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**Profitability, Leverage, Efficiency and Financial Distress in Commercial and
Manufacturing State Corporations in Kenya**

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Abstract

Purpose: The major goal was to investigate effect of profitability, leverage, and efficiency on financial distress in Kenya's State Corporations in the commercial and manufacturing sector. The study also attempted to determine moderating effect of size on relationship between profitability, leverage, efficiency, and financial distress in Kenyan Commercial and Manufacturing Corporations.

Methodology: Positivist philosophy and explanatory non-experimental research approach were used in this investigation. The study's population consisted of 25 State Corporations in Kenya in Commercial and manufacturing category. For the purposes of this study, a census of all 25 Commercial and Manufacturing Corporations was employed in study. Secondary data from audited accounts of state corporations for period 2015-2020 was used in analysis. Binary logistic regression was used in analysis. Diagnostics tests included multicollinearity, heteroscedasticity, likelihood ratio and autocorrelation tests. STATA statistical software was used to analyse data. Findings were presented using tables.

Findings: The research outcomes indicated that profitability had significant effect on financial distress of commercial and manufacturing state corporations. Results also indicated that leverage had insignificant effect on financial distress. Efficiency also had significant effect on financial distress. The study adopted the product term interaction model approach in testing moderating effect of firm size on relationship between profitability, leverage and efficiency on financial distress. There was evidence showing that firm size significantly moderated the relationship between efficiency and financial distress in commercial and manufacturing state corporations in Kenya.

Unique Contribution to Theory, Practice and Policy: This study relied on Agency, Stewardship, Efficiency, Pecking-order and Trade-off theories. The results indicated that profitability and efficiency variables are useful to management, those charged with governance and users of financial statement information in detection and mitigation of financial distress. The management and users of financial statements information should pay attention particularly to profitability and efficiency ratios. Findings are also useful to the government by providing an insight of distressed firms so that the exchequer can know and make prudence decision on the distressed state corporations that require financial bailouts. Lastly, this study adds a contribution to the limited literatures on financial distress in commercial and manufacturing state corporations in Kenya.

Keywords: *Profitability, Leverage, Efficiency, Firm Size, Financial Distress*

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INTRODUCTION

Economies of countries and financial well-being of people all around the world rely heavily on state-owned corporations (Gersonskaya, 2020). State Corporations serve as the basis for the formulation and implementation of State regulations in national economies. State Corporations act as strategic coordinators of government activities as they support positive institutional and structural economic reforms towards achieving the objectives of the society while increasing public ownership (Onyango, 2016).

Many Governments are facing the problem of bailing out public state corporations that offer vital services and whose collapse would bring dire economic consequences to economy of a country (Hamdamov, 2017). While many State Owned Agencies across the globe continue to be a drain of exchequer resources, some countries have seen the greatest success in terms of having financially non distressed State Corporations. Norway for instance is characterized by non distressed state corporations while China's State Owned Corporations have been spurred on by various events which include increased autonomy and impacts of market forces (Koch, 2016).

In Africa, South Africa's State owned companies have also been noted to have drained the finances of Government particularly its power producer Eskum Holding Ltd which is attributed for 82% of the 162 Billion Rands bailouts funds provided in the last 12 years for distressed State entities according to the treasury, thereby plunging the country into a risk of creditworthiness (Mbatha, 2020). By end of 2015/2016, the combined Government of South Africa guarantees on debts owed by government owned enterprises had reached US Dollars 33.1 Billion.

Over the past fiscal years, the government of Kenya has heavily invested in various State Corporations in Kenya. In spite of this state funding, various State Corporations continue to struggle financially and have resorted to the government for debt bailouts and on many occasions, the accumulated losses have eaten up State Corporations, leaving huge loans that are paid from the exchequer and keeping these struggling corporations in operation is a huge cost to the taxpayer and government (Harris, Imbert, Medas, Ralyea & Singh, 2020).

The mandate of Commercial State-owned Enterprises is to perform a commercial role of wealth creation through profit maximisation (Fiebelkom et al, 2021). Despite their efforts to keep expenses down, commercial and manufacturing state corporations continue to struggle financially, necessitating government assistance (Mihyo & Mukuna, 2018).

Baimwera and Muriuki (2014) identify profitability, leverage, and growth as major indicators of financial distress in Kenyan Security Exchange-listed companies. Exogenous factors including profitability, liquidity, Size and leverage according to Ikpesu (2019), are company specific predictors of distress among Nigerian manufacturing enterprises.

This research was prompted by continuing poor financial health among state-owned corporations in Kenya, which have depended significantly on government loan bailouts. An investigation on effect of profitability, efficiency and leverage on financial distress and the moderating effect of firm size on the relationship between profitability, leverage and efficiency in Kenya's Commercial and Manufacturing State Corporations from fiscal years 2015 to 2020 is what this study is all about.

Statement of the Problem

State Corporation are key sector players expected to exercise their mandates to enable the actualization of Kenya vision 2030 by providing services and goods that will result into a thriving and globally competitive economy. The vision 2030 goals are thus only achievable when these State Owned Enterprises are financially sound. However, some state corporations have been receiving grants and bailouts from the exchequer but fail to provide enough economic value to make a net gain to the government (Kenya state corporation review, 2021).

In Kenya, various studies on financial-distress have mainly laid emphasis mainly on effects of both micro & macro economic-factors on financial-distress of companies listed at country's stock exchange. Other scholars in Kenya explored impact of financial and non-financial factors and distress of companies trading at the Kenyan securities Market. The studies include those by: Kihooto, e al. (2016), Muigai (2016), Maina & Sakwa (2017), Wangige (2016), Onchangwa (2019), Kanyugi (2016), Atosh & Iraya (2018), Muigai & Nasieku (2021).

Other studies have focused on financial distress in Insurance firms and local-Authorities (Kosikoh, 2014) and Ntoiti (2013) respectively. Since most of studies above focused on financial distress of Companies trading at national Securities Exchange market, there is little research that has been conducted on financial distress in Kenyan state owned corporations. As a result, there is lack of enough studies in Kenya relating to financial distress of state corporations.

LITERATURE REVIEW

Theoretical Review

Agency Theory

Postulated by Jensen & Meckling (1976), this theory relies on a principal-agent connection. The efficiency and liquidity factors in this study are supported by this hypothesis. If the management compromise efficiency, the firm will not achieve wealth maximization objective in the end. This theory views the firm as a black box operating for purposes of maximizing its profits and values.

Stewardship Theory

Proposed by Donaldson & Davis in 1991, the theory asserts that directors may achieve goals of a firm by utility maximization rather than fulfilling their self-interests. This theory asserts that if managers are permitted to work with discretion they would pursue interests of the firm. The theory also asserts that the management and those charged with governance should deliver in their work performance and not to adversely exploit the organizational systems in place. As a result, this theory strongly supported the financial distress in the study.

Efficiency Theory

Introduced by Demesetz in 1973, it is hinged on "x-efficiency" and "scale efficiency" hypotheses. The first hypothesis asserts that management of organizations have in place adequate organizational practices where they are able to have control costs incurred while increasing earnings (Fisseha, 2015). The second preposition (scale-efficiency hypothesis) is based on the view that sound institutions, which in turn lead to lower costs, attain operational

scales. Ultimately, lower costs lead to improved profitability, increase growth of institutions that are scale-efficient (Frantz, 2013).

In view of this study, efficiency theory holds the view that the stability or distress of institutions is a function of internal decisions by managers and policies of an institution. It is worth noting that institutions are impacted by both internal and external attributes (Ang and Longstaff, 2013). Efficiency Theory's postulation supported link between operating efficiency and financial-distress.

Pecking Order Theory

Proposed by Donaldson (1961), later popularized by Myers Majluf (1984). Pecking order theory which supports financial leverage variable in this study asserts that companies choose to utilize internal sources of funds before engaging in external sources of funds in order to maintain firm stability. If debt financing is frequently used to fund the firm's operations, it may expose a firm to financial risks especially if the company is having difficulty meeting recurring obligations (Wesa & Otinga, 2018). This theory recommends that firms should balance various sources of finance available to them in order to maximize firm value and increase firm stability (Muigai & Muriithi, 2016). Pecking-order theory thus supported the financial distress and leverage variables in the study.

Trade-off Theory

Introduced by Modigliani & Miller (1963) and stipulates that use of debt in financing a company's operations maximise its value. The theory also points out that firms should have limits on use of debt since excess debt would reduce value of firm plunging the company to financial risks and distress. In addition, it recommends an optimal capital structure attained by maintaining a balance between cost of borrowing and gains realized from borrowing (Ikpesu et al, 2019). In this study, leverage variable was supported by trade-off theory.

Empirical Review

Effect of Profitability on Financial Distress

Pardeshi (2022), explored factors that affect financial distress of the central public enterprises in India for a 10 year period. A sample of 27 firms were selected. Binary logistic regression was employed for data analysis. Study variables included Profitability measured by return on Assets (ROA). Results indicated that profitability significantly impacted on financial distress. Study however did not consider effect on financial distress of other variables such as moderating-effect of firm size and leverage.

Masdupi, Tasman and Davista (2018) investigated effect of profitability on financial distress in 188 Indonesia's manufacturing firms. Secondary data obtained from accounts of these firms was used in analysis. Regression results revealed that profitability negatively and significantly influenced financial distress. Researchers however, did not consider moderating impact of size on financial distress neither did it consider other variables such as efficiency.

Effect of Leverage on Financial Distress

Mahardini (2023) examined influence of leverage on distress in Indonesian state owned enterprises. Logistic regression findings concluded that leverage (proxied by total liabilities/total assets) did not exhibit significant impact on distress. however, researcher

excluded effect of variables such as size and profitability on financial distress and thus leaving a study gap.

Bahri, Purba and Khamila (2022) analysed effect of leverage (measured by debt to equity) on financial distress during the period 2017-2019. Regression outcomes on secondary data drawn from financial reports indicated leverage significantly affected financial distress. However, firm size was excluded from the study thus bringing in a research gap.

Effect of Efficiency on Financial Distress

Jerop (2021) investigated impact of efficiency on financial distress while testing the efficiency of multiple discriminant analysis in Kenyan Market. A sample of 21 firms listed firms formed population of study. Data obtained from 2009-2019 audited accounts were used to extract relevant ratios. Findings indicated that efficiency, liquidity, profitability and leverage all had major influence on financial distress. Researcher however, did not evaluate effect of size on distress.

Lord, Landry and Weech-Maldonado (2020) examined effect operating efficiency has on distress in the period 2000-2015 on 164,268 facilities. The independent financial variables included operating efficiency. Stepwise multiple discriminant analysis model was adopted in data analysis. Findings established that efficiency was significant predictor of distress using stepwise analysis. Researchers however, did not consider effect that size and leverage had on distress thus creating a research gap.

Effect of Size on Financial Distress

Karina and Soenarno (2022) investigated effect of size on distress in 61 firms in Malaysia, Indonesia and Thailand. Data analysis regression results revealed that size of company had significant effect on financial distress. However, researcher excluded other factors such as profitability, efficiency & leverage on financial distress and thereby left research gap.

Wangsih, Yanti, Yohana, Kalbuana and Cahyadi (2021) explored simultaneous effect of size on distress of 17 retail firms. Logistic results indicated that size of firm had negative significant effect on distress, while leverage had positive significant but negative effect on distress. Researcher did not consider effect of other variables like efficiency and profitability.

Conceptual Framework

By displaying the visual links between study concepts, this graphic demonstrates how a researcher conceptualises the connections between the variables being studied (Mugenda, 2013). Dependent variable changes are linked to changes in the independent variables.

Independent Variables

Dependent Variable

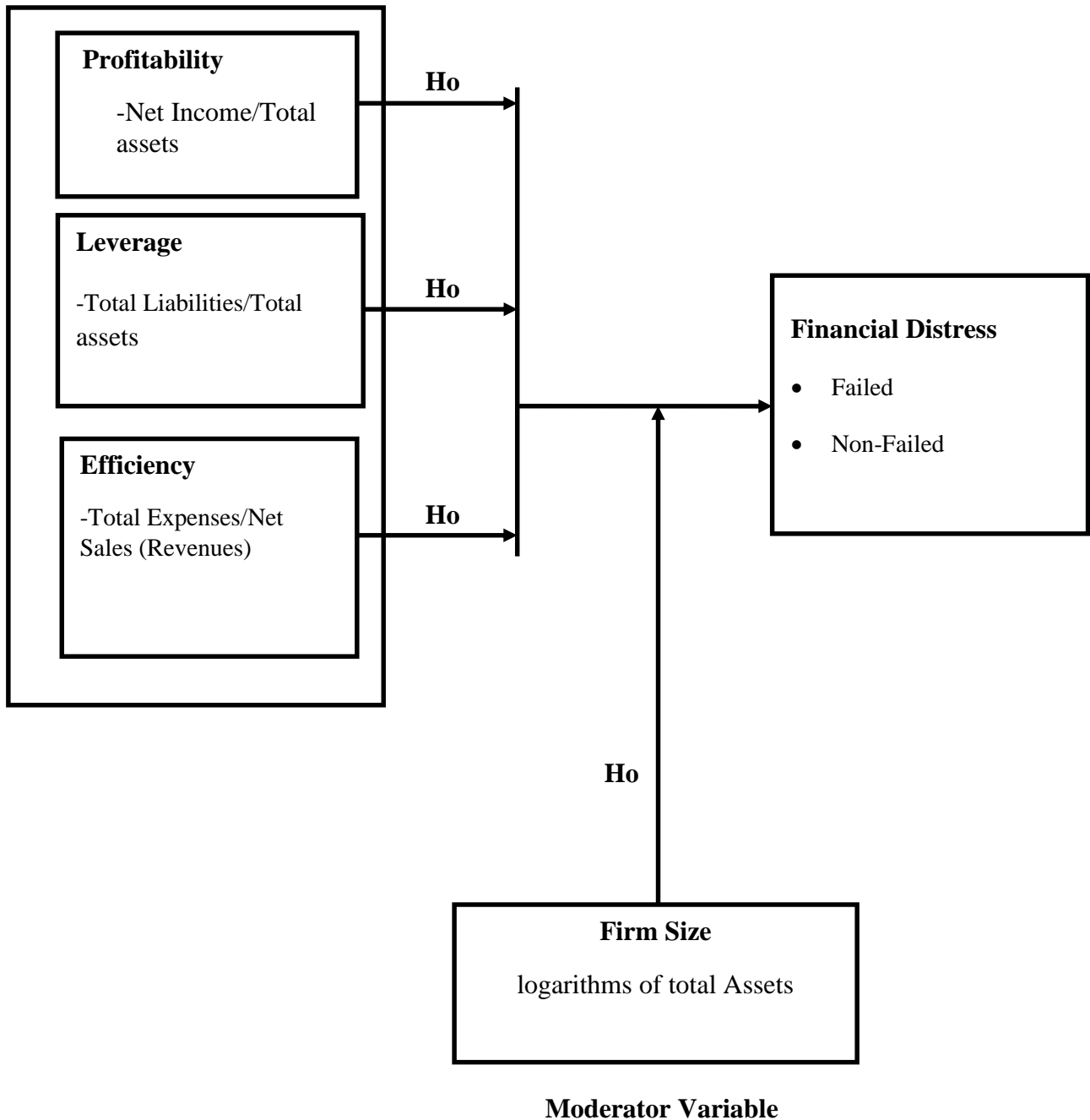


Figure 1: Conceptual Framework

Source: Researcher, (2023)

Summary of Literatures Reviewed and Research Gaps

The existing studies reviewed relating effect of profitability, leverage and efficiency on financial distress focused on the effect of one or two variables on financial distress. Some

studies for instance have considered effect of profitability alone on financial distress. Other studies have considered effect of profitability and leverage alone on financial distress leaving out effect of efficiency on financial distress. Other studies have considered effect of profitability, leverage and efficiency leaving out the effect of firm size on financial distress thus creating a knowledge gap. Similarly, most of the earlier studies only attempted to examine the existence of a direct relationship between firm specific factors and financial distress but failed to incorporate the interactive effects of some variables on financial distress. This study attempted to bridge this gap in the literature by incorporating in the study the moderating effect of firm size on the relationship between profitability, leverage and efficiency on financial distress in commercial and manufacturing state corporations in Kenya. Since most of the studies on financial distress in Kenya are skewed to companies listed at the Nairobi Securities Exchange (NSE), this study bridged a contextual gap by investigating financial distress in State Corporations (State owned Enterprises). Again some of the studies reviewed above employed linear regression models in the data analysis. This study employed panel binary logistic regression analysis model thereby filling a methodological gap.

METHODOLOGY

This research adopted the positivism philosophy, which is hinged on the notion that science is the only way of learning about the truth. In positivist's research, there are no personal interests or results manipulations by the person conducting the study (Dudovskiy, 2018).

This study used an explanatory research approach to evaluate effect of profitability, leverage & efficiency on financial distress in commercial and manufacturing state corporations in Kenya. Explanatory (Causal) research designs are often deductive in character, with research aims attained through conducting tests on hypotheses (Blatter & Haverland, 2012). Causal research design is quantitative and organized in order to analyse the cause & effect links among study variables (Cooper and Schindler, 2009).

Binary logistic regression model was used to analyse study hypotheses on effect of profitability, leverage & efficiency on financial-distress in Kenya's Commercial and Manufacturing State Corporations. Financially distressed Commercial and Manufacturing State Corporations were categorized as one (1), whereas financially sound state corporations were categorized as zero (0). The study adopted product interaction approach to moderate effect of firm size with Profitability (Net Income/Total assets), firm size with Leverage (Total Liabilities/Total Assets) and Firm size with efficiency (Total expenses/Net sales(Revenue) ratios.

Target population comprised of all commercial and manufacturing state corporations in Kenya. The Government of Kenya had 33 commercial and manufacturing state corporations as at 31st December 2022. These 33 commercial and manufacturing state corporations were screened against several factors that included data availability and integrity. Eight commercial and manufacturing state corporations were dropped as they did not meet the set criteria (availability of audited accounts) and thus the remaining 25 state corporations became the target of study. The researcher adopted a census approach due to the small number of commercial and manufacturing state corporations in Kenya. Census approach (Saunders, Lewis and Thornhill, 2009) enhance data validity. The total number of commercial and manufacturing state corporations in the study were 25.

Data collection was aided by data extraction tool. Data was gathered from the 25 state corporations' published accounts in accordance with the procedures outlined in the operationalization and measurement of variables. Annual data was collected for the years spanning from 2015 to 2020. Excel spread sheets were used to gather data from statements of financial performance and statements of financial position. The proxy measures of predictor variables were calculated using this data.

The data gathered was panel in nature with both time series and cross sectional components. Commercial and Manufacturing State Corporations being studied formed the cross sections, while the period of study from 2015-2020 formed the time series dimensions. The study data, which was financial statements of Commercial and Manufacturing State Corporations, was availed by the Kenya National Audit office. The required data in form of financial ratios was obtained from the cash flow statements, statements of financial position and financial performance. A guide on data gathering was used to extract the required ratios in the best format that was exported to STATA 13.0 for a binary logit regression analysis and diagnostic testing.

The researcher used Excel to compute the necessary proxy measures (ratios) for each study variable in each State Corporation across all the years of study. After extracting the data in panel format, it was exported to STATA version 13 ready for use in performing necessary estimations and tests. The extracted data from Commercial and Manufacturing State Corporations' financial statements was analysed using binary logit model. The researcher used the statistical software to perform the descriptive analysis of the independent variables (Profitability (PROF), Leverage (LEV), Efficiency (EFF), Size of Firm (natural log of total-assets) and the dependent variable(financial Distress).

Violation of logistic regression assumptions may result in inconsistent, biased and untrustworthy results. To avoid this anomaly, the researcher performed the following key diagnostic test including multicollinearity, autocorrelation, heteroscedasticity and likelihood ratio tests

RESULTS AND DISCUSSIONS

Descriptive Statistics

Table 1: Descriptive Statistics

Variable	Obs	Means	Std. Dev	Minimum	Maximum
Profitability (Net Income/Total Assets)	150	-0.0424704	0.313623	-3.213545	0.8527385
Leverage (Total Liabilities/Total Assets)	150	0.8990024	1.057227	0.0366434	5.196072
Efficiency (Operating Expenses/Total Revenue)	150	-17.99016	257.3018	-3127.707	216.5651
Firm Size (Logarithm of Total Assets)	150	3.997755	1.074877	1.118797	5.881596
Financial Distress (Negative EBITDA)	150	0.4333333	0.4971957	0	1
Total Revenue (Millions)	150	10200.56	24705.83	5.76698	13325.6
Total Expenses (Millions)	150	9718.36	23767.22	0.078522	134593.6
Net Income (Millions)	150	482.4219	3988.353	-18932.51	13789.79
Total Assets (Millions)	150	72296.16	140257.4	13.14611	761370.8
Total Liabilities (Millions)	150	55944.26	118705.1	22.67194	760737.2

Sources: Research Data, (2023)

Mean value of profitability (Net income to Total Asset) in Table 1 from 150 observations is (-0.0424704) standard deviation (0.313623), minimum and maximum (-3.213545) and (0.8527385) respectively. Negative mean for profitability (proxied by net income to total asset) indicates that Commercial & Manufacturing state corporations were on average unprofitable even though some of them did operate at a profit as shown by the positive maximum observed value of Profitability (Net income to total asset) of 0.8527385.

Again, from the table results, the leverage mean value from 150 observations is 0.8990024 with a standard deviation of 1.057227 indicating that on average, commercial and manufacturing state owned firms were not highly geared. The observed minimum leverage result measured by total liabilities to total asset ratio was 0.036643 indicating that the state corporations used less debt to finance their assets and thus being conservative. The leverage maximum observed figure of 5.196072 indicates that even though the state owned corporations used less debt in asset financing, there was one particular state corporation whose total liabilities exceeded its total assets by five times indicating existence of extreme debts or huge pending unpaid bills.

Operating efficiency which was measured by total operating expenses to revenue ratio had mean of (-17.99014) standard deviation (257.3018) from 150 observations. The minimum and

and maximum observed statistics for efficiency were -3127.707 and 216.565 indicating that on average, most of the state corporation's operating expenses exceeded the net revenue they realized. However as can be seen from a maximum of 216.565, there was one particular state corporation whose revenues exceeded operating expenses by 216 times implying operating efficiency.

The total revenues from 150 observations shows a mean of Ksh 10200.56 Millions with standard deviation of 24705.83 Millions indicating a disparity in annual revenues generated by the state corporations under investigation. The minimum revenue amounts were Ksh 5.76698 Millions and the maximum revenue collected was observed to be Ksh 13,325.6 Millions.

Results on total expenses indicate a mean spending of Ksh 9,718.136 Millions with a standard deviation of Ksh 23,767.22 Millions indicating a huge disparity in total operating expenditures among the state corporations under investigation. The minimum value for total expenses is Ksh 0.078522 Millions while the maximum operating expenses observed was Ksh 134,593.6 Millions and this clearly indicates the disparity in total expenses among the State corporations observed.

Observation on net income (Total revenue minus total expenses) indicate a mean of Ksh 482.4219 Millions with a standard deviation of Ksh 3988.353 Millions indicating another big disparity in net incomes among the study state corporations. The minimum observed value is a negative revenue of Ksh -18,932.5 Millions indicating a huge loss made by one of the state owned corporation and a maximum value of Ksh 13,789.79 Millions indicating a huge gain made by a state corporation in the study.

The statistics on total assets shows a mean of Ksh 72,296.16 Millions and standard deviation of Ksh 140,257.4 Millions, minimum amount of Ksh 13.14611 Millions and maximum of Ksh 761,370.2 Millions indicating a huge disparity in total assets held by the commercial and manufacturing state corporations in this study. Last but not least, the observed mean value for total liabilities stood at Ksh 55,944.26 Millions a standard deviation of Ksh 118,705.1 Million with a minimum of value of Ksh 22.67194 Millions and a maximum of Ksh 760,737.67194 Millions bringing out clearly another big disparity in liabilities. The variations in total amounts for assets, liabilities, revenues and expenses could be attributed to the size and the type of business that the state corporation is mandated to carry out.

Multicollinearity Test Results

Table 2: Correlation Matrix

	Profitability	Leverage	Efficiency	Size
Profitability	1.0000			
Leverage	-0.3338	1.0000		
Efficiency	-0.0049	-0.1215	1.0000	
Size	0.2249	-0.0236	-0.0258	1.0000

Source: Research Data (2023)

As per Table 2 above, study employed correlation matrix in detecting existence of multicollinearity problem. Explanatory variables were profitability, leverage, efficiency and

firm size. The outcome indicate correlation coefficients of predictor variables are below 0.8 inferring that data used in study did not contain severe multicollinearity if any (Cooper & Schindler, 2008).

Heteroscedasticity Test Results

To detect presence of linear heteroscedasticity, the study adopted the Breusch Pagan approach. Null hypothesis is that error-terms are of equal variances and homoscedastic while the alternative hypothesis is that the the error-terms have unequal variances. The Breusch-pagan test yielded a chi-value of 55.25) and probability of (0.000). Since probability value was significant, the null hypothesis was rejected signifying presence of heteroscedasticity. However,assumptions of logit regressions does not require study data to be linear, normally distributed or homoscedastic.

Likelihood Ratio Test Results

This test compares two nested regression models where one model (model 1) is nested within another model (Model 2). Null hypothesis is restricted model is statistically better than full model. Researcher fits both the unrestricted and restricted model using the maximum likelihood-method. The constrained (reduced) model was fitted by omitting one predictor variables (Firm Size).The test results indicated that profitability, leverage and efficiency were jointly significant with probability of (0.000) indicating that full model was better model and likelihood ratio was more accurate. We reject null and conclude that full model (unrestricted) is better than restricted (reduced model).

Hypothesis Test Results

- *Effect of profitability, leverage and efficiency on financial distress in commercial & manufacturing state corporations in Kenya.*

To ascertain effect and significance of predictor variables on financial distress among the state corporations, a panel binary logit regression analysis was conducted. The dependent variable (financial distress) was proxied by a dummy variable of (1) when a firm was distressed and (0) when a firm was non-distressed.

Table 3: Logistic Regression (Dependent-Variable:Financial Distress)

Variables	Coefficients	Standard Errors	Z	p > z
Profitability	-36.18195	10.37690	-3.49	0.0000
Leverage	0.0505863	0.8614372	0.06	0.953
Efficiency	-0.0994815	0.0411737	-2.42	0.016
Size	-0.602241	0.4000792	-1.51	0.132
Constants	1.804563	1.56861	1.15	0.250

Probs> Chi2= (0.000) LR-Chi2 (3)= 148.36

Loglikelihood=-28.452732 Pseudo R²= 0.7228 Observations=150

Source: Research Data (2023)

The first objective was determining effect of profitability on financial distress in commercial and manufacturing state corporations. Null hypothesis stated profitability had no significant effect on financial distress of commercial & manufacturing state corporations. Regarding hypothesis (i), the logit regression results presented in table 3 above indicate that the coefficient of profitability of -36.18195 was statistically significant at 5 percent level with probability ($p=0.000$) less than 0.05 leading to rejection of null hypothesis at 5% significance-level. This implied that per unit increase in profitability coefficient decreased financial distress. Negative relation between profitability and distress is expected since profitability improves financial health of a firm thereby reducing the risk of financial distress. With regard to profitability, the results of study are in agreement with findings of Masdupi (2018), Dwiantari & Artini (2021), Pardeshi (2022) and Fatimah et al (2019) who concluded that profitability (measured by net income to total asset ratio) had significant effect on distress of commercial and manufacturing companies in Indonesia.

Determining effect of leverage on financial distress in commercial and manufacturing state corporations in Kenya was the second study objective. The logistic regression coefficient of leverage (0.0505863) had a probability value of 0.953 at 5 percent significance level. Null hypothesis stated leverage had no significant effect on distress in commercial and manufacturing state corporations in Kenya. We fail to reject null and conclude leverage has insignificant effect on distress. Results are in agreement to findings by Mahardini (2023), Dirman (2020), Oktasari (2020) and Bernadin & Tifani (2019) who concluded that leverage had no positive significant effect on distress. The results however, contradicts findings by Marimuthu (2021), Octavia (2021), Ufo (2015), Muin (2020), diyanto (2020) and Bahri et. al (2022) whose findings concluded that leverage significantly influenced financial distress in state owned enterprises.

Establishing effect of efficiency on financial distress in commercial and manufacturing state corporations in Kenya was third objective. Null hypothesis was that efficiency did not significant effect on distress of commercial and manufacturing state corporations. The coefficient for efficiency (-0.0994815) has probability of (0.016) leading rejection of the null hypothesis at 5% significance-level to conclude that efficiency had negative significant effect on distress in commercial & manufacturing state corporations. A unit increase in efficiency decreases financial distress by approximately 9%. The findings of study correspond to those of Jerop (2021), Lord et. al (2020), Rahman & Ali (2018) and Nketiah (2017) who concluded that efficiency had a significant negative effect on financial distress in state owned enterprises.

According to the coefficient of determination (Pseudo R^2) from the results above 72.28% of the independent variables explained financial distress in commercial and manufacturing state corporation implying that the model was fit. The logit model was also significant at 5% as shown by its probability of ($p=0.000$) from results in table above.

- *Moderating effect of size on relationship between profitability, leverage, efficiency & financial distress.*

The study adopted product interaction approach to determine the existence of any moderation effect of size on relationship between profitability, leverage, efficiency & financial distress. Moderation terms were added to original logit model. Results of the moderation effects using financial distress as the dependent variable are presented in the table below:-

Table 4: Regression with Moderation Effect (Dependent Variable:Financial Distress)

Variables	-Coefficient	Standard Errors	z	p > z
Profitability	-177.7451	106.9465	-1.66	0.097
Leverage	-2.512483	11.98853	-0.21	0.834
Efficiency	2.518389	1.061514	2.37	0.018
Firm Size	-1.389763	1.641592	-0.85	0.397
Firm Size and Profitability	40.77211	24.34812	1.67	0.094
Firm Size and Leverage	0.8202943	2.841940	0.29	0.773
Firm Size and Efficiency	-1.012395	0.4278847	-2.37	0.018
Constants	2.856335	5.9796280	0.48	0.633
Logistic Regression	Prob>Chi2= 0.0000 LR Chi2 (7)= 187.19			
Log likelihood= -9.0391381	Pseudo R²= 0.9119 Observations=150			

Source: Research Data, (2023)

Results in Table 4 above indicates that the interaction between firm size and profitability has coefficient (40.77211) and probability (p=0.094) leading to acceptance of null hypothesis at 5% significance-level. This implied no moderating effect existed of size on the relationship between profitability and financial in State corporations investigated.

Table 4 also indicates that interaction between firm size and leverage has coefficient (0.8202943) and a probability (p=0.773) which was insignificant at 5% leading to acceptance of the null indicating lack moderation effect of size on relationship between leverage and financial distress of state owned corporations being investigated.

Finally, the outcomes in Table 4 indicate that the interaction between firm size and efficiency has coefficient (-1.012395) with a probability (p=0.018) significant at 5% level signifying that size significantly moderated effect on the relationship between efficiency and distress in commercial and manufacturing state corporations in Kenya.

Table 5: Summary of Hypotheses Tests

Hypotheses No.	Causal Relationship	p>z	Reject H ₀ Fail to reject H ₀
i.	-H ₀ : -There is no statistically significant relationship between profitability and financial distress of commercial and manufacturing state corporations in Kenya.	0.0000	Reject H ₀
ii.	-H ₀ : -There is no statistically significant relationship between leverage and financial distress of commercial and manufacturing state corporations in Kenya.	0.9530	Fail to reject H ₀
iii.	-H ₀ : -There is no statistically significant relationship between efficiency and distress of commercial and manufacturing state corporations in Kenya.	0.0160	Reject H ₀
iv.	Moderating effect H ₀ : -Size of state corporation has no statistically significant moderating effect on relationship between profitability, leverage, efficiency and financial distress.		
	<ul style="list-style-type: none"> Firm Size & Profitability 	0.0940	Fail to reject H ₀
	<ul style="list-style-type: none"> Firm Size & Leverage 	0.7730	Fail to reject H ₀
	<ul style="list-style-type: none"> Firm Size & Efficiency 	0.0180	Reject H ₀

Source: Research Data, (2023)

SUMMARY AND CONCLUSION

Results of study were founded on hypotheses and research objectives. Findings of study showed profitability to have significant negative effect on financial distress State owned enterprises in Kenya therefore null hypothesis was rejected. Similarly, efficiency had significant negative effect on distress of commercial and manufacturing corporations and thus the null hypothesis was also rejected. However, findings of study ascertained leverage had positive insignificant effect on distress of state owned corporations leading to acceptance of the null hypothesis. Furthermore, there was no evidence that size of a state corporation had moderating effect on relationship between profitability and financial distress. There is also no evidence of moderation effect of size on relationship between leverage and distress of commercial & manufacturing state corporations. However, results indicated evidence of interaction effect of size on association between efficiency and financial distress in commercial and manufacturing corporations.

Profitability & operating efficiency variables in the study had significant effect on distress in commercial and manufacturing state owned enterprises implying they are key determinants of financial distress in state owned corporations in commercial and manufacturing sectors. Accordingly, management or those charged with governance of state owned enterprises should endeavour to improve their profitability and operational efficiency to maximise their wealth. The significance of profitability and operating efficiency supports the agency, stewardship and efficiency theories in this research.

We can therefore conclude that the financially distressed firms that have relied on exchequers for frequent bailouts due to liquidity problems are as a result of profitability and operating efficiency problems. Management and those in charge of governance of the distressed state owned enterprises should therefore focus on improving profitability and efficiency in their operations.

Recommendations and Policy Implications of Study

This study's findings address important policy concerns at the industry, business, and national level. Those charged with governance in the distressed State corporations should efficiently and prudently manage firm's resources so as to increase their asset turnover and maximise the value of the firm. The study further recommends that corporate managers of state corporations should watch out for key financial ratios including profitability and efficiency ratios. These ratios will assist those charged with governance in developing strategic plans and turnaround strategies to bring back to life the distressed state corporations so that they can contribute positively towards growth of the economy.

It is worth noting that most state corporations do not submit on time their drafts unaudited financial report to the office of the auditor general who is required to audit those accounts from 1st October to 31st of December of every financial year. The national audit office should therefore ensure adherence strict timelines for submission of accounts so that interested stake holders including parliament can table and discuss the findings and opinions regarding the going concern of the state corporations. Consequently, the office of the auditor general should follow up on previous years recommendations in the management letter to find out if those recommendations were acted upon.

The office of auditor general should deviate from the traditional audit strategies and embrace the concept of value for money auditing on economy, efficiency and effectiveness (3Es) in auditing the accounts of state corporations. Since commercial and manufacturing state corporations heavily depend on government allocations, the study's findings will assist the government identify best candidates for bailouts, grants, and subsidies.

Finally, the outcomes of this study indicate that the government, management, those charged with governance and all users of financial information of state corporations may mitigate against financial distress by giving serious attention to profitability and efficiency ratios to ensure that these corporations operate prudently and efficiently in the foreseeable future.

Suggestions for Further Studies

Most studies on financial distress in Kenya have been inclined to firms listed at the Nairobi Securities Exchange (NSE) and very few studies have been undertaken on financial distress of state corporations. Kenyan state corporations are categorised as tertiary education, commercial & manufacturing, training & research, regulatory, service, financial, public universities and regional-development. The researcher suggests further studies on financial distress in the categories above which have not been researched. Further, the researcher recommends use of different regression models such as multinomial logistic, probit, linear panel data regression models or any other non classical or linear models such as factor analysis.

The researcher also recommends other international researchers to study the impact of financial distress on state owned corporations in their countries to add to the limited existing literature. Since most studies on financial distress have been skewed to effects of financial factors which tend to be quantitative in nature, this study recommends further studies on effects of qualitative non-financial factors such as effect of corporate governance, government policy, human resource policy and strategic policies on distress in state corporations.

The researcher recommends replication of a similar study on effects of profitability, leverage, efficiency and firm size in other sectors of the economy such as the telecommunication industry, small and medium sized enterprises (SME's), microfinance firms, savings and credit co-operative societies among others. Finally, since most studies reviewed on financial distress covered a study period of not more than five years due to data unavailability, time and resource constraints, the researcher suggests future researchers on financial distress to increase study period to more than five years for credible and conclusive results.

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