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## **The Effect of Cash Management on Financial Distress of Non-financial Firms Listed at Nairobi Securities Exchange in Kenya**

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### **Abstract**

*In Kenya many listed non-financial firms have undergone financial distress. This has led to loss of investors' wealth and erosion of confidence in the capital market. The specific objective of this study was to examine the effect of cash management and financial distress of non-financial firms listed in the Nairobi Securities Exchange Market in Kenya. The study adopted panel (pooled)*

research design. A census of all the 41 non-financial firms listed at (NSE) as at December 2016 constituted the population of study in the period 2007 to 2016. The study used secondary data which was extracted from the financial statements and published annual reports of individual companies using secondary data collection sheet. Multiple regression analysis techniques were used to analyze the data. Fixed effects model was used to model the relationship among the study variables. The F- test was used to determine the significance of overall model; while the t- test was employed to establish the significance of the independent variable. The results of this study were expected to mitigate losses through establishing cash management techniques for use in financially distressed non-financial firms trading on NSE. The study found that cash management had a positive and significant effect on financial distress. The study therefore recommended that in order to mitigate financial distress among non-financial listed firms cash conversion cycle (a proxy for cash management) should be increased.

**Key Words:** Cash management, debt service coverage, cash conversion cycle, financial distress

## 1 Introduction

Recent history indicate that there has been several corporate failures throughout the world (Mahama, 2015). In Africa financial distress has afflicted numerous local banks, many of which have been closed down by the regulatory authorities or have been restructured under their supervision (Brownbridge, 1998). The author observed that the causes of financial distress among African banks include: insider lending, lending to high risk borrowers, macroeconomic instability, liquidity support and prudential regulation.

In Ethiopia the manufacturing firms experience financial distress situation due to low level of debt service coverage (Basa, 2011). Financial reports of manufacturing firms show that on average the debt service coverage ratio is less than 50% (Basa, 2011). Hence the available cash cannot cover the principal and interest on the bank loan. The liquidity status of the firms, measured by current assets to current liabilities is below the industry average. Since liquidity is not maintained a number of highly leveraged firms are not able to renegotiate their debt agreement if they have breached contract, instead they go for reorganization, acquisition, merger or liquidation. In 2009, when the Ethiopian government reduced subsidy for raw material price locally and increased tax burden, this increased the cost of production and squeezed profitability. This made many companies suffer big losses and shortage of cash. Low volume of liquidity and negative cash flow combined with high leverage leads to financial distress (Outecheva, 2007).

In Ghana, cases of corporate failures include the Gateway Broadcasting Services, Ghana Cooperative Bank, Bank for Housing and Construction, National Savings and Credit Bank (Appiah, 2011). In the same vein, the acquisition of Merchant Bank Ghana Ltd. by Fortiz Private Equity Fund Ltd. is another case of corporate failure (Mahama, 2015). Among the reasons cited for the sale of Merchant Bank was solvency and liquidity challenges faced by the bank (Bank of Ghana, 2013). This indicates poor cash management which led to the sale of the bank.

In Nigeria, many firms are facing challenges of inadequate working capital or illiquidity (Takon & Atseye, 2015). The mismanagement of working capital amongst firms has caused some promising investments with high rate of return to be failures and frustrated out of business (Olugbenga, 2010).

Since independence, Kenya has faced many cases of financial distress of listed firms. This is evidenced by some companies undertaking financial restructuring and others being placed under receivership and subsequently delisted (Ong'era et al., 2017). Firms that have shown an increasing trend of failure include Uchumi supermarkets, Mumias sugar and A- Baumann (Maina & Sakwa, 2012). According to Gibendi, (2015) firms that have undergone financial distress include Mumias sugar company, Webuye Paper Mills, Muhoroni Sugar Company, Uchumi Supermarket and Kenya Meat Commission.

While a firm is trying to maintain liquidity in its daily operations as to meet its short-term obligations, asset-liability mismatch occurs which increases firms profitability in the short-run but at the risk of bankruptcy (Anand & Gupta, 2002). Takon and Atseye (2015) have shown that firms should choose what amounts of cash, accounts receivable and inventories that they should maintain given the level of sales and cost considerations. High current ratio provides a firm with low probability of financial distress (Tesfamariam, 2014).

Mathuva (2009) examined the influence of working capital management components on financial profitability using a sample of 30 firms listed at NSE for the periods 1993-2008. Using the pooled ordinary least squares and fixed effects regression models the study found that there exists a highly significant negative relationship between when it takes a firm to collect cash from their customers and profitability.

Falope and Ajilore (2007) used a sample of 50 Nigerian quoted non-financial firms for the period 1996-2005. Using panel data econometrics in a pooled regression, the study found a significant negative relationship between net operating profitability and cash conversion cycle, inventory turnover in days, average collection period and average payment period for the sample of 50 Nigerian firms listed on the Nigerian Stock Exchange. This study hence established a significant negative relationship between cash conversion cycle and profitability of non -financial firms listed on the Nigerian Stock Exchange.

Cash conversion cycle component of working capital management has been found to have a negative effect on performance. This is through studies carried out by Ogundipe et al., (2012) in Nigeria, Al-Debie (2011) in Jordan and Sadiamajeed et al., (2013). However, cash conversion cycle was found to have a positive effect on company performance through studies done by Akotonet et al., (2013) in Ghana Stock Exchange, Toro and Hartons (2014) in Indonesia Stock Exchange and Abuzayed (2011) in Jordan Stock Exchange. However, Gill et al., (2010) found no effect of cash conversion cycle on performance in New York Stock Exchange.

Lyroudi and Laziridis (2000) used food industry in Greek to examine the cash conversion cycle as a liquidity indicator of the firms and attempted to determine its relationship with the current and quick ratios. The study's results found that there is a significant positive relationship between the cash conversion cycle and the liquidity measures of current and quick ratios.

## **1.2 Statement of the Problem**

The motivation to carry out the present study was informed by many corporate failures in the Kenyan Capital market. Moreover, for the firms that have gone into receivership only a handful of the companies have managed to come out of it in sound financial health (Maina & Sakwa, 2010). Most of the non-financial listed firms face challenges in balancing between surplus and shortage of cash. Consequently, the firms experience failure due to inability to pay daily expenses of their operations and difficulty to exploit new markets and undertake profitable projects due to shortage of cash resulting from poor cash management. Most companies benefit from having a short cash conversion cycle since that will generate more value in the long run (Limo & Panbunyuen, 2010). This will eventually prevent a firm from plunging into financial distress.

Quite a number of studies have concluded that there is a positive relationship between liquidity and performance. These studies include Cheluet et al., (2014); Ndirangu (2013); Njeru (2016) Omondi and Muturi (2013). Yet other studies have shown a null relationship between liquidity and financial performance. For instance, the study conducted in China and Malaysia found that liquidity level of banks has no relationship with the performance of banks (Said & Tumin, 2011). Moreover, Jakpar et al., (2017) studied the effects of working capital management on firm's profitability. The study covering 5 years from 2007 to 2011 studied a sample of 164 manufacturing firms listed on the Main Board of Bursa Malaysia to find that cash conversion cycle has no control over the firm's profitability. Further, Samiloglu and Demirgunes (2008) found that the cash conversion cycle has no effect on firm's profitability. Such contradictory empirical observation infers that the relationship between cash management and financial distress is largely vague and calls for a more thorough investigation.

Moreover, the majority of past empirical studies have analyzed the relationship between cash management and firm performance based on different indicators of financial health of a firm. The measures mostly used have been based on profitability, liquidity, firm value, earnings per share and stock returns. This approach according to Muigai (2016) provides a limited scope of establishing the overall corporate financial health and quality. The current study sought to address this gap by adopting the Altman Z-score to proxy for financial distress of non-financial firms listed at NSE in Kenya. This is on the premise that the Altman Z-score model is based on MDA statistical technique that provides a suitable mechanism of discriminating between financially healthy and financially distressed firms (Muigai, 2016). Hence, this study sought to examine the effect of cash management on financial distress of non-financial firms listed at NSE in Kenya.

### **1.3 Specific objective**

To examine the effect of cash management on financial distress of non-financial firms listed at NSE in Kenya.

### **1.4 Hypothesis**

Ho: Cash management has no statistically significant effect on financial distress of non-financial firms listed at NSE in Kenya.

## **Literature Review.**

### **2.1 Introduction**

The chapter began by theories advanced in the area of cash management. Subsequently, a conceptual framework was developed which formed the basis and linkages in establishing existing relationships among study variables. The chapter also covered empirical review, critique of existing literature and research gap on cash management which was filled by the present study.

### **2.2 Theoretical Literature**

A theory is a set of interrelated concepts, definitions and propositions that present a systematic view of events or situations by specifying relations among variables in order to explain and predict events or situations (Van & Heaney, 1992). Theoretical literature is concerned primarily with theories or hypotheses rather than practical application. Several theories establish relationships between cash management and financial distress of firms. Some of the theories were discussed with their implications of financial distress.

#### **2.2.1 Cash Management Theory**

The cash management theory is concerned with the managing of cash flows into and out of the firm; cash flows within the firm and cash balances held by the firm at a point by financing deficit or investing surplus cash (Kipruto, 2013). Short term management of corporate cash balances is a major concern of every firm. This is so because it is difficult to predict cash flows accurately, particularly the inflows, and there is no perfect coincidence between cash outflows and inflows (Aziz & Dar, 2006). During some periods cash outflows will exceed cash inflows because payments for taxes, dividends or seasonal inventory will build up. At other times cash inflows will be more than cash sales and debtors may realize in large amounts promptly (Pandey, 2005). An imbalance between cash inflows and outflows would mean failure of cash management function of the firm. Persistence of such an imbalance may cause financial distress to the firm and, hence, business failure (Aziz & Dar, 2006).

### **2.2.2 The Baumol-Allais-Tobin Model**

The model analyses the cash management problems of firms. It can be used to establish the target cash balances of firms. The model describes cash management and the general current asset management (Kamara, 2014). For firms to determine optimum cash position, they must consider costs; opportunity cost, trading cost and total cost (Kamara, 2014). Opportunity cost is the cost uncured for holding of cash. Interest is the opportunity foregone for holding of cash. Trading cost is the cost incurred when trading in marketable securities during the fiscal period. Total cost is the sum of the opportunity cost and trading cost (Kamara, 2014). According to Jordan et al., (2010) the theory's weakness is that it assumes a steady and certain cash outflow.

### **2.2.3 The Miller – Orr Model**

This model operates in terms of the upper and lower limits of the firm's cash balance. Hence firms allow their cash balance to wander around between the upper and the lower limits. As long as the cash balance is between the upper limit and the lower limit, everything is fine (Kamara, 2014). If the cash balance reaches the upper limit firms' management buy marketable securities to bring cash balance back to its normal level. Moreover, when cash balance reaches the lower limit firms' management sell marketable securities to bring the cash balance back to normal level (Jordan et al., 2010).

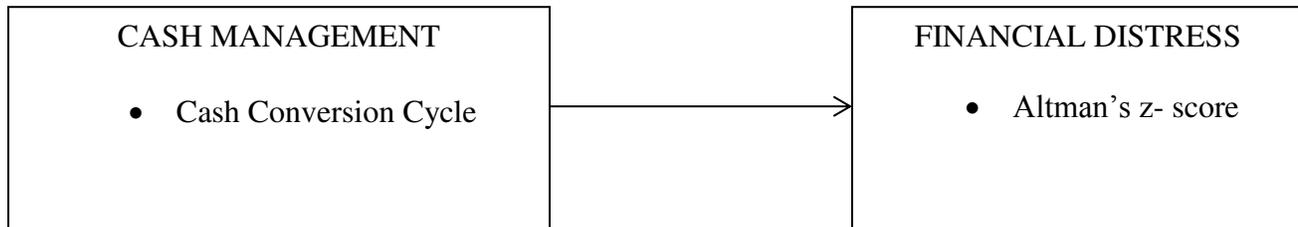
### **2.2.4 Cash Conversion Cycle**

Cash conversion cycle provides the theoretical background for the determinants of working capital management (Mongrut et al., (2008). Therefore, working capital connotes the funds which are used to operate in the short term (Takon and Atseye, 2015). The theoretical background for the relationship between working capital management and financial distress is that most firms have a large amount of cash invested in working capital as well as substantial amounts of short term payables as a financing option. Hence, firms have an optimal level of working capital that maximizes their value (Takon and Atseye, 2015). According to Nimalathan (2010) implementing an effective working capital management improves companies' earnings. The cash conversion cycle is calculated by subtracting payables deferral period from the sum of the inventory conversion period and the receivables conversion period (Takon and Atseye, 2015)

## 2.3 Conceptual framework

Independent Variable

Dependent Variable



## 2.4 Empirical Literature

### 2.4.1 Cash Management and financial distress

Cash management is the process of planning and controlling cash flows into and out of the business and cash balances held by a business at a point in time (Pandey, 2004). Efficient cash management is the reduction of the cash conversion cycle as short as possible such that cash can go fast through the cycle of activities (Soaga, 2012). Efficient cash involves the determination of the optimal cash to hold by considering the trade-off between the opportunity cost of holding too much cash and the trading cost of holding too little (Ross et al., 2008) This is expected to reduce costs such as lost opportunities due to lack of funds and interest costs.

According to Wanjiku (2013) One of the standard measures of cash management is Cash Conversion Cycle (CCC). CCC is the time period from buying raw material, converting to finished goods, sales products, and collecting accounts receivables (Mansoori & Muhammad, 2012). CCC represents the time period required to convert cash investments in supplies into cash receipts from customers for goods or services rendered (Kroes & Manikas, 2014). It is calculated using the formula:  $CCC = ACP + ICP - APP$ . As CCC increases profitability decreases and hence managers could create a positive value for shareholders by reducing the cash conversion cycle (Raheman & Nasr, 2007).

Strategies for cash management include cash planning, managing the cash flows, optimum cash level and investing surplus cash. In cash planning cash inflows and outflows should be planned to project cash surplus or deficit for each period of the planning period. This is achieved by preparing a cash budget. It helps to plan for and control cash receipts and payments. According to Pandey

(2010) a cash budget is a summary statement of the firm's expected cash inflows and outflows over a projected time period. It helps a financial manager to determine the firm's future cash needs, plan for financing the needs and exercise control over the cash and liquidity of the firm. The time frame of a cash budget differs from one firm to the other.

In Kenya a number of non-financial firms have been financially distressed. For example, Mumias Sugar Company has been struggling for the last two years with cash flow problems (Odhiambo & Amadala, 2015). Further, one of the challenges facing Uchumi supermarket is cash shortages (Burke, 2002). The company owed Ksh 3.2 billion to its financiers, suppliers and staff (Joseph, 2017).

### **2.4.2 Financial Distress**

Financial health of firms is a very crucial indicator of the company's performance to investors as well as management. Investors prefer to devote their capital to those companies which are financially healthy as risk of default is kept to the minimum for the firms. The area of financial distress has been researched by various researchers but little effort has been made by the studies to establish the relationship between cash management and financial distress of non-financial firms listed in Nairobi Securities Exchange Market (NSE) in Kenya. Financial distress is defined as a situation where a firm's operating cash flows are not sufficient to satisfy current obligations and the firm is forced to take corrective action (Westerfield & Jaffe, 2005)

Financial distress can be subdivided into four sub-intervals: deterioration of performance, failure, insolvency and default (Outecheva, 2007). Whereas deterioration and failure affect profitability of the company, insolvency and default are rooted in the company's liquidity. Failure is a situation when the realized rate of return on invested capital, with allowance for risk consideration, is significantly and continually lower than prevailing rates on similar rates on similar investments (Altman & Hotchkiss, 2005). In the circumstances the financial ratios of the company reflect revenues insufficient to cover costs and the average return on investment lies far below the cost of capital (Outecheva, 2007). Under insolvency a company faces a serious problem of lack of cash flows generated from operating activity (Altman & Hotchkiss, 2005). Insolvency is categorized into flow based and stock based. Stock based insolvency implies that the market value of the company's assets is less than the face value of its debt leading into negative economic worth. Flow

based insolvency occurs when the operating cash flows are insufficient to cover current obligations (Ross et al., 2002). This leads to a cash shortage together with a debt overhang (Uhrig-Homburg, 2004).

Insolvency leads to default which signifies the peak of distress development. Default contains an important message to all recipients of the company's financial information. Before default investors have incomplete information about the true magnitude of the adverse processes inside the distressed company, the intensity of financial distress as well as the time until default and the probability whether default will happen (Giesecke, 2005).

### **2.4.3 Relationship Between Cash Management and Financial Distress**

Failure by a firm to meet its current obligation signals a high probability of financial distress. This means that liquidity is an important determinant of financial distress (Pranowo et al., 2010). Hence a need to study the relationship between cash management and financial distress of non-financial firms listed at NSE.

Studies done by Churchill and Mullins (2001); Moss and Stine (1993); Richards and Laughline (1980); Stancill (1987) show that performance improvements related to increased liquidity result primarily from an improved cash position, better credit, a reduced risk of bankruptcy and / or the ability to self – finance new business initiatives. The studies consistently predict that the actions that shorten the cash cycle and improve liquidity will improve firm performance (Kroes & Manikas, 2014). Moreover, liquidity contributes to firm's growth by enhancing working capital adequacy and ideal cash investment (Ong'era et al., 2017). Altman (1968) confirms that firms with low levels of liquidity are more likely to experience financial distress because cash constrained firms are more vulnerable to exogeneous negative shocks to cash flow.

A study carried out by Khaliq et al., (2014) to determine financial distress measurement among 30 Government Linked (GLCs) listed firms in Malaysia over the period of five years (2008 to 2012) used Z- score model. The study identified current ratio and debt ratio as determinants of financial distress. The study is consistent with Suleiman (2001) in which current ratio has a positive relationship with financial distress. The study found that the amount of debt borrowed by GLCs firms are associated with financial distress. The results of the study indicate that there is a significant relationship between both variables (current ratio and debt) and Z- scores that

determine financial distress of GLCs. The study further suggested the use of other models in future such as logit analysis and artificial networks. The study's target population was only on Government Listed Companies in Malaysia. It neglected private listed companies. This study seeks to fill this gap by targeting non-financial firms listed at NSE in Kenya.

Basa (2011) studied financial distress and its determinants in selected beverage and metal manufacturing firms in Ethiopia using panel data from 1999 to 2005. Applying multiple regression, the study showed that profitability, firm age, liquidity and efficiency have positive and significant influence to debt service coverage as a proxy of financial distress. Leverage was found to have a negative and significant relation with debt service coverage. According to Basa (2011) financial distress is a function of debt service coverage and is determined by liquidity, leverage, profitability, operational viability, firm size, efficiency and error term. The current study contemplates that financial distress is a function of cash management.

A study conducted Pranowo et al., (2010) found that liquidity, efficiency and equity are statistically significant and positive influence on financial distress. Tesfamariam (2014) investigated the determinants of financial distress in case of manufacturing share companies in Addis Ababa-Ethiopia. The author sampled twelve manufacturing share companies in the period from 2009 to 2013. Applying panel data model with its random effect estimate the study found a positive and significant relationship between liquidity and debt service coverage as a proxy of financial distress. The implication of the study was that the higher the firm's liquid assets, the higher the ability of the firm to cover its fixed charges and the lower the probability of the firm to undergo financial distress. Whereas the study was carried on a sample of twelve manufacturing firms for a period of 5 years in Ethiopia, the present study sought to study all the 41 non-financial firms listed at NSE in Kenya for a period of 10 years.

Ndirangu (2013) examined the effects of working capital management on profitability of manufacturing firms in Kenya, liquidity being one of the variables of study. Seeking to establish the influence of liquidity management practices on profitability of manufacturing firms in Kenya, the study concluded liquidity and other variables have a significant effect on performance and can be used to predict profitability. The study used profitability to proxy for financial health of the manufacturing firms.

Njeru (2016) examined the effect of liquidity management on financial performance of deposit taking saving and credit co-operative societies (SACCOs) in Kenya. By employing descriptive design the author concluded that effective liquidity management required a well regulated sector and liquidity decisions were statistically significant in explaining financial performance of deposit taking SACCOs in Kenya. However, the author studied SACCOs in Kenya and not non-financial firms listed at NSE in Kenya.

Omondi & Muturi (2013) examined the factors affecting financial performance of listed companies at NSE in Kenya. Studying 29 listed firms the study adopted an explanatory research design to conclude that liquidity has a significant positive on financial performance. The study's findings were premised on listed companies at NSE and not non-financial firms listed at NSE. Therefore the study findings could not be generalized for all companies particularly the non-financial firms listed at NSE in Kenya

The reviewed literature indicate that the majority of past empirical studies have analyzed the relationship between cash management and firm performance based on different indicators of financial health of a firm. The measures mostly used have been based on profitability, liquidity, firm value, earnings per share and stock returns. This approach according to Muigai (2016) provides a limited scope of establishing the overall corporate financial health and quality. The study sought to address this gap by adopting the Altman Z-score to proxy for financial distress of non-financial firms listed at NSE in Kenya. This is on the premise that the Altman Z-score model is based on MDA statistical technique that provides a suitable mechanism of discriminating between financially healthy and financially distressed firms (Muigai, 2016).

Quite a number of studies have concluded that there is a positive relationship between liquidity and performance. These studies include Cheluet et al., (2014); Ndirangu (2013); Njeru (2016) Omondi and Muturi (2013). Yet other studies have shown a null relationship between liquidity and financial performance. For instance, the study conducted in China and Malaysia found that liquidity level of banks has no relationship with the performance of banks (Said & Tumin, 2011). Moreover, Jakpar et al., (2017) studied the effects of working capital management on firm's profitability. The study covering 5 years from 2007 to 2011 studied a sample of 164 manufacturing firms listed on the Main Board of Bursa Malaysia to find that cash conversion cycle has no control over the firm's profitability.

From the reviewed literature even in circumstances where similar measures of corporate performance have been used there is contradicting conclusions resulting from different studies. While some studies showed a positive relationship between liquidity and financial performance of firms, other studies found a negative relationship between liquidity and performance of firms. Other studies have shown a null relationship between liquidity and financial performance. This lack of convergence implies that the manner in which cash management influences financial distress is still inconclusive. In the same vein, very scanty work has been done with the aim of establishing the relationship between cash management and financial distress of non-financial firms listed at NSE in Kenya. Moreover, the reviewed literature shows that most of the empirical studies conducted to establish the relationship between liquidity and firm performance belong to developed countries. In developing countries studies on relationship between cash management and financial distress of non-financial listed firms is limited

Generally the insufficient research on the relationship between cash management and financial distress involving non-financial firms listed in Kenya and the knowledge gap in this area informed the study. Therefore, this study sought to establish the relationship between cash management and financial distress of non-financial firms listed at NSE in Kenya.

### **3.0 Methodology**

A research design is the process that the investigator will follow from the inception to the completion of the study (Cooper & Schindler, 2011; Kothari, 2011). It is therefore the heart of planning for research work to undertaken. According to Kothari (2011) a research design is a plan of research that is used to answer the research objectives. It gives direction and makes research systematic. A research design determines work involved in the project, estimating costs involved, preparing time schedule and verifying results (Omari, 2015). A research design is the structure, or the blue print of research that guides the process of research from the formulation of the research questions and hypotheses to reporting the research findings (Wanjiru, 2015). The study adopted panel (pooled) research design. This is because the design enables collecting and analyzing data from several units (firms) over several periods of time (Muigai, 2016). The research design is suitable in studies where both cross-sectional and longitudinal characteristics of the units being studied are required (Gujarati, 2003).

Panel data estimation technique was adopted by the study. This is because the technique takes care of heterogeneity associated with individual firms by allowing for individual specific variables (Muriithi & Waweru, 2017). Moreover, by combining time series of cross sectional observations, panel data provides more informative data, more variability, less collinearity among variables, more degrees of freedom and more efficiency (Muriithi & Waweru, 2017). Further, panel data enriches empirical analysis in such a way that may not be possible if either only time series data or cross sectional data is used (Ogboi & Unuafe, 2013). The study employed secondary data that was extracted from audited financial statements and annual reports of non-financial firms listed at NSE in Kenya over the 10-year period, 2007 to 2016.

### 3.1 Model Specification

The study adopted panel data estimation technique to establish the relationship between cash management and financial distress of non-financial firms listed at NSE in Kenya. The panel regression equation differs from a regular time series or cross-section regression by the double subscript attached to each variable. The general form of the panel data model is

$$Y_{it} = \beta_0 + \beta_i X_{it} + e_{it} \quad \dots\dots\dots (i)$$

$i$  = the cross – sectional dimension. It represented 1 to 41 non-financial firms listed at NSE in Kenya.

$t$  = time series dimension. It represented the study period in years which was a ten year period from 2007 to 2016.

$Y_{it}$  = financial distress of non-financial listed firm  $i$  at time  $t$ .

$\beta_0$  = the model constant or intercept term

$\beta_i$  = the coefficients of explanatory variables

$X_{it}$  = the independent variables in the model.

$e_{it}$  = random error term

To test the influence of cash management on financial distress of non-financial firms listed at NSE in Kenya the study employed equation (ii):

$$Y = \beta_0 + \beta_1 X + e \dots\dots\dots(ii)$$

Where:

Y = financial distress of non-financial firms listed at NSE in Kenya

$\beta_0$  = the intercept term

$\beta_1$  = coefficient of cash management

X = cash management measured by cash conversion cycle

e = random error term

#### 4.0 Research Findings and Discussion

##### 4.1 Correlation Analysis

Karl pearson’s product moment correlation coefficient was used to infer the nature of the relationship between cash management and financial distress of non- financial firms listed at NSE in Kenya . The result was shown on table 3.1

**Table 3.1 Correlation Analysis**

	Financial distress	Cash conversion cycle
Financial distress	1.000000	0.008470
Cash conversion cycle	0.008470	1.000000

This analysis was meant to find out whether there was a relationship between cash management (in dependent variable) and financial distress (dependent variable).Table 3.1 showed that there was a p

positive relationship between cash management and financial distress of non-financial firms listed at NSE in Kenya

## 4.2 Regression Analysis

Panel regression analysis was employed on the panel data for a ten year period from 2007 to 2016. A linear regression using a feasible generalized least square (FGLS) estimation procedure for the relationship between the independent variable measured by cash conversion cycle (CCC) and the dependent variable measured by Z-score was summarized on table 3.2

**Table 3.2 FGLS -Financial Distress and Cash Management**

Variable	coefficient	Standard error	t- statistic	Prob.
Cash conversion cycle	0.003873	0.000788	4.915469	0.0000
constant	3.276335	0.070106	46.73418	0.0000

From table 3.2 a linear regression model of the form  $Y = \beta_0 + \beta_1 X$  was fitted as:

$$Y = 3.2763 + 0.0039X.$$

The study findings indicated that cash management was significant at 5% significance level. This is because the p-value was  $0.0000 < 0.05$ . Moreover, the regression coefficient for cash management was positive. Therefore, the study findings revealed that cash management had a positive and statistically significant effect on financial distress of non-financial firms listed at NSE. The results indicated that a 1% increase in cash conversion cycle leads to an average of 0.4% decrease in financial distress. This was because as cash conversion cycle increased the Z-score also increased and thereby reducing financial distress. The study findings echo the research results by Falope and Ajilore (2009) who focused on the relationship between working capital management and firm's profitability in Nigeria Stock Exchange in the period 1995 to 2005. The research findings revealed that higher cash conversion cycle will lead to higher profitability and vice versa. Moreover the present study is in tandem with the study by Gill et al., (2010) on the relationship between working capital management and firm's profitability in New York Stock Exchange. The study findings showed that cash conversion cycle had a significant and positive relationship with firm's profitability. However, the study findings contravenes that by Jakpar et al., (2017) who

found that cash conversion cycle has no control over the firm's profitability. Moreover, the study results are in contravention of findings by Samiloglu and Demirgunes (2008) who found that the cash conversion cycle has no effect on firm's profitability.

**Table 3.3 Model Summary – Financial Distress and Cash Management**

R-squared	Adjusted square	R- regression	Std. error of regression	Sum of squared resid	of F- statistic	Prob. F-stat.
0.8056	0.7829		1.8283	1173.2	35.48	0.0000

From table 3.3 the F-statistic obtained was 35.48 and was significant at 5% significance level as supported by a p-value of 0.0000. This indicated that the model was a good fit. Brook (2008) noted that a simple way to determine whether the regression line fits the data well is to look at the value of  $R^2$ . According to Tesfamariam (2014) a value of adjusted  $R^2$  close to 1 indicates that the model explains nearly all of the variability of dependent variable about its mean value, while a value close to zero indicates that the model fits the data poorly. From the findings on table 3.3 the adjusted  $R^2$  of 0.7829 implied that 78.29% of the variability in the dependent variable can be explained by a change in the independent variable. Hence, 78.29% of total variation in financial distress of the non-financial firms was explained by cash management.

### 4.3 Test of Hypothesis

The study sought to test the null hypothesis that cash management has no statistically significant effect on financial distress of non-financial firms listed at NSE in Kenya. The hypothesis testing was done using Wald test. **Table 3.4** showed the wald test output

**Table 3.4: Test of hypothesis – Financial Distress and Cash management**

Wald test:		
Test statistic	value	probability
t-statistic	46.734	0.0000
F-statistic	35.481	0.0000

Null Hypothesis:  $C(2) = 0$

**Null Hypothesis Summary:**

Normalized Restrictions (=0)	value	Std. error
C(2)	0.003873	0.000788

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Restrictions are linear in coefficients

From table 3.4 the t-statistic was found to be significant at 5% level. Moreover, the coefficient of cash management (C2) was tested to be 0.003873. This led to the rejection of the null hypothesis  $H_0: \beta_2 = 0$ . Hence cash management as a study variable was a significant variable that must be considered when studying financial distress of non-financial firms listed at NSE in Kenya. Since F-statistic was significant at 5%, the null hypothesis  $H_0: \beta_0 = \beta_2 = 0$  was rejected in favor of the alternative that at least one coefficient of the model is greater than zero. This meant that the model between financial distress and cash management was significant at 5% level.

## 5.0 conclusion and Recommendation

### 5.1 Conclusion

The analysis of panel data together with test of hypothesis revealed that cash management had a positive and significant effect on financial distress of non-financial firms listed at NSE in Kenya.

### 5.2 Recommendations

The study recommended that listed firms should embrace robust cash management. This would be through increase in cash conversion cycle. This would in turn reduce financial distress of the firms. This is because the study findings revealed that cash management was a positive and a statistically significant predictor of financial distress of the firms. To reduce financial distress the study findings indicated that the firms should increase their cash conversion cycles.

### 5.3 Suggestion for Further Research

The study was carried out in Kenya. Hence the applicability of the study results may be limited to Kenya. Hence a comparative analysis of the relationship between cash management and financial distress of non-financial firms listed in other countries should be undertaken.

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