



UNIVERSIDADE CATÓLICA PORTUGUESA

Impact of Tone in firm's Market Performance

A study on the UK FTSE-350 firms

by

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Católica Porto Business School, Universidade Católica Portuguesa
April, 2024



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by

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Resumo

Esta dissertação pretende investigar se existe um aumento da informação quando os investidores analisam a parte narrativa dos relatórios anuais, que incluem sobretudo dados qualitativos. Este estudo tenta determinar se essa análise pode ajudar a colmatar o fosso entre as demonstrações financeiras e o desempenho efetivo da empresa. Ao aprofundar as partes qualitativas destes relatórios, os investidores esperam adquirir conhecimentos mais profundos sobre dimensão financeira da empresa. Além disso, esta dissertação também investiga que mensagem tem informação mais relevante sobre o futuro da empresa, a do diretor executivo ou a do presidente do conselho de administração, e se esta informação tem impacto nas decisões dos investidores. Esta investigação irá opor duas teorias: *Agency Theory* e *Stewardship Theory*. Para cumprir estes objetivos, foi utilizada análise textual de modo a medir o tom das narrativas dos relatórios anuais do Reino Unido inseridas no *Financial Times Stock Exchange 350 Index*, resultando uma amostra de 2.598 observações de empresas-ano entre o período de 2013 a 2023. Os resultados demonstram que tanto o tom dos relatórios do Presidente e como do CEO tendem a ajudar a explicar o desempenho futuro de uma empresa. No entanto, contrariamente ao esperado seguindo a *Agency Theory*, quando ambas as variáveis foram incluídas no mesmo modelo, os resultados sugerem que o poder preditivo do CEO é maior do que o poder preditivo do Presidente. O presente estudo contribui para a literatura sobre relatórios financeiros, fornecendo provas, no Reino Unido, de que tanto a divulgação do CEO como a do Presidente do Conselho de Administração conduzem a benefícios de divulgação devido ao aumento da informação fornecida aos investidores e a outras partes interessadas, o que ajuda a atenuar o fosso entre as demonstrações financeiras numéricas e o desempenho real da empresa.

Palavras-chave: divulgações, relatórios anuais; tom; teoria da agência; teoria da gestão; dados qualitativos

Abstract

The aim of this dissertation is to investigate if there is a boost in information when investors analyze the narrative part of annual reports, which mostly include qualitative data. This study tries to determine whether such analysis helps to bridge the gap between numerical financial statements and the actual corporate performance. By delving further into the qualitative parts of these reports, investors hope to acquire deeper insights into the firm's financials. Additionally, this dissertation also investigates which message has the most relevant information about the future of the company, the Chief Executive Officer, or the Chairman, and if this information has impact on investors decisions. This investigation will oppose two theories: Agency Theory and Stewardship Theory. To accomplish these purposes, textual analysis was used to measure the tone of UK annual reports narratives insert in the Financial Times Stock Exchange 350 Index, contemplating a sample of 2,598 firm-year observations spanning the period from 2013 to 2023. Findings are related to both the tone of the Chairman's and CEO's reports help to explain the company's future performance. However, contrary to expectations following Agency Theory, when both variables were included in the same model, findings suggest that the predictive power of the CEO is higher than the predictive power of Chairman. The current study contributes to financial reporting literature by providing evidence from the UK that both CEO and Chairman disclosures lead to disclosure benefits due to increased information provided to investors and other stakeholders, which helps to mitigate the gap between numerical financial statements and the actual corporate performance.

Keywords: disclosures, annual reports; tone; agency theory; stewardship theory; qualitative data

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Chapter 1: Introduction

All public traded companies are obligated to disclose their financial and non-financial information to the public in their reports, ensuring the promotion of transparency and providing the necessary information to all stakeholders.

The literature in financial economics and accounting started to examine the value relevance and information content of quantitative data presented in financial reports, although the researchers agree that quantitative analysis contributes to understanding financial markets, they concluded that it is not enough, so researchers began to study non-financial statements in an attempt to find a more complete way to explain financial markets and stock prices movement (Feldman et al., 2010). In other words, researchers believe that investors will analyze non-financial information (qualitative analysis) to bridge the gap between financial statements and the actual corporate performance (Hassanein et al., 2019).

Kothari et al. (2009) present the disclosure's impact on the cost of capital in a summarized four keyways. First, by reducing information asymmetry between insiders and outsiders, disclosure enhances security liquidity, thereby decreasing trading costs. Second, disclosures help investors more accurately estimate parameters, reducing error and subsequently lowering a firm's cost of capital. Third, precise disclosures decrease the covariance of a firm's cash flows with others, reducing its cost of capital. Finally, improved investment decisions due to better information quality lower uncertainty about cash flows, ultimately reducing both cost of capital and volatility. Summing up, higher transparency is associated with a lower cost of capital and volatility, consequently, the market returns will be higher.

Therefore, the purpose of financial reporting is to provide information about the company's performance during a specific period and to clarify how the management team has fulfilled its responsibility to the owners, identifying certain events and their financial effects on the company (Financial Accounting Standards Board [FASB], 1978) with primary objective of increasing the firm's value. Among all channels of disclosure, the annual report stands out as one of the most used in previous research as Hassanein et al. (2019), Athanasakou & Hussainey (2014), Merkl-Davies & Brennan (2011), Bassyouny et al. (2022), Schleicher & Walker (2010), Bassyouny & Abdelfattah (2021), and so many others.

Abrahamson and Ami (1996) considered the annual report to shareholders in three parts: The audited financial statements, the Management Discussion and Analysis (MD&A) and Presidents Letter to Shareholders. Moreover, they present us the idea that both MD&A and Presidents Letter contain useful information that goes beyond financial statements in providing non-financial non-audited explanations and interpretations.

However, despite the management team, and particularly the CEO having privileged information about the company, i.e., the CEO knows much more about the company than any investor, creditor, or outsider (FASB, 1978), the CEO and the Chairman do not represent the same level of credibility, according to Agency Theory, as explained later.

This dissertation tries to determine if there is an increased explanatory power on qualitative statements over quantitative statements that may help to bridge the gap between financial statements and the actual corporate performance. Additionally, it also investigates who has the predicting power, the CEO, or the Chairman. For these two purposes it is used a sample of annual report disclosures of FTSE-350 firms, from 2013 to 2023, to evaluate the impact on firm's stock returns.

The empirical analysis conducted in this dissertation aligns with prior research findings (Feldman et al., 2010; Hassanein et al., 2019) that indicates that the introduction of qualitative analysis within annual reports serves to mitigate the GAP between the numerical financial statement's information and the actual performance of the company. Additionally, despite expecting that in a UK geography where chairman's are independent, the heightened credibility attributed to the chairman would result in a more substantial influence of their statements compared to those made by the CEO. However, contrary to this expectation, such a disparity in influence was not observed.

This dissertation is structured as follows: Section 2 provides a review of the literature; Section 3 presents the research hypotheses; Section 4 outlines the research design; Section 6 reports the results of the study; and Section 5 presents the conclusion.

Chapter 2: Literature Review

2.1 Definition of CEO and Chairman

The CEO holds the highest managerial position, the top executive, and must make management decisions, including setting and supervising the implementation of the company's corporate strategy in order to fulfill its function: deliver added value to investors. They should outline an action plan to achieve the company's vision and aspirational goals (Dayton, 1984). According to this position, CEO's manage resource allocation, set the culture of the company, while motivating, guiding, and overseeing the employees and controlling various departments of the business.

In the case of Chairman, as Morais et al. (2019) stated, the definition of the Chairperson will vary depending on the country and regulatory environment in question. A reference is made to Spencer Stuart's market analysis in 2017 for the UK and US and it explain that the differences in the definition are based on the corporate culture differences in separating or not the CEO and Chaiman Roles.

When looking at current numbers, in the US Standard & Poor's 500, the Chairperson and CEO roles are held separate in 59 percent of companies, but only 39 percent of chairpersons are truly independent, in other words, only 39 percent are non-executive ones. In contrast, in the UK, the separations of powers with an independent chairman represents 99 percent of the largest 150 FTSE companies (Spencer Stuart Board Index [SSBI], 2023).

Do to this, if the focus is on the UK market, the chairman is a non-executive one, assumes responsibilities for guiding the board of directors in fulfilling legal and regulatory obligations, as well as driving optimal performance from the CEO and the executive team (Morais et al., 2019). Additionally, the chairman is the

primary decision control agent, having the responsibility of overseeing management for the benefit of shareholders. In favor of a unique solution to a particular dilemma, the chairman must promote discussions and debates among diverse players of the board with different skills and perspectives (Morais et al., 2019). The objective is to have a unique voice that guides the firm in favor of investors with the help of the CEO.

2.2 Separation of roles vs CEO duality

2.2.1 Separation of roles

The separation of the CEO and Chairman is a dilemma that is often addressed using the Agency Theory. According to this theory, as Kothari et al. (2009) explain, managers possess private information and are likely to disclose it based on their own personal interests. CEO's are encouraged by the potential impact on their personal wealth, including the costs arising from decreased bonus payments; reduced stock options awarded; the cost of damaging their reputation and the possibility of being dismissed. These risks make managers keep their personal information private if it is negative news. Therefore, managers aim to overshadow bad news with potential good news that might arrive while the accumulated bad news has not yet reached the threshold level, a level in which it becomes too costly or difficult for managers to withhold bad news. In contrast, managers tend to disclose good news promptly, accordingly, market reactions to good and bad news are asymmetric.

Therefore, with the awareness that the CEO often prioritizes their own interests, a dualistic structure in which the CEO occupies both top positions can be harmful to the overall company. It is believed that it is impossible for one

person to wear two hats simultaneously. In fact, if a person cannot fulfill both roles, they will always prioritize their role as CEO and discard their role in governance (Dayton, 1984).

To control for over ambitious plans of the CEO, it is necessary to separate the roles of the Chairman and the CEO, and make sure that the Chairman is independent, because having an independent Chairman will provide the board of directors with a well-informed, dispassionate, and impartial view of the corporation, covering its strengths and weaknesses of the whole company, an opinion about management, and the prospects (Dayton, 1984). Also, an independent chairman can offer a valuable outside perspective and potentially have contacts with other stakeholders in the industry which are useful and may benefit the company. It is common for the firm's Chairman to also be a member of other boards which provides unique insights and comparisons derived from personal knowledge and direct contact with other companies (Dahya et al., 1996).

Multiple researchers have concluded that investors' reactions to reports depend on the credibility of the source. For instance, Kothari et al. (2009) examined how positive and negative news disclosed by a company's management affect investors reactions and concluded that positive news disclosure did not reduced cost of capital, indicating a lack of credibility of management stating good news and that negative news disclosure not increasing cost of capital, suggesting a non-timely disclosure.

One of the reasons behind this behavior relates to impression management; the attempt by managers to control how financial information is interpreted. Management chooses which data to provide and how the data is presented and discussed in a way that aims to skew readers' impressions of the company's accomplishments (Godfey et al., 2003). In order to deceive investors about company's performances, managers can distort the presentation and disclosure of information in corporate narrative papers, leading to reporting bias (Merkl-

Davies & Brennan, 2011). This distortion happens, has said before, because managers work in a setting where their wealth and compensation are correlated with the financial performance of the company.

2.2.2 CEO duality

CEO duality is addressed through Stewardship Theory. This theory, which has roots in psychology and sociology, has been shaped by various researchers over time. Initially proposed by Donaldson and Davis (1991), the theory emphasizes the role of executives as stewards for the organization and its shareholders, prioritizing the collective interests of the firm over personal gain. According to Manum (1913), stewards are motivated solely by making decisions that benefit the organization, presuming that their own success is tied to the prosperity of the firm. Block (1993) suggested the stewardship role as service over self-interest, believing that both organizational and individual needs will be achieved at the best by honoring relationships and treating followers like owners and partners. Company executives and managers aim to protect and make profits for shareholders, while in agency theory, firm executives and managers aim to work for their self-interest. It enables the decision makers to act on behalf of the firm and for the firm, having faith that they will maximize the long-term return of the firm (Manum 1913). Moreover, Argyris (1972) cautioned against excessive control structures or monitoring of executives, arguing that it can lead to discouragement and unproductive outcomes. Instead, principals should foster trusting relationships with managers, delegating authority to them to make independent decisions in the best interest of the organization. Davis et al. (1997) identified trust, open communication, empowerment, long-term orientation, and performance enhancement as key factors in the management philosophy of stewardship. These elements collectively form the basis of stewardship theory,

where trust plays a significant role in building relationships between stewards and shareholders, enabling executives and managers to act in the organization's best interests. However, in the need to address the question of monitoring, in a lack of trust environment, some solutions such as increasing the presence of non-executive directors on the board or using external finance for company projects benefiting from the banks scrutiny of financial indicators gives investors a positive view of the balances (Dahya et al., 1996).

Additionally, the core of this theory postulates that the CEO has more firm-specific knowledge than every other individual in the company, making them the most capable person to make value creating decisions (Baysinger & Hoskisson, 1990). This unique knowledge concentrated in the CEO is expected to be particularly crucial in rapidly changing industries and in settings that require specialized technical expertise where quick decisions making is essential.

Chapter 3: Hypotheses Development

Previous empirical research has provided evidence that, when carefully evaluated, a company's annual report and its many components has the ability of predicting the company's future performance, at least in the short term (Kang et al., 2018; Chambers & Penman, 1984; Hassanein et al, 2019; etc).

Hence, this dissertation proposes that the linguistic characteristic known as tone measured in annual reports possesses the potential to shape investors' perception of the company, because it boosts the information available to investors. Then, investors hope to acquire deeper insights into the firm's performance. This increase in information will potentially impact their strategies in the stock market. The first objective is to understand if in fact qualitative data has relevant information in addition to the quantitative data and if it will impact stock returns.

Additionally, this investigation will oppose two different theories, Agency Theory and Stewardship Theory, in an attempt to determine which entity has provides more information as measured by the tone, the Chief Executive Officer or the Chairman. The second objective is to determine who of these two top representatives of the company will impact investors' decisions. By studying the predictive power of CEO and Chairman statements, this study hopes to offer light on whether investors lean more towards one theory over the other.

Having all the above information in mind, this dissertation delves into the relation between the tone of a company's annual report and its explanatory capacity in relation to market performance. To achieve this goal, a comparison between the impact of the two selected narrative characteristics on the market performance has been made.

In on hand, the decision to focus on CEO Review section stems from its close alignment with top management overview of strategic direction of the company,

encapsulating not only a comprehensive overview of past performance but also offering valuable insights into the vision and strategic that will drive future company's performance.

In other hand, the decision to also focus on Chairman's Statement was to explore potential differences from the CEO Review. This section is particularly interesting as the chairman does not have an active role in daily operations, and following the perspective of Agency Theory chairman's statement can be a must better predictor of financial performance, because of their more impartial view of the company.

Performance commentary that aligns more closely with realized performance should display higher explainability and with the aim to assess the explanatory capacity of CEO Review and Chairman Statement to predict market performance the followings hypotheses are formulated:

H1: Tone characteristics impact firm's performance.

H2: The Chairman's Letter to Shareholders has an incremental power over CEO's Letter to Shareholders.

These hypotheses are postulated by the following equations:

$$(1) \text{Var RI}_{i,t} = \beta_0 + \beta_1 \text{Net Tone CEO}_{i,t} + \beta_2 \text{Control Variables}_{i,t} + \varepsilon_{i,t}$$

$$(2) \text{Var RI}_{i,t} = \beta_0 + \beta_1 \text{Net Tone Chaiman}_{i,t} + \beta_2 \text{Control Variables}_{i,t} + \varepsilon_{i,t}$$

$$\text{Var RI}_{i,t} = \beta_0 + \beta_1 \text{Net Tone CEO}_{i,t} + \beta_2 \text{Net Tone Chaiman}_{i,t} + \beta_3 \text{Control Variables}_{i,t} + \varepsilon_{i,t}$$

It is expected that both the 1st and 2nd equations present that both the Chairman and CEO has some significance in explaining market performance, illustrated by the Return Index. However, in the 3rd equation, with the introduction of tone variables in the same model, an expected discrepancy in magnitude between the Net Tone of the Chairman and Net Tone of the CEO that will prove which of these two has the predictive power.

Chapter 4: Research Design

This section describes the data sources and the methodology used to construct the empirical analysis.

4.1 Sample Selection and Data Collection

This dissertation specifically focuses on non-financial companies listed on the London Stock Exchange included in the FTSE-350 index, which is a weighted index of the top 350 companies by free float market capitalization on the London Stock Exchange that comprises two sub-indices, the FTSE-100 index and FTSE-250 index. This index includes the top 350 companies listed on the London Stock Exchange making it the most suitable benchmark in terms of geography and sample size.

The sampling period covers the fiscal years from 2013 to 2023, with the primary goal of including the latest available financial information contemplating a large year range of available data.

According to previous research (Schleicher & Walker, 2010; Athanasakou & Hussainey, 2014; Hassanein et al., 2019; Bassyouny et al., 2020), financial companies were excluded from the analysis due to their unique characteristics. One reason for the omission of financial firms is the significant differences in the forms of their financial statements against those of non-financial corporations. It is unclear whether the additional work required to reconcile these disparate forms is warranted, especially because the resulting sample of non-financial enterprises remains large and appropriately representative of the larger economy.

When conducting the tone analysis, the primary data source comprises unstructured digital PDF annual reports. These reports are noted for their lack of standardization, exhibiting significant variations across companies and within the same company across different years, posing a formidable challenge to analysis. UK companies exercise significant discretion in shaping the content and structure of their annual reports. El-Haj et al. (2020) developed an automated procedure tailored for extracting and categorizing the narrative segments from annual reports. This methodology was employed in this dissertation with the focus towards the examination of CEO Review and Letter from Board Chair, excluding observations with incomplete/missing annual reports data.

For the market analysis, it was mostly used Refinitiv Software, namely Refinitiv DataStream for tasks such as retrieving the list of companies listed on the FTSE-350 index, as well acquiring pertinent financial metrics to define the following independent variables: Liquidity, Leverage, Growth, Capital Expenditure, Book-To-Market, Size and Return Index.

Once the data extraction process concluded, the information retrieved from Refinitiv DataStream was cross-referenced with data acquired from annual reports. Following this approach, a dataset of observations was constructed, with each entry including data for at least one of the tone variables or for the return index variable. All outliers in the tone variables were then deleted, notably those where net tone equal to -1 or 1, resulting in a more robust and trustworthy dataset. These processes have resulted in a final sample size 2,598 firm-year observations spanning the period from 2013 to 2023.

Panel A of Table 1 presents sample composition per by year and Panel B presents sample distribution of the 2,598 firm-year observations over 9 main industries as follows: Basic Materials 260 (10.01%), Consumer Discretion 752 (28.95%), Consumer Staples 211 (8.12%), Energy 157 (6.04%), Health Care 145

(5.58%), Industrials 683 (26.29%), Technology 188 (7.24%), Telecommunications 119 (4.58%), and Utilities 83 (3.19%)peer industry.

Year	Frequency	Percent
Panel A: sample distribution over years		
2013	234	9.01%
2014	258	9.93%
2015	267	10.28%
2016	275	10.59%
2017	269	10.35%
2018	262	10.08%
2019	251	9.66%
2020	245	9.43%
2021	236	9.08%
2022	223	8.58%
2023	78	3.00%
Total	2,598	100.0%
Industries	Frequency	Percent
Panel B: sample distribution over industries		
Basic Materials	260	10.01%
Consumer Discretion	752	28.95%
Consumer Staples	211	8.12%
Energy	157	6.04%
Health Care	145	5.58%
Industrials	683	26.29%
Technology	188	7.24%
Telecommunications	119	4.58%
Utilities	83	3.19%
Total	2,598	100.0%

Table 1: Firms distribution over years and industry

4.2 Variable Measurement

4.2.1 Tone

In tone literature are two main word lists of positive and negative words that pop up more frequently: the Henry (2006) and Loughran & McDonald (2011) wordlists. The Henry's word list is used since this dissertation follows the El-Haj

et al. (2020) automated procedure tailored for extracting and categorizing the narrative segments from annual reports.

Henry (2006) proposed a straightforward method for assessing the tone of qualitative disclosures within financial narrative. This approach involves quantifying the difference between the occurrences of positive and negative words within the text, which is normalized by the total count of both positive and negative words. The resultant measure ranges from -1 to 1, with a score of -1 indicating a severely negative sentiment, 0 representing a neutral position, and 1 reflecting an extremely positive sentiment. Consequently, a higher score represents a more optimistic sentiment conveyed within the financial narrative, whereas a lower score suggests a more pessimistic outlook.

It is critical to acknowledge that this technique is susceptible to some limitations. Notably, it does not account for contextual nuances in which the words are used, and certain keywords may have numerous meanings that could vary in sentiment contingent upon the context. Furthermore, this approach may lack the precision exhibited by more sophisticated techniques leveraging machine learning algorithms or human annotation.

4.2.2 Stock returns

In previous studies that analysis the qualitative characteristics of annual reports are used two types of variables: Accounting Variables and Market Variables.

Within Accounting Variables, the following are frequently employed: Earnings (Kang et al., 2018); ROA (Bassyouny & Abdelfattah, 2022) and Daily & Dalton 1993); ROE (Daily & Dalton 1993 and Rechner & Dalton, 1991) and profit margin (Rechner & Dalton, 1991). In terms of Market Variables, the most used one is the abnormal returns (Chamber & Pennan, 1984 and Kothari et al., 2009),

however this variable is used in event studies. In this dissertation, it is used the raw stock returns, as measured by the variable Return Index. Stock returns measures the theoretical growth in the value of a shareholding over a specified period, considering the reinvestment of dividends to purchase additional units of an equity or unit trust at the closing price applicable on the ex-dividend date (DataStream definition). The Return Index is an equity index that encompasses capital gains alongside any cash distributions, such as dividends or interest. This variable offers a more accurate portrayal of the index performance to shareholders, as it captures both the increase in asset values and the income generated from dividends or interest payment.

4.2.3 Control Variables

As control variables, the models use the following variables: Firm Liquidity; Firm Leverage; Firm Growth; Capital Expenditure; Firm size and Book-to-Market, which are presented and explained below

Firm Liquidity: According to previous studies (Schleicher & Walker, 2010; Kothari et al., 2009 and Hassanein et al., 2019) there is a link between increasing liquidity status in the UK corporate environment and expectations of higher future values. Furthermore, academic research suggests that information transparency has an important role in lowering liquidity costs, hence increasing stock liquidity while decreasing the rate of return required by investors to commit capital to a company's shares. This interplay between information transparency and liquidity dynamics is recognized as having an impact on a company's total valuation. The liquidity variable is assessed by the firm's current assets to current liabilities ratio (DataStream code: WC08106).

Firm Leverage: The impact of leverage on a company's return hinges on investors' risk preferences. While the cost of debt usually outweighs the cost of equity, excessive leverage also increases the company's financial risk. As demonstrated by (Hassanein et al., 2019) UK firms with higher leverage status are likely to have higher values in the future. Moreover, according to Premuroso et al. (2012) highly leveraged firms might opt to increase outsourcing disclosures to provide assurance to their lenders that the firm is taking steps to increase profitability and cash flow. This additional disclosure increases the information available to investors, which will impact positively on the firm's returns. This variable is assessed by debt-to-equity ratio (DataStream Code WC08231).

Firm Growth: It's easy to understand that a company's growth tends to bring positive returns for its shareholders. This growth boosts not only revenue, but also profit. In addition, it often results in an increase in share price and greater access to additional capital, enabling the company to finance new projects, further increasing potential returns. Another benefit of growth is the generation of economies of scale, which lower operating costs and boosts profit margins. Furthermore, growth attracts talent and stimulates innovation, strengthening the company's competitiveness in the long term. Both Hassanein et al. (2019) and Henry (2006) conclude a positive and significant relationship between firm growth and firm performance. This variable is assessed by firm sales growth ratio (DataStream Code: WC08631).

Capital Expenditure: If we evaluate a direct relationship between capex and return index, it's easy to understand that this relation is negative, since capex is reflected in funds that are used to acquire fixed assets (Hassanein et al., 2019 and Mangena et al., 2012). However, these fixed assets are reflected not only in property but also in plant, equipment, and machinery investments. Therefore,

these funds can boost companies' profits and therefore their company value. This variable is assessed by the sum of funds spent on fixed assets (DataStream Code: WC04601).

Firm Size: In general, larger companies tend to attract more analysts, which in turn can lead to more information being voluntarily disclosed to these analysts, regardless of the disclosure made in the annual reports (Bhushan, 1989), as was the case of leverage, the additional disclosure increases the information available to investors, consequently impacting positively firm's returns. Additionally, the size of a company is a predictor of its returns. This comes as no surprise, as smaller capitalization stocks tend to carry higher risk, are more heavily impacted by liquidity constraints, and incur greater transaction costs (Banz, 1981). Essentially, investing in smaller companies often entails assuming a higher level of risk, given their susceptibility to market fluctuations and potentially greater return volatility. Then, is expected a positive and significant relationship between firm size and firm returns. This variable is assessed by the natural logarithm of the market value of equity (DataStream code: WC08001) at the end of the current year.

Book-to-Marlet: Companies with a high book-to-market ratio tend to yield higher returns. This can be attributable to two main factors. First, they may be perceived as riskier by investors, who seek higher returns as compensation for bearing this additional risk. Secondly, these companies may be undervalued by the market, leading to a correction as investors recognize their true potential over time, resulting in higher returns as stock prices adjust accordingly (Wisniewski & Yekini, 2015). Then, is expected a positive and significant relationship between book to market and firm returns. This variable is defined as the market value of

the common equity divided by the balance sheet value of the common equity in the company (DataStream code: MTBV).

4.3 Empirical Models

The goal of this investigation is to provide proof that employing tone analysis confers benefits in complementing the information available to investors and other stakeholders. Specifically, the incorporation of qualitative analysis serves to bridge the GAP between numerical financial statements and the actual corporate performance. Furthermore, this study determines which individual, whether the Executive Manager or the Chairman, exerts predictive influence when analyzing the impact of tone on the Return Index.

In order to test the hypotheses, it is estimated the following regression equations:

$$\text{Var RI}_{it} = \beta_0 + \beta_1 \text{NetToneCEO}_{it} + \beta_2 \text{Liquidity}_{it} + \beta_3 \text{Leverage}_{it} + \beta_4 \text{Growth}_{it} + \beta_5 \text{CapitalExpenditure}_{it} + \beta_6 \text{BTM}_{it} + \beta_7 \text{Size}_{it} + \epsilon_{it}$$

$$\text{Var RI}_{it} = \beta_0 + \beta_1 \text{NetToneChairman}_{it} + \beta_2 \text{Liquidity}_{it} + \beta_3 \text{Leverage}_{it} + \beta_4 \text{Growth}_{it} + \beta_5 \text{CapitalExpenditure}_{it} + \beta_6 \text{BTM}_{it} + \beta_7 \text{Size}_{it} + \epsilon_{it}$$

$$\text{Var RI}_{it} = \beta_0 + \beta_1 \text{NetToneChairman}_{it} + \beta_2 \text{NetToneCEO}_{it} + \beta_3 \text{Liquidity}_{it} + \beta_4 \text{Leverage}_{it} + \beta_5 \text{Growth}_{it} + \beta_6 \text{CapitalExpenditure}_{it} + \beta_7 \text{BTM}_{it} + \beta_8 \text{Size}_{it} + \epsilon_{it}$$

Where Var RI_{it} represents stock returns measured as the variation in Return Index between the current year (t) and the subsequent year (t+1) $[(\text{RI}_{t+1} / \text{RI}_t) - 1]$. The Return Index is an accurate portrayal of the index performance to shareholders. $\text{NetToneChairman}_{it}$ represents the difference between the number of positive and negative words scaled by the total number of words in the Chair's letter for firm i in year t. NetToneCEO_{it} follows the same logic, being the difference between the number of positive and negative words scaled by the total

number of words in the CEO's review for firm i in year t . $Liquidity_{it}$ represents the firm's current assets to current liabilities ratio for firm i in year t . β_3 $Leverage_{it}$ is the debt-to-equity ratio for firm i in year t . $Growth_{it}$ is the firm sales growth ratio for firm i in year t . $CapitalExpenditure_{it}$ represents the funds used to finance fixed assets for firm i in year t . BTM_{it} is the market value of common equity divided by the balance sheet value of common equity in the company for firm i in year t . $Size_{it}$ is the natural logarithm of the market value of equity at the end of the current year for firm i in year t .

Chapter 5: Results

5.1 Descriptive Statistics

Table 2 represents descriptive statistics for all the variables in the model. These statistics provide information on various variables linked to financial performance and sentiment analysis.

The variation in the Return Index (VarRI) reveals a positive average return with considerable dispersion suggesting that returns fluctuate significantly over time. NetToneChairman and NetToneCEO have favorable average numbers reflecting the overall optimistic tone stated by both leaders. However, it can be observed that CEO's and Chairman section variables reduce the sample. The case of CEO's section could be justified by the fact that UK reports are not standardized and CEO's section could not exist. In the case of Chairman, some other problem may arise, maybe some difficulties in the analysis of the tone using such a simple method of counting positive and negative words might have contributed to the observed reduction.

The standard deviation of liquidity, leverage, growth and capital expenditures represent substantial variations across organizations, suggesting: a substantial variation in organization capacity to satisfy short-term obligations; variation of leverage levels amongst organizations; that economic considerations, industry dynamics, and management tactics contribute to variances in growth rates and that some significant diverse investments strategies among organizations.

Overall, these findings illustrate the distinctive features of the sample organizations, indicating the complexity of financial interactions, strategic, and economic elements impacting their performance.

VARIABLES	N	mean	sd	min	p25	p50	p75	max
VarRI	2,310	0.084	0.421	-0.976	-0.156	0.038	0.257	4.057
NetToneChairman	1,920	0.665	0.216	-0.460	0.565	0.714	0.824	0.971
NetToneCEO	1,981	0.714	0.183	-0.500	0.621	0.755	0.847	0.979
Liquidity	2,598	1.638	1.418	0.000	0.910	1.335	1.880	29.27
Leverage	2,598	0.667	7.416	-251.309	0.172	0.544	1.112	81.607
Growth	2,573	20.634	462.446	-84.660	-0.810	5.880	15.010	23,318.180
Capex (in millions)	2,595	301.022	1.085	0.000	12.870	44.600	166.000	15.700
BTM	2,550	3.148	31.872	-1,120.880	1.360	2.340	4.360	809.280
Size (in millions)	2,580	6,249.909	14,248.34	0.010	766.675	1,692.665	4,915.840	182,046.200

Table 2: Descriptive statistics

5.2 Regression Results

Table 3 and table 4 summarize all the models considered in this dissertation.

DEPENDENT VARIABLE MODELS	VarIR		
	(1)	(2)	(3)
NetToneCEO	0.1499 *** (0.0046)		0.1505 ** (0.0181)
NetToneChairman		0.1157 ** (0.0108)	0.0752 (0.1430)
Liquidity	0.0004 (0.9560)	0.0007 (0.918)	0.0014 (0.8420)
Leverage	-0.0003 (0.7930)	-0.0004 (0.6900)	-0.0004 (0.7340)
Growth	0.0000 (0.3850)	0.0005 ** (0.0125)	0.0005 *** (0.0071)
Capex	-0.0501 *** (0.0000)	-0.0582 *** (0.0000)	-0.0505 *** (0.0000)
BTM	0.0001 (0.7070)	0.0002 (0.4620)	0.0002 (0.4280)
Size	0.0849 *** (0.0000)	0.0861 *** (0.0000)	0.0852 *** (0.0000)
Constant	-0.7251 *** (0.0000)	-0.6205 *** (0.0000)	-0.7891 *** (0.000)
Observations	1,702	1,628	1,310
R-squared	0.0742	0.0763	0.0950
Adjusted R-squared	0.0704	0.0724	0.0894

pval in parentheses

*** p<0.01, ** p<0.05, *p<0.1

Table 3: OLS model – narrative measure without fixed effects

The initial model (1) focuses on the impact of the Net Tone of CEO. In this model, the Net Tone of CEO exhibits a significant positive coefficient with a high level of significance ($p < 0.01$) which indicates that the optimism expressed by the CEO affects positively investors perception, leading to a favorable reaction in the market, aligning with expectations. This highlights the importance of CEO communication. In contrast, the variables Liquidity, Leverage, Growth and Book-to-Market possess estimated coefficients with p-values exceeding 0.1, indicating their lack of statistical significance in explaining the dependent variable. The Capital Expenditure yields a negative estimated coefficient with a very high significance level ($p < 0.01$), which was expected since it is assessed by other authors like Hassanein et al. (2019) and Mangena et al. (2012). Regarding Size, its estimated coefficient is positive with an elevated level of significance level ($p < 0.01$), confirming that a company's size serves as a predictor of its returns and confirming what was proposed by Banz (1981). Overall, this model exhibits an Adjusted R-squared of 0.0704 suggesting that the included independent variables account for 7.04% of the observed variation in the dependent variable.

The second model (2) focuses on the impact of the Net Tone of Chairman.

The Net Tone of Chairman exhibits a positive coefficient with a very high significant level ($p < 0.01$). This suggest that like the CEO optimism, the Chairman optimist also affects investors perception of the company, leading to a favorable reaction in the stock market. Once again, Liquidity, Leverage and Book-to-Market fail to achieve statistical significance in explaining the variation of Return Index. However, Growth emerges as a significant factor which aligns with prior studies stating that growth boosts return (Hassanein et al., 2019 and Henry 2006). Both Capital Expenditure and Size continue to express similar significance like within model (1). This model yields an Adjusted R-squared of 0.0724.

The third model (3) examines the combined impact of both Net Tone of CEO and Net Tone of Chairman. This model aims to assess the differences in significance when these two variables are put together in the same model. In the analysis, a notable observation arises, the Net Tone of Chairman no longer displays a significant estimated coefficient ($p\text{-value} > 0.1$). This indicates that when both variables are included in the model simultaneously, the Net Tone of Chairman stops to be statistically relevant in influencing investors' reactions. However, the Net Tone of CEO retains its significant impact on returns, indicating that CEO statements continue to display a crucial role in shaping investors' perceptions. Liquidity, Leverage and BTM remain statistically insignificant. Both Growth and Size factors continue to reveal a positive estimated coefficient and Capital Expenditure continues to present a negative one. Overall, this third model has an Adjusted R-squared of 0.0894.

DEPENDENT VARIABLE	VarRI		
MODELS	(4)	(5)	(6)
NetToneCEO	0.2512 *** (0.0001)		0.2513 *** (0.0012)
NetToneChairman		0.1425 *** (0.0082)	0.0142 (0.8120)
Liquidity	0.0010 (0.9200)	0.0076 (0.464)	0.0063 (0.5400)
Leverage	0.0009 (0.9320)	0.0001 (0.9210)	-0.0002 (0.8840)
Growth	0.0000 (0.9420)	0.0003 (0.1600)	0.0002 (0.2950)
CapitalExpenditure	-0.1663 *** (0.0000)	-0.1975 *** (0.0000)	-0.1526 *** (0.0000)
BTM	0.0001 (0.7550)	0.0000 (0.8820)	0.0000 (0.9630)
Size	0.3289 *** (0.0000)	0.3554 *** (0.0000)	0.3514 *** (0.0000)
Constant	-3.0707 *** (0.0000)	-3.0126 *** (0.0000)	-3.5577 *** (0.0000)
Observations	1,702	1,628	1,310
R-squared	0.3643	0.3742	0.4119
Adjusted R-squared	0.2237	0.2321	0.3278

pval in parentheses

*** p<0.01, ** p<0.05, *p<0.1

Table 4: OLS model – narratives measure with fixed effects

Models 4 to 6, replicate models 1 to 3 but now with the additional incorporation of fixed effects for companies. In these models, it can be observed that the variables of Net Tone of CEO, Capital Expenditure and Size, remain significant at 1% levels, indicating their persistent impact on the stock returns. However, the Net Tone of the Chairman of the Board is no longer significant in model 6 implying that when accounting for company specific effect combining both tone variables in the same model, Net Tone of Chairman no longer

significantly influences investors reactions. Meanwhile, variables such as Liquidity, Leverage, Growth and BTM still do not show statistical significance in any of the models. However, their inclusion provides valuable insights into the factors that do contribute to returns. The incorporation of fixed effects for companies substantially improves the models' ability to explain variation in the dependent variable, providing a more robust understanding of the relationships between variables. This suggests that considering specific characteristics of each company is crucial for a more accurate analysis of the determinants of returns.

In this analysis of complementary models, it becomes evident that the both the Chairman and the CEO statements exhibited predictive power regarding returns, which validates the first hypothesis of this study. This observation underlines the significance of qualitative elements within annual reports. As suggested by Feldman et al. (2010) and Hassanein et al. (2019) suggested, investors scrutinize qualitative reports to gain deeper insights beyond financial metrics and information. The inclusion of both Chairman and CEO statements in the models suggests that investors consider the perspectives and communication styles of company top representatives when making investment decisions. Recognizing the inherent value in qualitative data, investors utilize such reports to augment their understanding and decision-making processes, as qualitative information can provide a holistic understanding of a company's performance, strategy, and prospects. It is empirically proved that these statements impact capitalist markets by influencing investors' decisions.

Additionally, it has been proven that the CEO's statements have greater predictive capacity than those from the Chairman, aligning with the principles of stewardship theory. This finding is consistent with the notion that the CEO, as the main guardian of the company, has specific knowledge and is the most

qualified to make decisions that add value to the business. According to stewardship theory, the CEO is encouraged to act in the best interests of the organization, since his or her own success is intrinsically linked to the company's prosperity. Therefore, this perspective highlights the importance of the CEO's role and their unique ability to make decisions that boost the company's performance and results.

As said before, this second result goes against what was expected in the UK markets. Given the prevalence of independent chairman in the UK, who primarily assume non-executive roles focused on guiding the board and overseeing management for the benefit of shareholders, it was anticipated that their statements would hold more predictive power in investment decisions. However, the data reveals a contrasting trend, suggesting that the predictive capacity of CEO statements surpasses that of chairman, which challenges the conventional understanding of their roles in influencing investor decisions in the UK market.

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5.4 Robustness test

The Hausman test was used to assess robustness, in other words to examine whether fixed effects (FE) or random effects (RE) estimators are better suited for panel data models. The null hypothesis in the Hausman test is that the coefficients estimated using FE are consistent and efficient, while the coefficients estimated using RE are consistent but inefficient. Therefore, if the null hypothesis is rejected, this suggests that random effects are not appropriate and that fixed effects are preferable. The results demonstrate that the test statistic is significant in all situations (p-value = 0), meaning that there are systemic differences in the coefficients calculated by the FE and RE models. In sum, fixed effects are a better fit for the models since the coefficients generated by the FE model are more consistent and efficient than the coefficients predicted by the RE model.

Chapter 6: Conclusion

The capital market is increasingly relying on qualitative data, and financial narratives have been shown to effect corporate success in previous research. As a result, this dissertation investigates the impact of Tone in Return Index for UK FTSE-350 firms over a period of 10 years (2013-2023) contemplating a sample of 2,598 non-financial firms.

Disclosures play a crucial role in offering qualitative information on a firm's financial performance and position. Investors scrutinize these disclosures to gain deeper insights beyond financial metrics and information, because they are recognizing the inherent value in qualitative data and utilize them to augment their understanding and decision-making processes. Qualitative data bridges the gap between quantitative data and the true company's performance.

To fulfill the objective of this dissertation some regressions models were employed, these models regress tone and firm specific characteristics on return index, using CEO Review and Letter from Board Chair to extract information about the tone and the DataStream to extract all firm specific characteristics.

The findings suggest that both Chairman and CEO statements demonstrate predictive power in terms of returns, which proves the importance of the qualitative features in annual reports, since investors rely on them to get deeper insights beyond financial measures. Furthermore, empirical research confirms that these statements affect capitalist markets by influencing investors' decisions. Additionally, it was demonstrated that CEO's statements possess greater predictive power, aligning with stewardship theory principles. This highlights the CEO's role as the key steward of the company specialized expertise and unique ability to make value-adding decisions. According to this theory, CEOs are motivated to act in the organization best interests since their success is inseparably to the company's profitability. This greater predictive power of the

CEO contradicts the conventional understanding in the UK market, despite the prevalence of independent chairman in the UK, who primarily serve in non-executive roles aimed at directing the board. These unexpected findings suggest a reevaluation of the roles and influences of top executives in shaping investor decisions in the UK market.

Finally, this study overlooks contextual nuances in word usage, as certain keywords may have numerous meanings that could vary in sentiment contingent upon the context. Consequently, this approach may lack the precision exhibited by more sophisticated techniques leveraging machine learning. Also, is a good idea for future analysis to extend the range of companies selected, for instance, select firms outside of the 350-FTSE Index.

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Appendix

	Definition
NetToneChairman	Difference between the number of positive and negative words scaled by the total number of words in the Chair's letter. Tone is classified as positive (negative) if the number of positive (negative) words is larger than the number of negative (positive) words (Henry, 2006)
NetToneCEO	Difference between the number of positive and negative words scaled by the total number of words in the aggregate performance commentary's review. Tone is classified as positive (negative) if the number of positive (negative) words is larger than the number of negative (positive) words (Henry, 2006).
Return Index	Equity index that encompasses capital gains alongside any cash distributions, such as dividends or interest (RI)
Liquidity	Firm's current assets to current liabilities ratio (in thousands) (WC08106)
Leverage	Debt-to-equity ratio (in thousands) (WC08231)
Growth	Firm sales growth ratio (in thousands) (WC08631)
Capital expenditure	Represent the funds used to acquire fixed assets other than those associated with acquisitions. It includes but is not restricted to additions to property, plant and equipment; investments in machinery and equipment (in thousands) (WC04601)
Size	Natural logarithm of the market value of equity at the end of the current year (in millions) (WC08001)
Book-to-Market	Market value of the common equity divided by the balance sheet value of the common equity in the company (in thousands) (MTBV)

Table 5: Variables Definition