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Influence of Financial Distress on Financial Risk Heding Practices of Listed Non-Finance Firms in Kenya

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Abstract: The study sought to establish the influence of financial distress on the hedging of financial risks by non-finance listed at the Nairobi Securities Exchange, Kenya. The study adopted a descriptive research design to examine the influence of financial distress on financial risk hedging practices among non-finance firms listed at NSE in Kenya. The population of interest comprised of the 39 non-finance firms listed at the NSE, Kenya. Given that the population size is smaller, the study did not carry out sampling and a census of the target population was adopted. The study was undertaken as a census of the 39 non-financial firms listed at the NSE. The researcher collected secondary data between 2016 and 2019 from annual reports of the non-finance firms listed at the NSE. The data collected was examined for completeness before analysis commenced. The data was entered in Excel spreadsheets and exported to SPSS. The data was analyzed using descriptive statistics, correlation analysis, and multiple regression analysis with the aid of Excel 2016. Inferential statistics included bivariate Pearson correlation and multiple regressions. The findings showed that liquidity level has a negative and significant effect on firm financial risk hedging decisions. Leverage had a negative and insignificant contribution to the prediction of financial risk hedging decisions of non-financial firms listed at the NSE. Finally, profitability had a negative and significant effect on the financial risk-hedging decisions of non-financial firms listed at the NSE. From the findings and conclusion, there is a need for an organization-wide policy on hedging and derivative use to act as an operation manual for the managers and firms' agents.

Keywords: Financial distress, financial Risk hedging, liquidity level, Leverage profitability

1. Introduction

Globally, firms face various risks affecting their operations. Financial risks have often been hedged using derivative and non-derivative methods. Financial distress may lead a firm to default on a contract, and it may involve financial restructuring between the firm, its creditors, and its equity investors (Bartram, Brown & Waller, 2015). Bartram, Brown & Waller (2015) further noted that cash flow volatility could lead to situations where a firm's available liquidity is insufficient to fully meet fixed payment obligations, such as wages and interest payments, on time. Financial risk management can reduce the probability of encountering problems and thus lower the expected value of costs associated with financial distress (Buyukkara, Karan, Temiz & Yildiz, 2019). Likewise, lowering the chance of financial distress can increase the optimal debt-equity ratio and therefore the associated tax shield of debt (Imdad, Akash, Hamid & Mahmood, 2020). Financial distress is a broad concept that comprises several situations in which firms face some form of financial difficulty. The most common terms used to describe these situations are 'bankruptcy', 'failure', 'insolvency', and 'default' (Wahyudi, Goklas, Rita, Hersugondo & Laksana, 2019). These terms provide a slightly different definition connected with the specific interest or condition of the firms under examination. Bankruptcy identifies mostly with the legal definition of financial distress. Waqas and Md-Rus (2018) define failure as a situation where "the realized rate of return on invested capital, with allowances for risk consideration, is significantly and continually lower than prevailing rates of similar investments. Insolvency also illustrates a negative performance indicating liquidity problems. Insolvency in a bankruptcy sense indicates a negative net worth. Finally, default

refers to a situation where a firm violates a condition of an agreement with a creditor and can cause legal action (Mantell, 2017).

Financial distress is a condition where a company cannot meet or has difficulty paying off its financial obligations, especially to its creditors. It means there is a tight cash situation and if prolonged may lead to bankruptcy and even liquidation. Ombaba and Kosgei (2017) define the term corporate financial distress to mean severe liquidity problems that cannot be resolved without a sizable rescaling of the entities. Financial distress may lead a firm to default on a contract, and it may involve financial restructuring between the firm, its creditors, and its equity investors (Bartram, Brown & Waller, 2015). Brown and Fehle further state that cash flow volatility can lead to situations where a firm's available liquidity is insufficient to fully meet fixed payment obligations, such as wages and interest payments, on time. Financial distress can be measured using four main indicators including liquidity, financial leverage, profitability and interest cover ratio. First, the firm's ability to meet its interest payments in the course of ongoing business is captured through the Interest Coverage (IC) ratio (Zelie, 2019). Second, the financial leverage represented through the Gearing Ratio (GR); computed as the ratio of total equity over total assets can be used to capture the solvency aspect of financial distress. Third, a profitability ratio such as Return on Assets (ROA) can be adapted to capture a firm's profitability. Fourthly, liquidity ratios such as the Current Ratio (CR) that reflect the firm's capability of avoiding financial distress states by increasing its short-term liquidity can be used to measure financial distress (Mariano, Izadi & Pratt, 2021).

Risk Hedging is one of the tools for mitigating financial risks while aiming to improve a firm's value (Lee, Vikneswaran & Manual, 2019). Perfect markets may not need risk hedging due to the assumption of perfect knowledge of the market factors leading to risk, however, in reality, the financial markets are imperfect hence investors have varied information to low levels of market efficiencies hence risks emerge that must be handled through hedging hence hedging has value. Different authors have defined hedging differently with the majority describing a hedge as a risk management strategy employed to reduce substantial losses that may be incurred by a firm or an individual if an event occurs in the real financial market leading to risks (Michire, 2017). Hedges may be constructed from many types of underlying securities or commodities and they come in verities including swaps, forward contracts, options, and other over-the-counter derivative products. Hedging is a process and an act of taking a position in a market to offset and balance against the risk adopted by assuming a position in a contrary or opposing market or investment (Gul, Khedmati, Lim & Navissi, 2018). The use of derivative instruments has become a common practice in the risk management activities of non-financial firms around the world (Bartram, Brown & Waller, 2015). In particular, derivatives are widely used to manage foreign exchange rate (FX) and interest rate (IR) risks, while the use of commodity price derivatives is more concentrated in particular industries. Racicot and Théoret (2018) state that non-financial firms enter into hedging because of several benefits such as stabilizing their share value in the market, reducing their tax liability, acquiring funding from financial institutions, promoting growth, research and development. Theoretical arguments on reasons why firm hedging is also undoubtedly elegant; argue that hedging instruments are employed to minimize cash flow variability by reducing financial distress cost, underinvestment problems, and agency cost of debt, among others (Ciorciari, 2019). Financial Risk hedging practice can be measured using the monetary value of derivatives instruments held by the firm within a financial year. A dummy variable can also be used to measure hedging practices where a value of 1 is awarded to firms that hedge risks and a value of zero a awarded to firms that do not hedge risks. The dummy variable forms a binary data type that can be analyzed using logistic regression (Mensi, Hammoudeh, Sensoy & Yoon, 2017).

Non-finance firms listed at the NSE are firms that do not belong to the banking, insurance investment and real estate segments of the NSE. The firms fall under the agricultural, manufacturing, commercial and services, construction & allied and telecommunication segments of the NSE. As of the end of 2020, there were 39 non-financial firms in the Security Exchange. Marek and Yousiph (2006) state that non-financial firms enter into hedging because of several benefits such as stabilizing their share value in the market, reducing their tax liability, acquiring funding from financial institutions, promoting growth, research and development. Theoretical arguments on reasons why firm hedge is also undoubtedly elegant; Giambona, Graham, Harvey and Bodnar, (2018) argued that hedging instruments are employed to minimize cash flow variability by reducing financial distress cost, underinvestment problem, and agency cost of debt, among others. Hedging activities are still low, causing shareholders in Kenyan firms to lose billions of shillings each year due to directors' failure to shop for appropriate hedging instruments or their imprudent choice of hedging. Kenya being a net importer with imports being dollar denominated, foreign exchange fluctuation affects firms' pricing and production cost strategies. Non-financial firms carry out their activities in an extremely dynamic, and often highly volatile, commercial environment (Merkert & Swidan, 2019). Exposure to financial risk predisposes financial firms to cashflow problems, losses and even downright firm failure. Karp (2009) states that nonfinancial firms in the developing world incur huge losses owing to management's failure to hedge solvency and liquidity risk. According to Prasad, Suprabha, and Devji (2018) besides huge losses, failure to hedge financial risk can result in underinvestment problems and agency costs. Hedging through derivatives can reduce external financing costs by aligning the availability of and need for investment funds. Moreover, hedging can lower the probability of future financial distress, thus enabling a firm to decrease its expected tax. Unlike financial firms whose nature of business heightens their aptitude in financial risk management, non-financial firms listed at the NSE rarely hedge their financial risks, have not identified the determinants of

doing the same and are, thus, vulnerable to unexpected changes in exchange rates, interest rates or commodity prices (Michire, 2017). Despite the importance of hedging financial risks, practices such as derivative instruments are rarely used by companies in Kenya. Murungi (2018) noted that most non-finance firms were facing financial distress for instance Kenya Airways, Uchumi Supermarket PLC, and Eveready among others were having liquidity problems accompanied by a deepening in profits and low gearing levels. Previous studies have been case studies of individual firms leading to incomprehensive, non-robust findings. Little attention has been given to the effect of financial distress on the hedging of financial risks in listed non-financial firms. This study sought to fill the knowledge gap. This was through establishing the effect of financial distress on the hedging of financial risks in non-financial firms listed at the Nairobi Securities Exchange in Kenya. The study sought to establish the influence of financial distress on the hedging of financial risks by non-finance listed at the Nairobi Securities Exchange, Kenya. Specific objectives include:

2. Literature Review

2.1 Theoretical Foundations

2.1.1 Liquidity Preference Model

Keynes (1935) believed there were three motives for holding money; transaction motive, precautionary motive, and speculative motive. Under the speculative motive, money demand was negatively related to the interest rate and consequently leverage. Holding money was one way of guarding against uncertainty. Hence, the liquidity preference framework determines the equilibrium interest rate in terms of supply and demand for money. The model was developed by Keynes (1936) based on several assumptions. First, money pays no interest. Second, there were only two kinds of assets for storing wealth: money and bonds. The theory through its concept of holding money as a precautionary motive explains the importance of liquidity requirement of ensuring that any future financial distress is properly managed. This theory therefore indicates that a firm's liquidity is a key financial distress factor that may influence financial performance and firm value hence the need for risk hedging. The theory was relevant for the current study on the association between liquidity and risk hedging practices among non-finance firms listed at NSE. The firms are required to hedge financial distress that manifests itself through liquidity problems.

2.1.2 Stakeholder Theory

Stakeholder theory, originally developed by Freeman (1999) as a managerial instrument, has since evolved into a theory of the firm with high explanatory potential. Stakeholder theory focuses explicitly on the equilibrium of stakeholder interests as the main determinant of corporate policy. The most promising contribution to risk management is the extension of implicit contracts theory (a part of stakeholder theory) from employment to other contracts, including sales and financing (Phillips, Freeman & Wicks, 2003). In certain industries, particularly high-tech and services, consumers' trust in a company can substantially contribute to the company's value. The value of implicit claims is highly sensitive to the expected costs of financial distress and bankruptcy. Since corporate risk management practices lead to a decrease in these expected costs, company value rises. The more sensitive a company's value is to financial distress, the higher the motivation for hedging. Investigations of the financial distress hypothesis provide only indirect evidence.

2.1.3 Prospect Theory

Prospect theory is a behavioural economic theory that describes decisions between alternatives that involve risk, where the probabilities of outcomes are known. The theory was developed by Kahneman and Tversky (1980) as an accurate description of preferences. It describes how people choose between probabilistic alternatives and evaluate potential losses and gains (Kahneman & Tversky, 1980). The theory says that people make decisions based on the potential value of losses and gains rather than the outcome and that people evaluate these losses and gains using heuristics. The theory describes the decision processes in two stages, editing and evaluation. In the first, outcomes of the decision are ordered following some heuristic. In particular, people decide which outcomes they see as basically identical, set a reference point and then consider lesser outcomes as losses and greater ones as gains. In the following evaluation phase, people behave as if they would compute a value (utility), based on the potential outcomes and their respective probabilities, and then choose the alternative having a higher utility (McDermott, Fowler & Smirnov, 2008). The theory explains financial managers evaluate various hedging options for handling financial distress and then choose the alternative having a higher utility (McDermott, Fowler & Smirnov, 2008).

2.2 Empirical Review

By using 100 U.S. oil and gas producer companies, Raghavendra (2018) identified the determinants of the decision to use derivatives and the extent of such decision. By taking a fraction of oil and gas revenue as the dependent variable, independent

variables are regressed via the Tobit model. The study estimates a positive relation between the decision to use derivative and leverage, debt constraint, investment expenditures and tax convexity. While dividend payout, managerial ownership and basis risk have demonstrated negative effects on a firm's decision to hedge risk exposure. Another study by Racicot and Théoret (2018) explored the determinants of firms' hedging policies by using sample data from 297 firms of Fortune 500 for 1997. Empirical results support the underinvestment hypothesis and economies of scale. Leverage though positive, but not considered an important factor in driving firms' hedging policies, whereas mixed findings are documented by tax convexity and managerial ownership. Via survey data, Merkert and Swidan (2019) studied the usage and practice of derivative instruments of 62 Greece non-financial firms for the year 2005. Survey findings for motives behind a firm's decision to use derivative instruments reported that 61.9% of corporations are using derivative instruments for reducing cash flow variability and 47.62% of corporations employ derivative instruments to minimize variation in accounting earnings. Hedging the balance sheet account and firm value are the objectives of only 9.52 and 4.76% derivative usage, respectively. Mariano, Izadi and Pratt (2021) aimed to determine the factors affecting firms hedging policies of both foreign currency and interest rate derivative instruments of 105 non-financial firms listed on the Karachi Stock Exchange from 2004 to 2008. The logit model was used to test whether the company's decision to use hedging instruments can increase firm value. For a detailed analysis, the firm's endogenous policies were regressed separately to identify the effect of the firm's investment and financing policies on the firm's hedging policies. The estimated results supported the financial distress hypothesis, tax convexity, underinvestment hypothesis and managerial risk aversion hypothesis. However, inconsistent with the theory, the interest coverage ratio demonstrated a positive effect on firms' hedging policies that may be attributed to the lag period effect.

Bartram, Brown and Waller (2015) examined a sample of US firms in the period 1994-95, and found that firms indeed hedge to increase debt capacity; the resultant tax benefits add about 1.1% to firm value. The findings of this study support their key conclusions that derivatives result in higher debt capacity and therefore higher value. Ciorciari (2019) examined the decision of Asian firms to hedge, and their choice of instruments, over the period 1996 to 2004, using a data set that is substantially similar to this study. Results from this study on the driving factors behind the hedging decision are similar: this decision depends on the size of the firm and the extent of foreign currency debt. While this study's focus is on the effect of hedging on firm value and financial managerial risk aversion, the last section of the paper accounts for the indigeneity in the decision to hedge. Giambona, Graham, Harvey and Bodnar (2018) examined the relationship between the use of hedging techniques and the characteristics of UK multinational corporations (MNCs). The results indicate that UK firms focus on a very narrow set of hedging techniques and they make much greater use of derivatives than internal hedging techniques. The degree of utilization of both internal and external techniques depends on the type of exposure that is hedged. Furthermore, the characteristics of the firms appear to explain the choice of hedging technique but the use of certain hedging techniques appears to be associated with an increase in the variability of some accounting measures.

Mantell (2017) sought to determine the derivatives usage in the UK Non-financial Companies. The study used a questionnaire survey focused on determining the reasons for using or not using derivatives for 401 UK non-financial companies. The results indicate that larger firms are more likely to use derivatives than medium and smaller firms, public companies are more likely to use derivatives than private firms, and derivatives usage is greatest among international firms. The results also show that, out of firms not using derivatives, half of firms do not use these derivative instruments because their exposures are not significant and that the most important reasons, they do not use derivatives are: concerns about disclosures of derivatives activity required under FASB rules, and costs of establishing and maintaining derivatives programs exceed the expected benefits. The results show that foreign exchange risk is the risk most commonly managed with derivatives and interest rate risk is the next most commonly managed risk. The results also indicate that the most important reason for using hedging with derivatives is managing the volatility in cash flows. Mensi, Hammoudeh, Sensoy and Yoon (2017) compiled and analyzed detailed information on the debt structure and interest rate derivative positions of non-financial firms. They found that differences in debt structure across firms and time tend to be counterbalanced by differences in derivative positions. In particular, among derivative users, smaller firms tend to have relatively more interest rate exposure from liabilities than larger firms and tend to use derivatives that offset these exposures. Larger firms also tend to limit their interest rate exposures, but they do so through their choice of debt structure rather than with derivatives. On the other hand, the study found that a large fraction of the change in derivative positions over time cannot be explained by changes in debt structure. The study found that non-financial firms hedge interest rate exposures from their operating assets, but do not see this as supporting the hypothesis that firms use derivatives to speculate.

Habib, Costa, Huang, Bhuiyan and Sun (2020) stated that derivative usage has become increasingly widespread since –the 1980s, particularly among large companies in economies with well-developed financial markets. They also found that only 9 companies out of 231 respondents to their survey used currency futures. The fact currency futures were not being traded in the China exchanges meant higher transaction costs would be incurred, also the general lack of confidence in using futures might have deterred the companies. Bett, Makokha and Namusonge (2017) analysed determinants of the uptake of financial derivatives by listed firms in the Nairobi Securities Exchange in Kenya. They applied a descriptive survey research design. The target population was 65 listed companies in the NSE and a sample size of 52 finance managers were drawn from these listed companies. Questionnaire administration was employed to collect the required primary data. Multiple regression analysis was

applied to test the effect of one variable on the other. The study concluded that investment factors significantly affect the level of the uptake of financial derivatives. It was evident that a favourable investment system and low minimum requirements for investment favoured listed entities and had a positive effect on the uptake of financial derivatives.

Murungi (2018) investigated the determinants of financial risk hedging practices by non-financial firms listed at the Nairobi Securities Exchange. The study adopted a descriptive survey method targeting non-financial firms listed at the NSE which are 39 by 2011. The study undertook a census of the 39 firms and focused on the head of finance. The study collected primary and secondary data using semi-structured questionnaires and annual reports, respectively. The study conducted reliability and validity tests on the questionnaires. Data analysis was done through descriptive and inferential statistics. Logit regression modeling was considered as the inferential analysis. The study concluded that financial risk hedging was influenced by financial distress, underinvestment costs, economies of scale and foreign exchange exposure. Wangige (2016) examined the causes of financial distress among listed companies in the Kenyan market. The study used a causal research design. The population of the study was 42 non-financial firms listed in NSE and covered a period between 2004 and 2012. Logit regression model methodology was used to establish the relationship between variables. The study used secondary data that is quantitative collected from NSE and CMA. The study adopted the Logit model to predict the financial distress of listed non-financial firms. There was a negative non-significant relationship between financial distress and independent variables (Leverage, size of the company, foreign ownership, BOD local, liquidity). Kiio and Ambrose (2017) sought to investigate the influence of financial risk hedging practices on the performance of firms in NSE. The study applied both descriptive and inferential statistics to analyze collected quantitative data. The inferential statistics employed the use of a multiple regression model. The regression model enabled the researcher to analyze the variation in performance caused by the use of futures, forwards, options or swaps to hedge on foreign exchange, interest rate and commodity price risks. The study established a positive relationship between hedging practices, the moderator (central bank controls) and the dependent variable performance of listed firms.

3. Methodology

The study adopted a descriptive research design to examine the influence of financial distress on financial risk hedging practices among non-finance firms listed at NSE in Kenya. The population of interest comprised of the 39 non-finance firms listed at the NSE, Kenya (NSE, 2020). Given that the population size is smaller, the study did not carry out sampling and a census of the target population was adopted. The study was undertaken as a census of the 39 non-finance firms listed at the NSE. The researcher collected secondary data between 2016 and 2020 from annual reports of the non-finance firms listed at the NSE. Concerning liquidity, Current assets and current liabilities were extracted from the statement of financial position to calculate the current ratio. Regarding leverage, debts and equity were extracted from the statement of financial position to calculate the debt-equity ratio. Concerning profitability, Net profit after tax and total assets were extracted from the income statement and statement of financial position respectively to calculate ROA. The data on the shilling amount of financial hedge was extracted from the financial risk management section of the firm's annual reports. Data extracted was recorded on data collection sheets. The data collected was examined for completeness before analysis commenced. The data was entered in Excel spreadsheets and exported to SPSS. The data was analysed using descriptive statistics, correlation analysis, and multiple regression analysis with the aid of Excel 2016. Descriptive statistics was used to summarize and explain the study variables as observed in the non-finance listed firms at the NSE. Inferential statistics included bivariate Pearson correlation and multiple regressions. The study adopted multivariate ordinary least squares regression to examine the causal effect relationship between financial distress and financial risk hedging practices among non-financial listed firms at the NSE. The results were presented in tables with their associated explanations The statistical model shows the mathematical relationship between the independent variable financial distress on risk hedging practices of non-finance listed firms in Kenya. The model is shown in equation (1).

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e \quad \ldots\ldots(1)$$

Where Y is the amount of financial Risk hedging (Dependent Variable)

X_1- X_3: are independent variables

X_1: Liquidity

X_2: Leverage

X_3: Profitability

β_1, β_2 and β_3 are the coefficients of independent variables

β_0: intercept term

e: stochastic error term

4. Results

The study sought to establish the influence of financial distress on financial risk hedging practices of listed non-finance firms in Kenya. The analysis has adopted descriptive and inferential statistics to enable collusion and generalization. The study target population was 39 firms; however, the researchers were able to get data for 34 firms that were adequate for analysis.

4.1 Descriptive Analysis

Descriptive analysis was performed to understand the general nature of the data. The analysis was carried out to identify any extreme values that deviate abnormally from the normal trend of the variables. The study adopted measures of central tendency and dispersion for descriptive analysis as presented in Table 1.

Table 1: Summary of Descriptive Statistics

	liquidity	Leverage	Profitability	Financial Risk Hedge
Mean	1.993683	0.482103	0.059547	460,394
Standard Deviation	2.090679	1.280411	0.284232	1,029,640
Minimum	0.029041	-3.86139	-0.530130	0
Maximum	8.374723	5.781168	0.093555	5,086,882
Count	34	34	34	34

Table 1 presents the descriptive statistics for the study's explanatory variables. Regarding liquidity, level as a measure of financial distress, the study revealed that the mean liquidity for the firms studied was 1.99. A liquidity ratio greater than 1 implies the firms in general had adequate liquidity level and the current assets were 1.99 times the current liability. The standard deviation implies that the liquidity level of individual firms was spread around the mean with a ratio of 2.09 units. The Minimum liquidity was 0.029 representing a firm that had liquidity problems with the liquidity being below a value of 1. Such a firm can be described as being in financial distress. The maximum liquidity was 8.37 depicting a firm that has adequate liquidity given that the current assets are 8.37 times the current liabilities. Such a firm can easily settle its short-term debts as they fall due hence far from being in financial distress. Firm leverage was the second measure of financial distress. The mean leverage was 0.482103 meaning that in general, for all the firms studied, long-term debts were 48.21% of the total equity of the firms. The firms were highly leveraged exposing the firms to solvency risks and possible financial distress situations. The standard deviation showed that individual firms had their leverage spread around the mean by 1.280411 or 128%. The standard deviation was large given that some firms were insolvent having negative leverage while others were highly solvent. The minimum leverage ratio was -3.86139 meaning the concerned firm was insolvent given the negative equity of the firm that could not cover its long-term debts hence the firm was in financial distress. The maximum leverage was 5.781168 depicting a highly leveraged firm, not necessarily in financial distress. The third measure of financial distress was profitability level measured by ROA. The study revealed that the mean profitability for all the firms studied was 0.059547 implying a profitability level of 5.9%. Positive profitability generally depicts firms that are not in financial distress. The standard deviation for profitability was 0.284232 meaning that the profitability level was spread around the mean by about 28%. The minimum profitability was -0.53013 meaning such a firm was likely to be in financial distress given that it is problematic to settle debts with negative profitability. The maximum profitability was 0.093555 implying that the concerned firm had strong financial stability with low chances of financial distress. Financial risk hedging practices were measured by the shilling amount of the financial risk hedge of the firms. The study revealed that the mean financial risk hedge was Ksh. 460,394,000. The standard deviation for risk hedging was Ksh. 1,029,640,000. The minimum financial risk hedging was 0 implying that the firms do not hedge financial risks. The maximum financial risk hedge was Ksh. 5,086,882,000.

4.2 Correlation Analysis

The study also sought to establish the correlation between financial distress factors and financial risk hedging practices of non-finance firms listed at the NSE. The study adopted the Pearson correlation coefficient to establish the correlation among the study variables. The study's explanatory variables were the indicators of financial distress including liquidity, leverage and profitability while the dependent variable was financial risk hedging practices. Pearson correlation coefficients values range from 0-1 where 0 implies no correlation and 1 implies perfect correlation. Correlation coefficients can also be negative (-) or positive (+) where positive value implies direct association and negative value implies inverse relationship. The results of the correlation analysis are presented in Table 2.

Table 2: Pearson Correlation

		Liquidity	Leverage	Profitability	Financial risk Hedging
Liquidity	Pearson Correlation	1	.008	-.029	-.337*
	Sig. (1-tailed)		.482	.435	.026
	N	34	34	34	34
Leverage	Pearson Correlation	.008	1	.153	-.289*
	Sig. (1-tailed)	.482		.194	.048
	N	34	34	34	34
Profitability	Pearson Correlation	-.029	.153	1	-.462**
	Sig. (1-tailed)	.435	.194		.003
	N	34	34	34	34
Financial Risk hedging	Pearson Correlation	-.337*	-.289*	-.462**	1
	Sig. (1-tailed)	.026	.048	.003	
	N	34	34	34	34

*. Correlation is significant at the 0.05 level (1-tailed).

**. Correlation is significant at the 0.01 level (1-tailed).

Table 2 revealed that the correlation between liquidity and financial risk hedging practices was statistically significant and negative (r= -.337, p=.026< .05). The negative correlation implies that non-financial firms with high liquidity levels tended not to use financial derivatives to hedge ensuring risks. The correlation between leverage and financial risk hedging practices was statistically significant and negative (r= -.289, p= .048<.05) implying that that nonfinancial firms which were highly leveraged also tended not to hedge financial risks given that most firms that were able to acquire external debts tended to be firms with strong financial positions. Finally, the correlation between profitability and financial risk hedging practices was statistically significant and negative (r= -.462, p=.003 <.05) meaning such firms that had high profitability levels also tended not to hedged financial risks.

4.3 Regression Analysis

The research sought to establish the effect of financial distress factors on the financial risk hedging practices of non-financial firms listed at the NSE. The study adopted multivariate ordinary least squares regression analysis to establish the causal effect relationship between financial distress factors (liquidity, leverage and profitability) and financial risk hedging practices. The results of the analysis are presented in Tables 3, 4, and 5.

Table 3: Model Summary

Regression Statistics	
Multiple R	0.619038
R Square	0.383208
Adjusted R Square	0.321529
Standard Error	0.406304
Observations	34

Table 3 presents the model summary. The coefficient of determination (R^2= .3832) given by R Square shows that the model explains 38.32% of the variation in financial risk hedging practices. The remaining variation of 61.68% in financial risk hedging is explained by other variables not considered in this study.

Table 4: Analysis of Variances (ANOVA)

	df	SS	MS	F	Significance F
Regression	3	3.076934	1.025645	6.212918	0.002067
Residual	30	4.952478	0.165083		
Total	33	8.029412			

The analysis of variances presented in Table 4 shows that financial distress measured by liquidity, leverage and profitability had a significant effect on hedging as shown by a p-value less than 0.05 level of significance (F = 6.212 and P = 0.002067< .05).

Table 4. 5: Regression coefficients

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.632162	0.101251	6.243488	7.07E-07	0.425379	0.838945
Liquidity	-0.08215	0.033847	-2.42703	0.021439	-0.15127	-0.01302
Leverage	-0.08454	0.055903	-1.51218	0.140951	-0.19871	0.029634
Profitability	-0.76035	0.25193	-3.01809	0.00515	-1.27486	-0.24584

Table 5 shows the multivariate ordinary least squares regression coefficients. The model was thus estimated as follows:

$$Y = 0.632162 - 0.08215\,\mathbf{X_1} - 0.08454\mathbf{X_2} - 0.76035\mathbf{X_3} \quad (2)$$

The value $\beta_0 = 0.632162$ gives the level of hedging when financial distress factors are held constant at zero. The study revealed that liquidity level has a negative and significant effect on firm financial risk hedging decisions (β_1= -0.08215, t=-2.42703 and p= 0.021439). The negative effect implies that an increase in liquidity by one unit leads to a fall in risk hedging by 0.08215 units. The study also revealed that the effect of leverage on financial risk hedging of non-financial firms listed at the NSE was negative and not statistically significant (β_2= -0.08454, t= -1.51218 and p = 0.140951). The negative effect means that an increase in leverage by one unit leads to a reduction in the level of risk hedging by 0.08454 units. Finally, the study also revealed that profitability had a negative and significant effect on financial risk hedging decisions of non-financial firms listed at the NSE (β_3= -0.76035, t= -3.01809 and p = 0.00515). The negative effect implies that an increase in profitability by one unit leads to a reduction in financial risk hedging by 0.76035 units.

5. Discussion

The study adopted logistic regression to establish the causal effect relationship between financial distress and financial risk hedging among non-financial firms listed at the NSE. The correlation between liquidity and financial risk hedging practices was statistically significant and negative (r= -.337, p=.026< .05). The negative correlation implies that non-financial firms with high liquidity levels tended not to use financial derivatives to hedge ensuring risks. Regression showed that liquidity level has a negative and significant effect on firm financial risk hedging decisions (β1= -0.08215, t=-2.42703 and p= 0.021439). The negative effect implies that an increase in liquidity by one unit leads to a fall in risk hedging by 0.08215 units. The finding agrees with Gupta (2017) who noted that the financial distress variable predicts firms' financial risk hedging practices and that less liquid firms are more likely to hedge financial risk (Gupta, 2017). The correlation between leverage and financial risk hedging practices was statistically significant and negative (r= -.289, p= .048<.05) implying that that nonfinancial firms which were highly leveraged also tended not to hedge financial risks given that most firms that were able to acquire external debts tended to be firms with strong financial positions. Regression analysis showed that the effect of leverage on financial risk hedging of non-financial firms listed at the NSE was negative and not statistically significant (β2= -0.08454, t= -1.51218 and p = 0.140951). The negative effect means that an increase in leverage by one unit leads to a reduction in the level of risk hedging by 0.08454 units. The finding is in agreement with Merkert and Swidan, (2019) who noted that lowering the chance of financial distress can increase the optimal debt-equity ratio and therefore the associated tax shield of debt (Merkert & Swidan, 2019). The risk-hedging stems from relaxing the Miller and Modigliani (1958) assumption that firm value will remain the same in the presence of hedging. Finally, the correlation between profitability and financial risk hedging practices was statistically significant and negative (r= -.462, p=.003 <.05) meaning such firms that had high profitability levels also tended not to hedged financial risks. Regression analysis revealed that profitability had a negative and significant effect on financial risk hedging decisions of non-financial firms listed at the NSE (β3= -0.76035, t= -3.01809 and p = 0.00515). The negative effect implies that an increase in profitability by one unit leads to a reduction in financial risk hedging by 0.76035 units. The findings are supported by Habib, Costa, Huang, Bhuiyan & Sun (2020) who noted that firms with higher profitability and firms with a larger fraction of tangible assets are expected to have lower financial distress costs and are thus less likely to hedge. Since bankruptcy costs are less proportional to firm size, smaller firms should be more likely to hedge.

6. Conclusions

The study makes several conclusions based on the study findings. The study revealed that liquidity level has a significant contribution to the prediction of firm financial risk hedging decisions. The study thus concludes that an increase in liquidity levels leads to a decrease in hedging of financial risk. The study also revealed that leverage made an insignificant contribution

to the prediction of financial risk-hedging decisions of non-financial firms listed at the NSE. The study thus concludes that an increase in leverage levels leads to a decrease in the hedging of financial risk. The study also revealed that profitability made a significant contribution to the prediction of financial risk-hedging decisions of non-financial firms listed at the NSE. The Study therefore concluded that an increase in profitability levels leads to a decrease in the hedging of financial risk. From the findings and conclusion, several recommendations have been put forward. To begin with, most firms do not have a deliberate policy on hedging and the management of financial risks is solely left to the devices and whims of managers which make investors incur agency costs. There is, thus, a need for an organization-wide policy on hedging and derivative use to act as an operation manual for the managers and firms' agents. Given the low trading volume of derivatives in Kenya compared to developed countries, market players should be educated on the use of derivatives instruments to minimize risk. Based on these recommendations, the study's findings might help CMA to encourage companies in Kenya to accept derivative use thus developing the nascent market in the country. The study advocates for the speedy establishment of a derivative market in Kenya together with its ancillary regulatory framework that would protect market participants. Educational programs on derivatives should be developed and undertaken in Kenya to demystify derivative trading and its accounting and valuation procedures. CMA, based on the findings of this study, would make the necessary policies that enhance the uptake of derivatives. The study would be a valuable document for the management of non-financial firms listed at the NSE in many ways. Senior finance officers of non-financial firms will find the study useful as they would gain insight into how hedging practices would help their firms survive periods of financial distress as evidenced by liquidity problems and high profitability volatility. The finance offices would also understand the disadvantages and advantages of each hedging practice. The study would create awareness for non-financial firms towards foreign exchange exposure. The products available for financial hedging are perceived to be comprehensive and in-depth. Firms are assertive towards financial derivatives products, and also regulatory bodies. This study has examined the effect of financial distress on financial risk hedging practices among non-financial firms listed at the NSE. These findings, however were generalized about non-financial firms listed on the NSE and might not be extrapolated to include firms not listed on the NSE as they considerably have different control measures which might affect their risk management. Thus, further studies should include listed and non-listed firms to get a holistic picture of factors affecting financial risk hedging practices. Furthermore, the repetition of this study in the future is expected to lead to valuable conclusions as to the evolution of risk management by Kenyan non-financial firms through time, both in quantitative and qualitative terms.

Conflicts of Interest

"The authors declare no conflicts of interest."

References

[1] Bartram, S. M., Brown, G. W., & Waller, W. (2015). How important is financial risk? Journal of Financial and Quantitative Analysis, 50(4), 801-824. https://doi.org/10.1017/S0022109015000216

[2] Buyukkara, G., Baha Karan, M., Temiz, H., & Yildiz, Y. (2019). Exchange Rate Risk and Corporate Hedging: Evidence from Turkey. Emerging Markets Finance and Trade, 55(8), 1737-1753. https://doi.org/10.1080/1540496X.2018.1490262

[3] Ciorciari, J. D. (2019). The variable effectiveness of hedging strategies. International Relations of the Asia-Pacific, 19(3), 523-555. https://doi.org/10.1093/irap/lcz007

[4] Freeman, R. E. (1999). Divergent stakeholder theory. Academy of Management Review, 24(2), 233-236. https://doi.org/10.2307/259078

[5] Giambona, E., Graham, J. R., Harvey, C. R., & Bodnar, G. M. (2018). The theory and practice of corporate risk management: Evidence from the field. Financial Management, 47(4), 783-832. https://doi/pdf/10.1111/fima.12232

[6] Gul, F. A., Khedmati, M., Lim, E. K., & Navissi, F. (2018). Managerial ability, financial distress, and audit fees. Accounting Horizons, 32(1), 29-51. https://doi.org/10.2308/acch-51888

[7] Gupta, P. (2017). A review of corporate hedging models and their relevance in corporate finance. Theoretical Economics Letters, 7(2), 102-115. https://doi.org/10.4236/tel.2017.72010

[8] Habib, A., Costa, M. D., Huang, H. J., Bhuiyan, M. B. U., & Sun, L. (2020). Determinants and consequences of financial distress: a review of the empirical literature. Accounting & Finance, 60, 1023-1075. https://doi.org/10.1111/acfi.12400

[9] Kahneman, D., & Tversky, A. (1980). Prospect theory. Econometrica, 12.

[10] Keynes, JM, & Waeger, F. (1936). The general theory of employment, interest and money (Vol. 6). Berlin: Duncker & Humblot.

[11] Imdad Akash, R. S., Hamid, K., & Mahmood, I. (2020). Do US News and Volatility in Exchange Rate Exposure Matter (Empirical Evidence from Emerging Economies). Global Social Sciences Review, 1, 198-208. https://doi.org/10.31703/gssr.2020%28v-i%29.21

[12] Lee, D., Vikneswaran, S., & Manual, O. (2019). A Study on the Effect of Capital Structure on the Financial Distress of Non-Financial Companies Listed in Bursa Malaysia Stock Exchange (KLSE). International Journal of Academic Research in Business and Social Sciences, 9(6). DOI:10.6007/ijarbss/v9-i6/5962.

[13] Mantell, E. H. (2017). A Theory of Financial Distress in Start-Up Companies. International Research Journal of Applied Finance, 8(9), 573-580.

[14] Mariano, S. S. G., Izadi, J., & Pratt, M. (2021). Can we predict the likelihood of financial distress in companies from their corporate

governance and borrowing? International Journal of Accounting & Information Management. https://doi/10.1108/IJAIM-08-2020-0130
[15] McDermott, R., Fowler, J. H., & Smirnov, O. (2008). On the evolutionary origin of prospect theory preferences. The Journal of Politics, 70(2), 335-350. doi/full/10.1017/S0022381608080341
[16] Mensi, W., Hammoudeh, S., Sensoy, A., & Yoon, S. M. (2017). Analysing dynamic linkages and hedging strategies between Islamic and conventional sector equity indexes. Applied Economics, 49(25), 2456-2479. https://doi.org/10.1080/00036846.2016.1240349
[17] Merkert, R., & Swidan, H. (2019). Flying with (out) a safety net: Financial hedging in the airline industry. Transportation Research Part E: Logistics and Transportation Review, 127, 206-219. https://doi.org/10.1016/j.tre.2019.05.012
[18] Michire, S. M. (2017). Corporate governance and financial distress in commercial banks in Kenya (Doctoral dissertation, KCA University).
[19] Ombaba, K. M. B., & Kosgei, D. (2017). Board composition and financial distress of listed firms in Kenya. An empirical analysis. Journal of Finance and Investment Analysis, 6(4), 75-93.
[20] Phillips, R., Freeman, R. E., & Wicks, A. C. (2003). What stakeholder theory is not. Business Ethics Quarterly, 479-502. https://doi.org/10.5840/beq200313434
[21] Prasad, K., Suprabha, K. R., & Devji, S. (2018). Influence of financial distress on exchange rate exposure: evidence from India. Afro-Asian Journal of Finance and Accounting, 8(4), 389-403. https://doi.org/10.1504/AAJFA.2018.095239
[22] Racicot, F. É., & Théoret, R. (2018). Multi-moment risk, hedging strategies, & the business cycle. International Review of Economics & Finance, 58, 637-675. https://doi.org/10.1016/j.iref.2018.07.006
[23] Raghavendra, R. H. (2018). Managing forex risk by using financial derivatives: A study on Indian IT firms. ZENITH International Journal of Business Economics & Management Research, 8(1), 32-45.
[24] Waqas, H., & Md-Rus, R. (2018). Predicting financial distress: Applicability of O-score and logit model for Pakistani firms. Business and Economic Horizons (BEH), 14(1232-2019-760), 389-401.
[25] Wahyudi, S., Goklas, F., Rita, M. R., Hersugondo, H., & Laksana, R. D. (2019). The Determinants of Corporate Hedging Policy: A Case Study from Indonesia. International Journal of Economics & Business Administration, 7(1), 113-129.