors who are appointed by the principal to oversight the actions of agent. However, where the B.O.D is not effective there arise corporate governance problems and the firm is faced with financial decision problems. According to Jensen (1986) availability of free cash flow makes managers invest in projects with negative NPVs due to conflict of interest. Decisions on non-financial variables may affect the firm heavily in the long run and if no interventions are made, this may lead to financial distress.

2.2.3 Trade-off Theory

According to Kraus and Litzenberger (1973) trade-off theory is applied in a situation where the firm works towards striking a balance between taking advantage of tax shield on interest expense arising from debt financing and the actual cost of the debt. A number of considerations are made such as agency costs and potential cost of distress to ensure that the organization arrives at an optimal capital structure incorporating debt and equity financing. According to Mokhova and Zinecker (2013) trade-off theory has received support and criticism in equal measure especially due to debates over validity of MM theory. Trade-off theory postulates that when corporate taxes are incorporated in the MM theory, the tax shield on interest expense is an added benefit to the business making debt financing more preferred compared to equity financing.

On the one hand, evidence from empirical studies suggest that even though preferred level of leverage may exist, it is not as critical as since many studies reveal that leverage reduces with financial performance which contradicts the trade-off prediction; that more financial sound organizations should borrow more to take advantage of tax shield. Managers, therefore, are confronted with the dilemma of taking advantage of tax shield and the adverse effects and costs of financial distress. In order to deal with this dilemma, the organization trades off between tax benefits and the risks associated with of financial distress. This assertion is of particular importance in this study as most of the firms listed at the NSE have some level of leverage in their capital structure. Hewlege and Liang (1996) in their study on the validity of pecking order theory finds the ease of raising finance for business operations does not depend of the level of retained earnings and organizations that could easily acquire bank loans often preferred equity financing instead.

2.3 Empirical Review

This section covers various studies conducted on determinants of financial distress both globally and locally. Globally, Shah (2016) conducted a study that looked at the effect of corporate governance on financial distress in Pakistan. The research empirically investigated the corporate governance practices of KSE 100 index listed non-financial firms and their effect on financial distress in the perspective of Pakistani market. In this research the effect of administrative ownership, organizational ownership, size of the panel, interdependence of the directors and Audit committee on financial distress were examined. Panel logit analysis based on 10-year data of the non-monetary firms for the year 2004 to 2005 was employed in this research. Results indicated that there was an insignificant relationship among corporate governance activities and the prospect of financial distress. There is a conceptual and contextual knowledge gap since it focused on corporate governance and Pakistan economy, which this study seeks to fill by looking at other determinants of financial distress in Kenya context.

In Nigeria Ndibe, Abdulazeez and Mercy (2016) did a study on the effect of corporate governance of financial performance of listed financial institutions. Secondary data was obtained from the annual reports of listed institutions. Regression analysis was conducted that revealed that larger board size contributes positively and significantly to the financial performance of deposit money banks in Nigeria. The study presents contextual knowledge gap since the focus was on financial institutions. This study seeks to establish determinants of financial distress on non-financial firms in Kenya.

Gebreslassie (2015) researched on determinants of financial distress of commercial banks in Ethiopia. He used panel data for a period of ten years (2002-2012) to establish the determinants of financial distress. Data was analyzed using Altman Z-score model. The findings indicated that net interest income to total revenue ratio and loan to capital ratio had significant positive effect on banks financial health. The study presents contextual knowledge gap since the conditions of Ethiopia cannot be compared to Kenya hence the findings cannot be generalized to Kenya.

Shaukat and Hina (2015) studied the impact of financial distress on financial performance of Pakistani corporate sectors mainly on non-financial companies listed in Karachi Stock Exchange over six years. Using the Altman Z-score Model Shaukat and Hina (2015) asserted that there exists a significant relationship between financial performance and financial distress and further, financial performance of companies in Pakistan increased with an an increase in Z-score values and with a decrease in financial distress. This study creates a conceptual research gap because it only links financial distress and financial performance. Therefore this study seeks to link various determinants of financial distress.

Campbell, John, Hilscher and Jan (2011) conducted a study that focused on forecasting monetary distress and the cost effectiveness of distressed shares in the USA. They presented a corporate failure model that predicts the probability of future financial distress through accounting as well as market-based measures. They used a computation of financial distress to look at the cost effectiveness of distressed shares since 1981 to 2008. They established that distressed shares had bigger variable proceeds and that these shares tend to underperform secure shares by more now and then of greater market instability and risk avoidance. Despite bearing these significant risks, investors in distressed stocks did

not enjoy any particular rewards. Even after significantly adjusting for their high risk, distressed stocks relative to other market stocks had very low returns. The study presents contextual knowledge gap since the conditions of USA (developed economy) cannot be compared to Kenya hence the findings cannot be generalized to Kenya context.

Pranowo et al. (2010) researched on determinants of financial distress in emerging economies a case study of Indonesian Stock Exchange. The target population was non-financial companies in the Indonesian Stock Exchange. The study used inferential statistics where regression analysis was used to show the relationship of internal and external factors to financial distress. The study found that efficiency, equity and current ratio had a positive and significant influence on financial distress. Leverage was found to have a negative and significant relationship with financial distress while macroeconomic factor indicated no significant effect on financial distress. There is a contextual knowledge gap which the current study seeks to fill since it focused on Indonesian economy.

Locally, Sporta (2018) conducted a research study on the effect of financial distress factors on financial performance for commercial banks regulated by Central Bank of Kenya (CBK). The study adopted a descriptive research design where a census of 43 commercial banks regulated by CBK was carried out due to the small size of the units of analysis. Secondary data was used. Panel data was analyzed using STATA software version 13 or regression analysis and model specification tests. The study revealed a significant relationship between liquidity, leverage, operational efficiency, asset quality and capital adequacy as financial distress factors on financial performance with operational efficiency being the most significant determinant of financial distress on financial performance of commercial banks in Kenya. The study recommends that managers and regulatory bodies

should concentrate on how to improve financial performance of commercial banks and how to put proper controls to mitigate the effects of financial distress factors on financial performance. The study presents contextual knowledge gap since the focus is on commercial banks only. This study therefore will focus on all non-financial firms listed at NSE.

Abdulahi (2017) researched on effects of corporate governance on financial distress of firms quoted at the NSE. The study used the firms listed in the NSE as the target population. Descriptive research design was used fin the study and data was analyzed using ordinary least square regression model. Altman Z score model was also employed to test the score of financial distress among the listed firms. The study found that management concentration, net profit and non-executive board members had a negative and statistical effect on financial distress while board size had a significant positive effect on financial distress. Capital structure and board diversity showed positive but insignificant effect on firms listed. This study created a conceptual knowledge gap because it focused on corporate governance practices as determinants of financial distress. However, the current study will look at other variables that determine financial distress.

Atosh (2017) did a study to establish the effect of corporate governance practices on financial distress among listed firms at Nairobi Securities Exchange with a focus on number of non-executive directors, board size, board gender diversity, ownership concentration and the control effect of net profit and capital structure. The study employed a descriptive research design. The target population of the study was the listed firms at the NSE by the year ending December 2016. Altman Z score model was used to score the financial distress. Applying ordinary least square regression model, the study established

that net profit has a negative correlation effect on financial distress; management concentration and financial distress are negatively related. The study presents conceptual knowledge gap since the focus is on corporate governance. This study links financial distress and financial performance.

Kanyugi (2016) conducted a research study targeting all listed firms at NSE to establish the impact of financial distress on firm value. Particularly, the study focused on financial distress as predicted by Altman's Z-score model and value of firm, proxy of which being market capitalization. Secondary data was collected from the annual reports and financial statements of 34 companies listed at the NSE over a five-year period spanning between 2011 and 2015. The study revealed a strong positive relationship of 74% between the log of market capitalization and the Altman's Z-score. Further, the study shown that there exists a positive beta value of 0.2054 between the two variables indicating that a unit increase in Altman's Z-score (an indicator of reduction in the level of financial distress) would lead to 0.2054 increases in the log of market capitalization with other factors held constant.

Nyambura and Memba (2013) investigated on the main causes of financial distress of firms that were funded by industrial and commercial development corporation in Kenya. The study employed a case study design for in-depth investigation on the phenomenon. The target population consisted of the companies funded by DFIs and a sample of companies funded by ICDC was drawn. The study used both secondary and primary data where questionnaires were used for primary data collection and annual financial reports of sampled companies helped in gathering secondary data. Data was analyzed using Weighted Mean Score and Factor Analysis and the outcome indicated that endogenous variables were

more weighted in comparison to exogenous variables. Endogenous variables had a significant effect on financial distress. The study however, created a contextual knowledge gap because it focused on the ICDC funded firms in Kenya while the current study focus on listed firms in Kenya.

2.4 Conceptual Framework

The conceptual framework gives a portrayal of how the variables identified are related to each other. Financial distress is the dependent variable which is affected by the independent variables; such as, Profitability, liquidity, financial leverage and firm efficiency and Firm size.

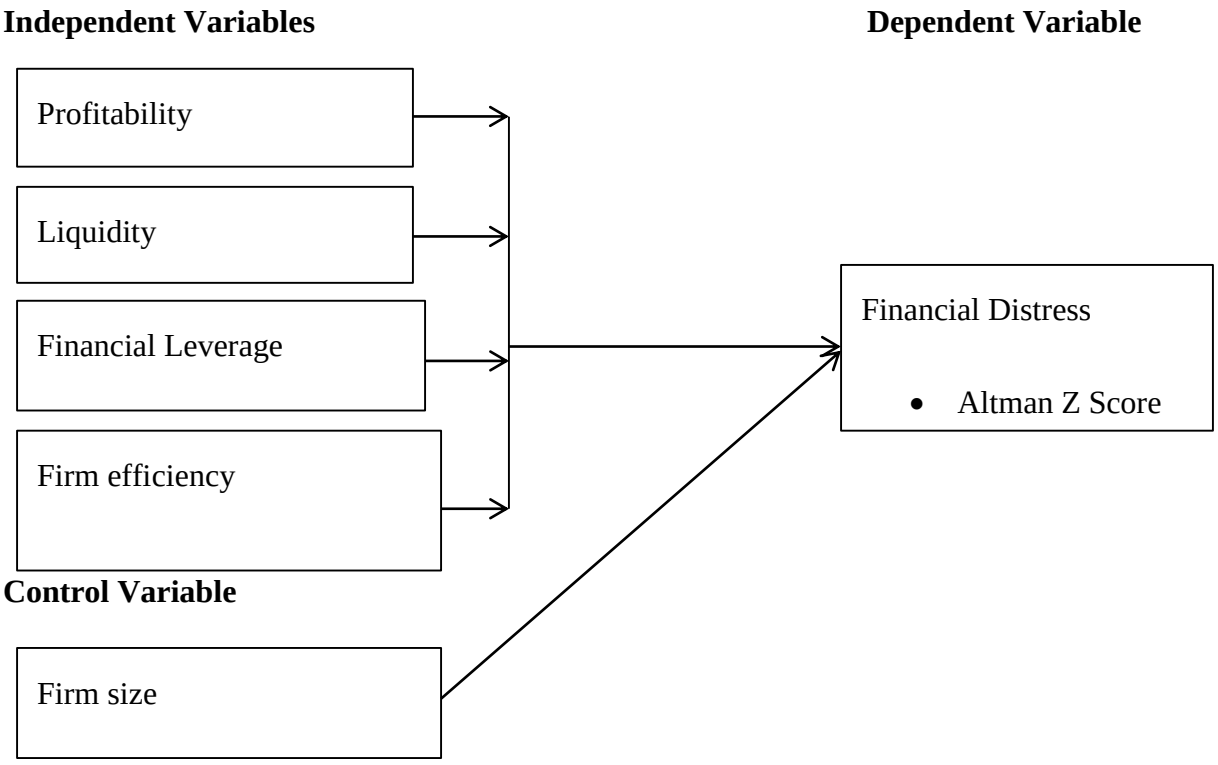

Figure 2 1: conceptual framework

Source: Researcher, (2018)

2.5 Summary of Literature Review

This chapter highlights the empirical and theoretical reviews related to financial distress and its determinants in non-financial firms listed at NSE. The conceptual framework is also drafted to show the relationship between the independent (profitability, Liquidity, Leverage, firm efficiency and firm size) and dependent variables (financial distress).

There is lack of consensus among the various scholars on the effect of financial distress on financial performance of firms listed at Nairobi Stock Exchange. Existing literature such as; Gebreslassie (2015), Shaukat and Hina (2015), Kanyugi (2016) among other identifies a strong positive link between financial distress and return on equity of the firms. However, some of the empirical studies do not lead to the same conclusion such as the study of Muigai (2016) on the relationship between capital structure and financial distress which found that financial leverage, asset tangibility and external equity have a significant negative effect on financial distress of non-financial firms. Atosh (2017) established that net profit has a negative correlation effect on financial distress; management concentration and financial distress are negatively related. The debate of whether Z-score model is applicable to detect financial distress and bankruptcy in Kenyan context is raised from previous empirical studies. In addition most of the studies conducted in globally and in Kenya have focused on financial distress on commercial banks and this breeds the knowledge gap upon which this study seeks to fill. Motivated by this gap, this study, therefore, seeks to establish determinants of financial distress of non-financial firms listed at the NSE.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter states the methods that were used during the study to realize it set objective. This is research design, a description of the population, sample design, data collection, and analytical model.

3.2 Research Design

Research design can be defined as an outline of the actual measures, adopted by an investigator for testing the correlation involving dependent variables as well as independent variables (Kothari, 2008). Descriptive research design was adopted by the study. The study design was suitable in explaining the situation regarding financial distress. A descriptive research design was appropriate because it helped answer the questions of the form ``what''. The study questions can well be answered if the research design applied guides the analysis method that aimed to establish the determinants of financial distress of non-financial firms listed at NSE.

3.3 Population

Population refers to the total set of items to be observed and measured (Maxwell 2012). Population of interest consisted of 40 non-financial firms registered at the NSE. However, 10 firms were found to have experienced financial distress and formed the sample for the study. Census study was adopted to enable focus on all 10 non-financial under the following segments in the NSE sector categorization; Automobile, Commercial and Services, Energy and Petroleum and Manufacturing and Allied, Construction and Allied,

Agricultural sector and Telecommunication. These segments were selected because they possessed the required information and Altman's Z-score, a proxy for financial distress was applied for this companies.

3.4 Data Collection

The research relied on secondary data. Secondary data was gathered from financial statements, NSE Investor Handbook, as well as websites of firms studied. Financial information of a five-year period between 2013 and 2017 was used since it was considered current and long enough to provide sufficient variables that assisted in determining determinants of financial distress with the data frequency being yearly. The data collected was quantitative in nature. Financial information extracted related to working capital, total assets, total liabilities, retained earnings, borrowings, EBIT, the book value of the equity and revenues.

3.5 Data Analysis

Typically involves application of statistical measures and logical methods to evaluate and establish a relationship between data (Tully, 2014). Data collected was analyzed through use of Microsoft Excel (MS Excel) and Statistical Software for Social Scientists (SPSS) Version 21. SPSS and MS Excel are preferred as they produced output that found adequate statistical inference and generally easy to use. The output of the data analysis was reported in various tables highlighting the relevant statistics.

3.5.1 Diagnostic Test

Normality test is done because it is impractical to achieve accurate and reliable deductions about the reality on whether the population from which the sample is derived is normally distributed (Ghasemi & Zahediasl, 2012). This study used Shapiro- Wilk test of normality to assess whether the data is normally distributed.

Multicollinearity happens when there is a great extent of correlation between independent variables in a study. Independent variables with collinearity of more than 10 or less than 1 have severe multicollinearity and should be removed from the study model (Saunders, Lewis & Thorn hill, 2015). When the test fails you should standardize the continuous variables by choosing on a standardization method on the regression dialog box. For instance you may choose variable centering approach.

3.5.2 Analytical Model

The study used binary logistic regression in carrying out analysis in finding out the outcome between the responsive variable and predictors variables. A responsive variable is the financial distress of while the predictor variable is profitability, liquidity, financial leverage and the firm's efficiency. The analytical model used in analyzing the interrelation of the predictor variables on the response variable is:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + €$$

Where; Y= Financial distress measured by Altman's Z-score

α = Regression constant

$\beta 1, \beta 2, \beta 3, \beta 4$ =Regression coefficients (change in Y for every unit change in X)

X_1= Profitability (ROA)

X_2=Liquidity (Measured by Current Assets/Current Liabilities)

X_3= Financial Leverage (Measured by Total Debt/Equity)

X_4=Firm Efficiency (Measured by Asset Turnover Ratio)

X_5=Firm Size (Measured by Total Assets)

€ = Error term

Financial distress was calculated using Altman Z score model as shown below

Z=0.012M1+0.014M2+0.033M3+0.006M4+0.0999M5

Where:

M1 the ratio of working capital to total assets: This ratio tests the company's falling in to financial distress. A company with less working capital is likely to experience financial distress as it cannot be able to meet short term liabilities. A company with working capital which is positive is able to meet its obligations with ease.

M2 the ratio of retained earnings to total assets: It shows the amount of earnings or losses reinvested. It shows the firms leverage. The higher the ratio, the healthier the company is financially.

M3 the ratio of earnings before interest and tax to total assets: The ratio measures firms' ability to make profits before interest and taxes.

M4 the ratio of market value of owners' equity to book value of total liabilities: The ratio measures how much a company's' market value can be able to cover liabilities in case of solvency.

M5 the ratio of sales to total assets: The ratio measures how well a company employs its assets to generate sales. The lower the ratio of X5, the greater the chance of the company not being able to fight competition.

A company is considered to be healthy if the Z score exceeds 2.99. If the score is lower than 1.81, then the company is considered to be in financial distress. If a company's Z value lies in between, then the company is referred to be on grey zone and it needs to be monitored closely (Altman, 1984).

Mohamed (2013) in her study of bankruptcy prediction of firms listed at the NSE concluded that the Altman's Z-score was a useful measure for quick determination of the level of financial distress in an Organization.

3.5.3 Test of Significance

The F test and T test were used to test the significance of the regression equation and variables used in the study respectively. The significance of regression model was determined at 5% and at 95% confidence interval.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This section represents study's findings established on the objectives of research. This chapter focused on collected data analysis to establish the determinants of financial distress of non-financial firms quoted at the NSE. Using descriptive statistics and inferential statistics, the results of the study were presented in form of tables and figures for easy interpretation.

4.2 Diagnostic Test

4.2.1 Multicollinearity Testing

The variance inflation factors and tolerance levels were used to test for multicollinearity between the dependent and independent variables. Table 4.3 shows the results

Table 4 1: Multicollinearity

	Collinearity Statistics	
Statements	**Tolerance**	**VIF**
Total asset	0.887	1.127
Liquidity	0.819	1.221
Leverage	0.76	1.316
ROA	0.829	1.207
Asset Turn-Over Ratio	0.887	1.141

Source: Research Findings (2018)

The result in table 4.3 indicated that total assets, liquidity, leverage, return on assets, asset turnover ratio had a variance inflation factor of (1.127, 1.221, 1.316, 1.207, 1.141).The rule of thumb is that if the VIF value lies between 1-10, then there is no multicollinearity. In

addition if the value is less than one or more than 10 then there is multicollinearity. The data indicated absence of multicollinearity hence further analysis could be conducted.

4.2.2 Normality Testing

Normality test was conducted on the data collected to establish whether it was collected from a normally distributed population. When p-value greater than 0.05 would indicate that the data was collected from a normally distributed population. The researcher used both Kolmogorov-Smirnov and Shapiro-Wilk tests. The null hypothesis of the test was that the data was not normally distributed. The results of the test are as shown in Table 4.2.

Table 4 2: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Altman Z Score	.128	50	.238	.923	50	.822
ROA	.153	50	.405	.932	50	.853
Liquidity	.089	50	.200*	.722	50	.635
Leverage	.145	50	.300	.919	50	.784
Asset Turnover Ratio	.093	50	.200*	.888	50	.723
Total Assets	.100	50	.200*	.934	50	.863

Source: Research Findings (2018)

Both Shapiro-Wilk tests and Kolmogorov-Smirnova indicated that p-values are greater than 0.05. This was an indication that the secondary data used in this study was collected from a normally distributed population. The null hypothesis that the data was not normally distributed is therefore, rejected. Consequently, the data can be used in carrying out advanced parametric analysis such as Pearson's correlation and regression analysis.

4.3 Descriptive Statistics

Descriptive statistics gives a presentation of the mean, maximum and minimum values of variables applied together with their standard deviations in this study.

Table 4 3: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Altman Z score	50	.13	3.71	1.4945	.99789
ROA	50	-.36	.56	.1277	.17154
Liquidity	50	.26	12.58	2.6082	2.75528
Leverage	50	.23	.77	.4723	.17085
Asset Turnover Ratio	50	.00	1.54	1.0079	.42467
Total Assets	50	6.29	7.72	7.1238	.41558
Valid N (listwise)	50				

Source: Research Findings (2018)

Table 4.4 above shows the descriptive statistics for the variables applied in the study. An analysis of all the variables was obtained using SPSS software for the period of five years (2013 to 2017) on an annual basis. Financial distress had 1.4945 as mean with a 0.99789 standard deviation. Profitability had a mean of 0.1277 and a standard deviation of 0.17154. Liquidity resulted to a mean of 2.6082 with a standard deviation of 2.75528. Leverage had a mean of 0.4723 and a standard deviation of 0.17085. Asset turnover recorded a 1.0079 mean with a standard deviation of 0.42467. Total assets had a mean of 7.1238 standard deviation of 0.41558.

4.3.1 Financial Distress

Quantitative information from the financial statement was statistically analyzed using Altman Z-score model. Out of the 40 non-financial firms ten firms were out rightly distressed since all their Z-score values were less than 1.8 these were Uchumi, African cables ,Arm cement ,Bamburi, Tps E.A, Africa, Unga limited ,Kapchorua, BAT, Nation media and Wpp Scan group, the average Z-scores were as shown below.

Table 4 4: Average Z score

Year	Z score
2013	1.790777
2014	1.40274
2015	1.046891
2016	1.187608
2017	2.044355

Source: Research Findings (2018)

The average Z-scores of the firms indicated above show that the firms have failed in their operations. Most firms have high leverage, low return on asset and their liquidity is also low. These firms could not finance their operations over the study period, 2013-2017. The result revealed that indeed, non-financial firms score suffered a sharp fall. Z-score moved further into the danger zone from 2013-2016. Generally, it can be concluded that majority of the distressed non-financial firms faced financial distress over the years due to a steady decline of Z-score values.

4.3.2 Total assets

Trend results in Figure 4.1 revealed that there was a decline in total assets from the period 2013 to 2015 .The results also revealed an increase of total asset in the period ranging from 2015 -2017. The total asset in year 2013 were 17.3, the total assets decreased to 13.4 in year 2014, it further to 9.9 in year 2015. The total assets then increased to 11.3 in year 2016 and further increased to 19.9 in the year 2017. The decline in total assets implied distress; however result total assets improved as shown by the linear plot. The linear plot yielded an r square of 0.013 implying that 1.3 % of changes in total assets period can be explained by time and this further revealed a consistent trend

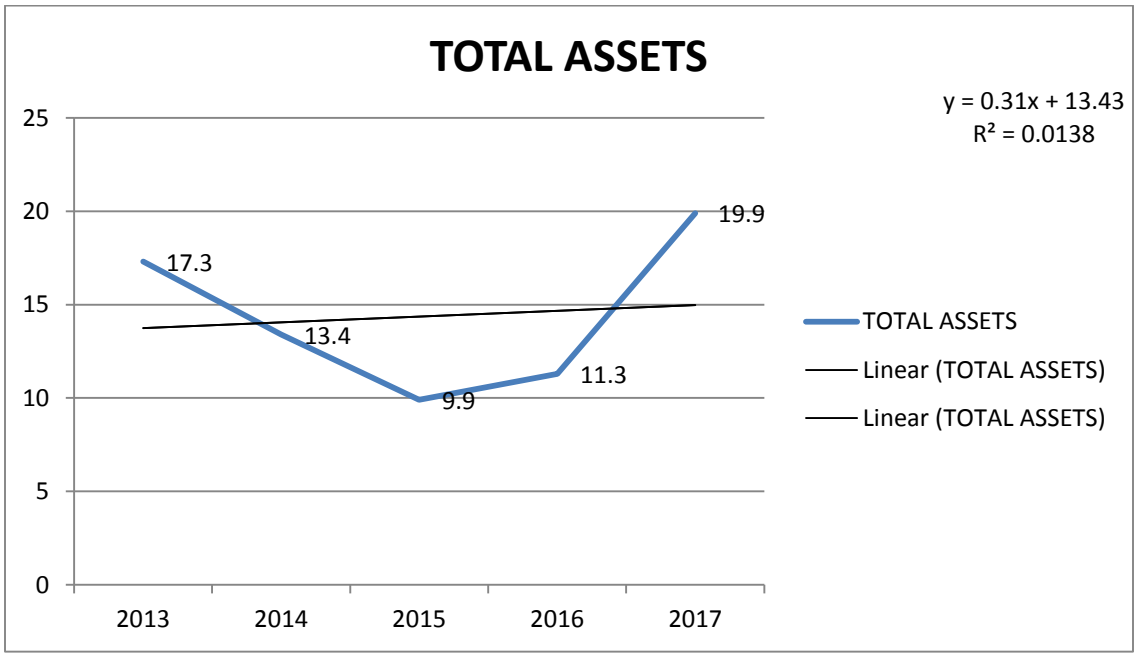

Figure 4 1: Total assets

Source: Research Findings (2018)

4.3.3 Liquidity

Trend results in Figure 4.2 revealed that there was a decline in liquidity from the period 2013 to 2017. The liquidity in year 2013 was 2.79. It increased to 2.89 in year 2014, the liquidity decreased to 2.54, in year 2015and further increased to 2.59 in year 2016 and further decreased to 2.23 in the year 2017. The linear plot showed a regular plot decrease in liquidity .This revealed the presence of financial distress in the firms. The linear plot yielded an r square of 0.7674 implying that 76.74 % of changes in liquidity can be explained by time.

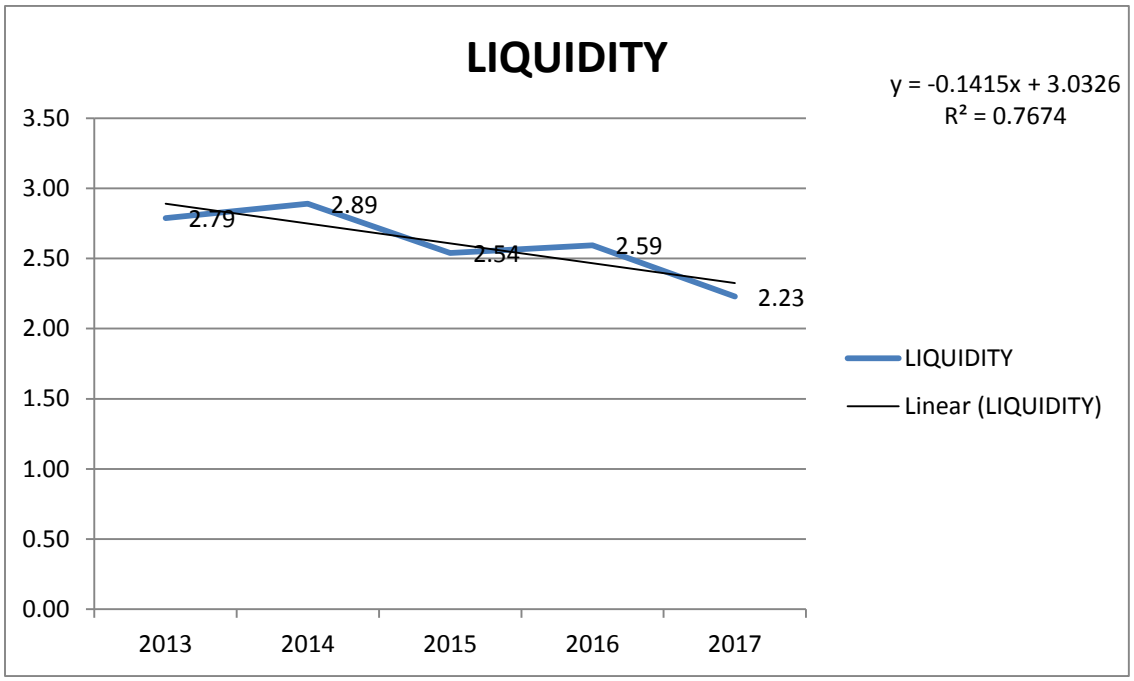

Figure 4 2: Liquidity

Source: Research Findings (2018)

4.3.4 Leverage

Trend results in Figure 4.3 revealed that there was an increase in leverage from the period 2013 to 2015 .The results also revealed a decrease in leverage in the period ranging from 2015 -2017. The leverage in year 2013 was 0.459. It increased to 0.481 in year 2014, the firm leverage then increased to 0.486, in year 2015. It then decreased to 0.470 in year 2016 and increased to 0.466 in the year 2017. The increase revealed distress while the decrease in leverage could have implied the firms adopted strategies to counteract the high leverage. The linear plot yielded an r square of 0.0049 implying that 0.0049 % of changes in leverage can be explained by time.

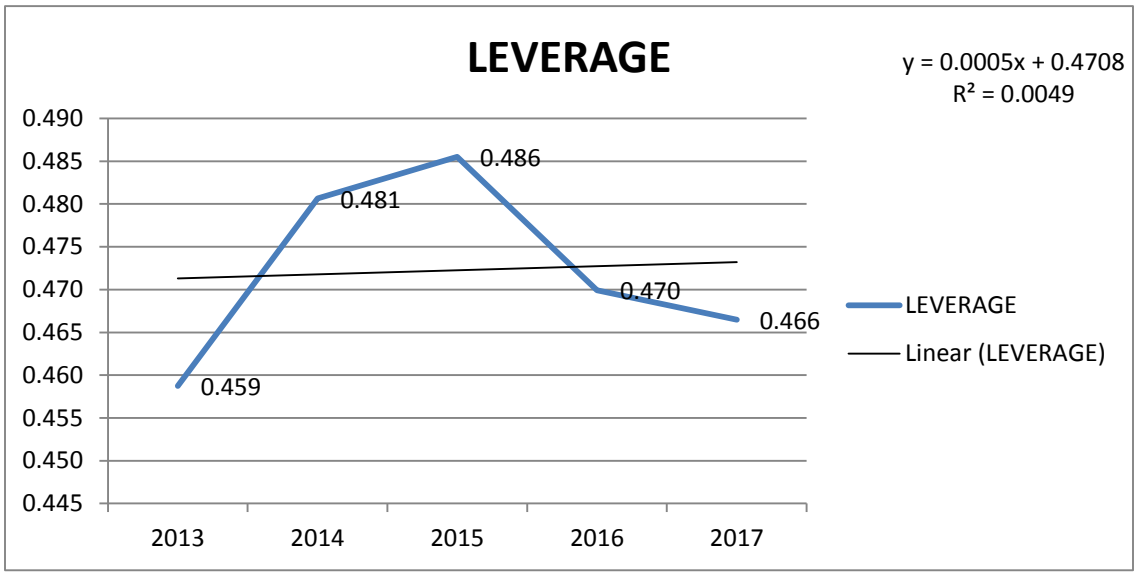

Figure 4 3: Leverage

Source: Research Findings (2018)

4.3.5 Profitability

The result revealed that there was a decline in return on assets from the period 2013 to 2015 as shown by the linear plot. The result revealed an a increase in return on assets in

the period ranging from 2013 -2014 and then a decrease from the period of 2014-2015.The return on asset improved from 2015 – 2017 .The return on assets in year 2013 was 0.151. It increased to 0.154 in year 2014; it decreased to 0.086, in year 2015. It then increased to 0.108 in year 2016 and increased to 0.139 in the year 2017. The linear plot revealed decrease in return on asset that contributed to distress in the firms. The linear plot yielded an r square of 0.144 implying that 1.4 % of changes in return on asset can be explained by time.

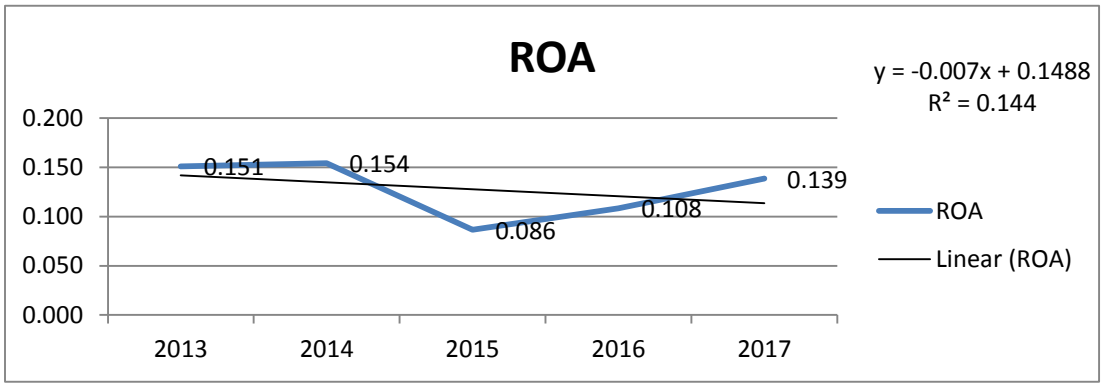

Figure 4 4 : Return on assets

Source: Research Findings (2018)

4.3.6 Asset turnover ratio

Trend results in Figure 4.5 revealed that there was a consistent decrease on assets turnover ratio from the period 2013 to 2015.The asset turnover increased from 2015 to 2017 .The assets turnover ratio in year 2013 was 1.087.It decreased to 0.983 in year 2014. The assets turnover ratio decreased to 0.88, in year 2015. It then increased to 0.936 in year 2016 and increased to 1.346 in the year 2017.The linear plot yielded an r square of 0.164 implying that 16.4 % of changes in assets turnover ratio can be explained by time.

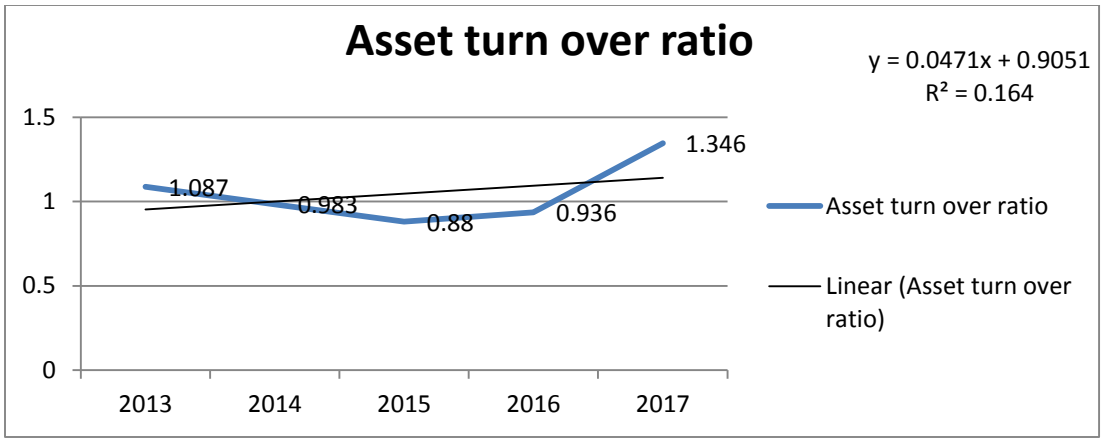

Figure 4 5: Asset turnover ratio

Source: Research Findings (2018)

4.5 Inferential Statistics

Inferential statistics attempts to make conclusions, which goes beyond the current data and in this particular research study, three inferential statistics namely: correlation analysis, the regression analysis and the analysis of variance was employed in facilitating data analysis in order to meet study objectives.

4.5.1 Correlation Analysis

The results below presents the correlation analysis used in explaining the study phenomena.

Table 4 5: Correlation results

Variables		Alt-man	Total assets	Liquidity	Leve rage	ROA	Asset turn-over
Altman	Pearson Correlation	1					
	Sig. (2-tailed)						
Total-Assets	Pearson Correlation	.999*	1				
	Sig. (2-tailed)	0.000					
Liquidity	Pearson Correlation	0.151	0.11	1			
	Sig. (2-tailed)	0.296	0.446				
Leverage	Pearson Correlation	0.033	0.016	.340*	1		
	Sig. (2-tailed)	0.822	0.914	0.016			
ROA	Pearson Correlation	.290*	.296*	-0.128	-0.244	1	
	Sig. (2-tailed)	0.041	0.037	0.377	0.088		
Asset turnover	Pearson Correlation	-0.045	-0.055	0.143	-0.218	-0.099	1
	Sig. (2-tailed)	0.756	0.704	0.323	0.128	0.493	

Source: Research Findings (2018)

The findings indicates that there was a strong positive and significant correlation between Z values and total assets (r=0.999, p=0.00). The result indicated that there was a weak positive and insignificant correlation between Z values and liquidity (r=0.151, p=0.296).

The result revealed that was a weak positive and insignificant correlation between Z values and leverage (r=0.033, p=0.822). It was also evident that there was a weak positive and significant correlation between Z values and profitability (r=0.290, p=0.041). Finally the result revealed that there was a weak negative and insignificant correlation between Z values and asset turn over (r=-0.045, p=0.756). This implies that total assets and return on assets have positive and significant correlation with the dependent variable. The results

concurs with those of this result concurred with earlier study by Altman (1968) who concluded that liquidity ratios were not of any significance in failure prediction and that profitability ratio was crucial.

4.5.2: Regression Analysis

4.5.2.1: Model Summary

Table 4 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.884a	0.782	0.781	0.03163

Source: Research Findings (2018)

R squared is the coefficient of determination and depicts the variations in the response variable that is brought about by the changes in the predictor variables. From the outcome, the value of R square was 0.781. This indicates that 78.1 percent of the deviations in financial distress of non-financial firms listed in the NSE are caused by changes in the predictor variables used. Other variables not included in the model justify for 21.9 percent of the variations in financial distress. Also, the results revealed that there exists a strong relationship among the selected independent variables and the financial distress of listed non-financial firms in Kenya as shown by the correlation coefficient (R) equal to 0.884.

4.5.2.2 Analysis of Variance

Table 4 7: Analysis of Variance

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	39.277	5	7.855	36.317	.000[b]
	Residual	9.517	44	.216		
	Total	48.794	49			
a. Dependent Variable: Altman Z score						
b. Predictors: (Constant), Total Assets, Liquidity, Asset Turnover Ratio, ROA, Leverage						

Source: Research Findings (2018)

A variable is statistically significant if its significance level is 0.05 and below while it is not significant if the significance levels is above 0.05. The findings show that the F test value is 36.317and the P value (0.000) is less than 0.05 (P<0.05) which means the model is fit.

4.5.2.3 Coefficients of Determination

Table 4 8: Regression of Coefficient

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	0.053	0.01		5.097	0.000
Total assets	0.1	0.001	0.999	167.339	0.000
Liquidity	0.055	0.052	0.151	1.057	0.296
Leverage	0.191	0.843	0.033	0.226	0.822
ROA	1.684	0.804	0.29	2.096	0.041
Asset turn-over	-0.047	0.151	-0.045	-0.312	0.756

Source: Research Findings (2018)

The findings indicate the regression model generated by the independent and the dependent variable. The result revealed that regression of coefficients showed that there was a positive and significant relationship between total assets and Z score (β=0.10, p=0.000). This implies that a unit change in total assets will result to a unit change of Z score by (0.101). Results further showed that there was a positive and insignificant relationship between liquidity and Z score (β=0.055, p=0.296). Results further showed that there was a positive and insignificant relationship between leverage and Z score (β=0.191, p=0.822). In addition, results showed that there was a positive and significant relationship between return on asset and Z score (β=1.684, p=0.041). Results further showed that there was a negative and insignificant relationship between asset turn over and Z score (β=-0.047, p=0.000). This implies that return on asset and total assets were good determinant variables of financial distress since they were all significant. This results concurs with those of Keige (1991) who applied the MDA in line with Altman's (1968) model on quoted companies in Kenya and observed that ratios that will be best discriminate failing companies appeared to differ from place to place. Further observation was that financial ratios like profitability ratio and total assets can be used successfully in predicting failure of firms.

The model generated is given as Z=0.053+ 0.1 total assets+ 0.055 liquidity+0.191 leverage+1.684 return on assets -0.047 asset turn over. The findings indicate that the coefficient of 0.1 total assets and 1.684 return on asset were positive and significant. This implies a true relationship therefore exists between the (Z" Score) and the variables X1, X5.

$Y= 0.053+ 1.684X_1+0.0552X_2+ 0.191X_3-0.047X_4+0.1\ X_5$

Where:

Y= Altman Z score

X_1= Profitability (ROA)

X_2=Liquidity

X_3= Leverage

X_4= Asset Turnover Ratio

X_5=Total assets

Since the regression coefficient of liquidity, leverage and asset turn-over ratio are not statistically significant, the regression model can be simplified to:

$Y= 0.053+ 1.684X_1+0.1\ X_5$

4.6 Discussion of Findings

From the model summary table 4.6, R-value is 0.88 implying that the relationship between Z-score and the variables is very strong and positive. Also the r square value is 0.788 indicates that all the variations in the Z-score are caused by the independent variables and that other variables not included in the study accounts for 0.221 variation in financial distress of non-financial firms listed in the NSE. Therefore, the model generated from this study can be used to predict the non-financial distressed firms.

The discussions as revealed from the figures 4.1 to 4.5 in the trend analysis all lead to the assertion that the firms were all financial distressed. This shows that the Altman's Z-score model is appropriate to predict financial distress. This finding supports the study by Makini

et al. (2014) who concluded that the Z score model is suitable to predict the financial distress of firms.

The study also found that total assets and profitability were found to be most significant variables in association to financial distress. This was in relation to the P value which were less than 0.05 ($P<0.05$) which means the variables were significantly related to the dependent variable.

CHAPTER FIVE: FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

5.1 Introduction

This chapter shows the summary of the results of the prior chapters, the conclusions drawn from the study findings and the encountered shortcomings during the course of the study. The chapter makes also policy recommendations, which can be executed to determine financial distress causes. Finally, the chapter shows suggestions for future research studies, which can be helpful to future scholars.

5.2 Summary of the Findings

The study sought to establish the determinants of financial distress of non-financial firms listed at the Nairobi Securities Exchange. The study used secondary data that was obtained from 40 non-financial firms listed at the NSE .Quantitative information from the financial statement was statistically analyzed using Altman Z-score model. Out of the 40 non-financial firms ten firms were out rightly distressed since all their Z-score values were less than 1.8 The Altman Z Score in table 4.2 established the extent to which non-financial firms were financially distressed using return on assets, liquidity, leverage, asset turnover ratio, total assets 2013-2017. The result revealed that indeed, non-financial firms' Z-score suffered a sharp fall. Z-score moved further into the danger zone from 2013-2017. The correlation result revealed that total assets and return on assets had positive and significant correlation with the dependent variable. This implies that they were crucial variables in determining distress in non-financial firms. Moreover the regression of coefficient indicated that return on asset and total asset ratios had a positive and significant association

with financial distress and hence were very crucial in determining distress in non-financial firms.

From table 4.6 the R-value is 0.88 implying that the relationship between Z-score and the variables is very strong and positive. Also the r square value is 0.788 % indicates that all the variations in the Z-score are caused by the variables and that there is no external variation outside the model. Therefore this model generated from this study can be used to predict the non-financial distressed firms.

The regression of coefficient revealed that return on assets, liquidity, leverage, asset turnover ratio, total assets were good determinants in revealing distress as indicated by their significance of (0.00)

5.3 Conclusion of the Study

The study asserted that return on asset and profitability ratios were the significant variables that measure a distress in non-financial firms and as per hypothetically expected relationship. This finding was likewise according to the after findings of Kariuki (2011) who observed that the lower the Z scores of the bank the lower the return on asset ratio and vice versa hence a positive relationship.

From the findings a positive and an insignificant relationship between leverage and financial distress against a negative relationship expected. Michael (2015) found a negative and insignificant relationship for the banks in Kenya for the period 2011-2015.

It was concluded that financial distress was present in non-financial firms listed at the NSE could be due to the determinants thus leading to bankruptcy and even liquidation. The study findings are that the higher the return on assets the lower the financial distress as

characterized by increase in the Z-score. The study also found out that the higher the total assets the higher the Z-score hence the lower the financial distress.

The study also concluded that non-financial firm ought to put effort in recognizing the source of financial distress. Generally, it can be concluded that the non-financial firms faced financial distress over the years due to a steady decline of Z-score values.

5.4 Recommendations of the Study

Based on the above conclusions, the research study recommends that the firm listed on NSE should put effort to increase their sales in order to increase or maintain their assets turnover ratio. This also imply that managers of non-financial firms in Kenya ought to expand utilization of assets to income creating resources and guarantee that these resources are exceptionally yielding good return to increase the return on asset. The study also recommends for the firms to cut on expenses in order to increase on their return on assets.

The study also recommended that firm should put effort to decrease the high leverage since it was a unique characteristic of firms that faced financial distress. From the finding of the study, non-financial firms that faced financial distress had high leverage. This could attribute to their failure if it continues on for a long period of time.

In addition the study recommends for the firms to ensure they find out the source of the financial distress in order to have measures to combat or reduce financial distress.

The study also recommended listed non-financial firms to disseminate quantitative non-financial information which is strived towards eliminating speculation in regard to possibilities of a listed firm experiencing financial distress. This will allow listed non-

financial firms to adopt financing alternatives which are geared towards eliminating financial distress and enhancing financial sustainability within the firm.

5.5: Limitations of the Study

The study relied on secondary data, which was obtained from annual reports and audited financial statement of the companies, NSE Investor Handbook (2015-2016), and CMA library. In as much as there are generally accepted accounting principles employed in the preparation and reporting of financial statements such as IFRS and The Kenyan Companies Act, these companies used different levels of judgment in designing accounting policies and therefore reliability, comparability and quality of data was not

100% guaranteed. Further, in some cases the data was not readily available in the required format.

The study was limited to selected financial distress determinants as measured by the Altman's Z scores, asset turn ratio, total assets, liquidity, leverage and profitability (ROA). Other business ratios that can be determinants of financial distress on non-financial firms were not considered in this study. On the other hand, a more comprehensive and detailed analysis would warrant additional time and certainly the time taken for this study was not sufficient for the level of detail and analysis presented by this study.

5.6 Suggestion for Further Studies

This study focused on determinants of financial distress as predicted by the Altman's Z score model for non-financial firms listed at Nairobi Securities Exchange and therefore did not consider entities in the financial sector such as banks, insurance companies and

investment firms. There is therefore a need to carry out the research with a focus on these industries and determine whether the results would hold irrespective of the industry being considered. Further, the results would be more convincing if qualitative aspects of the businesses were considered such as changes in management, product failures, negative publicity, industrial actions and union strikes and their impact on the value of the distressed firms assessed. The researcher therefore recommends a repeat of the study but with a focus on these aspects.

This would give a wholesome view of the impact of financial distress on non-financial firms. In addition, to complement the results of this study, a review of the effects of financial distress on non-listed firms would be necessary and comparisons drawn.

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APPENDIX I: Non-Financial Firms Listed at Nairobi Security Exchange

A. COMMERCIAL AND SERVICE

1. Atlas African Industries Ltd
2. Express Kenya Ltd
3. Hutchings Biemer Ltd
4. Kenya Airways Ltd
5. Longhorn Publishers Ltd
6. Nairobi Business Ventures Ltd
7. Nation Media Group Ltd
8. Standard Group Ltd
9. TPS Eastern Africa Ltd
10. Uchumi Supermarket Ltd
11. WPP Scangroup Ltd
12. Deacons (East Africa) PLC

B. CONSTRUCTION & ALLIED

13. ARM Cement Ltd
14. Bamburi Cement Ltd
15. Crown Paints Kenya Ltd
16. E.A.Cables Ltd
17. E.A.Portland Cement Co. Ltd

C. AUTOMOBILES & ACCESSORIES

18. Car & General (K) Ltd

D. ENERGY & PETROLEUM

19. KenGen Co. Ltd
20. KenolKobil Ltd
21. Kenya Power & Lighting Co Ltd
22. Total Kenya Ltd
23. Umeme Ltd

E. MANUFACTURING & ALLIED

24. Unga Group Ltd
25. B.O.C Kenya Ltd
26. British American Tobacco Kenya Ltd
27. Carbacid Investments Ltd
28. East African Breweries Ltd
29. Eveready East Africa Ltd
30. Mumias Sugar Ltd.
31. Flame Tree Group Holdings Ltd
32. Kenya Orchards Ltd

F. TELECOMMUNICATION AND TECHNOLOGY

33. Safaricom PLC

G. AGRICULTURAL

34. Eaagads Ltd
35. Kapchorua Tea Co. Ltd
36. Kakuzi Ord
37. Limuru Tea Co. Ltd

38. Rea Vipingo Plantations Ltd Ord

39. Sasini Ltd Ord 1.00

40. Williamson Tea Kenya Ltd Ord

APPENDIX II: Secondary Data

Y	X1	X2	X3	X4	X5
1.437103	0.06733	0.945075	0.723156	1.146128	7.472833
1.930502	0.054673	0.469154	0.744781	1.278754	7.567174
3.427804	0.042016	0.383449	0.745818	1.531479	7.715474
0.53751	0.293596	0.58517	0.773156	0.69897	7.708071
1.533317	0.167806	0.484309	0.759487	1.176091	7.711788
0.240438	0.128231	1.262283	0.267482	0.30103	7.672965
1.740432	0.141519	1.262617	0.289625	1.230449	7.683154
0.847325	0.154806	1.675773	0.272936	0.90309	7.684409
1.060136	0.168094	2.696565	0.227482	1	7.610777
3.351961	0.16145	2.186169	0.250209	1.518514	7.649152
1.031945	0.107132	0.955247	0.532309	1	7.181
1.235105	0.150671	1.101916	0.554242	1.079181	7.230089
1.237931	0.166736	1.275879	0.554775	1.079181	7.261346
1.338456	0.128231	1.327204	0.562309	1.113943	7.263719
3.049494	0.141519	1.413238	0.574242	1.477121	7.084714
3.709421	0.0252	12.57556	0.664264	1.544068	7.487098
1.777205	0.023333	11.11279	0.677151	1.20412	7.50046
0.259053	0.052	9.533193	0.723156	0	7.513423
1.035649	0.055	7.822207	0.744781	0.954243	7.52601
3.008267	0.0564	5.962721	0.745818	1.462398	7.538243
0.464342	0.120545	2.405921	0.531894	0.60206	7.149954
0.278159	0.085971	3.327749	0.549652	0.30103	7.126161
1.556967	0.064324	1.779122	0.608102	1.176091	7.141367
1.152462	-0.35686	1.937278	0.541894	1.041393	7.165994
0.241738	-0.20858	0.875983	0.569621	0.30103	6.90371
3.528951	0.328226	1.253303	0.314112	1.544068	7.028466
1.454922	0.313443	2.366513	0.279688	1.146128	7.057426
1.242869	0.345363	2.09543	0.302688	1.079181	7.091797
1.542829	0.346148	2.106473	0.287406	1.176091	7.09691
2.840369	0.354716	2.072627	0.281694	1.447158	7.030114
3.22623	0.054015	1.011885	0.406542	1.50515	7.127989
0.127879	0.046834	1.057501	0.34581	0	7.183568
0.127804	0.013809	1.078281	0.346736	0	7.182535
1.237542	0.348177	1.563661	0.347662	1.079181	7.199091
1.647906	0.253575	1.639996	0.348589	1.20412	7.230017
1.230702	0.444953	0.723373	0.461683	1.079181	6.57006
3.028397	0.564836	0.704751	0.410671	1.477121	6.673728

0.214592	-0.29189	0.373246	0.359659	0.30103	6.692236
0.313768	-0.2136	0.41756	0.308647	0.477121	6.655615
1.711275	-0.00411	0.258706	0.257636	1.230449	6.699162
0.754365	0.154806	1.648402	0.458464	0.845098	6.958391
0.551412	0.075945	1.875157	0.422678	0.69897	6.908934
1.05519	0.228294	2.091657	0.386891	1	6.90453
2.15008	0.221373	1.852676	0.351105	1.322219	6.936269
1.657966	0.365035	2.298586	0.315319	1.20412	6.963778
2.284272	0.078913	5.101309	0.227482	1.342423	6.285368
1.903385	0.083828	5.629513	0.532309	1.255273	6.297375
0.499373	0.088744	5.101309	0.554242	0.60206	6.285368
1.507645	0.093659	5.629513	0.554775	1.146128	6.297375
1.401257	0.098575	5.101309	0.562309	1.113943	6.285369