WORKING CAPITAL MANAGEMENT AND FINANCIAL DISTRESS OF NON-FINANCIAL COMPANIES LISTED AT THE NAIROBI SECURITIES EXCHANGE

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Abstract:
Financial distress is a common global phenomenon among the corporate entities. Locally, there is overwhelming evidence of firms that have undertaken financial restructuring, delisted from the exchange market, gone into receivership and subsequently liquidated on account of financial distress. This study therefore set out to examine the way in which management of working capital affects financial distress of non-financial firms listed at the Nairobi Securities exchange. In fulfilling this objective, the study sought to establish how cash management, inventory management and accounts receivables management effects financial distress of non-financial firms listed at Nairobi Securities Exchange. The free cash flows theory, Precautionary motive theory, financing advantage theory and liquidity theory formed the theoretical basis of the study. The study adopted longitudinal research design and collected secondary data over ten years period (2009-2018) from a census of the 40 non-financial firms listed in Nairobi Securities exchange. Descriptive statistical analysis was used to obtain the initial overview of the data collected. Inferential statistical analysis was undertaken using the F and t-tests at 95% confidence level. The study found that cash management had a positive and significant effect on the firms' distress index. Further, the study revealed that inventory holding period was negatively and significantly related to the firms' financial distress index. The study also showed that suppliers' payment period had a positive and significant effect on financial distress indicator. The study however depicted a negative but insignificant relationship between receivables period and financial distress. The study recommended that the management of non-financial listed firms should ensure appropriate management of working capital components in order to guard against instances of corporate financial distress

JEL: O15; J24; L20

Keywords: working capital, financial distress, cash, inventory, receivables

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1. Introduction

Continuity of listed companies is critical to the performance of the stock market and the economy at large (Maina and Sakwa, 2012). Chogii, Aduda & Murayi (2014) noted that deep market capitalization is inextricably related to economic development and is highly dependent on the financial viability of the listed firms. Olaleye, Memba and Riro (2015) averred that the growing stock market is an encouragement to investors' confidence and plays a key role in attracting the much-needed foreign direct investment (FDI). It is therefore apparent that a bourse that is characterized by misguided organizations not only degrades investors but also results in capital flight.

Financial distress is a common phenomenon among business enterprises around the world. According to Habib *et al* (2018), it refers to a situation where a business entity is incapable of meeting its financial obligations as they fall due or does so with difficulty. Ahmad (2013) explained that this phenomenon is strongly associated with a lack of optimal financial structure among the affected firms. Whitaker (1999) stated that financially distressed firms are generally associated with insufficient cash flows, volatile profitability and decline in assets-liability ratio. The authors argued that if the situation is sustained, severe liquidity deficiencies culminate in business failure. Accordingly, Rajan and Zingales (1995) noted that the financing factor is crucial in determining not only the interim financial performance of the firm but also its long run survival.

At the global front, the collapse of world-renowned firms has been witnessed over the past 2 decades. Notably, these firms that include: General Motors, Swissair, The CIT Group, Conseco, Pacific Gas & Electric Ltd, Delta Air lines, Parmalat, Enron and WorldCom were epitomes of corporate financial stability and their collapse came with tremendous amazement to researchers, analysts and industry practitioners alike. Research studies showed that these firms were heavily saddled with debt; which inevitably led finance researchers to attribute corporate financial distress with capital structure (Tinoco and Wilson, 2013). Nonetheless, a number of the collapsed firms were associated with inept administration of financial affairs flowing from outright financial malfeasance or conflict of interest (Tabrizi, 2016). At the local level, Nairobi Securities Exchange (NSE) having realized impressive growth since independence, a number of listed non-financial firms have registered lackluster performance over the past decade (Ngugi, Amanja & Maana, 2009). Out of about 60 listed firms in the non-financial sector, some have been struggling financially while some have been delisted altogether. This undesirable phenomenon motivated finance researchers to examine the underlying causes of firm failure.

According to Chebii, Kipchumba & Wasike (2011), majority of the tribulations faced by these companies were largely attributed to the funding structure. Curiously, numerous research studies on this subject have focused on capital structure; which refers to the manner in which the firms are financed over the long term (Ray, 2012; Autukaite & Molay, 2011). However, little attention has been accorded to determining the impact of the short-term financing structure; in spite of the working capital comprising roughly 40

percent of the total resources of the firm, and the related decisions being made more frequently (Dandapani, Chang and Prakash, 1995).

According to Makori and Jagongo (2013), working capital management (WCM) refers to a company's ability to manage its short-term assets and liabilities efficiently in order to maximize returns on assets. This in return increases the company's free cash flow and enhances the ability of the firm to boost the shareholders' value. Further, Akash, Khan, Hamid, & Hussain (2011) noted that WCM plays a crucial role in supporting the steadiness, soundness and productivity of the firm. Whereas holding high levels of current assets in form of account receivables and inventory may starve the firm of free cash flows necessary to meet its short-term obligation when they fall due, high levels of current liabilities increase the chances of financial distress (Ricci & Vito, 2000). Padachi (2006) further posits that numerous businesses collapse due to the inability to plan and organize appropriately for their current assets and liabilities. Thus, Afza & Nazir (2007) argued that finance managers should seek to efficiently manage working capital by attaining the best possible levels of current assets and current liabilities so as to exploit available growth opportunities.

The key role of working capital management in a firm is to guarantee stability in the firm's operations with sufficient cash flow to meet maturing temporary financial obligations and impending expenses (Ahmad, 2013). Appropriate working capital management therefore ensures that a firm benefit in terms of liquidity and solvency. In particular, the greater the relative proportion of liquid assets, the lower the risk of liquidity depletion thus reduced risk of financial distress, *ceteris paribus* (Emery, Finnerty & Stowe, 2004). All the individual parts of working capital ranging from debtors, cash and cash equivalents, marketable securities, and inventory, play a key role in maintaining the solvency level and also suppressing the financial distress of a firm. Thus, maintaining short term capital at the ideal level is the main aim of the financial managers as a lot of money is lost by the firm for holding excessive working capital instead of investing the same (Emery *et al.*, 2004).

1.1 Statement of the Problem

Over the past one decade, a dozen non-financial firms at the NSE have either been placed under statutory management or delisted from the bourse altogether on account of dwindling financial performance (CMA, 2018). Among these firms are Uchumi Supermarkets, Hutchings Biemer Ltd, Deacons (EA) Ltd, CMC Holdings, Marshalls EA Ltd; all of which perennially exhibited impressive financial results before sliding into financial distress. A review of the financial performance of the currently listed non-financial companies reveals that a number of them are struggling. This trend was captured in the statement by the CMA's CEO who stated thus; *"I don't think we have options on how to deal with these firms, apart from the continuously monitoring of their business strategies as we wait to put them on the recovery board,". "If they fail to turn around within the given timelines (three years) then we shall issue them with notices of delisting."* (The East African, October 22nd 2018).

Notable episodes include, Kenya Airways whose shares were recently suspended from the trading platform after consistently posting mind-boggling losses over the last 6 years. The East African Portland Cement and Athi River Mining; both of which hitherto prided the construction listing segment have also been placed under receivership. Mumias Sugar Company, Olympia Capital, Home Afrika Ltd, Atlas Development and Support Services, East African Cables Ltd, Eveready East Africa among others are still holed in financial doldrums despite concerted efforts to revitalize them through reorganization (Makori & Jagongo, 2013).

Perusal of existing literature reveals that many scholars have consistently associated corporate financial distress with long term financing structure (Muigai, 2016; Shah & Khan, 2018; Tahir, 2016; Gamze, & Emin, 2012). Notwithstanding the validity of these research findings, it is noteworthy that capital structure decisions are made less frequently within a corporation's life cycle (Makori and Jagongo, 2013). This is in contrast with the working capital decisions that are made more frequently during the operating year (Arunkumar & Ramanan, 2013). Further, considering that working capital constitutes approximately 40% of total corporate financing (Mathuva, 2013; Mwangi *et al.*, 2014), suboptimal choices could potentially result in financial distress. It is this glaring literature gap that motivated this study.

1.2 Objectives and Significance

The primary objective of the study was to establish the effect of working capital management on financial distress among the non-financial firms listed in NSE. In achieving this objective, the study investigated the effect of the 3 components of working capital management i.e. Cash, accounts receivables and inventory on financial distress of the non-financial firms listed in NSE. The findings and recommendations flowing from the study would be beneficial to the management of the listed non-financial corporations as well as the policy formulators in the sector. The results would also contribute to the existing body of knowledge and form a reference point for subsequent research in the field of study.

2. Literature Review

2.1 Theoretical Literature

This study was anchored on three key theories namely: Free cash flow theory, Precautionary motive theory and Financing advantage theory which are reviewed by the study.

The free cash flow theory, which was propounded by Jensen (1986) presupposes that managers hold cash so as to boost the amount of financial resources under their command. By so doing, they get unrestricted authority over the investment decisions of the firm. The theory argues that managers prefer to cling on more cash and investment in working capital in a bid to lessen the investment risk of the firm. This in a way reduces the likelihood of financial distress (Opler, Pinkowitz, Stulz, & Williamson, 1999). This

theory is relevant to the study because it provides a background on the reason for non-financial firms to hold different quantities of cash as part of their working capital. This theory therefore anchors the cash management variable of the study.

The Precautionary motive theory that was propounded by Wen (2003) provides the argument on why businesses would find it objective to hold stock. The initial version of this theory posited that firms favor higher inventory holding periods to avoid the possibility of a stock out situation. The theory therefore opined that a firm that has shortage of stock naturally runs the risk of losing its goodwill in the market place; which negatively affects both the corporate performance and overall image of the firm. The alternative version of the precautionary motive hypothesis attributes an enlarged stock-holding periods by firms to the vagueness in the lead-time of delivery (Rehman & Anjum, 2013). The theory argues that even though companies may have a contractual supply arrangement with suppliers for delivery of goods, unforeseen circumstances can cause a delay in the delivery; which can result in potential loss of sales and the attendant negative consequences to firm performance. Firms therefore prefer to keep a safety or buffer stock to caution themselves against such eventualities (Blinder & Maccini, 1991). The relevance of this theory is that the study seeks to establish the relationship between inventory management as constructed through inventory-holding period and financial distress of non-financial firms as well as investigating the nature of such an effect.

The financing advantage theory, promulgated by Schwartz (1974) advanced the argument that suppliers of goods and services ordinarily are better placed in screening the credit worthiness of their customers than financial institutions and lenders. They therefore prefer to sell on credit since they possess a greater aptitude to observe and compel repayment of that credit. By so doing, they enhance their sales revenue which in return reduces their probability for financial distress. This theory essentially predicts an inverse relationship between accounts receivable management and financial distress of the firm because businesses assume the position of lenders and extend trade credit to customers by selling on credit. This theory therefore sees the extension of credit purely on financial grounds and views trade credit as an alternative to institutional financing (Bhattacharya, 2008). The thrust of this theory therefore is that firms that extend generous trade credit terms stand a better chance to improve their sales turn-over and hence minimize the degree of financial distress in the final analysis.

2.2 Empirical Literature

Jafari, Salahinezhad and Jalili (2014) examined the effect of liquidity on financial sustainability among manufacturing enterprises in USA. Cash flow from operations and probability of corporate bankruptcy were used to proxy liquidity and financial sustainability respectively. The study, which collected data for 8 years period established that liquidity level had an inverse and significant effect on probability of financial distress of the manufacturing firms. This finding was however contrary to the one derived from a similar study conducted by Aravind (2016) which concluded that cash flow from operations is insignificantly related to corporate financial distress among the Belgian

listed firms. Locally, Maisiba, Muturi, Atambo (2017) conducted a study among 11 Telecommunication firms aimed at determining the effect of cash conversion cycle on financial distress. The study found that cash management was inversely and significantly related to corporate financial distress. The findings agreed with those of a similar study conducted by Takon and Atseye (2015) among the Nigerian telecommunication firms. However, they were at variance with those of a study conducted by Andy and Johnson (2010) that found a positive and significant relationship between cash conversion cycle and probability of financial distress among the US listed firms.

Aminu & Zainuddin (2015) sought to establish the effect of inventory management on financial stability of firms listed on the Tehran stock exchange. The study that collected data from 471 firms over the during 2002–2013 concluded that the inventory holding period was inversely and significantly related to the firms' financial stability as represented by ROA. The findings of the study agreed with those of a similar study conducted by Gamze and Emin (2012) among the 75 manufacturing firms listed at the Istanbul Stock exchange over the period 2002 - 2009. In another study, Anser & Malik (2013) investigated the effect of the inventory management (inventory turnover) on financial quality of non-financial listed firms in Pakistan. The study that adopted earnings per share to proxy financial quality found that inventory turnover had a positive and significant effect on EPS; which implied that firms with high rates of inventory conversion exhibited financial strength. These findings however differed with those of a study conducted by Angahar & Ivarave (2016) that found no significant relationship between stock turnover and EPS.

Nzioki, Kimeli, Abudho, and Nthiwa (2013) analyzed the effect of accounts receivables management on the performance of the six firms listed under the manufacturing sector of NSE for the 5-year period from 2006 to 2010. In the study, receivable collection days was used as a measure accounts receivable management while ROE represented performance. The results showed a positive and significant relationship between the two variables of interest; implying that firms with generous credit terms to customers exhibited favorable performance. These findings however differed with those the study by Afza and Nazir (2009) who found an inverse and significant relationship between debtors' management and profitability of 204 firms listed in Karachi Stock Exchange. Mweta and Kipronoh (2018) investigated the effect of accounts receivables on performance of firms listed in the construction and allied sector of the NSE. The study that analyzed secondary data for the period 2012 - 2016 and used debtor collection days to proxy accounts receivables and ROE to represent financial performance found a positive but insignificant relationship between accounts receivables management and financial performance. This finding was however at variance from those of a study carried out by Hassan, Imran, Amjad and Hussain (2014) among the non-financial listed firms listed in in Pakistan that found debtors collection period to be positively and significantly associated with corporate financial performance.

As can be deciphered from the empirical review, the results are largely mixed which imply that the nature of the relationship between variables is not conclusive.

Further, the majority of the studies have adopted profitability indicators to proxy financial distress variable. This justifies the current study in examining the effect of WCM on financial distress in Kenya.
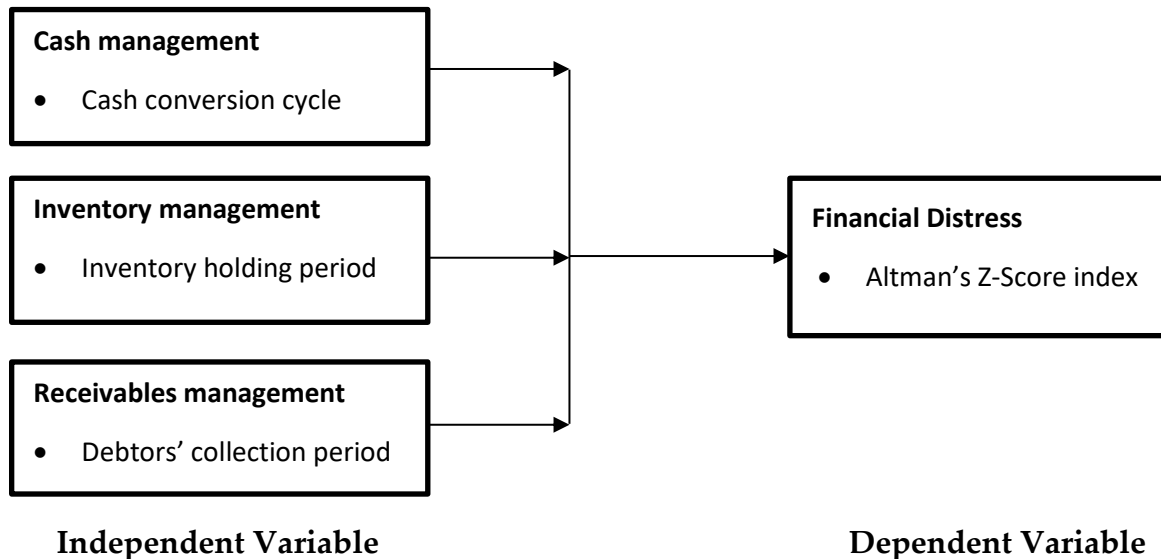
2.3 Conceptualization

Independent Variable   **Dependent Variable**

Figure 1: Conceptual framework

3. Research Methodology

3.1 Research Design

In carrying out the study, a longitudinal research design was adopted. This research design was considered suitable as it involved collecting numerical data concerning iterative observation variables over a lengthy period of time (Upadhyay, Sen, & Smith, 2015). This has the overall benefit of providing a more incisive understanding of study variables behavior which helps the researcher to make informed conclusions.

3.2 Study Population

The study population comprised the 40 non-financial corporations that were listed with NSE as at 31st December 2018. These firms were listed across 7 sectors. This population scope was considered suitable because non-financial firms are not governed by any regulation with regards to working capital management. They are therefore considered more predisposed to financial distress risk compared to financial firms.

3.3 Research Data

The study relied on secondary data extracted from audited financial statements as well as annual reports of the individual non-financial firms over the10 years period spanning from the year 2009 to the year 2018. The period of the data collection was considered long enough to allow for an incisive analysis of the relationship between the variables. The

collected data was then transformed into the required measurements using the Excel program and subsequently converted into suitable panels.

3.4 Data Analysis & Empirical Model

Both descriptive and inferential statistics were used to analyze the data. Descriptive statistical analysis using mean, maximum, minimum and standard deviation was performed to provide the preliminary overview of the non-financial firms with regard to the parameters of interest. Inferential statistical analysis involved estimating the specified OLS regression model and using the F and t tests at 95% confidence level to determine the significance of the estimators obtained. The following panel regression model was estimated by the study:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \mu_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

Where:
Y_{it} = Financial distress of firm i at a time t
β_0 = Constant term
$X_{1it} - X_{3it}$ = The 3 explanatory variables of firm i at a time t
μ_{it} = Random error term
$\beta_1 \dots \beta_4$ = Regression coefficient of 3 independent variables
i = Number of firms

4. Results and Discussions

4.1 Descriptive Statistical Analysis

Descriptive statistics are used to describe the basic features of the data and to simplify large amounts of data in a clear and understandable way.

Table 4.1: Summary Statistics

Variables	Mean	Std. Dev	Max	Min	Skewness	Kurtosis
Z-Score index	7.05	3.90	18.18	-15.01	-0.65	3.37
CCC (days)	75.7	86.6	485.1	-211.2	0.80	2.62
Inventory Days	90.3	64.4	305.8	0.00	0.80	3.18
Receivable Days	67.7	71.0	541.8	0.37	0.84	3.89

The results indicate that during the analysis period, non-financial firms listed with NSE had a mean Z-score index of 7.05. This suggested that the listed non-financial firms were fairly non-distressed based on the Altman's distress boundaries where: (Z<4.15, distress zone; 4.15≤Z≤5.85, grey zone; Z>5.85, safe zone). The results further denote that the average cash conversion period for the firms under the study was 75 days. This signified that it took an average of two and a half months for the firms to turn the initial cash investment in inventory back to cash. By global standards, this is a fairly short period (Owele and Makokeyo, 2015). The results also revealed that the listed non-financial firms

had an average of 90 inventory days; which is approximately three months. Although there is no rule of thumb concerning the optimal duration, this period is relatively high compared to the best practice of at most 30 days (Pandey and Parera, 2007). Table 4.1 showed a mean of 67.7 receivable days among the non-financial listed firms during the period of study. This meant that it took slightly over two months for the firms to collect cash from credit sales made to customers.

4.2 Panel Data Econometric Tests

To establish if the panel data satisfied the cardinal requirements of classical linear regression analysis, a number of tests were carried out. The study adopted pair-wise correlation analysis among the explanatory variables to establish whether or not multicollinearity existed. The results showed that the correlation coefficients between all pairs of the explanatory variables were well below 0.8; which implied that there was no severe multicollinearity in data (Cooper & Schindler, 2008). Panel Unit root test was conducted using the Fisher-type Augmented Dickey and Fuller (ADF) test for panel unit root with and without time trend. The null hypothesis was that panel data was non-stationary. The results revealed that the ϱ-values associated with the test statistics of all the variables were less than 0.05. The null hypothesis was therefore rejected at 5% significance level and all the45 variables were used in levels instead of their first difference.

The study adopted Modified Wald test method to test for heteroscedasticity in the data. The test results provided a chi-square value of 5886.39 and a corresponding p-value of 0.0000 for the 39 firms. Thus, the null hypothesis of constant variance was rejected with the implication that panel-level heteroscedasticity existed in the panel data (Wiggins & Poi, 2001). To correct this violation of CLRM assumptions, feasible generalized least squares (FGLS) estimation technique instead of the ordinary least squares' method was used. To test for presence of autocorrelation in panel data, the study employed the Wooldridge test against the null hypothesis that there was no first order autocorrelation. The results provided an F-test statistic of 7.587 and a corresponding p-value of 0.0090 within one and thirty-eight degrees of freedom. Accordingly, the null hypothesis was rejected implying that the panel data was dogged with first order autocorrelation. The study corrected for this violation of the assumptions of CLRM by estimating the specified statistical model with robust standard errors.

4.3 Panel Regression Analysis

Table 4.2: FGLS Random- effects Panel Regression Results

Dependent variable: Financial Distress (Z-score)				
Variables	**Coefficient**	**Std. Error**	**t-statistic**	**Prob.**
Constant	7.4173***	0.5477	13.54	0.0000
Cash management(days)	-0.1710***	0.04185	-4.09	0.0000
Inventory management (days)	-0.0810***	0.02617	-3.10	0.0020
Receivables management(days)	-0.0153	0.02642	-0.58	0.5620

Statistics					
R-Squared	0.2848				
Rho	0.6288				
Wald-statistic (3)	90.01				
Prob. (Wald-statistic)	0.0000				
Observations	365				

***, **, * represent statistical significance at 1%, 5% and 10% levels respectively.

Based on the coefficient of determination (R^2) value, Table 4.2 show that the working capital management variables jointly explain up to 28.48% of variations in financial distress of non-financial firms listed in NSE. Further, the Wald-statistic value equivalent to 90.01 together with the corresponding *p*-value of 0.0000 signify that the coefficients of the four variables are jointly statistically significant at 95% confidence level; meaning that the overall model is also significant.

4.3.1 Effect of Working Capital Management on Financial Distress

The regression results showed that the coefficient of cash management equivalent to -0.1710 is negative and statistically significant at 5% level. This finding indicated that during the period of analysis, non-financial firms with longer cash conversion cycle often reported lower Altman's Z-score index, implying they were more distressed. This empirical finding could be attributed to the fact that cash flow, being the lifeblood of a corporate entity is of critical importance in enabling the firm to meet the day to day financial obligations as they fall due. The finding of the study agreed with that by Jafari *et al* (2014) whose study among the manufacturing firms in USA attributed the positive and significant association between cash flow levels and financial distress index to the ability of such firms to sustain operations by continuously meeting the day to day liquidity needs. However, this result was at variance from those of studies carried out by Maisiba *et al* (2017) and Andy and Johnson (2010) both of which found that cash flow levels have an insignificant effect on corporate financial distress.

The regression results further revealed that the coefficient of inventory management was inverse at -0.0810 and was statistically significant at 95% confidence level. This implied that during the period of review, firms that held stocks for long reported lower Z-score index; meaning they were more financially distressed relative to those that turned over stocks more frequently. This empirical relationship could be ascribed to the fact that inventory, whether in form of raw materials, finished stocks or bought in goods encompasses tying up a significant portion of working capital (Pandey and Parera, 2007). The finding of the study was in consonance with that by Aminu and Zainuddin (2015) whose study among the firms listed in Tehran Security Exchange attributed the adverse and significant association between inventory holding period and financial distress index to the fact that extended stockholding periods eventually results in lower sales turnover and hence diminished profitability. The findings however differed with those of study carried out by Gamze and Emin (2012) among the Turkish listed firms as well as the study conducted by Agha (2014) among the Vietnamese

manufacturing firms both of which found no significant relationship between inventory management and corporate financial distress.

The regression results presented in Table 4.2 shows that the coefficient of receivables management as represented by receivable collection period was -0.0153. However, the coefficient was statistically insignificant at 95% confidence level. The implication of this observation was that the trade credit period extended by the firms to its customers did not critically determine their level of financial distress during the period of the study. Nonetheless, such effect would be negative where it existed; meaning that longer debtor days are associated with lower absolute Z-scores indicating higher distress levels. This finding could be possibly explained by the fact that trade debtors, just like inventory involves tying up a significant portion of working capital (Pandey and Parera, 2007) in form of money owed by customers through credit sales. The findings of this study agreed with those of a similar study carried out by Nyamao, Lumumba, Odondo and Otieno (2012) which concluded that financial distress of horticultural firms in Kenya is remotely influenced by credit terms offered to the customers.

5. Conclusions and Recommendations

Based on the findings, the study concluded that firms that lower cash conversion cycle levels were more preferable as a mechanism to cushion the firms from financial distress. Secondly lower stock-holding durations resulted in lower levels of corporate financial distress. Thirdly, although debtors' payment period did not significantly influence the Altman's Z-score values of these firms, companies associated with longer receivable days tended to be generally exhibited a distressed status. The study recommends that the management of the listed non-financial firms should endeavor to maintain lower cash conversion cycles necessary to maintain sufficient liquidity levels. The firms should also adopt inventory management models and systems that seek to maintain optimum stock levels.

Conflict of Interest Statement
The authors declare no conflicts of interests.

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The author is a Master of Science (finance) student at Jomo Kenyatta University of Agriculture and Technology. The research interest includes financial distress, capital structure and risk management.

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