Correlation between Earnings Management and Financial Distress among Selected Firms in Kenya

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Abstract

Background

This paper evaluates the link between earnings management and financial distress among listed firms in Kenya. Earnings management is the use of accounting practices to prepare financial statements that portray a company's business activity and financial status in an unrealistically favorable manner. On the other hand, financial distress is when an organization's revenues or income no longer satisfy its financial obligations, resulting in bankruptcy and possible dissolution.

Results

The assessment compares the modified Jones score, which is commonly used to measure discretionary accruals, with Altman's Z score, which measures the degree of financial distress. The earnings management and financial distress. The selected firms under this study are known to be financially distressed as per the publicly available information. The hypothesis tests express whether a correlation exists between earnings management and financial distress. The result also highlights the level of significance of the effect of earnings management on financial distress.

Conclusion

The study concludes that there is some moderate probability that a financially distressed firm is likely to practice earnings management. On the other hand, there is a moderate likelihood that firms that practice earnings management may face financial distress at some point. Earnings management is not necessarily practiced to camouflage financial distress, but that does not mean that it cannot happen. On the other hand, financial distress is not an indicator of earnings management and vice versa.

I. Introduction

Earnings management refers to the deliberate efforts by a firm's management to organize and concoct financial statements within the confines acceptable by accounting principles with the intention of the manager's private interests (Suryandari, Yuesti, & Suryawan, 2019). Earnings management can also be described as the "active manipulation of earnings toward a predetermined target, which may be set by management, a forecast made by analysts, or an amount that is consistent with a smoother, more sustainable earnings stream" (Yadav, 2013). The two definitions point out that earnings management involves purposive manipulation of earnings, and in effect the financial statements, for a motivation other than the shareholders' interests.

Financial distress refers to the twilight phase of corporate decline that paves the way for more devastating events such as insolvency or bankruptcy (Platt & Platt, 2002). A financially distressed firm
satisfies three simple conditions: negative growth in the average market value; its income from operations is less than its financial expenses; and its operating cash flow is less than its financial expenses (Gupta & Chaudhry, 2018). This implies that financial distress is associated with declining profits or increasing losses, operating cashflow snags, and a general decline in firm market value. These are conditions that lead to the bankruptcy and collapse of firms.

Evidence that a firm is approaching distress can lead to swift managerial actions to prevent problems before they take place. One of the possible decisions includes mergers or takeover by a more solvent or stable firm or organization (Platt & Platt, 2002). This only happens when the management is brave enough to take the bull by its horns. Earnings management may be designed to remove crests and dales from a normal earnings series by reducing profits during peak years and using it during slower years. This action is commonly referred to as income smoothing (Yadav, 2013). Some managers may result in actions aimed at concealing the actual distress position; such actions include earnings management in the form of income smoothing.

Financial distress also affects households just as it affects businesses. Financially distressed households are usually faced with choices over consumption, wealth, credit, and debt repayment (Athreya, Mustre-del-Río, & Sánchez, 2019). This element of choices can be extrapolated to the firms. Companies with high debt ratios tend to perform earnings management in relation to the high burden that the company bears so that it will reduce its profitability. The element of low profitability is the driving force for management to exercise earnings management to entice investors to invest (Suryandari, Yuesti, & Suryawan, 2019). Debt covenants are a key component of positive accounting theories and have always been associated with creative accounting and, by extension, earnings management (Kamau, Namusonge, & Bichanga, 2016).

The tax shield has a positive and significant effect on earnings growth, while financial distress has a negative significant effect on earnings growth. The tax shield may be perceived as a mediator between earnings growth and financial distress (Sitorus & Christian, 2019). Taxation has been observed as one of the reasons behind creative accounting practice. Management may desire to represent diminutive earnings to reduce the tax burden (Kamau, Mutiso, & Ngui, 2012). Income smoothing in insurance firms and tax hypotheses are closely linked (Alford, Luchtenberg, & Reddie, 2018). Taxes that form part of the political cost hypothesis in positive accounting theories are linked to earnings management.

Corporate governance may be used as a tool to deter earnings management. Confirmation of income decreasing or increasing accruals in the findings implies EM still exists among the listed firms in Kenya. Policymakers should therefore consider drastic arrangements, including unconventional approaches, to improve the efficiency of corporate governance (Outa, Eisenberg, & Ozili, 2017). Audit and audit committees are key elements of corporate governance. Financially distressed firms tend to incur higher audit costs but have a greater likelihood of receiving a going-concern opinion. Financially nondistressed firms, on the other hand, are likely to incur fewer audit costs with a greater probability of receiving a going-concern opinion. However, the prospect of a going-concern opinion is stronger for nondistressed
compared to distressed firms (Bhaskar, Krishnan, & Yu, 2017). Active monitoring by audit committees who are experts in finance may help reduce earnings management. This is because they are able to understand the financial records necessary to help them oversee the firm’s corporate actions (Suryandari, Yuesti, & Suryawan, 2019).

Financial stability does not have an effect on earnings management. Therefore, the level of financial stability of a firm does not form a basis for management to practice earnings management (Suryandari, Yuesti, & Suryawan, 2019). Earnings management negatively influences financial performance. Earnings manipulations lead to the degeneration of firm performance (Nisansala & Menike, 2018). On the other hand, financial targets have a negative influence on earnings management. A higher financial target realized by the firm attracts greater monitoring by investors; therefore, the firm tends to be more cautious in deciding what actions to take, especially in regard to fraud (Suryandari, Yuesti, & Suryawan, 2019).

Organizational structure has no effect on earnings management. Likewise, changes in the board of directors have no effect on earnings management and fraudulent activities (Suryandari, Yuesti, & Suryawan, 2019). On the other hand, “executive structure power, ownership power and expert power have positive effects on earnings management, while prestige power has negative effects on earnings management” (Wang, Wang, Zhang, & Hu, 2017). Different forms of organizational structure surface after firms experience financial distress. Additionally, manager qualifications and experience are significant during financial distress (Rakhmayil, 2018). Both organizational structure and capital structure play a key role in both financial distress and earnings management. This explains perhaps why restructuring is one of the strategies adopted by firms experiencing financial distress.

**A. Kenyan Perspective**

By and large, debt level has a significant negative influence on the financial distress of nonfinance companies in Kenya. This effect turns out to be progressive and significant as firm size increases. The application of longstanding debt has a greater positive effect among large firms, while short-term debt is significantly negative (Muigai & Muriithi, 2017). Size of debt, along with free cash flow, management bonus and dividend paid are some of the major factors that influence earnings management (Njogu, 2016). Debt covenants, debt levels and cost of debt are believed to have a direct influence on both earnings management and financial distress.

Boards that have long tenure tend to have a cozy relationship with management, which may shift their commitment away from shareholders towards management. Board independence therefore has a negative and significant effect on financial distress due to the closeness (or lack of it) between board and management (Ombaba & Kosgei, 2017). Audit quality is negatively and significantly related to earnings management. Board independence is positively significantly related to earnings management, implying that Corporate Governance may not have been effective in curtailing Earnings Management in eastern Africa (Waweru & Prot, 2018). Boards’ actions and decisions should be more independent and assertive to moderate the likelihood of financial distress and earnings management by firms in Kenya.
The objectivity of the audit committee, the presence of a financial specialist on the audit committee and board cultural diversity were inversely and significantly associated with earnings management (Waweru N., 2018). Audit committee independence is significantly linked to the management of earnings quality. This is because the audit committee assists in monitoring the financial reporting. Firms with higher earnings quality are connected with audit committee members who hopefully understand financial statements as a result of their financial skills (Ruto & Essajee, 2018). Long serving board members should be considered for inclusion in the audit committee due to their massive experience in the firm. A stout audit committee will play a major role in reducing financial misreporting and enhancing earnings quality (Mugo & Makori, 2018). There is a strong relationship between financial distress and corporate governance practices, among them being audit committees (Okoth & Litunya, 2019). Independence of audit committees is one of the strengths of the board. A strong and independent board will effectively perform the oversight role on the management. This will in turn reduce the possibility of both earnings management and financial distress in the organization.

B. Problem Statement

Earnings is a concept aimed at measuring a fundamental veracity of business performance. Any attempt to manipulate the reported earnings presents unfairness, therefore making the financial report less reliable. Manipulations in reported earnings can be quite detrimental. Accounting manipulations misrepresent the reports but do not affect the firm’s operations (Grasso, Tilley, & White, 2009). It is desirable that the firms report the true and fair earnings and financial position. Misrepresented financial statements also pose a challenge when relying on them to establish the financial distress of an organization. The Royal Bank of Canada (1953) asserts that eliminating wasteful spending and encouraging useful saving offers an opportunity for financial stability.

During the global financial crises of 2007–2009, financial distress was transferred to the economy through the impact of the house price bust on household balance sheets and spending and the transmission of banking distress through the disruption of credit supply (Gertler & Gilchrist, 2019). Many U.S. firms and individuals experienced financial distress, especially as indicated by severe debt delinquency (Athreya, Mustre-del-Río, & Sánchez, 2019). A number of Kenyan companies have encountered financial distress and virtually on the brink of disintegrating. These firms include Uchumi, Kenya Airways and a number of banks (Kihooto, Omagwa, Wachira, & Ronald, 2016). Additionally, there have been several financial fiascos and audit misreporting or reporting disappointments that have led firms in a number of sectors to experience financial distress (Mugo & Makori, 2018).

The concern that arises is whether the number of crises experienced could have been discovered in advance. In some circumstances, a firm fails to meet its present commitments with the operating cash flows, but the fact is concealed by the management. This also leads to the next concern, whether there is a link between earnings management and financial distress determination. This study is aimed at analyzing the two aspects of earnings management and financial distress and gauging the level of correlation between them.
Ii. Methodology

This study analyzed the four-year results of four major firms that had been reported as having experienced financial distress at some point. These first firm was Uchumi Supermarket, which had been reported as having requested the Ministry of Trade to intervene in their financial situation, or else they liquidate (Wafula, 2019). The second firm was Kenya Airways (KQ), which reported that its earnings for the year ending December 2018 had gone down by 25 percent compared to 2017 (Musyoka, 2019). Mumias Sugar Company was the third firm, which was pursuing capital to finance maintenance, to settle the amount outstanding for new farmers and to pay off debts owed to suppliers. Mumias was also seeking monies to finance extra investments to boost branding and to improve distillation efficiency (Business Daily, 2015). The last firm was Eveready East Africa, which had been reported to have sunk deeper huge losses by 2016. The loss for that year was 2.48 percent higher compared to the loss it posted in 2015 (Alushula, 2017). The financial results analyzed were for the period from 2015 to 2018 financial years.

The financial results for the four years were subjected to Altman’s Z score to measure financial distress. A Z score of less than 1.81 signifies a financially distressed firm, while a Z score of more than 3 represents a stable firm. Any other score implies that a firm is in a caution zone. The Z score was calculated using the following formula.

\[ ZScore = 1.2A + 1.4B + 3.3C + 0.6D + E \]

where

- A = Working Capital ÷ Total Assets
- B = Retained Earnings ÷ Total Assets
- C = earnings before interest & taxes (EBIT) ÷ total assets
- D = market value of equity ÷ total liabilities
- E = Sales ÷ Total Assets

In a nutshell, the variables in Altman’s Z Score represent the following concepts: A Measures the liquidity of firm by use of working capital, which is the difference between current assets and current liabilities; B measures the accumulated profits compared to assets; C measures the level of operational profit generated by the firm’s assets; D matches the company’s value with its liabilities. The company value is measured by adding the current market capitalization to the value of preference shares. Finally, E is the efficiency ratio, which measures the rate at which the company’s assets are generating revenue in the form of sales.

The financial results for the four years were further subjected to the modified Jones model (1995), which is used to estimate earnings management. The acceptable discretionary accruals range is 1–5%. The model is stated as follows:
where

\[
\frac{\text{TNA}}{\text{ATA}} = \beta_0 + \beta_1 \left( \frac{1}{\text{ATA}} \right) + \beta_2 \left( \frac{\Delta \text{Sales} - \Delta \text{Rec}}{\text{ATA}} \right) + \beta_3 \left( \frac{\text{GPPE}}{\text{ATA}} \right) + \varepsilon
\]

TNA = Total net accruals

NOA = Net operating accruals = Net income – Cash flow from operations

ATA = Average total assets

\( \Delta \text{Sales} \) = Change in sales

\( \Delta \text{Rec} \) = Change in accounts receivable

GPPE = Gross PP&E (Property plant & Equipment)

### iii. Results

The data collected in this study were analyzed, discussed and inferences made. Regression and correlation analyses were conducted on the data, and the results are presented and discussed in the following sections.

#### A. Financial Distress

The study aimed to analyze the financial distress of the four targeted companies. Altman's Z score was used in the data analysis, and the results are indicated in Table 1. Altman suggests that a Z score of above 3 represents a stable company; a Z score of between 1.81 and 2.99 represents a caution zone; and less than 1.81 represents a distressed company.

<table>
<thead>
<tr>
<th>Company</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uchumi Supermarket</td>
<td>0.444</td>
<td>-2.090</td>
<td>-3.975</td>
<td>-4.564</td>
</tr>
<tr>
<td>Mumias Sugar</td>
<td>-1.022</td>
<td>-0.694</td>
<td>-2.227</td>
<td>-5.525</td>
</tr>
<tr>
<td>Kenya Airways</td>
<td>-0.069</td>
<td>0.063</td>
<td>-0.585</td>
<td>-0.640</td>
</tr>
<tr>
<td>Eveready EA</td>
<td>0.453</td>
<td>0.215</td>
<td>2.844</td>
<td>2.763</td>
</tr>
</tbody>
</table>

The results in Table 1 indicate that Uchumi Supermarket was financially distressed and that the situation deteriorated from 2015 to 2018. Mumias sugar Ltd. was also financially distressed, and the trend showed a worsening inclination. A similar situation was also observed with Kenya Airways. Eveready East Africa
was financially distressed in 2015 and 2016; however, the situation improved to the “caution zone” in 2017 and 2018.

The results of this study are in agreement with the media reports that the four companies had been facing financial distress (Musyoka, 2019; Wafula, 2019; Alushula, 2017; Business Daily, 2015). The indications by Eveready E A give hope that a firm can recover from financial distress. Financial distress is not necessarily a terminal problem.

B. Earnings Management

The modified Jones model is used to measure nondiscretionary accruals and helps to analyze information content in irregular accruals, which can be construed as a signal that abnormal accruals are not unscrupulous but may communicate private information about equity value (Dechow, Ge, & Schrand, 2010). Based on this premise, the study applied the modified Jones model and made the following observations.

Table 2
ANOVA – All the firms

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>Significance F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>3</td>
<td>1.841</td>
<td>0.614</td>
<td>5.927</td>
<td>0.0102</td>
</tr>
<tr>
<td>Residual</td>
<td>12</td>
<td>1.242</td>
<td>0.104</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>3.083</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The financial data collected were regressed using the modified Jones model. The results of the ANOVA test of discretionary accruals are presented in Table 2. The findings showed that the value of the calculated F statistic was 5.927 with a P value of 0.0102 at the 5% level of significance. The probability value (P value) of computed F was sufficiently low (0.0102 < 0.05); therefore, the model fit is acceptable, demonstrating that there is a significant linear relationship between net operating accruals on the one hand and assets, sales and receivables on the other hand. The resulting equation was used to estimate the average discretionary accruals for the four firms, and the results are indicated in Table 3.

Table 3
Percentage Discretionary Accruals

<table>
<thead>
<tr>
<th>Company</th>
<th>NOA</th>
<th>NDA</th>
<th>DA</th>
<th>% DA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uchumi Supermarket</td>
<td>-0.3732</td>
<td>-0.2692</td>
<td>-0.1040</td>
<td>27.87%</td>
</tr>
<tr>
<td>Mumias Sugar</td>
<td>-0.3566</td>
<td>-0.3044</td>
<td>-0.0522</td>
<td>14.65%</td>
</tr>
<tr>
<td>Kenya Airways</td>
<td>-0.1325</td>
<td>-0.3520</td>
<td>0.2195</td>
<td>165.67%</td>
</tr>
<tr>
<td>Eveready EA</td>
<td>0.2828</td>
<td>0.3464</td>
<td>-0.0636</td>
<td>22.47%</td>
</tr>
</tbody>
</table>
The results in Table 3 indicate that Uchumi Supermarket, Mumias Sugar, and Eveready East Africa generally have income decreasing discretionary Accruals (DA) since their DA is negative, while Kenya Airways has income increasing Discretionary Accruals since the DA is positive. Income-decreasing discretionary accruals imply that the firms may have reported less profits than fair representation as per the model. The researcher further expressed Discretionary accruals as a percentage of Total accruals, and the results are shown in the column %DA. The results indicated that Mumias sugar, Eveready EA and Uchumi Supermarket had minimal %DA in that order. The three companies had a %DA of less than 25%. On the other hand, Kenya airways %DA was more than 100%, meaning that the DA moved from negative to positive at a higher rate during the four years under review. Similar to Dechow, Ge, and Schrand (2010), the high percentage may not necessarily imply opportunistic earnings management.

C. Correlation between Earnings Management and Financial Distress

Correlation analysis was conducted to reveal the nature and strength of the association or correlation between the study variables. According to Rasli (2006), an outright R-value of above 0.196 represents a mild correlation, while a “somewhat correlation can be concluded if the absolute R-value is above 0.5. Otherwise, if the absolute R-value exceeds 0.7, the correlation is strong”. The correlation results between Financial Distress and Earnings Management are presented in Table 4.

<table>
<thead>
<tr>
<th>Correlation Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
</tr>
</tbody>
</table>

The correlation results in Table 4 show a Pearson correlation coefficient of 0.574. This implied that there was a somewhat or moderate positive correlation between financial distress and earnings management since the correlation coefficient was above 0.5. Regression analysis was carried out on the data collected to establish the effect of earnings management on financial distress. The ANOVA results are shown in Table 5.

<table>
<thead>
<tr>
<th>ANOVA – FD &amp; EM</th>
</tr>
</thead>
<tbody>
<tr>
<td>df</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>Regression</td>
</tr>
<tr>
<td>Residual</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
The results in Table 5 indicated that earnings management had no significant effect of financial distress since the calculated $P (0.426)$ was more than 0.05. The analysis of the data indicated that earnings management does not necessarily lead to financial distress, although the two are moderately correlated. The resulting regression model explains that only 57.4 percent of the financial distress can be associated with earnings management. This finding suggests that there are other significant factors other than earnings management that influence financial distress.

**Iv. Conclusion**

The first objective of this study was to analyze the correlation between earnings management and financial distress among a few selected firms. Based on the findings, the study concludes that there is a positive and temperate linear relationship between earnings management (as indicated by the modified Jones model) and financial distress (as indicated by Altman's Z score). This implies that there is some moderate probability that a financially distressed firm is likely to practice earnings management. On the other hand, there is a moderate likelihood that firms that practice earnings management may face financial distress at some point.

The second objective was to establish the effect of earnings management on the financial distress of the selected firms. The study concluded that earnings management had no significant effect on financial distress. This means that there was no significant proof that earnings management can lead to financial distress and vice versa. Earnings management is not necessarily practiced to camouflage financial distress, but that does not mean that it cannot happen. On the other hand, financial distress is not an indicator of earnings management and vice versa. This study recommends that investors treat earnings management and financial distress as independent problems.

**Abbreviations**

ANOVA  
Analysis of Variance  
ATA  
Average total assets  
DA  
Discretionary Accruals  
df  
Degrees of Freedom  
EA  
East Africa  
EBIT  
Earnings Before Interest and Taxes  
EM  
Earnings Management
Declarations

- Ethics approval and consent to participate: Not Applicable
- Consent for publication: Not Applicable
- Availability of data and materials: The datasets generated and analysed during the current study are publicly available from the published financial statements of Uchumi Supermarket, Mumias Sugar, Kenya Airways, and Eveready EA, which are among the companies listed on the Nairobi Securities Exchange. The financial statements are available from their websites.
- Competing interests: The authors declare that they have no competing interests.
- Funding: The research was funded by all the authors.
- Authors’ contributions: CGK and ABA conducted the literature review. CGK and SNK carried out the data analysis and interpretation. All authors of the manuscript have read and agreed to its content and are accountable for all aspects of the accuracy and integrity of the manuscript.
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