

Article

Linking Financial Performance with CEO Statements: Testing Impression Management Theory

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Abstract: The purpose of this study was to analyze the impact of financial performance on the tone used in the chief executive officer (CEO) statements of South Africa's (SA) top 40 JSE-listed companies in the 2021 financial year. This study implements the quantile regression analysis and the generalized linear regression model. To perform this assessment, the integrated annual reports (IARs) containing the CEO and annual financial statements for the top 40 JSE-listed companies were extracted from their official websites. The tone level in CEO statements was determined using Azure Machine Learning (AML). This study's findings reveal that financial performance has a positive impact on the tone of CEO statements of the top 40 JSE-listed companies, i.e., as financial performance improves, the positive tone in CEO statements also increases. Additionally, results revealed that moderately and extremely profitable companies use a more positive tone. It is recommended that users of financial statements should carefully scrutinize the tone used in CEO statements, to identify whether or not it is aimed at concealing poor performance or motivated by good performance. The study contributes to the limited tone-management literature in developing countries and in SA in particular. The computerized techniques offered by both the Statistical Package for Social Sciences (SPSS) and AML secures the validity and reliability of the content analysis, therefore, the study's shortcomings do not compromise the generalizability of the results. The study's sample truly represents all of the JSE's listed companies.

Keywords: tone management; CEO statement; integrated annual report; JSE top 40 listed companies; financial performance



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1. Introduction and Background

The business sector has recently been rocked by several accounting scandals. Unfortunately, SA has not been immune to this trend of fraudulent financial reporting, and investors have suffered financial losses when these businesses eventually fail; therefore, this is why particular attention is now being paid to the tactics used by company executives in the narrative disclosures. A company's IAR, which contains the CEO's statement and financial results, is a vital instrument for involving stakeholders and must truthfully depict the condition inside the organization. Merkl-Davies and Brennan (2017) argued that accounting information loses its relevance if it is not presented clearly and accurately in company reports. CEO statements have traditionally been viewed as tools for managing perceptions in management and accounting literature (Hooghiemstra 2000). Moreover, International Financial Reporting Standards (IFRS) do not impose requirements for the composition of the CEO statement; hence, the CEO has complete discretion over its content. As a result, this presents the CEO with an opportunity to manipulate the contents of the CEO statement to shareholders. Since explanatory financial narratives are not subject to institutional restrictions, executives have an even greater chance of falsifying descriptive narratives than numerical financial data (Luo and Zhou 2020). Moreover, compared to numbers, language is much more flexible and therefore more manipulable.

The primary goal of this study is to analyze the effect of company financial performance on the tone of CEO statements of the top 40 JSE-listed companies. Consequently, the study poses the following research question:

Research Question 1. Does financial performance influence the tone used in the CEO statements of the top 40 JSE-listed companies?

In order to address the research question, we studied the CEO statements and financial statements of the top 40 JSE-listed companies, excluding banks, for the 2021 financial year. There were three steps in the data analysis. First, we conducted an automated content analysis using Azure Machine Learning to rate the tone of the CEO statements found in a company's 2021 IARs. Second, we used the annual financial statements for 2021 to calculate the appropriate ratios. Third, using quantile regression analysis and Generalized linear regression analysis, we explored the impact of the companies' financial performance on the tone of CEO statements.

Financial reporting is more than just numbers. Narratives such as the CEO statements are being deployed, and these narratives are growing more sophisticated by the day. Why are these narratives significant? They contribute to the reduction in information asymmetry associated with present accounting standards. However, these statements can be used to manipulate the perceptions of stakeholders using tone. For example, CEOs may adopt tone management in their statements to impress stakeholders. [Merkl-Davies and Brennan \(2007\)](#) state that the quality of financial reports will be compromised if arbitrary textual disclosures are utilized to manipulate impressions instead of providing extra details.

Tone management refers to a tone that does not match the fundamentals of the firm ([Carlsson and Lamti 2015](#); [Huang et al. 2014](#)). Furthermore, tone management can be used to influence public opinion of a company, resulting in information asymmetry and this anomalous tone can be used unscrupulously to increase comprehension of financial data, and as a result, deceive shareholders and other stakeholders by using pleasant terms to mask performance flaws. When descriptions of a company's financial performance are inconsistent with the prevailing business fundamentals, the language tone is manipulated ([Xu and Qi 2020](#)). Furthermore, an institutional investor or a market analyst, who has experience in investing, might be harmed by language tone distortion even though they have more facts regarding the enterprise's results than less experienced investors do.

The CEO is the highest-level employee in an organization whose decision-making determines the direction the company takes and is charged with the responsibility of overseeing the daily operations of the business. [LaFevre \(2021\)](#) maintains that as the company's public face, a CEO's personality may have an impact on how the public perceives the organization, and the CEO's personality influences corporate culture, which has an impact on company performance, as well as corporate social responsibility (CSR) initiatives, which can boost brand equity and customer loyalty. Therefore, the CEO statement is a very crucial communication tool and allows managers to explain their opinions and values to their stakeholders ([Carlsson and Lamti 2015](#); [Craig and Tourish 2010](#)). [Clatworthy and Jones \(2003\)](#) contend that documentation, such as the statement of the CEO, has proven susceptible to managers' exploitation and opportunistic behaviors.

The study contributes to the existing tone-management literature in developing countries and in SA in particular by analyzing the impact of financial performance on the tone of CEO statements of the top 40 publicly traded companies. There are many reasons why it is important to carry out this study.

First, according to [Mamaro and Tjano \(2019\)](#), over 80% of the market capitalization of JSE-listed businesses comes from the top 40. Additionally, [Padayachee \(2010\)](#) affirms that the JSE's top 40 firms are the best of the crop, with a wide range of industries represented. The top 40 businesses dominate the private sector in SA and have a significant economic impact. Second, this study is necessary from a South African (SA) context because currently, no study addresses the impact of financial performance on the tone used in the CEO statements in SA. Third, the majority of studies in this area are devoted to developed countries and the findings of these studies are not applicable to developing countries

because the political, social, and economic features of developed countries are different from those of developing countries. Fourth, SA is among the nations that have experienced the highest number of corporate scandals in recent years, hence the need to conduct this study. Fifth, the outcomes of this study will help existing and potential shareholders determine if organizations in which they have invested or are considering investing in, use tone management in the narrative disclosures provided in CEO statements. This, in turn, will prevent shareholders from making impulsive economic decisions that could result in financial losses. Sixth, financial institutions and their analysts will use the outcomes of this research to acquire an enhanced comprehension of the impact of company financial results on the tone of CEO statements, allowing them to make informed decisions about which entities to associate with. Seventh, this study may help caution company executives and serve as a deterrent from using tone management in their narrative disclosures.

Lastly, the existing literature provides opposing findings regarding the impact of financial performance on the tone of CEO statements. With scholars such as (Carlsson and Lamti 2015; Huang et al. 2014) concluding that profit-making firms tend to utilize extra positive language in the disclosure narratives, while (Bushee et al. 2018; Cho et al. 2010) reported that loss-making companies tend to utilize extra pleasant language in discretionary narratives such as the CEO's statement. Consequently, the study's findings make clear how financial performance affects the tone of CEO statements in SA, giving the world a much-needed viewpoint from a developing nation.

Impression Management Theory

Impression management theory is the foundation of this study. The concept of impression management originated from psychology, primarily the study of human behavior. According to (Goffman 1959, 1963), it is a form of regulating how others make impressions upon their counterparts. A goal of impression management is "to control and influence the impression presented to users of accounting information" in a company's financial reporting context (Merkl-Davies and Brennan 2007, p. 3). According to studies (Beattie and Jones 2000; Brennan and Merkl-Davies 2013), managing impressions refers to the act of describing facts in predetermined ways to present an unjustified positive impression of the firm, which could be seen as a bias toward accentuating successful results in reporting. As noted by Merkl-Davies and Brennan (2007), research into impression management is essential for better understanding how managers communicate with shareholders and possibly manage their perceptions.

According to Moola (2016), financial performance is the key factor driving impression management. Consequently, financial reporting is less useful to investors when reporting bias and impression management are implemented. As specified by the (International Accounting Standards Board 2018) in its Conceptual Framework, useful information must represent exactly what it purports to represent. This means it must be neutral and free from bias.

In the view of Chng et al. (2015), it is a significant incentive for managers to control their businesses' public brand. Hence, an essential precursor of their management of impressions is the degree to which the main investors are aware, or more likely to learn, about the businesses' falling financial results. Therefore, it was determined that leaders who experience high levels of publicity due to a performance fall engage in more actions intended to control important stakeholders' perceptions of their companies than leaders who experience low levels of publicity. Furthermore, according to Cen and Cai (2014), impression management is related to the amount of increase in profit and the complexity of the company as represented by its number of segments. This means that the more profitable and complex the company, the more they use impression management tactics.

2. Literature Review and Hypothesis Development

Manipulation of tone is defined by Huang et al. (2014), as the utilization of a tone level inconsistent with a firm's fundamentals to influence the public opinion of a company,

resulting in information asymmetry. In support, [Mohseni and Roodposhti \(2020\)](#) state that the manipulation of language involves selecting a language style threshold in a subjective document that is out of step with existing numerical evidence.

According to [Luo and Zhou \(2020\)](#), language is far more malleable and therefore subject to manipulation compared to figures, and executives obtain an even better opportunity to falsify descriptive narratives than with numerical financial data because there are no formal regulations governing explanatory financial narratives. It is on these bases that management employs methods such as pleasant tone and chosen words to manage impressions and as such, this language selection is thought to be opportunistic ([Du Toit 2017](#)). Various reasons create diverse tone behavioral patterns according to [Yan et al. \(2021\)](#), and executives seek to perform perception management by accentuating positive information while trivializing negative information. Additionally, manipulation of tone provides further chance for executives to engage in unethical conduct.

[Rahman \(2019\)](#) states that manipulation of tone can also be viewed as a strategy for influencing investors, and it entails making the textual tone disproportionate to the accompanying numeric facts. Moreover, tone is used by managers to improve (harm) stakeholders' perception regarding the company's business results through communicating additional (false) data in the absence of rigid disclosure standards. According to [Davis et al. \(2012\)](#), words significantly affect the way information is viewed and received, and both excellent and poor communication have a significant impact on the way data are interpreted. Moreover, it is commonly known that providing data in a good light generates stronger positive assessments versus providing it in an unfavorable way. Additionally, the authors suggested that the tone of a company has a favorable impact on its performance. The following studies revealed that financial performance has a positive impact on the tone of CEO statements:

[Carlsson and Lamti \(2015\)](#) applied the Ordinary Least Squares regression model to examine the impact of financial performance on the language tone used in CEO statements of 415 companies trading on the Stock Exchange of London. Results revealed that financial performance has a positive impact on the tone employed in the statements of CEOs, which suggests that when profits increase the positive tone also increases. To affirm this position, other researchers ([Amernic and Craig 2007](#); [Henry 2008](#); [Merkl-Davies and Brennan 2007](#)) found that as earnings increase, managers employ an upbeat tone, supporting the notion that a company's performance and tone are positively related. Similarly, utilizing 105 Egyptian-listed firms as a sample from 2011 to 2013, [Aly et al. \(2018\)](#) provided evidence that a business's financial performance has a positive impact on the publication of pleasant information. This suggests that Egyptian companies with good financial performance tend to publish more good news. On the other hand, [Phesa \(2021\)](#) investigated the utilization of upbeat language in the chairman's statement among the 40 largest JSE trading companies in the 2020 financial year. Results revealed that moderately and extremely profitable companies tend to use a sentiment that is more positive in their narrative disclosures than unprofitable companies do. [Li \(2010b\)](#) reviewed the literature on linguistic evaluation of company reports, including accounting records, results' announcements, as well as recordings of teleconferences. The author mainly employed actual text content in financial statements to conduct studies on the quality of profits. The findings showed that expected results are higher once directors use a more enthusiastic tone in the forward-looking pronouncements. This further suggests that financial performance positively influences the tone. Similarly, after examining the overall data contained in forward-looking comments found in the manager's evaluation of accounting performance, as well as operating activities part of listed businesses' yearly reports, [Li \(2010a\)](#) found that businesses having superior financial results make more optimistic forward-looking pronouncements. Even though several sources listed above indicated that financial performance positively influences the tone of CEO statements, the following sources found that there is a negative relationship between financial performance and tone.

Cho et al. (2010) investigated the influences of the words and voice inflections employed in company reporting. The findings corroborated the idea that less successful financial achievers utilize words and voice inflections that distort information reported in company financial reporting statements. Furthermore, the results demonstrated that the usage of highly upbeat wording in the announcements of businesses is linked to poorer accounting results; additionally, suggesting that even the written statements as well as writing styles are heavily focused upon conveying encouraging news while sometimes distancing themselves from blame for subpar results. Similarly, the study by Mohseni and Roodposhti (2020) determined whether tone manipulation can reveal senior executives' core mission to hide subpar financial outcomes. Results demonstrated a strong inverse relationship between financial performance and written language in official documents. This further indicates that executives utilize pleasant words for tactical reasons as well as to hide subpar results.

A similar study conducted by Bushee et al. (2018), found that loss-making businesses employed more pleasant and sophisticated language in the disclosure narratives. They related this conclusion to executive concealment of mediocre performance. Affirming this position, Bozzolan et al. (2015) investigated the utilization of pleasant language in the long-term analysis of the Fabbrica Italiana Automobili Torino (FIAT) case study. Results showed that the tone used in the disclosure narratives by FIAT was deliberate and influenced by the importance of the intended stakeholder groups. Moreover, the authors concluded that the tone used might in effect comprise exploitative conduct, which is an instrument for managing impressions. Furthermore, the perception management approach used could also be identical to those employed to rationalize away blame resulting from weak performance.

Schleicher and Walker (2010) used manual content analysis to investigate how, when, and whether executives skewed their tone of narratives disclosures with an eye toward the future financial performance. Results further confirmed that companies with a significant expected decline in performance have a tendency to adopt extra upbeat language in their textual disclosures compared to currently loss-making and volatile companies. Another study by Melloni (2015) explored the connection between favorable Intellectual Capital Disclosure (ICD) language tone as well as particular traits which might motivate executives to distort company financial results. Findings revealed that the usage of ICD positive tone as a perception control mechanism is substantially linked to deteriorating company financial performance, further strengthening the view that companies with a poor financial performance tend to utilize a positive tone in their narrative reporting documents. Similarly, in the study of the use of tone in the business model disclosure (BMD) Melloni et al. (2016) discovered that businesses are often more inclined to deliver cheerful BMD when their profits are declining.

Tailab and Burak (2018) probed whether managerial authors provided shareholders with accurate data by providing pertinent details about company profitability as part of an effort to comprehend the possible correlation between deflective language used by executives in their assessments of the accounting position, operational outcomes, and profitability. Contrary to findings by other researchers, results showed that the language used in explanatory reports has no relationship with profitability. Furthermore, Tailab and Burak (2018) observed that there was a noticeable use of similar persuasive language by numerous kinds of companies in communicating various interpretations concerning the past results as well as potential performance to be accomplished in the future.

The reviewed literature shows that there is no accord because some authors found that financial performance has a positive impact on tone, while others reported a negative impact of financial performance on tone. Additionally, there is a limited number of studies in this area in developing countries, particularly in SA. Therefore, there is a dire need to conduct this study to bring clarity to the impact of financial performance on tone from the perspective of developing countries and from a SAn context in particular.

Based on the review of the literature above, the following hypothesis is made:

Hypothesis 1 (H₁). *Financial performance has a positive influence on the tone used in the CEO statements of the Top 40 JSE publicly traded companies.*

3. Methodology

Model Specification

In order to evaluate the influence of financial performance on the tone used in the CEO statements, the following models were employed in this research:

$$\text{Tone} = (\text{Pleasant terms minus Unpleasant terms}) / (\text{Pleasant terms plus Unpleasant terms}) \quad (1)$$

The following regression model has been used to assess the influence of financial performance on tone in line with (Carlsson and Lamti 2015; Huang et al. 2014):

$$\text{Tone}_\tau = \beta_0 (\tau) + \beta_1 (\tau) \text{EARN} + \beta_2 (\tau) \text{SIZE} + \beta_3 (\tau) \text{BTM} + \beta_4 (\tau) \text{ASR} + \varepsilon \quad (2)$$

where τ = Quantile; $\beta_0, \beta_1, \beta_2, \beta_3$ and β_4 = Regression coefficients; ε = Residuals; TONE = Total net tone; EARN = Financial performance; SIZE = Company size; BTM = Book-to-market value of equity; and ASR = Annual stock returns.

The following table, Table 1 is an outline of variables utilized in this analysis, how they were measured and what they represent:

Table 1. Variables.

Description	Designation	Variable Type	Represents	Calculation
Tone	TONE	Dependent	Tone level	(Pleasant terms – unpleasant terms)/(pleasant terms + unpleasant terms)
Performance	EARN	Independent	Financial Performance	PAT/total assets
Size	SIZE	Control	Public Attention	(Closing MVE – Opening MVE)/Opening MVE
Book-to-Market Ratio	BTM	Control	Potential for Growth	Book value of equity/market value of equity
Annual Stock Return	ASR	Control	Potential for growth	((P ₁ – P ₀) + Div)/P ₁

Source: Adapted from Carlsson and Lamti (2015).

Tone calculation

To establish the number of pleasant as well as unpleasant terms used, the CEO statements were textually analyzed using the Azure Machine Learning (AML) system in Microsoft Excel in line with Carlsson and Lamti (2015). AML has a built-in dictionary that has the ability to calculate the total of both pleasant and negative terms used in a sentence. Once the total sentiment was obtained from AML, the following formula adopted from (Li 2010a) which uses net good (positive) terms or net bad (negative) terms as a percent of overall (total) terms to determine tone was then used in this study to determine the tone variable:

$$\text{Tone} = (\text{Pleasant terms minus Unpleasant terms}) / (\text{Pleasant terms plus Unpleasant terms}).$$

Financial Performance

EARN represents financial performance, therefore, the measure of the EARN variable which is the Return on Assets (ROA) will be calculated as Profit after tax ÷ total assets, by end the 2021 financial term.

Company SIZE

Big businesses, according to (Li 2010a), may be more careful in their use of tone in order to minimize political pressure and legal challenges, whilst (Carlsson and Lamti 2015)

argue that enterprises that receive media attention may have an incentive to influence readers' impressions, therefore based on these reasons, size was included as a control variable. SIZE is calculated using the change in equity market value in 2021 divided by opening equity market value, i.e., $(\text{closing MVE} - \text{opening MVE}) / \text{opening MVE}$. The equity market value (MVE) is determined using the shares issued at the beginning and at the end of the reporting period, multiplied by the opening and closing share price, respectively.

Equity Book-to-market Value of (BTM)

BTM indicates growth and investment prospects that can change tone level; therefore, when analyzing tone, BTM is regarded as a suitable control variable and is included in all tone regressions. BTM was accounted for in line with (Carlsson and Lamti 2015; Li 2010a). The calculation of BTM is equity carrying value (CV) (\div) by equity market value (MVE) by 2021 reporting period end, therefore $CV / MVE = BTM$. The carrying value of equity is determined by deducting total liabilities (TL) from total assets (TA), therefore, $TA - TL = CV$. Equity market value was arrived at through multiplying issued shares (IS) by 2021 financial period end with the price of shares (SP) on the last day of the 2021 financial period, therefore, $IS \times SP = MVE$.

Annual Stock Return (ASR)

Annual Stock Return (ASR) was used to measure expected performance prospects in line with (Carlsson and Lamti 2015; Li 2010a), and was included as a control variable in this study. Furthermore, this ratio incorporates forecasts of future performance in addition to what is communicated in EARN. ASR is determined by taking the 2021 closing share price (P_1) minus the 2021 opening price of shares (P_0) plus dividend per share (Div) for the 2021 financial year all divided (\div) by the end of the year share price, therefore, $((P_1 - P_0) + Div) \div P_1 = ASR$.

4. Sample and Data

4.1. Sample

From the population of JSE-listed entities, a selection of the top 40 companies excluding banks is made for the 2021 financial period only. Companies with missing information such as CEO statements and those categorized as banks, which feature in the top 40 entities trading in the JSE, were excluded from the sample. This is because the accruals of banks are regarded as sector-specific and, if included, would distort the accrual calculation as supported by (Sedgwick 2012). The study employed a non-probability sampling strategy that includes a pre-determined sample. This is a non-random sampling known as proportional quota sampling Kotze (2017). According to Padayachee (2010), the JSE top 40 Indicator Series intends to reflect the performance of SAn companies by offering shareholders a comprehensive collection of indices to monitor the quality of both the nation's main capitalization as well as sector categories. Phesa (2021, p. 40) suggests that the 40 largest enterprises on the JSE are the best of the crop, with a wide range of industries represented. The calculation of the final sample is presented in Table 2 below.

Table 2. Sample.

Total initial sample	40
Companies classified as banks	−6
Companies with missing documents	0
FINAL SAMPLE	34

4.2. Data Sources

Consistent with the approach followed by Phesa (2021, p. 40), this work utilized readily obtainable records in the form of CEO statements and the annual financial statements, which form part of the IARs. Signed IARs were downloaded from the official websites of the top 40 JSE-listed businesses excluding financial institutions. To calculate the variables

utilized in this analysis, the CEO statements for the financial year 2021 as well as the statements of financial performance for the 2021 financial period, the statements of financial position at the end of the 2021 financial year, and the statements of cash flows for the 2021 reporting period were all retrieved from the downloaded IARs. The calculation of some of the variables necessitated reference to the 2020 reporting period, even though this study's main focus is the 2021 financial year.

To establish the number of pleasant as well as unpleasant terms used, the CEO statements were textually analyzed using the Azure Machine Learning (AML) system in Microsoft Excel in line with (Phesa 2021). AML has a built-in dictionary that has the ability to calculate the total of both pleasant and negative terms used in a sentence. Once the total sentiment was obtained from AML, the following formula adopted from Hoang et al. (2019) which uses net good (positive) terms or net bad (negative) terms as a percent of overall (total) terms to determine tone was then used in this study to determine the tone variable:

$$\text{Tone} = (\text{Pleasant terms minus Unpleasant terms}) / (\text{Pleasant terms plus Unpleasant terms}).$$

4.3. Data Analysis

To test the impact of financial performance on tone, this study used both the quantile regression model and the generalized linear regression model. The quantile regression model (QRM) tested the effect of predictor variables on outcome variables using un-Winsorized values, while the generalized linear regression model (GLM) was applied in examining the effect of independent variables on dependent variables using Winsorized values. This is because the dataset selected for carrying out this study exhibited the presence of significant outliers. Grubb's test was used to identify these outliers (minimum or maximum value in a dataset) for the variables. In order to eliminate the effect of outliers, Winsorizing was performed to the 5th and 95th percentile values. The purpose of using two different regression models was to see which model produced superior results.

QRM assists in assessing the impact of the predictor variable on the response variable over every quantile of that dependent variable rather than on the mean value of the dependent variable, according to (BCCVL 2021). Additionally, QRM resists the influence of outlying observations. QRM allows for comprehension of the connections linking variables outside of the mean of the data, which makes it beneficial in understanding response variables that are non-normally distributed and that have nonlinear relationships with predictor variables.

The generalized linear regression model (GLM) uses a series of predictor variables to predict the response variables (Guisan et al. 2002). Moreover, the GLM is based on the same assumptions as other linear regression models. The underlying premise is that a change in one predictor variable will always affect the response variable. Additionally, the GLM is comparatively simple to analyze, but also gives a precise picture of how every independent variable is affecting the dependent variable (Akoglu 2018). In addition to the multivariate models, this study also assessed the univariate parameter estimates as a post-hoc analysis to determine the linear relationship or predictive effect of the independent variables on dependent variables without controlling for other covariates.

5. Results and Discussion

5.1. Descriptive Statistics

A basic descriptive analysis of the study's variables was performed. Table 3 presents the descriptive statistics of the variables.

Table 3. Descriptive statistics.

Variable	Mean	SD	Min.	Max.	Q ₁	Q ₂	Q ₃	Sk.	Kurt.
TONE									
Unwinsorized	0.6223	0.1823	0.2917	0.8545	0.4473	0.6723	0.7869	−0.362	−1.450
EARN									
Unwinsorized	0.1136	0.1237	0.0030	0.5332	0.0379	0.0688	0.1331	2.065	4.209
Winsorized	0.1088	0.1079	0.0107	0.3995	0.0379	0.0688	0.1331	1.687	2.268
SIZE									
Unwinsorized	3.0448	7.6399	0.0001	37.0559	0.0046	0.0196	0.2591	3.311	12.079
Winsorized	2.4473	5.3482	0.0004	17.4403	0.0046	0.0196	0.2591	2.260	3.828
BTM									
Unwinsorized	35.515	69.799	0.5622	307.673	1.3836	4.5373	41.632	2.917	8.711
Winsorized	29.007	47.320	0.7744	169.473	1.3836	4.5373	41.632	2.021	3.370
ASR									
Unwinsorized	4.8377	13.470	−2.3841	60.8526	0.0330	0.2187	2.2340	3.591	12.612
Winsorized	3.2644	7.1347	−0.0153	27.9842	0.0330	0.2187	2.2340	2.816	7.572

The mean of TONE was 0.6223 (SD = 0.1823). The Winsorized mean for EARN was 0.1088 (SD = 0.1079). The Winsorized mean for SIZE was 2.4473 (SD = 5.3482). Lastly, the Winsorized mean values for BTM and ASR were 29.007 (SD = 47.320), and 3.2644 (SD = 7.1347), respectively.

5.2. Correlation Analysis

Table 4 shows the Spearman Rho correlation coefficients between the adopted variables.

Table 4. Correlation matrix.

VARIABLE	TONE	EARN	SIZE	BTM	ASR
TONE	1.000				
EARN	0.108 (0.544)	1.000			
SIZE	−0.220 (0.221)	−0.326 (0.060)	1.000		
BTM	0.279 (0.110)	0.203 (0.250)	−0.456 **	1.000	
ASR	0.329 (0.058)	0.218 (0.215)	−0.323 (0.063)	0.479 ** (0.004)	1.000

** Correlation is significant at the 0.01 level (2-tailed).

The Spearman Rho correlation coefficient was chosen because it is a rank-based coefficient that is not severely affected by outliers as compared to the Pearson's correlation coefficient (Akoglu 2018). Furthermore, Pearson's correlation coefficient is very sensitive to outliers, which can have a very large adverse effect on the line of best fit and can lead to misleading results. In addition, since the data are not consistent to normality, the Spearman Rho correlation coefficient is the ideal non-parametric equivalent to the Pearson's correlation coefficient (Akoglu 2018). These results suggest that TONE had no significant correlation with EARN ($r_s = 0.108$; $p = 0.544$). The results revealed that BTM had a negative, moderate, and significant correlation with SIZE ($r_s = -0.456$; $p = 0.007$), whilst on the other hand, BTM had a positive, moderate, and significant correlation with ASR ($r_s = 0.479$; $p = 0.004$).

5.3. The Influence of Financial Performance on Tone

Multivariate models were examined first and univariate parameter estimates were later assessed as a post hoc analysis to determine the linear relationship or predictive effect of the independent variable of interest without controlling for other covariates.

5.3.1. Quantile Regression Model Results

Multivariate Quantile Regression Model Results

In order to estimate the TONE model, the 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, and 90% quantiles were used (see Table 5). This allows for an insight into what factors impact TONE at the extremes of the distribution, as well as those at quantiles in between the extremes. Table 5 shows the results, which reveal both the magnitude and effect of the regression coefficients on the response variables across the quantiles. The results of major interest are the coefficients for EARN. The magnitude of impact that EARN has on TONE decreases as TONE moves from the 10% quantile to the 90% quantile. EARN is not statistically significant from the 40% quantile through to the 90% quantile. Thus, EARN is only statistically significant for the 10%, 20%, and 30% quantiles. This suggests that, whilst controlling for other covariates, companies in the lowest quantiles of TONE experience significant and positive effects of financial performance (EARN) on TONE. MAE shows that, on average, the forecast’s distance from the true values is 0.2041, 0.1988, and 0.1771 for the 10%, 20%, and 30% quantiles, respectively. According to the R-squared values, the models for the 10%, 20%, and 30% quantiles explained 20.6%, 18.7%, and 14.5% of the variation in TONE, respectively. The established usable models are:

$$TONE_{0.1} = 0.336 + 0.821 * EARN + 0.002 * BTM - 0.010 * ASR + \epsilon$$

$$TONE_{0.2} = 0.356 + 0.705 * EARN - 0.006 * SIZE + 0.002 * BTM - 0.009 * ASR + \epsilon$$

$$TONE_{0.3} = 0.391 + 0.924 * EARN - 0.009 * ASR + \epsilon$$

Table 5. Multivariate statistics and parameter estimates for EARN on TONE.

Statistic/Variable	Dependent Variable: TONE								
	Q = 0.1	Q = 0.2	Q = 0.3	Q = 0.4	Q = 0.5	Q = 0.6	Q = 0.7	Q = 0.8	Q = 0.9
Model Summary									
R Squared	0.206	0.187	0.145	0.110	0.080	0.037	0.016	0.026	0.076
MAE	0.2041	0.1988	0.1771	0.1611	0.1466	0.1494	0.1762	0.1784	0.1966
Parameter Estimates by Different Quantiles									
(Intercept)	0.336 *	0.356 *	0.391 *	0.438 *	0.512 *	0.636 *	0.778 *	0.781 *	0.826 *
EARN	0.821 *	0.705 *	0.924 *	0.801	0.580	0.277	−0.049	−0.027	−0.099
SIZE	−0.005	−0.006 *	−0.004	0.004	0.004	0.002	0.001	0.000	0.000
BTM	0.002 *	0.002 *	0.001	0.001	0.001	0.000	0.000	0.000	0.000
ASR	−0.010 *	−0.009 *	−0.009 *	−0.007	0.005	0.003	0.000	0.000	−0.001

* Significant predictive effect by the predictor/s at alpha = 0.05. MAE is Mean Absolute Error; R Squared is the coefficient of determination. Predictors: (Constant), EARN, SIZE, BTM, and ASR.

Univariate Quantile Regression Model Results

A univariate model was examined at different quantiles (10% to 90%) to establish whether without controlling for other covariates EARN still has the predictive power hence the linear relationship with TONE. Table 6 shows the results, which reveals that the effect that EARN has on TONE decreases as TONE moves from the 10% quantile to the 90% quantile. EARN is not statistically significant as from the 30% quantile but only statistically significant for the 10% and 20% quantiles. This suggests that in the absence of other covariates, companies in the lower quantiles (10% and 20%) of TONE experience a significant and positive effect of financial performance (EARN) on TONE. MAE shows that, on average, the forecast’s distance from the true values is 0.2177 and 0.2046 for the 10% and 20% quantiles, respectively. According to the R-squared values, the models for the

10% and 20% quantiles explained 12.2% and 11.9% of the variation in TONE, respectively. The established usable models are:

$$TONE_{0.1} = 0.340 + 0.646 * EARN + \epsilon$$

$$TONE_{0.2} = 0.366 + 0.597 * EARN + \epsilon$$

Table 6. Univariate statistics and parameter estimates for EARN on TONE.

		Dependent Variable: TONE								
		Q = 0.1	Q = 0.2	Q = 0.3	Q = 0.4	Q = 0.5	Q = 0.6	Q = 0.7	Q = 0.8	Q = 0.9
Model Summary										
R Squared		0.122	0.119	0.095	0.081	0.040	0.006	0.002	0.006	0.038
MAE		0.2177	0.2046	0.1828	0.1571	0.1528	0.1565	0.1778	0.1824	0.2097
Parameter Estimates by Different Quantiles										
(Intercept)		0.340 *	0.366 *	0.428 *	0.509 *	0.636 *	0.678 *	0.787 *	0.799 *	0.848 *
EARN		0.646 *	0.597 *	0.481	0.614	0.278	0.167	−0.012	−0.039	−0.151

* Significant predictive effect by the predictor/s at alpha = 0.05. MAE is Mean Absolute Error; R Squared is the coefficient of determination. Predictors: (Constant), EARN.

5.3.2. Generalized Linear Regression Model Results

Multivariate Generalized Linear Regression Model Results

Multivariate models were examined first and univariate parameter estimates were later assessed as a post hoc analysis to determine the linear relationship or predictive effect of the independent variable of interest without controlling for other covariates.

Table 7 presents the multivariate analysis of the relationship between EARN and TONE using generalized linear regression model. Whilst controlling other covariates, there was no statistically significant linear relationship between EARN and TONE for the multivariate GLM ($\beta_1 = 0.326$ with Wald 95% CI [−0.085 0.737]; $p = 0.120$).

Table 7. Multivariate GLM for the effect of EARN on TONE.

Multivariate Generalized Linear Regression Beta Estimates and Model Significance			
	Beta (SE)	Wald 95% CI	p-Value
(Intercept)	0.548 (0.052)	[0.447 0.649]	<0.001 *
EARN	0.326 (0.209)	[−0.085 0.737]	0.120
SIZE	<0.0001 (0.010)	[−0.020 0.021]	0.965
BTM	0.001 (0.001)	[−0.001 0.003]	0.516
ASR	0.011 (0.009)	[−0.008 0.030]	0.258
Deviance	Value/df = 0.032		
Omnibus Test	$p = 0.246$		

* Significant predictive effect by the predictor/s at alpha = 0.05. Predictors: (Constant), EARN, SIZE, BTM, and ASR. Dependent variable: TONE.

Univariate Generalized Linear Regression Model Results

A univariate model was examined to establish whether EARN will have a significant relationship with TONE without controlling for other covariates. Examining the univariate regression parameter estimates, EARN had a statistically significant and a positive linear relationship with TONE ($\beta_1 = 0.433$ with Wald 95% CI [0.081 0.784]; $p = 0.016$). For this univariate model, deviance/df = 0.032 indicating an acceptable model fit (see Table 8). The usable model is:

$$TONE = 0.575 + 0.433 * EARN + \epsilon$$

Table 8. Univariate GLM for the effect of EARN on TONE.

Variable/Statistic	Univariate Generalized Linear Regression Beta Estimates and Model Significance		
	Beta (SE)	Wald 95% CI	p-Value
(Intercept)	0.575 (0.045)	[0.487 0.663]	<0.0001 *
EARN	0.433 (0.179)	[0.081 0.784]	0.016 *
Deviance	Value/df = 0.032		
Omnibus Test	p = 0.129		

* Significant predictive effect by the predictor/s at alpha = 0.05. Predictors: (Constant), EARN. Dependent variable: TONE.

5.4. Discussion

The results of the Spearman Rho correlation coefficient suggest that financial performance had no significant correlation with TONE ($r_s = 0.108$; $p = 0.544$). The multivariate quantile regression coefficients as expected showed a positive impact of EARN on TONE, after adjusting for SIZE, BTM, and ASR. The impact of EARN on TONE at quantiles 10%, 20%, and 30% is positive and statistically significant at the 5% threshold. The impact of EARN on TONE from quantiles 40% to 90% is still positive even though statistically insignificant. In quantiles 10%, 20%, and 30%, SIZE has an inverse association with TONE and a positive association from quantiles 40%, 50%, 60%, 70%, 80%, and 90%. The relationship between company SIZE and TONE is statistically insignificant in all quantiles from 10% to 90%, except in the 20% quantile. ASR on the other hand showed both a positive and statistically significant relationship with TONE in quantiles 10%, 20%, and 30%, while companies in quantiles 40%, 50%, 60%, 70%, 80%, and 90% revealed a negative and insignificant relationship between ASR and TONE. Lastly, BTM showed a positive association with TONE in all quantiles from 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, and 90%. Only quantiles 10% and 20% showed a statistically significant relationship between BTM and TONE.

The univariate QRM results revealed that the effect that EARN has on TONE decreases as TONE moves from the 10% quantile to the 90% quantile. Only in quantiles, 10% and 20% is the association between TONE and EARN statistically significant. The relationship between TONE and EARN is positive from quantiles 10% to 60% and negative from quantiles 70% to 90%. This shows that only businesses in the lower quantiles (10% and 20%) are seeing a statistically significant and positive impact of EARN on TONE in the absence of other covariates.

Using the multivariate GLM results revealed that whilst controlling for SIZE, BTM, and ASR, there was no statistically significant linear relationship between EARN and TONE ($\beta_1 = 0.326$ with Wald 95% CI $[-0.085 0.737]$; $p = 0.120$).

The univariate GLM findings indicated that EARN had a statistically significant and positive linear relationship with TONE ($\beta_1 = 0.433$ with Wald 95% CI $[0.081 0.784]$; $p = 0.016$).

A positive linear relationship indicates that financial performance and tone are moving in the same direction; in other words, when financial performance improves (increases), the positive tone also increases and when financial performance declines (decreases), the utilization of pleasant tone also decreases in narrative disclosures.

A common trait shared by all the companies in all quantiles, including those in quantiles 10%, 20%, and 30%, was that they are profitable. None of them reported a loss in the year under review, which was 2021, according to an analysis of the distinctive characteristics of the companies in different quantiles. Each quantile contains a mix of businesses that are both moderately and extremely profitable. All companies in the sample were found to be using a positive tone in their CEO statements, which is similar to the results by [Aly et al. \(2018\)](#) who found that companies in the developing countries have a tendency of utilizing more positive tone in narrative statements.

These results further indicate that profitable companies tend to use a more pleasant tone in their CEO statements, and this is consistent with the findings by (Phesa 2021, p. 54) who discovered that profitable as well as exceptionally profitable businesses tended to employ extra upbeat language in the narrative disclosures compared to unprofitable as well as highly unprofitable businesses. The findings are also supported by several studies (Amernic and Craig 2007; Carlsson and Lamti 2015, p. 25; Henry 2008; Merkl-Davies and Brennan 2007) who have observed that when a company is profitable, executives employ a positive tone and tend to credit their management's efforts for the business's success. These findings disagree with those reported by Cho et al. (2010) who concluded that companies with a declining financial performance and those that are incurring losses have a more upbeat or irregular tone in their narrative disclosures to cover or to hide their poor performance.

Consistent with Carlsson and Lamti (2015), findings further revealed a positive connection linking business size and the tone used in CEO statements, even though this association is statistically insignificant. Due to the statistical insignificance of the connection, the impact of firm size on tone cannot be proven. On the other hand, in line with Li (2010a), the findings have indicated that there is a positive and statistically significant link between tone and ASR in some quantiles. This indicates that the tone used in CEO statements moves in the same direction as stock returns, i.e., as stock returns increase, tone increases. Contrary to Carlsson and Lamti (2015), findings confirmed a positive and statistically significant connection between tone and BTM. This suggests that as growth and investment potential increase, a positive tone increases in the CEO statements.

According to the multivariate models, MAE shows that, on average, the difference between the predicted value and the actual values is 0.2041, 0.1988, and 0.1771 for the 10%, 20%, and 30% quantiles, respectively. This average error is considered small, suggesting that the quantile regression model is the best fit for the dataset. In contrast, the R-squared values for the 10%, 20%, and 30% quantiles explained 20.6%, 18.7%, and 14.5% of the variation in TONE, respectively. In the univariate models, MAE shows that, on average, the difference between the predicted values and the actual values is 0.2177 and 0.2046 for the 10% and 20% quantiles, respectively. According to the R-squared values, the models for the 10% and 20% quantiles explained 12.2% and 11.9% of the variation in TONE, respectively.

H₁ is supported by the empirical findings of this research.

6. Conclusions

The purpose of this study was to analyze the impact of financial performance on the tone used in CEO statements of the top 40 JSE-listed companies.

The results of this study showed that financial performance has a positive and statistically significant impact on the tone of CEO statements. This implies that when financial performance improves, the use of a positive tone in CEO statements also increases and when financial performance declines, the use of a positive tone in CEO statements likewise decreases. All companies in the sample used a positive tone in their CEO statements and all these companies were profitable or had a positive financial performance. These results were consistent with those of other scholars (Carlsson and Lamti 2015; Huang et al. 2014) who found a statistically significant and positive impact of financial performance on tone. Consistent with the findings of other studies (Carlsson and Lamti 2015; Huang et al. 2014), the results of this study further found that profit-making companies used more pleasant language in narrative disclosures. This was in agreement with the findings of Phesa (2021) who found that amongst the top 40 JSE trading businesses, profitable and extremely profitable utilized more upbeat sentiments in their discretionary narrative disclosures. These findings were however, inconsistent with other studies (Bushee et al. 2018; Cho et al. 2010), which reported that loss-making companies tend to use a more pleasant tone in their discretionary disclosures, such as CEO statements. This is a notable lack of accord in the empirical literature on the relationship between the tone used in the statements of CEOs and company financial performance.

The empirical results of this study support H_1 .

Both theory and practice will benefit from the findings of this study. First, the outcomes of this study will help existing and potential shareholders determine if the organizations in which they have invested or are considering investing use tone management in the narrative disclosures provided in CEO statements. This, in turn, will prevent shareholders from making impulsive economic decisions that could result in financial losses. Second, financial institutions and their analysts will use the outcomes of this research to acquire an enhanced comprehension of the impact of company financial results on the tone of CEO statements, allowing them to make informed decisions about which entities to associate with. Third, this study may help caution company executives and serve as a deterrent from using tone management in their narrative disclosures. Fourth, this study might persuade regulators to think about establishing a framework for auditing non-financial narrative disclosures, such as CEO statements that are included in the IARs.

A selection of 40 of the top JSE publicly listed businesses was utilized for this research with the final sample being 34 companies after excluding banks. Additionally, the study only focused on the 2021 financial year; therefore, the results of this study should be cautiously interpreted. However, studies such as (Phesa 2021) and (Mamaro and Tjano 2019) have argued that these companies have a market valuation that exceeds 80%. As a result, the sample used in this study was adequate for informing the study's conclusions and sufficiently represented all the businesses trading on the JSE.

This study limited itself to studying tone management. Future studies should consider using a bigger sample by studying the tone of all listed companies, instead of only focusing on the top 40 companies as this study has done. It is also suggested that the readability, the use of personal references, use of graphs, and the use of photographs in the CEO statements of SA JSE-listed companies be studied, as this could be another tactic of impression management. Further research may examine the required statutory changes to the current corporate governance, such as a framework to audit narrative reporting documents to resolve conflicts of interest in reporting between executives and firm stakeholders, see for instance (Saleem et al. 2021). Lastly, another study could consider using a different method of determining the level of tone used in CEO statements as this study limited itself to using Azure Machine Learning to quantify the tone of CEO statements.

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