

Article

Executives' Tone Management and Corporate Financial Sustainability: A Corporate Governance Perspective

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Abstract

This study uses Chinese A-share listed companies from 2014 to 2023 as the research sample (comprising a total of 18,053 firm-year observations) and explores the impact of executive tone manipulation on corporate sustainable growth capability from the perspective of corporate governance. Benchmark fixed-effects regression results indicate that the regression coefficient of tone manipulation on the sustainable growth rate is -0.141 ($p < 0.01$). Corporate financial sustainability is measured by the sustainable growth rate, an indicator reflecting a firm's endogenous growth capacity while maintaining existing financial policies and operational efficiency. This differs distinctly from "broad-based sustainability" measured by ESG metrics. Therefore, this study focuses on sustainability in the financial dimension and further analyzes the moderating effects of corporate social responsibility information disclosure quality, institutional investor ownership ratio, and board independence. The findings reveal that executive tone manipulation significantly undermines corporate financial sustainability, while sound governance mechanisms can effectively mitigate this adverse impact. This research enriches the theoretical framework of financial sustainability studies from the perspectives of linguistic information and behavioral governance and provides policy implications for information disclosure regulation and governance optimization.

Keywords: executives' tone manipulation; financial sustainability; social responsibility disclosure; institutional investor; corporate governance

1. Introduction

Currently, the sustainable development capability of enterprises [1] has emerged as a crucial criterion for assessing their core competitiveness and long-term value creation within the global economic system. Confronted with the escalating challenges of climate change, resource limitations, and evolving social responsibility demands [2], how enterprises should attain a dynamic equilibrium between profitability and financial sustainability [3] has become a subject of extensive academic and practical investigation. Sustainable development capability indicates not only the financial stability of enterprises [4] but also their overall performance across environmental, social, and governance (ESG) dimensions. Nevertheless, external investors' evaluations of sustainable development often depend on information disclosure [5], and the linguistic features of managerial communication during information transmission [6], particularly the tone employed by executives [7], are increasingly recognized as significant indicators influencing the capital market and the sustainable performance of enterprises.



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In the practice of information disclosure, as a “non-financial information signal” [8], executives’ tone carries management’s attitudes and tendencies toward enterprises’ prospects. Tone Manipulation not only affects the market’s perception of enterprises’ risks and prospects [9] but also is closely related to outcomes such as investor confidence, stock liquidity, and financing costs [10,11]. It refers to the practice where corporate executives, when presenting annual reports, Management Discussion and Analysis (MD&A), or other public information, carefully select words and expression methods to shape the tone of the textual content. They increase the use of positive and optimistic vocabulary while reducing the use of pessimistic and negative vocabulary, thereby enhancing the overall optimism of the textual information. However, the subjectivity of tone information makes it easy for it to become a tool for “manipulation impression manipulation” [12]. When executives use positive tone to exaggerate enterprise performance and downplay potential risks, it constitutes “executives’ tone manipulation.” This behavior may maintain the enterprise’s reputation and stock price stability in the short term [13]; however, in the long term, it creates information distortion, inefficient resource allocation, and a decline in enterprises’ sustainable development capability.

Currently, because the “dual carbon goals” and ESG have become global mainstream [14], enterprises are facing unprecedented pressure for sustainable transformation. Simultaneously, the capital market relies heavily on management textual communication to evaluate an enterprise’s long-term value. Therefore, the “authenticity” and “transparency” of management’s tone have become key factors affecting investment decisions and enterprises’ sustainable development. However, the academic community lacks systematic evidence on the long-term relationship between executives’ tone manipulation and enterprises’ sustainable development capability [15]. Existing studies focus mainly on the impact of tone on short-term market reactions, earnings management, or enterprise reputation [16], while ignoring the in-depth economic consequences of tone manipulation on sustainable development performance.

Furthermore, although existing literature acknowledges the significant role of corporate governance mechanisms in restricting management behavior, there remains a paucity of systematic analysis concerning how various governance elements—such as the quality of corporate social responsibility information disclosure, the shareholding ratio of institutional investors, and board independence—collectively influence the outcomes of tone manipulation [17]. Current studies typically focus solely on the role of individual governance variables and fail to elucidate the interconnected effects of multi-dimensional governance mechanisms. Particularly within the Chinese context, the unique characteristics of the institutional environment and regulatory system confer substantial localized research value on the mechanisms linking corporate governance, tone manipulation, and sustainable corporate development.

Therefore, this study focuses on the core question of “whether executives’ tone manipulation weakens enterprises’ sustainable development capability,” and explores whether three types of corporate governance factors—information disclosure quality, institutional investor shareholding ratio, and board independence—can mitigate the negative impact of tone manipulation. This study has three research objectives: first, to systematically identify the relationship between executives’ tone manipulation and enterprises’ sustainable development capabilities; second, to reveal how internal and external supervision mechanisms regulate this relationship from the perspective of corporate governance; and third, to provide empirical evidence and policy suggestions for enterprises’ information disclosure governance and sustainable development strategies.

It is important to clarify that existing research on sustainability exhibits significant differences in conceptual definition. Some studies conceptualize corporate sustainability as

a broad-based performance encompassing environmental, social, and governance (ESG) dimensions, while others focus on a firm's ability to maintain stable growth under financial policy constraints—namely, financial sustainability. Given that this study employs the sustainable growth rate as the dependent variable, an indicator rooted in financial metrics, it explicitly centers on financial sustainability rather than ESG-based comprehensive sustainability. This research differs from ESG-oriented sustainability studies both in theoretical foundations and measurement approaches. For instance, *Sustainability Uncertainty and Supply Chain Financing: A Perspective Based on Divergent ESG Evaluations in China* (Systems, 2025) [18] regards ESG as the core indicator of sustainability. In contrast to the ESG perspective, therefore, this paper focuses on exploring how executive tone manipulation affects firms' endogenous growth capacity and financial resilience, rather than sustainability performance in environmental or social dimensions.

To achieve these objectives, this study considers Chinese A-share listed companies from 2014 to 2023 as the sample and uses text analysis technology to quantify the degree of executives' tone manipulation. It identifies positive and negative emotions in Management Discussion and Analysis (MD&A) and earnings conference call texts using the sentiment dictionary method to construct indicators and measure enterprises' sustainable development capability through the sustainable growth rate. Based on multiple regression and interaction term models, it empirically tests the impact of executives' tone manipulation on enterprises' sustainable development capability and analyzes the moderating effects of information disclosure quality, institutional investor shareholding ratio, and board independence.

The research innovations of this study are mainly reflected in two aspects. First, while existing studies have predominantly focused on the relationship between executive tone and firms' short-term market reactions or financial performance [19,20], research on the link between tone manipulation and corporate financial sustainability remains relatively scarce. Rather than deviating from the financial performance framework, this study further examines the association between executive linguistic bias and firms' long-term endogenous growth capacity from the perspective of the sustainable growth rate. Although this perspective is not entirely novel, it has rarely been systematically discussed in tone-related research, thus providing a valuable supplement to understanding the long-term economic consequences of linguistic information.

Second, unlike previous studies that mainly explored the direct relationship between tone and performance [21], this paper further investigates the moderating role of governance factors. By incorporating board independence, institutional investor ownership ratio, and the quality of corporate social responsibility information disclosure into the analytical framework, this study constructs an analytical path of "linguistic bias—governance constraints—financial sustainability." This framework does not propose an entirely new theoretical model but rather represents an integrative extension of existing tone research and corporate governance literature, illustrating how governance mechanisms influence the economic consequences of linguistic information.

In addition, unlike studies that measure sustainability based on ESG performance, the definition of sustainability in this paper is rooted in the logic of financial growth, thus falling within the research framework of financial sustainability. This conceptual delineation avoids inconsistencies between indicators and concepts and also highlights the research value of examining executive tone behavior from the perspective of financial sustainability.

This study not only theoretically expands the research boundary between executives' tone and corporate sustainable development but also provides a new basis for decision-making for regulatory authorities, investors, and corporate managers. The research concludes that linguistic information, as an important "soft constraint" of corporate

governance, is directly related to enterprises' long-term financial sustainability; and a sound corporate governance mechanism prevents tone manipulation, improves information transparency, and promotes sustainable development. This study deepens the understanding of the "language—governance—sustainable performance" mechanism through empirical evidence and provides a new direction for future research in the fields of sustainable finance and ESG.

Existing research on executive tone has mostly focused on its impact on investor behavior or short-term market reactions, yet systematic evidence regarding whether it affects firms' long-term financial sustainability remains scarce. Meanwhile, the question of whether information manipulation is constrained by governance mechanisms has not been sufficiently examined. Therefore, this study attempts to address the following research questions:

(1) Does executive tone manipulation affect corporate financial sustainability? (2) What moderating roles do different corporate governance mechanisms play in this relationship? (3) Is the association between executive tone and firms' long-term development robust?

To address these questions, this paper constructs a tone manipulation index based on the Management Discussion and Analysis (MD&A) text and conducts empirical analysis incorporating governance mechanisms. To avoid conceptual confusion, this study strictly distinguishes between "sustainability", "social sustainability", and "financial sustainability". Specifically, social sustainability is typically associated with external indicators such as ESG (Environmental, Social, and Governance), corporate social responsibility, and environmental governance. In contrast, the sustainable growth rate adopted in this paper only measures the maximum growth level that a firm can achieve under established financial policies, thus falling within the scope of financial sustainability. Given this, this study does not claim to reveal firms' sustainable performance in ESG or social dimensions. Instead, it focuses on the impact of tone manipulation on financial resilience, so as to ensure conceptual consistency and the accuracy of research delineation.

The differences from previous studies are as follows: first, most prior research focuses on short-term reactions, whereas this study emphasizes long-term financial sustainability; second, few previous studies have discussed governance-related moderating effects, while this study examines the interactive effects of governance mechanisms; third, existing literature predominantly uses ESG to measure sustainability, whereas this study adopts financial sustainability as the core indicator.

The remainder of this paper is organized as follows: Section 1 presents the introduction; Section 2 reviews the relevant literature; Section 3 provides the theoretical background and hypothesis development; Section 4 describes the research methodology and design; Section 5 reports the empirical results; and Section 6 offers discussion and conclusions.

2. Literature Review on Executive Tone

2.1. Definition and Measurement of Executive Tone

Executive tone refers to the emotional tendency and subjective bias embodied in the linguistic expressions of top management (e.g., CEOs, CFOs) in information disclosure scenarios such as annual reports, earnings conferences, and investor communications [16,22]. Unlike objective financial data, executive tone is a non-financial linguistic signal that reflects management's cognitive evaluations, psychological expectations, and strategic intentions toward corporate operations, market environment, and future development [23,24].

In terms of measurement methods, existing studies have formed two main paradigms: dictionary-based quantitative measurement and machine learning-based sentiment analysis. The dictionary-based method is the most widely used, among which the Loughran–McDonald financial sentiment dictionary has become the gold standard in the field of

financial text analysis [25]. This dictionary is specifically constructed for financial texts, excluding common words in general dictionaries that may cause semantic ambiguity, and accurately classifies financial texts into positive, negative, and neutral emotional categories. Most studies calculate the tone index by the ratio of positive words to negative words (Tone Index $TONE = (\text{Number of Positive Words} - \text{Number of Negative Words}) / (\text{Number of Positive Words} + \text{Number of Negative Words} + \text{Number of Neutral Words})$). In recent years, with the development of natural language processing technology, machine learning models such as BERT and LSTM have been gradually applied to tone measurement, which can more flexibly capture contextual semantic information and improve the accuracy of sentiment identification [26,27].

Notably, academic research further divides executive tone into normal tone and tone manipulation. Normal tone reflects management's true perception and objective expression of corporate operating conditions, while tone manipulation is a deliberate impression management behavior—management guides the cognitive evaluation of external stakeholders by exaggerating optimistic expectations, downplaying negative information, or manipulating linguistic emotional tendencies [28,29]. Existing studies usually measure tone manipulation by the abnormal component of the tone index: first, a regression model is constructed based on firm characteristic variables (e.g., firm size, profitability, growth rate) to predict the expected tone; the residual term of the model is the abnormal tone, which serves as the core measurement indicator of tone manipulation [30,31].

2.2. Economic Consequences of Executive Tone

A large body of research has confirmed that executive tone, as a crucial information transmission channel, exerts a significant impact on the decisions of external stakeholders and corporate economic outcomes. These impacts can be specifically summarized into three core dimensions:

First, impact on capital market reactions. Early studies focused on the short-term market effects of executive tone. For instance, Abdallah et al. (2024) [32] found that negative tone in financial news is significantly negatively correlated with stock returns on the following trading day. Liu et al. (2023) [33] further verified that the optimistic tone in the Management Discussion and Analysis (MD&A) section of annual reports can significantly increase short-term stock returns and reduce stock price volatility, as investors tend to adjust their investment decisions based on management's linguistic signals. However, recent studies have pointed out that the market effect of tone is influenced by the information environment: when the degree of information asymmetry is high, investors rely more on executive tone, and the sensitivity of stock prices to tone becomes stronger [34].

Second, impact on corporate financing capacity. An optimistic executive tone can convey positive expectations of corporate development to creditors and investors, thereby alleviating financing constraints and reducing financing costs. For example, Li et al. (2024) [35] found that firms with a more optimistic tone in their annual reports have lower loan interest rates and longer loan terms. Similarly, Choo et al. (2021) [36] verified that an optimistic tone helps firms obtain more equity financing and improve financing efficiency. However, tone manipulation reverses this positive effect: excessively optimistic tone over the long-term damages management's credibility, and once actual performance fails to meet expectations, it will trigger harsher market penalties and increase the risk of refinancing [37].

Third, impact on corporate operating decisions. From the perspective of internal governance, executive tone reflects management's strategic orientation and risk preferences, which in turn affect corporate investment, financing, and dividend distribution decisions. For example, Heizer and Rettig. (2020) [38] found that optimistic tone is significantly positively correlated with corporate overinvestment, as management's overconfidence

(reflected in tone) leads to irrational investment decisions. In contrast, a cautious tone can inhibit overinvestment and improve investment efficiency [39]. Nevertheless, existing studies on the operational consequences of tone mostly focus on short-term performance indicators (e.g., current-period return on assets, sales growth rate), and there is a lack of in-depth exploration of the impact of tone (especially tone manipulation) on long-term sustainable growth capacity [40].

2.3. Governance Mechanisms of Executive Tone Manipulation

Given that tone manipulation may lead to information distortion, resource misallocation, and damage to long-term corporate value, scholars have begun to explore governance mechanisms that constrain tone manipulation behaviors. Existing research mainly focuses on two core dimensions: internal governance and external governance.

In terms of internal governance mechanisms, the board of directors and ownership structure are the key research objects. For example, Wang et al. (2025) [41] found that the proportion of independent directors is significantly negatively correlated with the degree of tone manipulation, because independent directors can strengthen the supervision of information disclosure and restrict management's impression management behaviors. Similarly, institutional investor ownership also exerts a governance effect on tone manipulation: institutional investors with professional analytical capabilities can more effectively identify management's linguistic manipulation behaviors and constrain such behaviors through voting rights, shareholder proposals, and other means. In addition, high-quality internal control systems can enhance the standardization of information disclosure and reduce the space for management to manipulate tone [42,43].

In terms of external governance mechanisms, external auditing, media attention, and corporate social responsibility disclosure have attracted widespread attention. Rawi, R., & Muchlish. (2022) [44] verified that Big Four accounting firms can significantly inhibit tone manipulation, as high-quality auditing increases the cost of management's information manipulation. As an informal external supervision mechanism, media attention can amplify the reputational risk of tone manipulation, thereby forcing management to reduce impression management behaviors [45,46]. Regarding social responsibility disclosure, existing studies mostly focus on its signal transmission function, and few studies directly examine whether high-quality social responsibility disclosure can inhibit tone manipulation by improving transparency and reputational constraints [8].

2.4. Board Independence and Internal Governance

Despite the abundant achievements in executive tone-related research, there are still obvious research gaps, which also constitute the innovation points and research value of this study:

First, the research perspective is limited to short-term effects, ignoring the long-term impact on financial sustainability. Most existing studies focus on the short-term consequences of executive tone (e.g., capital market reactions, financing costs, current operating performance), but few explore its impact on firms' long-term sustainable growth capacity. Financial sustainability (measured by the Sustainable Growth Rate) reflects a firm's ability to achieve stable growth through internal resource accumulation and optimal allocation and serves as a core indicator of long-term value creation. In contrast, tone manipulation, as a short-term oriented impression management behavior, may lead firms' investment and financing decisions to deviate from the optimal path, thereby damaging long-term financial sustainability. This study focuses on the long-term economic consequences of tone manipulation, filling this research gap [34].

Second, research on governance mechanisms is fragmented, lacking exploration of the interactive effects of multiple governance mechanisms [47,48]. Existing studies on the governance of tone manipulation mostly examine the independent role of a single governance mechanism (e.g., board independence or institutional investor ownership), without considering the joint effects of internal and external governance mechanisms. In practice, corporate governance is a systematic framework: social responsibility disclosure (external signal transmission mechanism), institutional investor ownership (external supervision mechanism), and board independence (internal supervision mechanism) may interact to form governance synergy, thereby constraining tone manipulation more effectively. This study incorporates these three governance mechanisms into the analytical framework simultaneously, enriching the research on the governance system of tone manipulation.

Third, the measurement of sustainable development is biased toward ESG, with insufficient attention to financial sustainability. Existing studies exploring the relationship between executive tone and corporate sustainability mostly adopt comprehensive ESG indicators (integrating environmental, social, and governance dimensions). However, ESG indicators are affected by numerous non-financial factors, making it difficult to accurately reflect the mechanism through which tone manipulation influences firms' financial operations and growth capacity [49,50]. By taking financial sustainability as the dependent variable, this study can more directly reveal the economic mechanism through which tone manipulation affects firms' long-term growth and provide more targeted empirical evidence for corporate financial governance.

In summary, based on the existing research gaps, this study constructs a theoretical framework of "executive tone manipulation → financial sustainability" and introduces social responsibility disclosure quality, institutional investor ownership ratio, and board independence as moderating variables. It aims to systematically explore the impact of tone manipulation on firms' long-term financial sustainability and the synergistic governance effect of multiple governance mechanisms.

3. Theoretical Background and Hypothesis Development

3.1. Theoretical Background

The theoretical framework of this study is built on the Upper Echelons Theory, Agency Theory, Signaling Theory, and External Supervision Theory. These four theories, respectively, provide logical support for the relationships among core variables, jointly forming the theoretical cornerstone of the "executive tone manipulation → financial sustainability" framework and the moderating effects of governance mechanisms. The core viewpoints of each theory and their application logic in this study's model are elaborated as follows:

3.1.1. Upper Echelons Theory

The Upper Echelons Theory posits that a firm's strategic choices and organizational outcomes are not passive reflections of the objective environment, but rather depend on the values, cognitive structures, and individual traits of top management [51,52]. This theory breaks the traditional assumption of "managerial homogeneity" and emphasizes that managers' personal characteristics are transmitted to the firm level through their decisions and behaviors. As the emotional tendency and subjective bias embodied in managers' linguistic expressions, executive tone is essentially an explicit reflection of their cognitive evaluations, risk preferences, and strategic orientations—normal tone reflects managers' true perceptions of corporate operations, while tone manipulation embodies managers' short-term orientation or impression management motives.

Application of the theory in the model: This study takes the Upper Echelons Theory as the theoretical basis for the relationship between the core independent variable (executive

tone manipulation) and the dependent variable (financial sustainability). According to this theory, executive tone manipulation is not merely a linguistic behavior, but an explicit manifestation of managers' short-term preferences and risk perceptions. Such preferences are transmitted to the firm level through investment and financing decisions, leading the firm to deviate from the path of long-term value creation and ultimately damaging financial sustainability. Therefore, this theory directly supports the core logical chain of "executive tone manipulation → financial sustainability" and provides a fundamental basis for the proposal of Hypothesis H1.

3.1.2. Agency Theory

Agency Theory emphasizes the information asymmetry and opportunistic behaviors arising from the separation of ownership and management rights. Within this framework, management may engage in impression management by exaggerating positive tone and downplaying unfavorable information to obtain short-term personal gains (e.g., stock price stability, achievement of performance appraisal targets), thereby forming tone manipulation. Such disclosure behaviors that deviate from true information will disrupt resource allocation and undermine the long-term financial soundness of firms [53,54].

Application of the theory in the model:

Agency Theory supports the study's model from three aspects: "motivation—behavior—outcome". First, it reveals that the root cause of tone manipulation lies in management's opportunistic behaviors. Second, it explains that manipulating linguistic signals will lead to resource misallocation, thereby affecting financial sustainability. Third, it provides a theoretical basis for the moderating role of governance mechanisms—social responsibility disclosure quality, institutional investor ownership, and board independence can reduce information asymmetry and increase manipulation costs, thereby mitigating the adverse impact of tone manipulation on sustainable growth and forming the theoretical support for Hypotheses H2, H3, and H4.

3.1.3. Signaling Theory

Signaling Theory holds that in the context of information asymmetry, firms can alleviate information friction and enhance external trust by transmitting high-quality signals. As a non-financial linguistic signal, executive tone is an important channel through which management conveys corporate operating conditions and future expectations to the outside world. However, the effectiveness of a signal depends on its credibility: a true optimistic tone can transmit positive signals about a firm's development potential, while tone manipulation constitutes a "false signal" that will undermine the effectiveness of signal transmission in the long run [55–57].

Application of the theory in the model: This theory mainly supports the relationship between the moderating variable (social responsibility disclosure quality) and the core variables. As a "credible signal", high-quality social responsibility disclosure forms a contrast with the "false signal" of tone manipulation. On one hand, social responsibility disclosure improves the overall information transparency of the firm, helping external stakeholders identify false components in the tone. On the other hand, the credibility of social responsibility disclosure signals will reversely constrain management's signal manipulation behaviors and reduce the space for tone manipulation. Therefore, Signaling Theory clarifies the mechanism through which social responsibility disclosure quality mitigates the negative effects of tone manipulation, directly supporting Hypothesis H2.

3.1.4. External Supervision Theory

External Supervision Theory emphasizes that external governance subjects can constrain management's opportunistic behaviors and improve corporate governance efficiency

through their professional capabilities and supervision motivation. As core external supervision subjects, institutional investors possess professional information analysis capabilities and a long-term shareholding orientation [58,59]. As a core dimension of internal supervision, board independence strengthens the supervision of information disclosure through the objective stance and professional background of independent directors. Together, they form a synergy of internal and external supervision [60,61].

Application of the theory in the model: This theory specifically supports the moderating effects of two types of governance mechanisms. Regarding institutional investor ownership (external supervision): the theory explains why it can constrain tone manipulation—professional capabilities enable them to “identify” manipulation, and the long-term orientation gives them the “motivation” to do so, thereby mitigating the negative impact of tone manipulation on financial sustainability (Hypothesis H3). Regarding board independence (internal supervision): the theory clarifies its supervision logic—independence enables them to “dare to supervise”, and professional background enables them to “be capable of supervising”, reducing the space for tone manipulation and alleviating its damage to long-term growth (Hypothesis H4).

3.2. Hypothesis Development

3.2.1. Executive Tone Manipulation and Corporate Financial Sustainability

Executive tone manipulation is a short-term oriented impression management behavior implemented by management to guide external perceptions. It conceals the true operating conditions of the firm by exaggerating optimistic expectations and downplaying negative information. From the perspective of the decision transmission path, the short-term orientation reflected by tone manipulation will prompt management to prioritize short-term projects that can quickly enhance the market image, while neglecting core activities supporting long-term growth such as R&D investment and internal resource accumulation. Meanwhile, tone manipulation exacerbates information asymmetry [62], leading external investors and creditors to make resource allocation decisions based on false signals, which in turn triggers problems such as imbalanced corporate capital structure and reduced investment efficiency. The core of financial sustainability (measured by corporate sustainable development) is a firm’s ability to achieve long-term stable growth through the optimal allocation of internal resources. However, decision-making biases and resource misallocation caused by tone manipulation will directly damage this ability. Existing studies have confirmed the negative impact of tone manipulation on short-term performance but have not extended it to the level of long-term financial sustainability [63,64].

Hypothesis 1. *Executives’ tone manipulation has a significantly negative impact on an enterprise’s sustainable development capability.*

3.2.2. The Moderating Role of Social Responsibility Disclosure Quality

High-quality corporate social responsibility disclosure can constrain management’s tone manipulation behavior through a dual mechanism of “transparency enhancement + reputation constraint”. From the perspective of transparency, Social responsibility disclosure covers core information such as corporate long-term value creation and stakeholder responsibility performance, forming cross-validation with the tone signals in annual reports—when a firm’s social responsibility disclosure report emphasizes “long-term sustainable development” but the annual report tone is excessively optimistic and inconsistent with actual operations, external stakeholders are more likely to identify this contradiction and reduce their trust in the tone signals [65,66]. From the perspective of reputation constraint, the reputation capital accumulated by firms through long-term high-quality social responsibility disclosure will increase the potential cost of tone manipulation: once the manipulation behavior is exposed,

it will not only lead to reputation loss but also may trigger chain reactions such as consumer boycotts and investor withdrawals. Therefore, high-quality social responsibility disclosure can improve the transparency of the information environment, strengthen the reputation constraint on management, and thereby mitigate the negative impact of tone manipulation on financial sustainability [67,68].

Hypothesis 2. *The quality of social responsibility information disclosure weakens the negative impact of executives' tone manipulation on enterprises' sustainable development capability.*

3.2.3. The Moderating Role of Institutional Investor Ownership

Institutional investors can effectively inhibit the negative effects of tone manipulation by virtue of their professional advantages and governance motivation. Compared with individual investors, institutional investors have stronger text analysis and information interpretation capabilities, enabling them to identify traces of tone manipulation hidden by management in disclosure texts such as MD&A. Meanwhile, the long-term shareholding orientation of institutional investors makes them more concerned about firms' long-term financial sustainability rather than short-term stock price fluctuations—when tone manipulation may damage firms' long-term value, institutional investors have a strong motivation to constrain management's short-term manipulation behavior through shareholder proposals, board communications, and exercise of voting rights [69,70]. As the proportion of institutional investor ownership increases, their supervision intensity and voice over management significantly enhance, the difficulty and cost of management's tone manipulation rise, and the damage to financial sustainability is correspondingly mitigated.

Hypothesis 3. *Institutional investor shareholding ratio weakens the negative impact of executives' tone manipulation on enterprises' sustainable development capability.*

3.2.4. The Moderating Role of Board Independence

As a core mechanism of internal governance, board independence reduces the space for management's tone manipulation through the objective supervision of independent directors. Independent directors usually have professional backgrounds in finance, law, strategy, etc., and can identify logical contradictions and false information in tone disclosure by virtue of their professional knowledge. Meanwhile, independent directors do not participate in the daily operations of the firm and have no direct interest connection with management, enabling them to maintain an objective and neutral stance, raise objections to irregular information disclosure behaviors, and even veto disclosure texts suspected of serious manipulation. Under the supervision of a highly independent board of directors, the authenticity and standardization of information disclosure are significantly improved, and the space for management to mislead stakeholders through tone manipulation is greatly compressed, thereby alleviating its negative impact on financial sustainability [71].

Hypothesis 4. *Board independence weakens the negative impact of executives' tone manipulation on enterprises' sustainable development capability.*

4. Research Methodology and Design

4.1. Sample Selection and Data Sources

This study adopts a quantitative research approach and conducts empirical tests based on large-sample textual data and panel data models. This study uses Chinese A-share listed companies from 2014 to 2023 as the research sample. This study selects the period from 2014 to 2023 as the sample period based on the following considerations: Starting from 2014, the textual structure of the Management Discussion and Analysis (MD&A)

section in listed companies' annual reports has become increasingly standardized, laying a comparable foundation for textual analysis; corporate social responsibility reports have become significantly more prevalent during the same period, leading to a substantial improvement in the consistency and accessibility of social responsibility disclosure data; data on institutional investor ownership has also gradually improved since 2014; in addition, regulatory authorities have continuously strengthened requirements for information disclosure and corporate governance thereafter, providing a stable institutional environment for conducting research on executive tone manipulation [72,73]. Prior to 2014, relevant report data were not only outdated but also lacked sufficient standardization and comparability, making them inadequate to meet the data quality requirements of this study.

The sample scope encompasses non-financial and non-real estate enterprises listed on the Shanghai and Shenzhen stock markets, thereby minimizing the impact of industry-specific regulatory differences and asset structure characteristics on the research results. A-share listed companies are representative in terms of corporate governance structure, information disclosure mechanisms, and market reactions. Therefore, they can comprehensively reflect the linguistic characteristics and economic consequences of Chinese enterprises in different governance contexts.

To ensure the completeness and reliability of the data, this study retains only company data that continuously disclose annual reports during the sample period and whose MD&A text information is available. The relevant data are mainly from the CSMAR database and listed company announcement documents, which have high authority and consistency in empirical research.

Moreover, the sample selection of this study fully considers the institutional background and development stage of China's capital markets. In recent years, the continuous improvement in corporate governance and information disclosure systems has increased the research value of nonfinancial information (e.g., tone and textual expression) in the capital market. Management tone in information disclosure is an important means for enterprises to transmit signals, which not only affect investor expectations and market trust but also reflect their strategic orientation and sustainable development capability to a certain extent. Therefore, selecting A-share listed companies in this time range as the research sample helps reveal the economic and practical significance of executives' tone manipulation in the context of corporate governance and sustainable development.

To ensure the reproducibility of the study, the data processing procedures are detailed as follows:

MD&A Text Collection: Python 3.9.7 (Requests + BeautifulSoup) was used to crawl PDF/HTML files of listed companies' annual reports, from which the MD&A sections were extracted.

Text Preprocessing: This included removing HTML tags, deleting punctuation marks, unifying encoding formats, word segmentation, removing stop words, and eliminating "templated statements" (e.g., standardized risk warnings) to reduce noise.

Calculation of Tone Index (TONE): Based on the Loughran–McDonald financial sentiment dictionary, the ratio of positive words to negative words was calculated to obtain the tone index. Tone manipulation was measured by the abnormal component of TONE.

Acquisition of Governance Variables: Data on social responsibility disclosure quality, institutional investor ownership ratio, and board independence were obtained from CSMAR, CNINFO, and companies' social responsibility reports.

Sample Screening: Stata 16, developed by StataCorp LLC in Austin, TX, USA, was used for software operations. Observations of ST, *ST, PT companies, delisted companies, and those with missing key variables were excluded.

Outlier Handling: All continuous variables were winsorized at the 1% level to mitigate the impact of extreme values on regression results.

A final sample of 18,053 valid observations was obtained, which is sufficient to support large-sample panel data analysis. The data collection, variable construction, and preprocessing procedures of this study have been explicitly disclosed to ensure research reproducibility and methodological transparency.

4.2. Variable Definitions

4.2.1. Independent Variable

Executives' tone manipulation [74] refers to enterprise executives' deliberate selection of words and expressions when stating annual reports, MD&A, or other public information to render the tone of the text, increase the use of positive words, and reduce the use of pessimistic words, thereby improving the overall optimism of text information. The annual report tone based on the LM dictionary is crawled from the official website of the Shanghai Stock Exchange using Python 3.9.7: $\text{Tone} = (\text{number of positive words} - \text{number of negative words}) / (\text{number of positive words} + \text{number of negative words})$ [41]. Compared with traditional qualitative analysis methods, text analysis offers higher automation and stronger processing capabilities, making it particularly suitable for analyzing large-scale data. This enables us to efficiently analyze the tone characteristics of the annual reports and MD&A sections of hundreds of listed companies in the A-share market [75], overcoming the time and resource constraints of traditional manual analysis.

4.2.2. Dependent Variable

The corporate sustainable development indicator is constructed according to the Van Horne sustainable development static model to measure the sustainable capabilities of listed companies. Corporate sustainable development [76] = $\text{net profit margin on sales} \times \text{retention ratio} \times (1 + \text{debt-to-equity ratio}) / (1 / \text{total asset turnover} - \text{net profit margin on sales} \times \text{retention ratio} \times (1 + \text{debt-to-equity ratio}))$ [77–79].

4.2.3. Moderating Variables

Corporate Social Responsibility Information Disclosure Quality [80]: This study selects 12 aspects from the "Listed Companies' Social Responsibility Report Basic Information Table" in the Social Responsibility Research Sub-library of the Guotai'an database as the basic standards for measuring the quality of enterprises' social responsibility information. These 12 standards are assigned scores of 0 or 1. The scores of these 12 standards for each company are then summed and divided by 12 to standardize the value, and the measurement indicator of social responsibility information quality is obtained. The larger the indicator, the higher the quality of social responsibility information disclosure [81,82].

Institutional Investor Shareholding Ratio: Drawing on the research of Yang [83] (2025), to measure institutional investor shareholding ratio, this study selects the indicator of the proportion of tradable A-shares held by overall institutional investors at the end of the year to the total tradable A-shares of the listed company. This indicator includes the shareholding statuses of all types of institutional investors in the sample company during the accounting year. $\text{institutional investor shareholding ratio} = \text{the number of tradable A-shares held by institutional investors at the end of the year} / \text{total tradable A-shares of the company at the end of the year}$.

Board Independence: It is the proportion of independent directors, that is, the ratio of the number of independent directors to the total number of directors on the board [84,85].

4.2.4. Control Variables

To reduce the impact of any other possible variables, the following control variables are selected from different aspects: Enterprise Size [86] (Size), Cash Holding Level (Cash-flow) [86], Return on Equity (ROE) [87], Largest Shareholder Shareholding Ratio [88] (TOP1), Enterprise Age (Age) [87], and Operating Income Growth Rate [88] (Growth). The explanations for all variables are shown in Table 1.

Table 1. Variable Names and Definitions.

Category	Variable Name	Variable Code	Measurement Method
Independent Variable	Executives' Tone Manipulation	TONE	Tone = (Number of positive words – Number of negative words)/(Number of positive words + Number of negative words)
Dependent Variable	Corporate Sustainable Development	SGR	Corporate Sustainable Development SGR = Net profit margin on sales × Retention ratio × (1 + Debt-to-equity ratio)/(1/Total asset turnover – Net profit margin on sales × Retention ratio × (1 + Debt-to-equity ratio))
Moderating Variables	Information Disclosure Quality	CSR	Measured by the 12-indicator scoring method
	Institutional Investor Shareholding Ratio	INST	Number of tradable A-shares held by overall institutional investors at the end of the year/Total tradable A-shares of the company at the end of the year
	Board Independence	Indep	Ratio of the number of independent directors to the total number of directors on the board
Control Variables	Enterprise Size	Size	Natural logarithm of total assets for the year
	Cash Holding Level	Cashflow	Operating cash flow/Total assets
	Return on Equity	ROE	Net profit/Average balance of shareholders' equity
	Largest Shareholder Shareholding Ratio	TOP1	Largest shareholder shareholding ratio
	Enterprise Age	Age	Ln (Observation year – Registration year + 1)
	Operating Income Growth Rate	Growth	(Current year's operating income – Previous year's operating income)/Previous year's operating income

4.3. Model Design

Model (1) is used to test Hypothesis 1. If β_1 is less than 0 and significant, executives' tone manipulation has a negative impact on corporate sustainable development; that is, Hypothesis 1 is supported.

$$SGR = \beta_0 + \beta_1 TONE + \Sigma Controls + \lambda_t + \epsilon \quad (1)$$

To verify the moderating effects of CSR information disclosure quality, the institutional investor shareholding ratio, and board independence, Models (2)–(4) are constructed.

$$SGR = \beta_0 + \beta_1 TONE + \beta_2 CSR + \beta_3 TONE \times CSR + \Sigma Controls + \lambda_t + \epsilon \quad (2)$$

$$SGR = \beta_0 + \beta_1 TONE + \beta_2 INST + \beta_3 TONE \times INST + \Sigma Controls + \lambda_t + \epsilon \quad (3)$$

$$SGR = \beta_0 + \beta_1 TONE + \beta_2 Indep + \beta_3 TONE \times Indep + \Sigma Controls + \lambda_t + \epsilon \quad (4)$$

In Model (2), if β_3 is significantly positive, CSR information disclosure quality weakens the negative impact of executives' tone manipulation on corporate sustainable development; that is, Hypothesis 2 holds. Models (3) and (4) are consistent with Model (2). Among them, SGR stands for corporate sustainable development, TONE for executives' tone manipulation, CSR for CSR information disclosure quality, INST for institutional investor shareholding ratio, Indep for board independence, Control represents control variables, t is the year, and ε is the random error term.

Figure 1 is the schematic theoretical model.

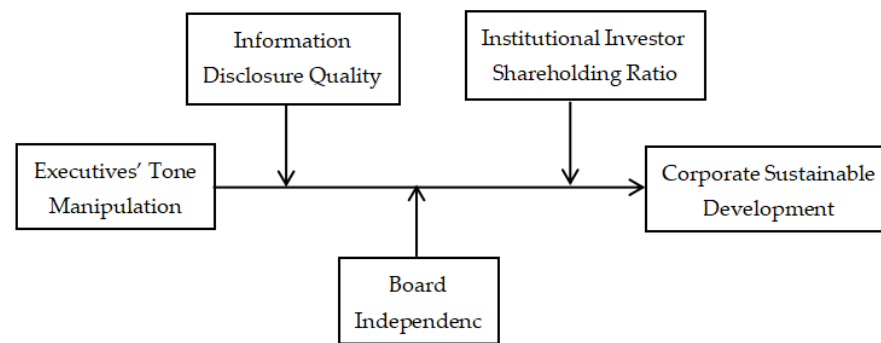


Figure 1. Schematic theoretical model.

5. Empirical Analysis Results

5.1. Descriptive Statistical Analysis

Table 2 presents the descriptive statistical results for the main variables in this study, including indicators such as the number of observations, mean, standard deviation, minimum value, median, and maximum value.

Table 2. Descriptive Statistical Results.

VarName	Obs	Mean	SD	Min	Median	Max
TONE	15,616	0.365	0.099	0.065	0.371	0.585
SGR	15,616	0.212	0.154	−0.332	0.185	2.363
CSR	15,616	0.502	0.216	0.000	0.583	0.833
INST	15,616	44.487	23.276	0.461	46.358	90.979
Indep	15,616	37.369	5.022	33.330	35.710	57.140
Size	15,616	22.620	1.300	20.110	22.425	26.593
Cashflow	15,616	0.053	0.061	−0.129	0.051	0.252
ROE	15,616	0.082	0.061	0.003	0.070	0.408
Growth	15,616	0.160	0.380	−0.486	0.095	2.780
Top1	15,616	0.332	0.145	0.082	0.311	0.726
FirmAge	15,616	3.037	0.274	2.197	3.091	3.555

The mean value of executives' tone manipulation is 0.365, with a standard deviation of 0.099, indicating that the degree of executives' use of a positive tone in information disclosure is relatively moderate and that there are certain differences among the sample enterprises. The minimum value is 0.065, and the maximum value is 0.585, with a wide range of extreme values, indicating that the executives' tone of some enterprises is relatively negative, whereas a few enterprises use a relatively positive tone. The median is 0.371, which is close to the mean, indicating that executives' tone manipulation in most enter-

prises is at a relatively neutral level. The distribution of this variable is slightly skewed, indicating that there are notable differences in linguistic manipulation among executives across enterprises. However, most enterprises remain in a relatively conservative range of tone use.

The mean value of the corporate sustainable growth rate is 0.212 with a standard deviation of 0.154, minimum value of -0.332 , and maximum value of 2.363. This indicates that the sustainable growth capability of some enterprises in the sample is low, with certain negative values; however, the sustainable growth rate of most enterprises is in the positive range. The median is 0.185, which is close to the mean, indicating that most enterprises in the sample maintain a positive sustainable growth capability; however, the sustainable development capability of some enterprises fluctuates significantly.

The mean value of CSR information disclosure quality is 0.502, with a standard deviation of 0.216, minimum value of 0, and maximum value of 0.833, indicating significant differences in the quality of CSR information disclosure among the sample enterprises. Some enterprises disclose almost no CSR information, whereas a few have a high degree of disclosure. The median is 0.583, close to the mean, indicating that most enterprises' CSR disclosures are relatively moderate. P25 is 0.333 and P75 is 0.750, showing that there are obvious differences in the quality of CSR information disclosure among some enterprises.

The mean value of the institutional investor shareholding ratio is 44.487, with a standard deviation of 23.276, minimum value of 0.461, and maximum value of 90.979, indicating significant differences in institutional investor shareholding ratios among enterprises. The median is 46.358, close to the mean, indicating that most enterprises' institutional investor shareholding ratios are relatively concentrated. P25 is 23.032, and P75 is 65.358, indicating that the institutional investor shareholding ratios of most enterprises are concentrated in the low-to-medium range, whereas a few enterprises have a high institutional investor shareholding ratio.

The mean value of board independence is 37.369, with a standard deviation of 5.022, minimum value of 33.330, and maximum value of 57.140, indicating differences in board independence. The board independence of most enterprises is concentrated within a relatively moderate range. The median is 35.710, P25 is 34.200, and P75 is 40.380, indicating that board independence in the sample has a certain concentration and that the board independence of most companies is relatively standardized.

In summary, the descriptive statistics of this study fully show the distribution characteristics of each variable, including the central tendency (mean and median), dispersion (standard deviation and coefficient of variation), and extreme values (minimum and maximum). These statistical characteristics provide a solid basis for subsequent regression analysis and model setting and offer theoretical support for further testing the moderating effect.

5.2. Correlation Analysis

The results of the sample correlation analyses are presented in Table 3. The data indicate a significant negative correlation between the dependent variable (sustainable development capability) and independent variable (executives' tone manipulation), with a correlation coefficient of 0.013 (at the 1% significance level). This supports Hypothesis 1 that executives' tone manipulation (TONE) has a significant negative impact on corporate sustainable development capability (SGR). All variance inflation factor (VIF) values are less than 2, with a mean of 1.1, implying that multicollinearity is negligible for the main results of this study.

Table 3. Correlation Analysis Results.

Variables	(SGR)	(TONE)	(CSR)	(INST)	(Indep)	(TobinQ)	(Size)	(Cashflow)	(ROE)	(Growth)	(Top1)	(FirmAge)
SGR	1.000											
TONE	−0.013 *	1.000										
CSR	0.072 ***	0.087 ***	1.000									
INST	0.078 ***	−0.016 **	0.107 ***	1.000								
Indep	0.057 ***	0.051 ***	0.004	−0.037 ***	1.000							
TobinQ	0.085 ***	0.010	−0.115 ***	−0.107 ***	0.044 ***	1.000						
Size	0.118 ***	0.015 *	0.258 ***	0.497 ***	0.016 **	−0.464 ***	1.000					
Cashflow	0.145 ***	0.036 ***	0.073 ***	0.105 ***	−0.005	0.083 ***	0.051 ***	1.000				
ROE	0.492 ***	0.108 ***	0.082 ***	0.143 ***	−0.014 *	0.163 ***	0.171 ***	0.375 ***	1.000			
Growth	0.148 ***	0.060 ***	−0.051 ***	0.020 **	−0.001	0.063 ***	0.014 *	−0.040 ***	0.188 ***	1.000		
Top1	−0.051 ***	0.016 **	0.027 ***	0.568 ***	0.047 ***	−0.087 ***	0.234 ***	0.095 ***	0.090 ***	−0.023 ***	1.000	
FirmAge	−0.002	0.007	0.099 ***	0.090 ***	−0.020 **	−0.150 ***	0.124 ***	0.008	−0.008	−0.056 ***	−0.028 ***	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5.3. Baseline Regression

The results of the Hausman test show that the p -value < 0.01 . Therefore, this study adopts a fixed-effects model that controls for year and industry effects in the empirical analysis. The results of the baseline regression analyses are presented in Table 4. In Column (1), without adding control variables, executives' tone manipulation has a significantly negative impact on corporate sustainable development capability, with a coefficient of -0.050 , significant at the 1% level. Column (2) adds the control variables to Column (1), showing that the negative impact of executives' tone manipulation on corporate sustainable development capability remains significant, with a coefficient of -0.141 , significant at the 1% significance level. This indicates that the negative driving effect of executives' tone manipulation on corporate sustainable development capability is robust and highly consistent with the main regression conclusions, further verifying the research hypothesis and enhancing the reliability and generalizability of the research conclusions.

Table 4. Baseline Regression Results.

	(1)	(2)
VARIABLES	SGR	SGR
TONE	−0.050 *** (−3.333)	−0.141 *** (−10.885)
Size		0.011 *** (7.494)
Cashflow		−0.004 (−0.175)
ROE		1.206 *** (37.098)
Growth		0.023 *** (8.161)
Top1		−0.083 *** (−6.770)
FirmAge		0.009 (1.364)
Constant	0.230 *** (39.541)	−0.094 ** (−2.417)
Observations	15,616	15,616
R-squared	0.069	0.321
IND	YES	YES
YEAR	YES	YES

*** $p < 0.01$, ** $p < 0.05$.

Compared with the model without control variables, R^2 increases from 0.069 to 0.321, indicating that the addition of control variables affects the relationship between the dependent variable (corporate sustainable development capability) and the independent variable (executives' tone manipulation). Therefore, Hypothesis 1 is again supported.

5.4. Regression Analysis

Moderating effect regression models are constructed to examine whether the moderating variables—board independence, institutional investor shareholding ratio, and CSR information disclosure quality—play moderating roles in the impact of executives' tone manipulation on sustainable development capability. The regression results in Table 5 show that the regression coefficient of executives' tone manipulation is significantly negative.

Table 5. Moderating Effect Regression Results.

	(1)	(2)	(3)
VARIABLES	SGR	SGR	SGR
TONE	−0.143 *** (−11.140)	−0.147 *** (−11.643)	−0.712 *** (−9.690)
CSR_TONE	0.199 *** (4.629)		
INST_TONE		0.514 *** (11.538)	
Indep_TONE			0.152 *** (8.075)
CSR	0.026 *** (3.804)		
INST		0.059 *** (6.997)	
Indep			0.020 *** (7.196)
Size	0.010 *** (6.631)	0.007 *** (4.510)	0.011 *** (7.425)
Cashflow	−0.006 (−0.257)	−0.013 (−0.549)	−0.002 (−0.070)
ROE	1.206 *** (37.147)	1.201 *** (37.386)	1.209 *** (37.361)
Growth	0.024 *** (8.493)	0.023 *** (7.969)	0.023 *** (8.233)
Top1	−0.082 *** (−6.684)	−0.128 *** (−9.432)	−0.088 *** (−7.267)
FirmAge	0.009 (1.345)	0.006 (0.829)	0.011 (1.574)
Constant	−0.079 ** (−2.036)	0.003 (0.078)	0.040 (0.831)
Observations	15,616	15,616	15,616
R-squared	0.323	0.332	0.329
IND	YES	YES	YES
YEAR	YES	YES	YES

*** $p < 0.01$, ** $p < 0.05$.

In Column (1), the interaction term between the quality of CSR information disclosure and executives' tone manipulation has a significantly positive effect on the dependent variable (sustainable development capability). This indicates that an improvement in the quality of CSR information disclosure strengthens the effect of executives' tone manipulation on sustainable development capability, thus supporting Hypothesis 2.

In Column (2), the interaction term between institutional investor shareholding ratio and executives' tone manipulation has a significantly positive impact on the dependent variable. This suggests that an increase in the institutional investor shareholding ratio enhances the effect of executives' tone manipulation on sustainable development capability, thus supporting Hypothesis 3.

In Column (3), the interaction term between board independence and executives' tone manipulation has a significantly positive effect on the dependent variable. This implies that an improvement in board independence enhances the effect of executives' tone manipulation on sustainable development capability, supporting Hypothesis 4.

5.5. Robustness Tests

5.5.1. Excluding Pandemic Years

As shown in Table 6, to eliminate the interference of the COVID–19 pandemic shock, this study excludes the 2020 sample and conducts regression verification on the remaining samples. From the regression results in Column (1), after excluding the pandemic's impact, the regression coefficient between executives' tone manipulation and sustainable development capability is significantly negative, indicating that the result passes the robustness test.

Table 6. Robustness Test Regression Results.

VARIABLES	Excluding Pandemic Years	Replacing the Dependent Variable
	SGR	Tobin's Q
TONE	−0.138 *** (−10.429)	−0.335 *** (−2.988)
Size	0.011 *** (7.544)	−0.415 *** (−28.970)
Cashflow	−0.009 (−0.369)	0.560 *** (2.861)
ROE	1.208 *** (35.256)	4.485 *** (16.691)
Growth	0.021 *** (6.976)	0.042 * (1.655)
Top1	−0.077 *** (−6.173)	0.206 ** (2.183)
FirmAge	0.011 (1.557)	−0.097 * (−1.758)
Constant	−0.106 *** (−2.718)	11.282 *** (32.591)
Observations	13,926	15,616
R-squared	0.320	0.373
IND	YES	YES
YEAR	YES	YES

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5.5.2. Replacing the Dependent Variable

To test whether the regression results are biased because of the different settings of financial health indicators, this study uses Tobin's Q to replace the original dependent variable "sustainable development capability" for robustness testing. The corporate sustainable development measures the maximum growth rate an enterprise can achieve without relying on external equity financing and maintaining existing operational efficiency and financial policies, which mainly reflects the enterprise's endogenous growth capability and financial stability. Tobin's Q is the ratio of the enterprise's market value to the replacement cost of assets, reflecting the market's comprehensive expectations of its future profitability.

and growth potential, and is a comparative indicator of “market valuation” and “real asset value.”

If the regression results are consistent after replacing the dependent variable, the core conclusions of this study are robust. The results in Column (2) show that tone manipulation by executives has a significantly negative impact on Tobin’s Q, which is significant at the 1% level. This indicates that, even from the perspective of market valuation, executives’ tone manipulation still significantly weakens an enterprise’s sustainable development potential, which is consistent with the previous analysis conclusion based on corporate sustainable development. Regardless of the measurement method adopted, the negative impact of executives’ tone manipulation on corporate sustainable development capability is robustly supported, further verifying the reliability of our conclusions.

5.5.3. 2SLS Test

This study uses a fixed-effects regression model to explore the impact of executives’ tone manipulation on corporate sustainable development capability. However, reverse causality and omitted variables may have affected the accuracy of the results. To address potential endogeneity issues, this study draws on previous research, uses an instrumental variable (ITONE) for tone manipulation and employs the two-stage least squares (2SLS) method for robustness testing.

Table 7 presents the regression results of the 2SLS. In the first-stage regression, the regression coefficient of the instrumental variable ITONE on TONE is 0.665 *** (t -value = 70.40), indicating a strong positive correlation at the 1% significance level. This indicates that the one-period lagged ITONE, as an instrumental variable, has extremely strong explanatory power for TONE. In the second-stage regression, the regression coefficient of executives’ tone manipulation (TONE) on sustainable development capability (corporate sustainable development) is -0.192 (t -value = -8.54), which is significantly negative at the 1% significance level. This further verifies the negative inhibitory effect of executives’ tone manipulation on development capability. Additionally, the results of the Durbin-Wu-Hausman (DWH) test show that the Kleibergen-Paap rk LM statistic is 694.976, indicating that the instrumental variable is identifiable. Meanwhile, the Cragg-Donald Wald F statistic and Kleibergen-Paap rk Wald F statistic are 8546.388 and 4955.751, respectively, which are much larger than the critical values of the weak instrumental variable test. This indicates that there is no weak instrumental variable problem with the instrumental variable used in this study. Therefore, the 2SLS estimation results are robust and reliable, further supporting the negative role of executives’ tone manipulation in weakening corporate sustainable development capability.

Table 7. 2SLS Regression Results.

	(1)	(2)
	TONE	SGR
ITONE	0.665 *** (70.40)	
TONE		-0.192 *** (-8.54)
Size	0.000 (0.01)	0.012 *** (7.54)
Cashflow	0.019 (1.44)	-0.024 (-0.87)
ROE	0.030 ** (2.30)	1.186 *** (32.28)

Table 7. Cont.

	(1)	(2)
Growth	0.020 *** (8.76)	0.035 *** (9.06)
Top1	0.005 (1.10)	−0.087 *** (−6.45)
FirmAge	−0.002 (−0.54)	0.007 (0.91)
_cons	0.124 *** (7.64)	
N	10382	10,382
adj. R ²	0.552	0.301

*** $p < 0.01$, ** $p < 0.05$.

5.6. Heterogeneity Analysis

Regarding the heterogeneity analysis, the results are presented in Table 8.

Table 8. Heterogeneity Analysis Results.

	(1)	(2)	(1)	(2)	(1)	(2)
	Non-High-Tech Industry	High-Tech INDUSTRY	Non-Polluting Industry	Heavy-Polluting Industry	Eastern Region	Central and Western Regions
TONE	−0.100 *** (−5.40)	−0.195 *** (−10.75)	−0.155 *** (−10.35)	−0.143 *** (−5.19)	−0.149 *** (−9.87)	−0.152 *** (−5.97)
Size	0.012 *** (5.39)	0.013 *** (5.83)	0.014 *** (7.24)	0.009 *** (3.34)	0.013 *** (7.12)	0.010 *** (3.60)
Cashflow	0.020 (0.58)	−0.027 (−0.83)	−0.020 (−0.72)	0.024 (0.52)	−0.025 (−0.91)	0.066 (1.35)
ROE	1.097 *** (23.92)	1.241 *** (27.60)	1.208 *** (29.62)	1.135 *** (20.87)	1.249 *** (32.52)	1.035 *** (16.92)
Growth	0.026 *** (7.10)	0.023 *** (5.33)	0.025 *** (8.05)	0.024 *** (3.69)	0.022 *** (6.40)	0.030 *** (5.97)
Top1	−0.083 *** (−4.40)	−0.086 *** (−5.12)	−0.083 *** (−5.58)	−0.081 *** (−3.61)	−0.093 *** (−6.23)	−0.050 ** (−2.19)
FirmAge	−0.010 (−0.89)	0.022 ** (2.50)	0.003 (0.43)	0.032 ** (2.32)	−0.001 (−0.08)	0.043 *** (3.22)
_cons	−0.069 (−1.13)	−0.139 ** (−2.52)	−0.123 ** (−2.51)	−0.124 * (−1.72)	−0.104 ** (−2.12)	−0.181 ** (−2.43)
N	6543	9072	11731	3884	10961	4652
adj. R ²	0.375	0.302	0.320	0.376	0.345	0.313

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Based on the type of industry, the sample is divided into non-high-tech and high-tech industries. As shown in Columns (1) and (2) of the table, executives' tone manipulation has a significantly negative impact on sustainable development capability (corporate sustainable development) in both types of industries, and the negative impact is stronger in high-tech industries (the TONE coefficient is −0.195 *** for high-tech industries and −0.100 *** for non-high-tech industries). This result indicates that high-tech industries have higher requirements for information transparency, and that the market is more sensitive to signal transmission. The “disguised” behavior of executives' tone manipulation is more likely to arouse the market's doubts about the enterprise's true sustainable development capability, thereby forming a stronger inhibitory effect on corporate sustainable development. By contrast, the information environment of non-high-tech industries is less sensitive, and the negative impact of tone manipulation is weaker.

According to industry pollution attributes, the sample is divided into heavy-polluting and non-polluting industries. As shown in Columns (3) and (4), executives' tone manipulation has a significant negative impact on corporate sustainable development in both types. This may be because, regardless of pollution level, executives' tone manipulation is essentially a "modification" of the enterprise's true operation and sustainable development status. When the market identifies this "modification," it will doubt the authenticity of the enterprise's sustainable development, thereby exerting an inhibitory effect on corporate sustainable development. The negative impact is slightly higher in non-polluting industries (the TONE coefficient is -0.155^{***} for non-polluting industries and -0.143^{***} for heavily polluting industries). This may be because non-polluting industries face less environmental responsibility pressure in the ESG dimension and are more likely to conduct "image packaging" through tone manipulation. Once the "deceptiveness" of such behavior is exposed, the impact on sustainable development capability is more obvious.

Based on regional development differences, the sample is divided into the Eastern, Central, and Western Regions. As shown in Columns (5) and (6), executives' tone manipulation has a significant negative impact on sustainable development capability (corporate sustainable development) in both regions, and the negative impact is stronger in the Central and Western Regions (the TONE coefficient is -0.152^{***} for the Central and Western Regions and -0.149^{***} for the Eastern Region). This phenomenon can be explained as follows. The Eastern Region has a high degree of marketization, and its information dissemination and market supervision mechanisms are better. The "loopholes" in executives' tone manipulation are more likely to be quickly identified, and the negative impact on corporate sustainable development is relatively controlled. In contrast, the information environment in the Central and Western Regions is relatively backward, and the market's ability to screen enterprise signals is weaker. Once a trust crisis caused by tone manipulation occurs, the impact on an enterprise's sustainable development capabilities becomes more severe.

5.7. Further Test: Mediating Effect Analysis Based on Investor Sentiment

To further clarify the internal mechanism through which executive tone affects firms' sustainable growth and respond to the reviewer's suggestion of "supplementing mediating variable tests", this study identifies investor sentiment (SENT) as a potential transmission channel and employs the classic three-step method to empirically analyze the mediating effect. Table 9 presents the regression results.

First, Column (1) shows that executive tone (TONE) has a significantly negative impact on sustainable growth rate (corporate sustainable development) ($\beta = -0.141, p < 0.01$), indicating that a more negative tone used by management in information disclosure weakens firms' subsequent growth capacity.

Second, Column (2) tests the impact of TONE on the mediating variable SENT. The coefficient of executive tone is significantly negative ($\beta = -0.038, p < 0.05$), meaning that a more negative tone leads to a weaker text sentiment orientation. This supports the mechanistic basis that "management tone can influence investor sentiment".

Finally, when both TONE and SENT are included in the regression (Column (3)), SENT has a significantly positive effect on SGR ($\beta = 0.013, p < 0.01$), while the coefficient of TONE remains significantly negative ($\beta = -0.137, p < 0.01$) but slightly decreases in magnitude compared to Column (1).

Combining the above results, the mediating path of "TONE $\rightarrow$ SENT $\rightarrow$ SGR" is partially verified, indicating that investor sentiment is indeed a crucial transmission mechanism through which executive tone affects firms' sustainable growth. Meanwhile, TONE remains significant after the inclusion of the mediating variable, suggesting that execu-

tive tone exerts both a direct effect on firms' financial sustainability and an indirect effect through sentiment transmission.

Table 9. Further Analysis.

	(1)	(2)	(3)
VARIABLES	SGR	SGR	SGR
TONE	−0.141 *** (−10.885)	−0.038 ** (−0.907)	−0.137 *** (−10.665)
SENT			0.013 *** (4.643)
Size	0.011 *** (7.494)	−0.022 *** (−5.703)	0.012 *** (7.747)
Cashflow	−0.004 (−0.175)	−0.091 (−1.303)	−0.007 (−0.276)
ROE	1.206 *** (37.098)	1.829 *** (20.934)	1.191 *** (35.550)
Growth	0.023 *** (8.161)	−0.048 *** (−4.002)	0.024 *** (7.953)
Top1	−0.083 *** (−6.770)	−0.247 *** (−7.505)	−0.080 *** (−6.510)
FirmAge	0.009 (1.364)	−0.068 *** (−3.642)	0.010 (1.432)
Constant	−0.094 ** (−2.417)	0.694 *** (6.671)	−0.109 *** (−2.799)
Observations	15,616	15,388	15,388
R-squared	0.321	0.383	0.325
IND	YES	YES	YES
YEAR	YES	YES	YES

*** $p < 0.01$, ** $p < 0.05$.

5.8. Hypothesis Testing Results

Based on the empirical analysis, the following summary of test results is presented in Table 10, where all hypotheses are supported.

Table 10. Summary of Hypothesis Testing Results.

Hypothesis Number	Hypothesis Content (Brief Description)	Main Testing Model	Statistical Results	Supported?
H1	Executive tone manipulation has a significant negative impact on SGR	Table 4	Coefficient is significantly negative ($p < 0.01$)	Yes
H2	CSR disclosure quality mitigates the negative impact of tone manipulation	Table 5	Coefficient of the interaction term is significantly positive ($p < 0.01$)	Yes
H3	Institutional investor ownership ratio mitigates the negative impact of tone manipulation	Table 5	Coefficient of the interaction term is significantly positive ($p < 0.01$)	Yes
H4	Board independence mitigates the negative impact of tone manipulation	Table 5	Coefficient of the interaction term is significantly positive ($p < 0.01$)	Yes

6. Discussion and Conclusions

6.1. Discussion

The empirical results of this study support H1, indicating that executive tone manipulation significantly reduces corporate financial sustainability. This is consistent with the view of Cheng et al. (2024) [89] that managerial textual sentiment affects long-term operating performance. Furthermore, the empirical results for H2–H4 are also supported, verifying the buffering role of governance mechanisms in curbing linguistic manipulation [90–92].

Executives' linguistic characteristics play an important role in signal transmission in corporate information disclosure. Tone positivity can boost market confidence and improve investor sentiment in the short term [93–95]; however, it may also have negative effects, such as information distortion and market misjudgment [96–99]. However, existing studies mainly focus on the impact of tone on short-term market reactions (e.g., stock prices and trading volume) and pay insufficient attention to its long-term economic consequences and sustainable development performance [100,101]. Moreover, discussions on the linkage effect between tone manipulation and corporate governance mechanisms are relatively limited, especially empirical evidence in the institutional environment of emerging markets is still scarce [102,103].

Using Chinese A-share listed companies as the sample, this study systematically examines the long-term impact of executives' tone manipulation on corporate sustainable development capability and introduces variables such as social responsibility information disclosure quality, institutional investor shareholding ratio, and board independence as moderating mechanisms from the perspective of corporate governance. The results show that executives' tone manipulation significantly weakens corporate sustainable growth capability, indicating that impression management at the linguistic level damages the long-term competitiveness of enterprises by misleading market expectations and distorting resource allocation. A sound corporate governance mechanism can effectively alleviate this negative effect, reflecting the inhibitory effect of information transparency and supervision intensity on tone manipulation. Using a fixed-effects model, this study finds a significant negative correlation between tone manipulation and sustainable growth capacity. However, this research does not claim a strict causal effect of tone manipulation on the sustainable growth rate (corporate sustainable development). Instead, the results of this study are more inclined to reveal the statistical correlation between the two variables rather than a deterministic causal mechanism.

Compared with previous studies, this study makes progress and introduces new ideas in three ways. First, it broadens research on tone manipulation from short-term market reactions to the long-term perspective of corporate sustainable development, highlighting the enduring economic effects of behavioral biases. Second, by integrating corporate governance theory, it constructs an analytical framework of "tone manipulation—governance constraints—sustainable performance," revealing how internal oversight interacts with external reputation constraints. Finally, using the institutional environment of emerging markets, it examines the contextual differences in governance mechanisms in restraining linguistic manipulation and enhancing information quality. Overall, the findings of this study enrich research on behavioral corporate governance and sustainable development and provide new theoretical insights into the relationship among "linguistic information—governance structure—corporate performance."

6.2. Research Conclusions

Based on a sample of Chinese A-share listed companies from 2014 to 2023, this study systematically analyzes the impact of executives' tone manipulation on corporate sustain-

able development capability and the moderating effect of governance mechanisms. The empirical results are as follows.

Executives' tone manipulation significantly weakens corporate sustainable development capability. After controlling for industry and year effects, this negative impact remains significant. The regression coefficient of tone manipulation on the sustainable growth rate (corporate sustainable development) is -0.141 ($p < 0.01$), indicating that linguistic emotional manipulation not only is a short-term market signaling tool but also exerts substantial interference on enterprises' long-term strategies and resource allocation.

Governance mechanisms also have a significant moderating effect. Social responsibility information disclosure quality, institutional investor shareholding ratio, and board independence can effectively mitigate the negative impact of tone manipulation on sustainable development capability. This suggests that a sound corporate governance structure can inhibit managers' linguistic manipulation behavior and enhance enterprises' long-term value orientation through information transparency, external supervision, and internal checks and balances.

The conclusions remain robust across different contexts. After replacing the dependent variable (with Tobin's Q), excluding the pandemic-year sample, and using the 2SLS instrumental variable method to control for endogeneity, the core conclusions hold. After addressing endogeneity using the two-stage least squares (2SLS) instrumental variable method, the coefficient is -0.192 ($p < 0.01$), further verifying the reliability and generalizability of the research results.

In summary, this study not only expands the research boundary of corporate sustainable development from the perspective of "linguistic behavior" but also provides empirical support and policy implications for regulatory authorities to improve information disclosure systems, enterprises to optimize governance structures, and investors to identify non-financial risks. Future research could further explore the heterogeneous impacts of tone manipulation in different institutional environments, industry characteristics, and corporate cultural backgrounds to deepen our understanding of the relationship between linguistic governance and enterprises' long-term performance.

6.3. Theoretical Implications

The theoretical implications of this study are mainly reflected in the following three aspects:

First, this paper incorporates executive tone manipulation into the analytical framework of Upper Echelons Theory, treating managerial tone as an explicit manifestation of managers' cognitive structures, psychological biases, and strategic orientations. This provides a new research pathway for the application of Upper Echelons Theory in the fields of textual analysis and information disclosure.

Second, starting from the logical chain of "non-financial linguistic signals—corporate resource allocation—financial sustainability," this study reveals the long-term adverse impacts of executive tone manipulation. It expands the theoretical explanations in behavioral corporate governance research regarding how executive behaviors affect firms' long-term performance.

Third, this paper verifies the constraining roles of corporate social responsibility information disclosure quality, institutional investor ownership ratio, and board independence in the context of tone manipulation. It enriches research on the functional boundaries of external supervision mechanisms under information asymmetry within the framework of corporate governance theory.

6.4. Practical Implications

On a practical level, this study provides important implications for corporate governance and policy regulation. First, firms should focus on optimizing their internal governance structures and enhancing board independence, enabling independent directors to exert supervisory and checks-and-balances roles in information disclosure and strategic decision-making. This prevents management from manipulating tone due to short-term performance pressure, thereby safeguarding the authenticity of information disclosure and ensuring the stability of firms' long-term strategies.

Second, external supervision mechanisms should be further strengthened to encourage institutional investors to actively participate in corporate governance and guide them to focus on firms' long-term performance rather than short-term market fluctuations. This will foster an investment philosophy centered on long-term value in the capital market.

In addition, firms need to continuously improve the quality of corporate social responsibility information disclosure. By publishing high-quality social responsibility disclosure reports, they can enhance transparency and public trust and reduce management's motivation for linguistic manipulation through reputational constraints.

Finally, from the perspective of the institutional environment, it is necessary for regulatory authorities to strengthen the supervision of board independence and the authenticity of information disclosure within the framework of the existing Company Law and Securities Law. Simultaneously, they should encourage institutional investors to engage in long-term corporate governance and, against the backdrop of the "dual carbon" strategy and green transformation, guide firms to improve their social responsibility disclosure standards. Such institutional arrangements will curb linguistic manipulation and promote the healthy development of the capital market.

In summary, enterprises should build a "linguistic transparency"-oriented governance system by improving governance transparency and external supervision levels to achieve long-term and stable development in the sustainable transformation.

6.5. Research Limitations and Future Directions

Although this study provides new theoretical perspectives and empirical evidence for the relationship between executives' tone manipulation, corporate governance, and sustainable corporate development, it has certain limitations.

First, the research is based only on a sample of Chinese A-share listed companies and does not consider differences in the market environments of other countries or regions. Future research could expand the sample to other countries, especially developed markets or other emerging markets, to improve the generalizability and external validity of the conclusions.

Second, this study focuses only on executives' tone manipulation as a single variable, whereas sustainable development capability is a multidimensional concept. Future research should consider the impact of additional variables. For example, it could explore the influence of factors such as executives' management styles, enterprises' innovation capabilities, and social capital on corporate sustainable development capabilities to form a more comprehensive theoretical framework.

Finally, future research could explore how corporate governance mechanisms interact with other factors (e.g., corporate culture and employee incentives) to affect executive behavior and long-term corporate financial sustainability. By exploring these multilevel interactive relationships, we can better understand the comprehensive impact of governance structure, leadership, and corporate culture on sustainable development.

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References

- Hou, Y.; Long, R.; Zhang, L.; Wu, M. Dynamic analysis of the sustainable development capability of coal cities. *Resour. Policy* **2020**, *66*, 101607. [\[CrossRef\]](#)
- Li, C.; Tang, W.; Liang, F.; Wang, Z. The impact of climate change on corporate ESG performance: The role of resource misallocation in enterprises. *J. Clean. Prod.* **2024**, *445*, 141263. [\[CrossRef\]](#)
- Zopounidis, C.; Lemonakis, C. The company of the future: Integrating sustainability, growth, and profitability in contemporary business models. *Dev. Sustain. Econ. Financ.* **2024**, *1*, 100003. [\[CrossRef\]](#)
- Wu, D.; Song, Z.; Jin, S. ESG performance and financial Stability: The moderating effect of CEO characteristics. *J. Environ. Manag.* **2025**, *393*, 127049. [\[CrossRef\]](#) [\[PubMed\]](#)
- He, F.; Qin, S.; Liu, Y.; Wu, J.G. CSR and idiosyncratic risk: Evidence from ESG information disclosure. *Financ. Res. Lett.* **2022**, *49*, 102936. [\[CrossRef\]](#)
- Winstone, N.; Boud, D.; Dawson, P.; Heron, M. From feedback-as-information to feedback-as-process: A linguistic analysis of the feedback literature. *Assess. Eval. High. Educ.* **2022**, *47*, 213–230. [\[CrossRef\]](#)
- Ning, J.; Zhang, L.; Mi, B.; Yang, J.H.; Tao, L. Signalling through managerial tone and analysts' response. *Account. Forum* **2025**, *49*, 803–829. [\[CrossRef\]](#)
- Hamza, S.; Jarboui, A. CSR or social impression management? Tone management in CSR reports. *J. Financ. Report. Acc.* **2021**, *20*, 599–617. [\[CrossRef\]](#)
- Bian, S.; Jia, D.; Li, R.; Sun, W.; Yan, Z.; Zheng, Y. Can management tone predict IPO performance?—Evidence from mandatory online roadshows in China. *Pac.-Basin Financ. J.* **2021**, *68*, 101588. [\[CrossRef\]](#)
- Zhao, H.; Liu, H.; Yang, M.; Li, H. The impact of tones of executive communication on firm risk-taking: Evidence from performance volatility and acquisition spending. *Asia Pac. J. Manag.* **2024**, *42*, 1565–1608. [\[CrossRef\]](#)
- Gong, R. CEO overconfidence and the tone of press release. *Acc. Financ.* **2023**, *63*, 2081–2108. [\[CrossRef\]](#)
- Brender-Ilan, Y.; Reizer, A. How do we perceive a humorous manager? Manager humor, impression management, and employee willingness to work with the manager. *Front. Psychol.* **2021**, *12*, 628350. [\[CrossRef\]](#) [\[PubMed\]](#)
- Jiang, M.; Zhu, B.; Li, L. Manager-specific manipulation of tone and stock price synchronicity. *Acc. Financ.* **2024**, *64*, 3803–3821. [\[CrossRef\]](#)
- Qian, S. The effect of ESG on enterprise value under the dual carbon goals: From the perspectives of financing constraints and green innovation. *Int. Rev. Econ. Financ.* **2024**, *93*, 318–331. [\[CrossRef\]](#)
- Lijie, C. Research on the impact of management tone on corporate sustainable development: Evidence from listed companies. *China Circ. Econ.* **2024**, *23*, 49–52. [\[CrossRef\]](#)
- Li, S.; Wang, G.; Luo, Y. Tone of language, financial disclosure, and earnings management: A textual analysis of form 20-F. *Financ. Innov.* **2022**, *8*, 43. [\[CrossRef\]](#)
- Gerged, A.M.; Albitar, K.; Al-Haddad, L. Corporate environmental disclosure and earnings management—The moderating role of corporate governance structures. *Int. J. Financ. Econ.* **2023**, *28*, 2789–2810. [\[CrossRef\]](#)
- Sun, G.; Hu, X.; Chen, X.; Xiao, J. Sustainability Uncertainty and Supply Chain Financing: A Perspective Based on Divergent ESG Evaluations in China. *Systems* **2025**, *13*, 850. [\[CrossRef\]](#)
- Iqbal, J.; Riaz, K. Predicting future financial performance of banks from management's tone in the textual disclosures. *Qual. Quant.* **2022**, *56*, 2691–2721. [\[CrossRef\]](#)
- Patelli, L.; Pedrini, M. Is tone at the top associated with financial reporting aggressiveness? *J. Bus. Ethics* **2015**, *126*, 3–19. [\[CrossRef\]](#)

21. Fu, L.; Qin, K.; Wu, J. Does management tone promote financial performance? An empirical study with mediating and moderating effects. *J. Data Inf. Manag.* **2025**, *7*, 107–121. [\[CrossRef\]](#)
22. Dang, M.; Puwanenthiren, P.; Nguyen, M.T.; Hoang, V.A.; Mazur, M.; Henry, D. Does managerial tone matter for stock liquidity? Evidence from textual disclosures. *Financ. Res. Lett.* **2022**, *48*, 102917. [\[CrossRef\]](#)
23. Nazrul, T.; Mousa, R. Executive Religiosity and Disclosure Tone Ambiguity of Annual Reports. *J. Risk Financ. Manag.* **2025**, *18*, 54. [\[CrossRef\]](#)
24. Jiang, W.; Shi, C.; Li, Y.; Xie, S. Executive individualism and the tone of firms' annual reports. *Account. Financ.* **2024**, *64*, 4567–4591. [\[CrossRef\]](#)
25. Loughran, T.; McDonald, B. When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks. *J. Financ.* **2011**, *66*, 35–65. [\[CrossRef\]](#)
26. Dong, Z. Exploring Cross-cultural Communication Content Adaptability through Advanced Natural Language Processing and Sentiment Analysis. *Syst. Soft Comput.* **2025**, *7*, 200290. [\[CrossRef\]](#)
27. Kłosowski, P. Recurrent LSTM Neural Networks for Language Modelling and Speech Recognition. In Proceedings of the 2025 32nd International Conference on Mixed Design of Integrated Circuits and System (MIXDES), Szczecin, Poland, 26–27 June 2025. [\[CrossRef\]](#)
28. Xu, W.; Qi, D. Abnormal tone in management earnings forecast, media negative coverage, and insider trading. *Asia-Pac. J. Account. Econ.* **2022**, *29*, 939–963. [\[CrossRef\]](#)
29. Cheng, L.; Jin, Q.; Ma, H. Tone emphasis and insider trading. *J. Corp. Financ.* **2023**, *80*, 102419. [\[CrossRef\]](#)
30. Li, W.; Yan, T.; Li, Y.; Yan, Z. Earnings management and CSR report tone: Evidence from China. *Corp. Soc. Responsib. Environ. Manag.* **2023**, *30*, 1883–1902. [\[CrossRef\]](#)
31. Liang, X.; Wu, H. Does the tone in corporate social responsibility reports misdirect analysts' forecasts in China? *Sustainability* **2022**, *14*, 16631. [\[CrossRef\]](#)
32. Abdallah, A.S.; Amin, H.; Abdelghany, M.; Elamer, A.A. Antecedents and consequences of intellectual capital: A systematic review, integrated framework, and agenda for future research. *Manag. Rev. Q.* **2024**, *75*, 3067–3118. [\[CrossRef\]](#)
33. Liu, C.; Wang, F.; Xue, W. The annual report tone and return Comovement—Evidence from China's stock market. *Int. Rev. Financ. Anal.* **2023**, *88*, 102610. [\[CrossRef\]](#)
34. Wang, L.; Wang, Q.; Jiang, F. Booster or stabilizer? Economic policy uncertainty: New firm-specific measurement and impacts on stock price crash risk. *Financ. Res. Lett.* **2023**, *51*, 103462. [\[CrossRef\]](#)
35. Li, X.; Zhong, Q.; Yang, G. Commercial bank digital transformation, information costs, and corporate financial constraints. *China J. Account. Stud.* **2024**, *12*, 140–163. [\[CrossRef\]](#)
36. Choo, M.R.; Wang, C.W.; Yin, C.; Li, J.L. Managerial ability and external financing. *Asia-Pac. Financ. Mark.* **2021**, *28*, 207–241. [\[CrossRef\]](#)
37. Marciukaityte, D.; Szewczyk, S.H. Financing Decisions and Discretionary Accruals: Managerial Manipulation or Managerial Overoptimism. *Rev. Behav. Financ.* **2011**, *3*, 91–114. [\[CrossRef\]](#)
38. Heizer, T.; Rettig, L.R. Top management team optimism and its influence on firms' financing and investment decisions. *Rev. Financ. Econ.* **2020**, *38*, 601–622. [\[CrossRef\]](#)
39. Shen, J.; Xie, L. Managerial ability and investment to price sensitivity. *Int. Rev. Econ. Financ.* **2023**, *88*, 928–941. [\[CrossRef\]](#)
40. Davis, A.K.; Ge, W.; Matsumoto, D.; Zhang, J.L. The effect of manager-specific optimism on the tone of earnings conference calls. *Rev. Account. Stud.* **2015**, *20*, 639–673. [\[CrossRef\]](#)
41. Wang, W.; Sun, Z.; Wang, L. Does ESG rating divergence exacerbate management tone manipulation?—Empirical evidence based on MD&A text. *J. Bus. Res.* **2025**, *197*, 115449. [\[CrossRef\]](#)
42. García-Sánchez, I.M.; Hussain, N.; Khan, S.A.; Martínez-Ferrero, J. Assurance of corporate social responsibility reports: Examining the role of internal and external corporate governance mechanisms. *Corp. Soc. Responsib. Environ. Manag.* **2022**, *29*, 89–106. [\[CrossRef\]](#)
43. Feng, Y.; Yu, Q.; Pan, Y. Does "National Team" Shareholding Fulfill an Information Governance Function? Evidence from Chinese Corporate Management Tone Manipulation. *Emerg. Mark. Financ. Trade* **2025**, 1–20. [\[CrossRef\]](#)
44. Rawi, R.; Muchlish, M. Audit quality, audit committee, media exposure, and Corporate Social Responsibility. *J. Siasat Bisnis* **2022**, *26*, 85–96. [\[CrossRef\]](#)
45. Zhang, Z.; Chen, H. Media coverage and impression management in corporate social responsibility reports: Evidence from China. *Sustain. Account. Manag. Policy J.* **2020**, *11*, 863–886. [\[CrossRef\]](#)
46. Jie, G.; Jiahui, L. Media attention, green technology innovation and industrial enterprises' sustainable development: The moderating effect of environmental regulation. *Econ. Anal. Policy* **2023**, *79*, 873–889. [\[CrossRef\]](#)
47. Albitar, K.; Abdoush, T.; Hussainey, K. Do corporate governance mechanisms and ESG disclosure drive CSR narrative tones? *Int. J. Financ. Econ.* **2023**, *28*, 3876–3890. [\[CrossRef\]](#)

48. Khatri, I.; Giskås, P.E.; Kyrør, A.K.; Kjærland, F. Corporate governance mechanisms and non-financial disclosure quality: Evidence from sustainability committee, external CSR assurance, and stakeholder engagement. *Int. Rev. Financ. Anal.* **2025**, *107*, 104645. [\[CrossRef\]](#)
49. Lin, Z. Does ESG performance indicate corporate economic sustainability? Evidence based on the sustainable growth rate. *Borsa Istanbul. Rev.* **2024**, *24*, 485–493. [\[CrossRef\]](#)
50. Cheng, L.T.; Lee, S.K.; Li, S.K.; Tsang, C.K. Understanding resource deployment efficiency for ESG and financial performance: A DEA approach. *Res. Int. Bus. Financ.* **2023**, *65*, 101941. [\[CrossRef\]](#)
51. Hambrick, D.C.; Mason, P.A. Upper echelons: The organization as a reflection of its top managers. *Acad. Manag. Rev.* **1984**, *9*, 193–206. [\[CrossRef\]](#)
52. Ormiston, M.E.; Wong, E.M.; Ha, J. The role of CEO emotional stability and team heterogeneity in shaping the top management team affective tone and firm performance relationship. *Leadersh. Q.* **2022**, *33*, 101543. [\[CrossRef\]](#)
53. Zheng, D.; Ali, R.; Feifei, Z.; Shaique, M. Does corporate governance mechanism deter earnings management and enhance readability of annual reports? *PLoS ONE* **2025**, *20*, e0311543. [\[CrossRef\]](#) [\[PubMed\]](#)
54. Pouryousof, A.; Nassirzadeh, F.; Askarany, D. Unravelling the complex link between managers' disclosure of abnormal tone and opportunistic behaviour. *Eur. Res. Manag. Bus. Econ.* **2025**, *31*, 100277. [\[CrossRef\]](#)
55. Liang, H.; Sun, Y.; Xu, C.; Xiong, W.; Cai, W. Unleashing stock volatility and its implications for stock crash risk: Evidence from China's price limit policies. *Res. Int. Bus. Financ.* **2024**, *71*, 102455. [\[CrossRef\]](#)
56. Yang, X.; Zhang, Q. Supply chain digitization and corporate cash holdings: Evidence from China. *Econ. Anal. Policy* **2025**, *88*, 1045–1062. [\[CrossRef\]](#)
57. Zeng, X.; Xin, Y.; Xiang, K. The spillover effect of customer annual report tone on supplier ESG decisions. *Int. Rev. Financ. Anal.* **2025**, *107*, 104665. [\[CrossRef\]](#)
58. Jiang, C.; Qiu, Y.; Li, X.L.; Si, D.K. Does stock market liberalization promote entrepreneurship? *Econ. Anal. Policy* **2024**, *83*, 480–495. [\[CrossRef\]](#)
59. Zhang, C.; Zha, Q.; Sun, X.; Chen, L. Does ESG rating disagreement affect audit opinions? *Int. Rev. Econ. Financ.* **2024**, *96*, 103659. [\[CrossRef\]](#)
60. Hua, S.; Ji, Z. Ownership structure, power separation and the supervisory effectiveness of independent director system. *China Econ. Rev.* **2025**, *94*, 102560. [\[CrossRef\]](#)
61. Zhou, L.; Wei, F. Equity pledge and controlling shareholders' over-appointing of directors. *Int. Rev. Econ. Financ.* **2025**, *101*, 104085. [\[CrossRef\]](#)
62. Valero-Amaro, V.; Galera-Casquet, C.; Barroso-Méndez, M.J. Market orientation in NGOs: Construction of a scale focused on their stakeholders. *Soc. Sci.* **2019**, *8*, 237. [\[CrossRef\]](#)
63. Gui, K.; Hou, H. Digital transformation, media coverage, and management tone manipulation. *Financ. Res. Lett.* **2025**, *81*, 107440. [\[CrossRef\]](#)
64. Shen, K.Y. Compromise between short-and long-term financial sustainability: A hybrid model for supporting R&D decisions. *Sustainability* **2017**, *9*, 375. [\[CrossRef\]](#)
65. Zhang, L.; Shan, Y.G.; Chang, M. Can CSR disclosure protect firm reputation during financial restatements? *J. Bus. Ethics* **2021**, *173*, 157–184. [\[CrossRef\]](#)
66. Santoso, E.B. Corporate Social Responsibility Disclosure, Opportunistic or Ethical Behavior? In Proceedings of the 2019 International Conference on Organizational Innovation (ICOI 2019), Ulsan, Republic of Korea, 20–22 July 2019; Atlantis Press: Dordrecht, The Netherlands, 2019; pp. 389–393. [\[CrossRef\]](#)
67. Wahyuni, W.; Farman, S.; Suaib, M.R.; Suaib, S.R. Implementation of CSR in Environmental Social Accounting Realizing Corporate Responsibility for Sustainability and Community Welfare. *Adv. J. Ekon. Bisnis* **2024**, *2*, 268–280. [\[CrossRef\]](#)
68. Axjonow, A.; Ernstberger, J.; Pott, C. The impact of corporate social responsibility disclosure on corporate reputation: A non-professional stakeholder perspective. *J. Bus. Ethics* **2018**, *151*, 429–450. [\[CrossRef\]](#)
69. Qian, R. Institutional Investors: A Literature Review. In *SHS Web of Conferences*; EDP Sciences: Les Ulis, France, 2023; Volume 169, p. 01066. [\[CrossRef\]](#)
70. Velte, P. Which institutional investors drive corporate sustainability? A systematic literature review. *Bus. Strategy Environ.* **2023**, *32*, 42–71. [\[CrossRef\]](#)
71. Yin, H.; Zhang, K.; Song, S.; Chen, Z. Board Independence, Corporate Social Responsibility, and Earnings Management. *Financ. Res. Lett.* **2025**, *86*, 108603. [\[CrossRef\]](#)
72. Liu, H.; Hou, C. The impact of institutional investors' corporate site visits on corporate social responsibility. *Emerg. Mark. Rev.* **2023**, *55*, 100975. [\[CrossRef\]](#)
73. Cheng, X.; Jiang, X.; Kong, D.; Vigne, S. Shifting stakeholders logics: Foreign institutional ownership and corporate social responsibility. *J. Bus. Ethics* **2024**, *194*, 165–183. [\[CrossRef\]](#)

74. He, K.; Wan, M. Political connections and managerial tone manipulation. *J. Zhong Nan Univ. Econ. Law* **2020**, *5*, 17–27+158–159. [\[CrossRef\]](#)
75. Bai, Y.; Wang, D.; Sun, C.; Zhang, W. Corporate social responsibility under the influence of management tone. *Financ. Res. Lett.* **2025**, *75*, 106831. [\[CrossRef\]](#)
76. Hunjra, A.I. The green intentions of capital: How green finance is changing the boundaries of corporate sustainability strategies. *J. Environ. Manag.* **2025**, *390*, 126362. [\[CrossRef\]](#) [\[PubMed\]](#)
77. Zhou, X.; Zhao, Y.; Chen, D. Emissions trading scheme's effect on enterprises' sustainable development in China: A differential game and a quasi-natural experiment. *Energy Econ.* **2025**, *147*, 108554. [\[CrossRef\]](#)
78. Bu, W.; Yan, Z.; Yang, S. Digital economy and corporate sustainability: Mediating roles of green innovation and risk-taking. *Financ. Res. Lett.* **2025**, *78*, 107200. [\[CrossRef\]](#)
79. Xu, X.; Wang, S.; Li, J.; Qiao, T. Environmental regulatory intensity, green finance and corporate green sustainable development performance. *Heliyon* **2024**, *10*, e30114. [\[CrossRef\]](#)
80. Zou, P. 'Match Words with Deeds' or "return a favor"?—Corporate social responsibility disclosure and actual tax burden. *Econ. Manag.* **2018**, *40*, 159–177. [\[CrossRef\]](#)
81. Song, Y.; Xie, Z.; Song, Y. The impact of Digital transformation on carbon emission intensity. *Int. Rev. Econ. Financ.* **2025**, *102*, 104302. [\[CrossRef\]](#)
82. Qiao, P.; Xie, Y.; Fung, A.; Feng, K.; Fung, H.G. Optimizing smart supply chain for enhanced corporate ESG performance. *Int. Rev. Financ. Anal.* **2025**, *97*, 103868. [\[CrossRef\]](#)
83. Yang, W.Y. *A Study on the Impact of Institutional Ownership on Corporate Debt Financing Costs*; Shandong University of Finance and Economics: Jinan, China, 2025. [\[CrossRef\]](#)
84. Yahaya, P.D.O.A. Board Independence and Earnings Management, 2025. Available online: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5099242 (accessed on 16 January 2025).
85. Azhara, Y.; Nurbaiti, B.; Ningrum, E.P.; Nuryati, T.; Yulaeli, T. Pengaruh Independent Board of Commissioner, Profitability dan Growth Opportunity terhadap Firm Value. *Sci. J. Reflect. Econ. Account. Manag. Bus.* **2025**, *8*, 1224–1233. [\[CrossRef\]](#)
86. Zheng, S.; Jin, S. Is corporate green investment a determinant of corporate carbon emission intensity? A managerial perspective. *Heliyon* **2023**, *9*, e22401. [\[CrossRef\]](#)
87. Chen, Y.; Jin, S. Artificial intelligence and carbon emissions in manufacturing firms: The moderating role of green innovation. *Processes* **2023**, *11*, 2705. [\[CrossRef\]](#)
88. Zhu, Y.; Jin, S. COVID-19, digital transformation of banks, and operational capabilities of commercial banks. *Sustainability* **2023**, *15*, 8783. [\[CrossRef\]](#)
89. Cheng, T.; Sharpe, W.H.; Halabi, A.K. Diverging Paths: CEO Regulatory Focus, Corporate Social Responsibility, and the Enigma of Firm Performance. *J. Risk Financ. Manag.* **2024**, *17*, 258. [\[CrossRef\]](#)
90. Zhang, C.; Zhou, B.; Wang, Q.; Jian, Y. The consequences of environmental big data information disclosure on hard-to-abate Chinese enterprises' green innovation. *J. Innov. Knowl.* **2024**, *9*, 100474. [\[CrossRef\]](#)
91. Dang, M.; Puwanenthiren, P.; Jones, E.; Bui, N.; Le, T.D. Does corporate culture shape "Tone at the Top"? Evidence from earnings calls. *Financ. Res. Lett.* **2024**, *59*, 104698. [\[CrossRef\]](#)
92. Wu, Z.; Lin, S.; Chen, T.; Luo, C.; Xu, H. Does effective corporate governance mitigate the negative effect of ESG controversies on firm value? *Econ. Anal. Policy* **2023**, *80*, 1772–1793. [\[CrossRef\]](#)
93. ul Mustafa, A.; Aysan, A.F.; Shirazi, N.S. Words that yield: The invisible hand of financial storytelling. *Borsa Istanbul. Rev.* **2025**, 100754. [\[CrossRef\]](#)
94. Du, K.; Jia, F.; Chen, L. The impact of customers' MD&A sentiment on the bullwhip effect: A dyadic buyer-supplier perspective. *Int. J. Prod. Econ.* **2025**, *284*, 109614. [\[CrossRef\]](#)
95. Zeng, Y.; Chan, K.C.; Chen, Y.; Li, L. Do analysts pay attention to managerial sentiment? Evidence from analysts' following decisions and earnings forecasts. *Borsa Istanbul. Rev.* **2023**, *23*, 269–284. [\[CrossRef\]](#)
96. Liu, P.; Nguyen, H.T. CEO characteristics and tone at the top inconsistency. *J. Econ. Bus.* **2020**, *108*, 105887. [\[CrossRef\]](#)
97. Efrim Boritz, J.; Hayes, L.; Timoshenko, L.M. How understandable are SOX 404 auditors reports? *Int. J. Acc. Inf. Syst.* **2020**, *39*, 100486. [\[CrossRef\]](#)
98. Eachempati, P.; Srivastava, P.R.; Kumar, A.; Tan, K.H.; Gupta, S. Validating the impact of accounting disclosures on stock market: A deep neural network approach. *Technol. Forecast. Soc. Change* **2021**, *170*, 120903. [\[CrossRef\]](#)
99. Nguyen, P.T.T.; Kimura, A. How plain English use affects the length of annual reports: Evidence from the annual reports of foreign firms listed on the US stock exchange. *J. Acc. Public Policy* **2020**, *39*, 106773. [\[CrossRef\]](#)
100. Arikan, M.; Kara, M.; Masli, A.; Xi, Y. Political euphoria and corporate disclosures: An investigation of CEO partisan alignment with the president of the United States. *J. Acc. Econ.* **2023**, *75*, 101552. [\[CrossRef\]](#)
101. Haselhuhn, M.P.; Wong, E.M.; Ormiston, M.E. Investors respond negatively to executives' discussion of creativity. *Organ. Behav. Hum. Decis. Process.* **2022**, *171*, 104155. [\[CrossRef\]](#)

102. Hu, Y.; Ye, Y.; Yu, X.; Piao, X.; Huang, L.; Li, B. Managerial overconfidence and corporate information disclosure. *Borsa Istanbul Rev.* **2024**, *24*, 263–279. [[CrossRef](#)]
103. Liu, K.; Duan, D.; Wang, R. Executive educational background and corporate strategic information disclosure. *Int. Rev. Econ. Financ.* **2024**, *96*, 103564. [[CrossRef](#)]

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