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Does the Tone of Management Discussion and Analysis Associate with Corporate Debt Expansion? Evidence from A-share Listed Companies

Qingyuan Wu, Ke Zheng, and Xue Wang*

Analyzing panel data from China's A-share non-financial firms, this study detects a robust correlation between the affirmative tone in annual MD&A sections and corporate debt growth from 2007 to 2021. The positive tone's influence on debt is both immediate and moderated by profitability, operational risk, and internal controls, without apparent collusion with earnings management. Firms with superior resources exhibit reduced reliance on MD&A tone for debt financing, yet those with moderate resources strategically employ it to augment their debt appeal, providing strategic debt financing insights.

Key Words: MD&A tone; Corporate debt expansion; Text information; Earnings management.
JEL Classification Numbers: G12, G14, M41

1. INTRODUCTION

The scholarly community and the financial sector have long harbored a keen interest in the debt financing dynamics of publicly listed companies. As an essential pillar of corporate financing strategies, debt financing is of paramount importance to businesses. Yet, an excessive dependence on debt can introduce greater financial hazards, potentially adversely affecting a company's operational proficiency and market standing. In a meticulous analysis of the financial data from 2013 to 2017, Zhang (2018) explored the correlation between the structure of debt financing and corporate financial

* Wu: School of Economics and Management, Hanshan Normal University, Chaozhou, China. Email: qywken@126.com; Zheng: Hanshan Normal University, Chaozhou, China. Email: 15079308065@163.com; Wang: Corresponding author, Department of Economics, Emory University, Atlanta, U.S.; Institute of Chinese Financial Studies, Southwestern University of Finance and Economics, Chengdu, China. Email: xue.wang@emory.edu. This research is supported by Natural Science Foundation of Guangdong Province, China (Grant No.2024A1515010546) and Guangdong Philosophy and Social Science Foundation, China (Grant No.GD23XYJ59).

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performance, revealing that higher debt levels can exert a suppressive effect on a company's performance, with an overall negative correlation observed between debt levels and financial outcomes. An elevated corporate debt ratio was found to significantly impact a company's performance, and a negative relationship was identified between a company's capital structure and its performance, suggesting that a high debt ratio could negatively influence corporate success.

Additionally, Li (2020) observed that a moderate amount of short-term borrowing can aid private enterprises in meeting their immediate operational demands, providing liquidity support and yielding economic benefits. However, these benefits may be negated when companies become overly reliant on short-term debt, incurring excessive debt risk (Li and Zhao 2020). Hence, management, when crafting debt financing strategies, must take into account a variety of factors, such as the scale, structure, and cost of debt, and conduct a thorough assessment of the company's solvency and capacity to withstand risk.

In recent years, the academic sphere has delved into the content of Management's Discussion & Analysis (MD&A) reports through the application of textual analysis techniques. This research has unveiled that the MD&A segment possesses an incremental value of information, which significantly augments the precision of financial distress forecasting models, as highlighted by Chen (2019). Furthermore, by examining the tone and substance of these reports, scholars have discovered a substantial correlation between the rhetoric employed within MD&A and the prospective financial performance, innovation investments, and long-term strategic financial planning of corporations (Tang et al. 2020; Li et al. 2021; Hu et al. 2021). When considering the perspective of managerial tone, it has become evident that the linguistic expressions utilized by management during debt financing endeavors can exert a notable influence on the investment decisions of stakeholders. An optimistic tone in a company's MD&A is perceived by creditors as an indicator of the management's bullish outlook on the company's future trajectory. This perception serves to alleviate concerns regarding the company's capacity to honor its debt obligations, thus engendering a demand for reduced interest rates on borrowed funds (Zhao et al. 2023). Lin et al. (2022) have posited that while an unusually positive tone in MD&A can markedly enhance bond credit ratings, it does not appear to have a significant bearing on bond credit spreads. This observation suggests that bond investors are adept at discerning and mitigating the potential for manipulation inherent in overly positive managerial rhetoric, thereby preventing a diminution in the premiums and interest rate spreads associated with bond issuances. In instances where transparency of information is lacking, an excessively positive tone has been linked to heightened bond credit spreads, implying that under certain conditions, an optimistic managerial tone might precipitate less favorable terms for bond offerings. Should management employ an unduly sanguine tone in their disclosures, it could result in an overexpansion of the company's debt, increasing financial vulnerabilities. Conversely, an excessively somber tone might lead to a contraction in the company's debt, which could, in turn, restrict its financial agility and growth potential.

These insights prompt the question: does the tone adopted by management in informational disclosures not only reflect the present status and anticipated trajectory of the company but also wield a significant influence over the company's financial prowess and strategic direction?

To address the preceding inquiries, this scholarly endeavor sets forth to investigate the interplay between the managerial tone and the debt expansion strategies of publicly traded companies. The inquiry will be meticulously structured around three pivotal dimensions:

1. Primordial Managerial Tone and Debt Financing Scale: Initially, the study will scrutinize the correlation between the initial managerial tone, as articulated in corporate communications, and the magnitude of corporate debt financing. This aspect seeks to understand how the tone set by the management in its earliest interactions influences the company's ability to raise debt capital.

2. Influence Mechanisms of Managerial Tone: Subsequently, the research will delve into the pathways through which the managerial tone exerts its influence on corporate debt expansion. This includes examining the psychological and market dynamics that may be at play when management communicates with stakeholders regarding the company's financial leverage.

3. Exogenous Factors Influencing the Relationship: Lastly, the study will explore whether and how external factors may modulate the relationship between managerial tone and corporate debt expansion. This will involve assessing the impact of broader economic conditions, regulatory environments, and industry-specific challenges on the efficacy of managerial tone in shaping debt financing strategies.

By dissecting these elements, the article aspires to contribute to the corpus of knowledge surrounding the subtle yet influential role of managerial communication in the financial strategies of corporations, particularly with respect to debt financing. The findings are expected to offer strategic insights for corporate leadership, investors, and policymakers alike.

This treatise, focusing on A-share listed corporations from 2007 to 2021, undertakes an empirical examination of the aforementioned queries and uncovers a correlation: the sanguine emotive cadence within the MD&A narratives aligns with the expansion of corporate debt. This finding persists, robust and significant, even after accounting for a multitude of other variables via a methodical regression analysis. Concurrently, it is observed that the magnitude of the enterprise and its profitability bestow a positive and substantial influence upon the acceleration of debt financing, whereas operational risk imparts a negative and weighty impact on this rate of growth.

The positive emotive tone of the MD&A demonstrates a marked association with both the profitability and operational risk of the company. Specifically, an upswing in positive emotive expression significantly amplifies the enterprise's profitability, yet concurrently it may engender an escalation in operational risk. Furthermore, while an enhanced positive emotive tone within the MD&A may initially lead to a diminished focus on internal governance by management, the long-term trajectory indicates that an escalation in such positive emotive discourse ultimately elevates the standards of internal control.

Further inquiry reveals no substantiation for the notion that a collaborative effort with earnings management is propelling an increase in debt financing. Companies endowed with superior resources do not exhibit a heightened propensity to leverage the positive emotive tone of the MD&A to amplify corporate debt. Conversely, companies with moderate resource endowments are more inclined to harness the positive emotive tone of the MD&A as a means to broaden their debt. Notably, within state-owned enterprises, the positive emotive tone of the MD&A exerts a less pronounced effect on the acceleration of debt financing, whereas in specialized and novel enterprises, the influence of such tonality on the growth rate of debt financing is found to be insignificant.

Moreover, the study discerns notable regional disparities in the influence of the MD&A's positive emotive tone on the expansion of corporate debt financing. Among eastern firms, the positive emotive tone of the MD&A has a relatively more pronounced impact on the growth rate of debt financing, whereas in the western firms, this impact is comparatively subdued. These findings underscore the diverse ways in which corporate communications can shape financial strategies across different landscapes and the importance of considering contextual factors when evaluating the potential of debt financing initiatives.

This scholarly piece extends the domain of inquiry into managerial tone, enriching the extant literature in two pivotal dimensions:

1. Tone Characteristics of MD&A: It concentrates on the tonal nuances within the MD&A sections, investigating their reverberations on corporate debt financing. This research furnishes investors with critical data to gauge the corporate condition.

2. Influence of MD&A Tone on Debt Expansion: The paper meticulously examines the influence of MD&A tone on the expansion of corporate debt, encompassing elements such as profitability, operational risks, and internal control mechanisms. It also delves into the dynamics influenced by this

relationship, including its interplay with earnings management strategies and the modulation by resource endowments, thereby offering novel vantage points and intellectual stimuli for research within related domains.

2. LITERATURE REVIEW AND HYPOTHESIS FORMULATION

2.1. Management tone and corporate liabilities

Emotive tonality, as manifested in the disclosures of Management's Discussion & Analysis (MD&A), denotes the demeanor and affective hues that encapsulate a company's operational status and its prospective developmental arcs. Xie and Lin (2015) pioneered the investigation into the managerial tone of corporate communications, uncovering that an affirmative managerial tone emanates positive signals and additional increments of information to the market. Such a tone is observed to be in positive alignment with a company's forthcoming performance, thereby heralding auspicious prospects.

The sanguine narrative of management, in effect, mitigates the chasm of information asymmetry that often exists between a company and its creditors. It serves to communicate robust operational health, thereby curtailing the costs associated with financing and amplifying the magnitude of debt financing (Lu et al. 2019). To particularize:

2.1.1. The Ameliorating Influence of Executive Optimism on Corporate Indebtedness Expenditure

The pecuniary implications of debt financing are sculpted by the expenses underpinning the acquisition of data pivotal to corporate performance, credit standing, and risk profiles (Ertugrul et al., 2017), as well as the penalties incurred in the event of a default. The spectrum of default-related expenses is broad, ranging from stipulated damages and the financial demands of litigation to the intangible yet profound toll of reputational depreciation.

The ambiguity that often shrouds textual disclosures serves to intensify the chasm of information asymmetry, thereby amplifying creditors' uncertainty surrounding the company's valuation. This unpredictability may propel creditors to upsurge interest rates as a preemptive measure against the hazards looming on the horizon (Diamond and Verrecchia, 1991). Information asymmetry frequently emerges as a formidable barrier to corporate financing, yet the proffering of information that is both accurate and prompt can significantly reduce the costs of borrowing.

The insights into operational performance conveyed through MD&A play a crucial role in diffusing the haze of information asymmetry and lowering the costs of debt (Liang and Li, 2021). An optimistic tone can elevate the esteem and trustworthiness of management, positively influencing the corporation's long-term credit ratings (Li et al., 2022), and aiding in the diminution of financing costs as well as in easing the financial strictures that might otherwise bind corporate endeavors (Qiu and Yang, 2021). Moreover, the presence of a positive tone within the annual report is found to be positively linked to the magnitude of corporate debt financing and can contribute to a reduction in the costs of such financial engagements (Zhao, 2020).

2.1.2. The Correlation Between Sanguine Executive Discourse and the Quantum of Corporate Debt Financing

In the realm of credit decisions, creditors meticulously evaluate a company's financial metrics alongside textual disclosures to more precisely gauge creditworthiness and inform their lending decisions (Diamond, 1989; 1991). The tonality of management's discourse within the MD&A serves as a conduit for supplementary insights. A despondent tone, which bears a negative correlation with the company's prospective financial achievements, is indicative of latent risks (Davis and Tama-Sweet, 2012). In stark contrast, an upbeat managerial tone is emblematic of the company's unwavering operational steadiness and commendable performance, which projects an auspicious commercial outlook (Di et al., 2020). Such positivity can enhance the perceived solvency regarding debt obligations and mitigate the perceived risk of default (Zhou et al., 2016). Consequently, creditors may harbor fewer reservations concerning the specter of corporate insolvency and exhibit a greater propensity to extend more generous lines of credit, confident in the enterprise's punctual debt repayment capabilities.

In light of these considerations, the article posits its inaugural hypothesis:

Hypothesis H_1: The affirmative emotive tenor present within the Management's Discussion & Analysis (MD&A) is significantly correlated with an escalation in corporate debt magnitudes, implying a role that is instrumental in the augmentation of corporate indebtedness.

2.2. The Interplay of MD&A Discursive Tenor with Corporate Profitability, Operational Risks, and Internal Governance Mechanisms

Schleicher and Walker (2010) discerned that to mitigate the adverse repercussions of a company's declining performance and to assuage investor skepticism, managers are more inclined to adopt an optimistic tone relative to their counterparts in more profitable firms. The infusion of a positive tone in the MD&A by management serves to instill a sense of favorable anticipation among investors, leading them to anticipate enhanced earnings manifestations in both the immediate and prospective terms. Such an optimistic outlook is likely to exert a salutary effect on the company's equity valuation and market response, implying a positive correlation between the tone's positivity and the contemporaneous as well as future earnings (Feldman et al. 2010).

In alignment with the Capital Asset Pricing Model (CAPM) formulated by Sharpe et al., corporate earnings are inherently linked, moving in tandem with the associated risks — greater yields being synonymous with elevated risk profiles. To adeptly manage and curb the corporate risk-taking propensity, it is imperative for companies to refine the caliber of their internal controls. Organizations endowed with superior internal control mechanisms are well-positioned to detect, evaluate, and counteract risks, thus diminishing the likelihood of adverse events and implementing suitable measures to address such eventualities (Wu et al. 2015). Moreover, an optimistic corporate tone is likely to garner the interest of investors and stakeholders, intensifying external oversight. Driven by considerations of professional reputation and career advancement, management is inclined to diligently pursue the objectives outlined in the MD&A, thereby minimizing self-serving behaviors (Zhou et al., 2021). Such actions can significantly curtail the oversight expenses and financial hazards for creditors, consequently leading to reduced borrowing interest rates for the enterprise (Zheng et al., 2021).

Against this backdrop, the article advances its second research hypothesis:

Hypothesis H_2: An escalation in the positive emotional tone of the MD&A is immediately correlated with heightened corporate profitability. However, it also bears a contemporaneous association with increased corporate operational risks. Additionally, the sustained positivity in the emotional tone of the MD&A is posited to be linked to enhancements in the corporate internal control standards over the extended term.

2.3. The Nexus of MD&A with Earnings Management in Catapulting Debt Financing

Superior accounting information quality is characterized by the precision, reliability, and transparency of financial statements, which are capable of yielding authentic financial insights and an accurate depiction of financial health. When a company boasts such high-quality accounting information, it facilitates a more facile assessment by creditors of the company's risk profile and creditworthiness, thereby enabling a more precise anticipation of the company's capacity to honor its debt obligations (Qiu, 2018).

The act of disclosing information with great transparency involves the public revelation of a plethora of accurate and comprehensive financial and non-financial data, allowing creditors to garner a deeper understanding of the company's operational status, financial achievements, and risk landscape. Such clarity empowers creditors to craft more reliable profit forecasts and risk assessments, leading to a heightened intelligence in their investment decisions. This, in turn, serves to bolster the confidence of creditors in the company and diminishes their demands for risk premiums (Zhang, 2019).

Quality accounting information serves as a mirror reflecting not only the operational caliber and sustainable growth potential of a company but also augments the trust and collaborative spirit of financial institutions and other partners. This can lead to more favorable lending terms and cooperative conditions for the company, alleviating the pressures of repayment and fostering superior developmental prospects.

Executives might resort to earnings manipulation to pursue personal gains (Cai et al., 2015). There exists a positive correlation between the level of management remuneration (Wang and Wang, 2007) and the magnitude of earnings management, with larger internal pay disparities (Yang and Wang, 2014) exacerbating the issue. Additionally, managerial overconfidence can intensify the deterioration of accounting information quality (Sun and Zhao, 2014).

Should a company engage in earnings management, it could amplify the noise within accounting information, attenuate the quality of earnings information, and escalate the information risks shouldered by creditors. Confronted with such scenarios, creditors may elevate the expected returns on investment as compensation for the heightened information risks.

In light of these deliberations, the article formulates its third research hypothesis:

Hypothesis H_3: There exists no significant synergistic effect between the positive emotional tone in MD&A and the practices of earnings management on the augmentation of corporate debt financing.hypothesis H3: There is no significant synergistic effect between the positive emotional tone in MD&A and earnings management practices on the expansion of corporate debt financing.

2.4. Discrepancies in the Impact of Resource Endowment and MD&A's Positive Tone on Debt Financing

Enterprises endowed with superior resources exhibit a diminished reliance on the positive emotive tone of Management's Discussion & Analysis (MD&A) to facilitate debt financing. State-owned enterprises (SOEs), under the aegis of state-owned banking institutions, often secure loans with relative ease, attributed to their political linkages (La Porta et al., 2002), and are typically subjected to more lenient lending terms (Fang, 2007). This phenomenon can be attributed to several factors: the pursuit of short-term economic gains by officials which can lead to excessive investment by SOEs; the implicit government guarantees backing SOEs, making banks more inclined to finance them; the national reputation acting as a safeguard, thus attenuating information asymmetry; and the heightened risks associated with non-state-owned enterprises that deter banks from lending. Additionally, the dearth of alternative financing channels for SOEs often results in a greater dependence on bank loans (Bailey et al., 2011). These elements conspire to create a unique position for SOEs in the credit market, influencing the distribution of banking credit resources in a manner not wholly aligned with market principles (Lai et al., 2016). Consequently, the neutral tone of SOEs' annual reports tends to exert minimal to no influence on their external financing capabilities.

In stark contrast, companies with impoverished resource endowments, hampered by informational disadvantages and other factors, find it more challenging to leverage the positive emotive tone of MD&A to bolster the appeal of their debt financing, resulting in a lower propensity to do so.

Conversely, firms with moderate resource endowments might require augmented debt financing to fuel their business growth, yet their capacity to secure such funding could be comparatively fragile. Consequently, they might lean towards employing the positive emotional tone of their MD&A to enhance the allure of their debt financing propositions. In this scenario, the optimistic inflection of the MD&A could serve as a strategic marketing instrument, designed to garner increased market attention and recognition for the company, thereby amplifying the desirability of its debt financing offerings.

In juxtaposition, entities struggling with meager resource endowments may find themselves impeded by informational disadvantages and the complexities of securing financing, thus diminishing their capacity to capitalize on the positive emotional tone of MD&A to heighten the attractiveness of their debt financing. As a result, they exhibit a subdued inclination toward such tactics.

Anchored in these considerations, the article posits a fourth hypothesis:

Hypothesis H_4**:** Companies with more substantial resource endowments are less inclined to rely on the positive tone of their MD&A for debt financing purposes. Those with limited resources have a restricted capacity to leverage MD&A tone to attract debt financing, while those possessing moderate resources may be more inclined to harness a positive MD&A tone to fortify the appeal of their debt financing strategies.

3. RESEARCH DESIGN

3.1. Theoretical model: impact of MD&A tone on corporate debt financing

This section develops a theoretical model to examine how the tone of the Management Discussion and Analysis (MD&A) in annual reports affects corporate debt financing. The model captures three primary mechanisms: (1) positive MD&A tone increases the debt financing capacity, of firms; (2) positive MD&A tone enhances future profitability expectations, thereby increasing ; and (3) positive MD&A tone reduces default risk, thereby increasing.

3.1.1. Positive MD&A Tone Increases Debt Financing Capacity

Let D represent the debt financing capacity of the firm and T represent the tone of the MD&A, with higher values of T indicating a more positive tone. We posit that is inversely related to the perceived default risk :

$$D = f(R)$$

Where $f' < 0$, indicating that a higher default risk reduces debt financing capacity. Next, we model R as a function of T and other financial indicators F:

$$R = g(T, F)$$

Assuming a linear relationship:

$$R = \alpha - \beta T$$

where α is a constant and β is a positive parameter reflecting the reduction in default risk due to a positive MD&A tone. Substituting R into the debt financing function:

$$D = \gamma - \delta R$$

where δ is a positive parameter indicating the sensitivity of debt capacity to default risk. Therefore, we have:

$$D = \gamma - \delta(\alpha - \beta T)$$

Taking the partial derivative of D with respect to T:

$$\frac{\partial T}{\partial D} = \delta\beta$$

Since δ and β are positive, $\frac{\partial T}{\partial D}$ is positive, indicating that a more positive MD&A tone increases the firm's debt financing capacity.

3.1.2. Positive MD&A Tone Enhances Future Profitability Expectations

Let E represent the future profitability expectation of the firm. We model E as a function of T:

$$E = h(T)$$

Assuming a linear relationship:

$$E = \eta T$$

where η is a positive parameter indicating that a more positive MD&A tone enhances profitability expectations. Revising the default risk function to include E:

$$R = \alpha - \beta T - \lambda E$$

Substituting E:

$$R = \alpha - (\beta + \lambda\eta)T$$

Therefore, the debt financing capacity function becomes:

$$D = \gamma - \delta\alpha + \delta(\beta + \lambda\eta)T$$

Taking the partial derivative of D with respect to T:

$$\frac{\partial T}{\partial D} = \delta(\beta + \lambda\eta)$$

Since δ, β, and $\lambda\eta$ are positive, $\frac{\partial T}{\partial D}$ is positive, indicating that a more positive MD&A tone enhances future profitability expectations, thereby increasing the firm's debt financing capacity.

3.1.3. Positive MD&A Tone Reduces Default Risk

Given the relationship:

$$R = \alpha - \beta T$$

Taking the partial derivative of R with respect to T:

$$\frac{\partial T}{\partial R} = -\beta$$

Since β is positive, $\frac{\partial T}{\partial R}$ is negative, indicating that a more positive MD&A tone reduces default risk. Considering the debt financing capacity function:

$$D = \gamma - \delta R$$

Taking the partial derivative of D with respect to R:

$$\frac{\partial R}{\partial D} = -\delta$$

Since δ is positive, $\frac{\partial R}{\partial D}$ is negative, indicating that a lower default risk increases the firm's debt financing capacity.

3.1.4. Summary

This theoretical model elucidates the mechanisms through which the tone of the MD&A in annual reports influences corporate debt financing. Specifically, a more positive MD&A tone (1) directly increases debt financing capacity, (2) enhances future profitability expectations, thereby further increasing debt capacity, and (3) reduces perceived default risk, leading to greater debt financing availability. These findings provide a robust theoretical foundation for understanding the importance of narrative disclosures in financial decision-making and their impact on corporate financing strategies.

3.2. Data and methodology

This investigation centers on non-financial firms listed on China's A-shares from the year 2007 to 2021. The data encompasses textual content from annual reports, foundational data, financial metrics, and risk-related information. The source of the annual report texts is Sina Finance, financial figures are sourced from the CSMAR database, and risk-related data is procured from Wind Financial Data. The process of sample curation involved the exclusion of bankrupt entities, financial institutions, special treatment (ST) listed companies, and any firms with incomplete datasets. Subsequently, a Winsorization technique was applied to the continuous variables, yielding a final dataset comprising 27,889 observations.

To empirically test the proposed hypothesis, this paper employs a panel data model with double fixed effects to scrutinize the influence that the positive tone in MD&A exerts on debt financing. The model is articulated as follows:

$$\text{financing}_{i,t} = \beta_0 + \sum \beta_k * \text{explanatory}_{i,t-1} + \sum \beta_j * \text{controls}_{i,t-1} + \gamma_t + \mu_i + \varepsilon_{i,t}$$

Within this framework, i symbolizes each company under scrutiny, and t represents the specific year in question. The variable of interest, termed financing, encompasses a spectrum of financial indices including the internal control index, debt financing, profitability, operational risk, and corporate liabilities.

The independent variable, referred to as explanatory, signifies the positive emotional tone embedded in the MD&A documents. The set of control variables, denoted by controls, includes a diverse array of factors such as the cyclical nature of economic conditions, the scale of the enterprise, profitability, operational risk, the ratio of fixed assets, the current ratio indicating liquidity, the Tobin's Q ratio as a measure of corporate value, the leverage ratio, the proportion of shares held by significant stakeholders, and the flow of internal cash within the enterprise, among others.

3.3. Variable Definition

3.3.1. Explained variable

This research leverages the framework established by Lu et al. (2014), employing the Dibo Internal Control Index to assess the caliber of corporate internal control mechanisms. This index adheres to the "Basic Standards for Corporate Internal Control," designed to ensure regulatory compliance, safeguard assets, authenticate financial reporting, and enhance operational efficiency and strategic execution. It encompasses five key dimensions: strategic planning, operational execution, veracity of information, regulatory adherence, and security of assets, thereby offering a comprehensive reflection of the internal control system's functionality.

The term "Corporate Liabilities" refers to the proportion of an entity's total liabilities relative to its total assets, serving as a metric of financial leverage.

"Debt Financing" is articulated through a specific measure — the ratio of the aggregate growth in corporate debt to GDP. This construct, the corporate debt growth ratio, serves to mitigate the confounding effects of macroeconomic oscillations, thereby providing a clearer lens through which to view the genuine expansion of corporate indebtedness.

"Corporate Profitability" is denoted by the ratio of current assets to current liabilities, an indicator of a company's ability to meet its short-term obligations and is incorporated as a control variable in the foundational regression analysis.

"Operational Risk" indicators are devised to account for the variability of profits, measured by the standard deviation of Return on Assets (ROA) over a three-year period lagged. Additionally, this study introduces a metric for high-risk operating assets, drawing from the insights of Guo and Li (2019), which is calculated as the sum of accounts payable and advance accounts receivable divided by current liabilities. These metrics are utilized to quantify corporate operational risks and are incorporated as control variables in the basic regression models.

(1) key explanatory variables

In this scholarly inquiry, we have engaged a meticulous quantitative methodology to evaluate the positive tonality pervading the Management Discussion and Analysis (MD&A) segment. This assessment is rendered by tallying the ratio of affirmative lexicons in comparison to the overall word count within the annual report's MD&A excerpt. To particularize, the subsequent formula is employed to compute the tonal index (wpsy):

$$\text{wpsy} = \frac{\text{active vocabulary}}{\text{MD\&A General vocabulary}}$$

Within the scope of this formula, "positive words" denote the aggregate count of lexical items carrying a positive connotation present within the MD&A narrative. The wpsy metric is bounded within the interval $[0, 1]$. A wpsy value that approximates 1 signifies a managerial discourse replete with optimistic terminology, indicative of an affirmative assessment and sanguine forecasts regarding the corporation's present and prospective financial health. Conversely, a wpsy value nearing 0, which is indicative of a dearth of positive language, is commonly interpreted as an indicator of managerial prudence or despondency concerning future corporate evolution, potentially alluding to apprehensions or forthcoming challenges.

To bolster the fidelity of positive word detection, this study employs the Chinese financial sentiment lexicon crafted by Yao et al. (2021). This lexicon, tailored specifically for financial texts, encompasses 3,692 positive and 1,633 negative lexical entries, inclusive of financial sector jargon. Such a specialized design refines our sentiment analysis, aligning it more closely with the nuances of financial documentation, and in turn, offering robust empirical support for the investigation. Through this quantitative scrutiny, we are endowed with the capacity to attain a more profound comprehension of the communicative tactics deployed by management and to evaluate their implications for corporate financial success and risk stewardship.

Furthermore, in the regression analysis, the deliberate selection of the lagged first-order MD&A positive affective tone (lwpsy) as the independent variable is motivated by the desire to ascertain the veracity of the causal linkages and to reinforce the model's robustness. This approach permits a reasoned inference regarding the influence that prior positive tonality may exert on ensuing corporate debt stratum, circumventing potential endogeneity, and thus, ensuring the precision and dependability of the research outcomes. Moreover, this strategy accounts for plausible temporal disparities within market dynamics and the decision-making continuum, rendering the research findings more congruent with empirical realities.

(2) control variables

In the course of crafting the model for this research, to bolster the fidelity of the analytical outcomes, an array of control variables has been judiciously incorporated. These variables serve to mitigate the influence of extraneous elements that could potentially skew the research findings in a deleterious manner. Such factors include the idiosyncrasies of the board of directors, the internal architecture of the company, and the vicissitudes of the broader macroeconomic milieu. This approach refines and fortifies the precision of the assessment pertaining to the ramifications of managerial tone.

Accordingly, this study has elected to control for variables across the aforementioned strata: at the environmental level, the control variable is the macroeconomic conditions (dgdp), while at the corporate governance and financial levels, the variables include enterprise size (wlasset), profitability (wnpr), operational capability (wstd), the ratio of fixed assets to total assets (wfrl), and the ratio of management shareholding (msr), among others. At the board of directors level, the variables encompass the board shareholding ratio (bshr) and the size of the board (bs).

Table 1 offers a compendium of specific definitions for each variable enumerated within the study, providing a reference point for the symbols and their corresponding substantive meanings, thereby ensuring a comprehensive understanding of the research's methodological framework.

3.4. Descriptive statistical analysis of variables

Table 2 presents the descriptive statistics for the research variables, encompassing the count of observations, the mean, standard deviation, and

TABLE 1.

variable definitions

Variable type	symbol	variable name	Variable definitions
Explained variable	index	internal control index	DIBO internal control index
	lg	Debt Financing	Total corporate debt/GDP growth rate
	wnpr	Profitability	Current assets/current liabilities
	wstd	operational risk	Enterprise operational risk
	wddtl	corporate liabilities	Growth rate of total corporate liabilities
Explanatory variables	wpsy	MD&A Positive Emotional Tone	(positive tone−negative tone) / (positive tone+negative tone)
	lwpsy	Lag first-order MD&A positive affective tone	
	tone	Management net tone	Residuals extracted from fixed effects regression models representing the net effect of MD&A's positive affective tone after controlling for other variables
	ltone	Lagging first-level management net tone	
control variables	dgdp	macroeconomic conditions	GDP growth rate is logarithmically processed
	wlasset	Enterprise size	The natural logarithm of the company's total assets at the end of the year
	wnpr	Profitability	(Corporate accounts payable + accounts received in advance)/total current liabilities
	wstd	operational risk	(Accounts payable + accounts received in advance)/current liabilities
	wfrl	fixed assets ratio	Company fixed assets/total assets
	wcurrent	current ratio	Current assets/current liabilities
	wtbl	Tobin Q	Market value/asset replacement cost

the extremities in values. A perusal of the table reveals a comprehensive dataset comprising 27,889 observations. The corporate debt financing

TABLE 1—*Continued*

Variable type	symbol	variable name	Variable definitions
control variable	wadr	Leverage	total liabilities/total assets
	wlargestholderrate	Major shareholder ratio	Number of shares held by the company's largest shareholder/total number of shares
	dual	General manager holds two concurrent positions	Whether the chairman of the company is also the general manager, if so, take 1, otherwise take 0
	msr	Management shareholding ratio	Number of shares held by management/total number of shares
	bshr	Shareholding ratio of the board of directors	Number of shares held by the board of directors/total number of shares
	bs	board size	Take the logarithm of the number of people on the board of directors
	wcf	internal cash flow	(Net cash flow from investing activities + Net cash flow from financing activities + Net cash flow from operating activities) / Total assets

growth rate, as observed between the years 2007 and 2021, oscillates between a minimum of -0.580 and a maximum of 4.215, showcasing the diverse strategic responses of companies to the fluctuating market and economic landscapes. The mean growth rate of corporate debt financing stands at 0.241, suggesting a moderate expansion in corporate indebtedness over the study's temporal scope, indicative of a general inclination towards leveraging debt to fuel operational and expansionary endeavors.

The annual reports of listed companies exhibit an average MD&A emotional tone (wpsy) of 0.145, with a spectrum stretching from a minimum of 0.084 to a maximum of 0.222. This indicates a propensity among management to infuse their MD&A narratives with a mildly positive emotional hue. The mean tone resonates with a measured optimism, steering clear of extreme positivity or negativity. The upper limit of 0.222 instances a more pronounced optimism in certain scenarios, whereas the lower limit of 0.084 points to expressions of increased prudence or concern in others. Collectively, the sampled companies demonstrate a modestly positive emotional tone in their MD&A sections, aligning with realistic and rational expectations of corporate communication in financial reporting.

TABLE 2.

Descriptive statistical analysis

Variables observations	number of	mean deviation	standard value	minimum value	maximum
Index	27889	593.16	215.320	0	993.21
wddtl	27889	0.241	0.6273	−0.5803	4.2148
wspy	27889	0.145	0.0285	0.0845	0.2229
wlasset	27889	22.12	1.3217	19.804	26.207
wstd	27889	0.3797	0.2114	0.0269	0.89023
wnpr	27889	0.0390	0.0643	−0.265	0.224
wcurrent	27889	2.3586	2.5309	0.3114	16.213
wcf	27889	0.0190	0.10192	−0.2424	0.423
wfrl	27889	0.2232	0.1687	0.00199	0.696
lwpsy	27889	0.1454	0.0284	0.0845	0.223
lg	27889	2.756	8.5199	−22.890	166.24
msr	27889	0.1066	0.18519	0	0.8918
bshr	27889	0.1004	0.1768	0	0.8918
bs	27889	0.9644	0.1044	0.3010	1.4313
dual	27889	0.2029	0.40218	0	1
dgdp	27889	0.4258	0.2794	0	1
wlargestholderrate	27889	35.061	15.220	0.29	89.41
wspy	27889	0.1456	0.0285	0.845	0.223
wtbl	27889	2.0149	1.2759	0.839	7.9989
wadr	27889	0.4453	0.2121	0.556	0.9079

4. EMPIRICAL RESULTS AND DISCUSSIONS

4.1. Basic regression analysis

To ascertain the accuracy of causal inferences and the robustness of our model, we have introduced a one-period lag in the positive emotional tone of the MD&A. This approach sidesteps potential endogeneity and reverse causality, and by accounting for the time lag in decision execution, it yields more reliable estimates of the factors influencing corporate debt expansion.

Table 3 illustrates the results, with corporate debt (wddtl) as the dependent variable and the lagged positive emotional tone of MD&A (lwpsy) as the key independent variable. The coefficient of lwpsy is positive and significant across all specifications, indicating a direct positive relationship with corporate debt. The coefficient ranges from 1.022 to 1.483, suggesting that an increase in the MD&A's positive tone is associated with a proportional increase in corporate debt. With all controls held constant,

TABLE 3.
The Correlation Between Affirmative MD&A Tone and Corporate Debt Expansion: Fundamental Regression Analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	wddt	wddt	wddt	wddt	wddtl	wddtl	wddtl	wddtl	wddtl
lwpsy	1.483***	1.470***	1.282***	1.059***	1.183***	1.181***	1.022***	1.021***	1.053***
	(0.179)(0.179)	(0.181)		(0.179)	(0.183)	(0.183)	(0.182)	(0.182)	(0.183)
dgdp		0.0117	0.000711	−0.000657	0.00680	0.0126	0.00313	0.00274	0.00283
		(0.0156)	(0.0152)	(0.0145)	(0.0145)	(0.0144)	(0.0144)	(0.0144)	(0.0143)
wlasset			0.249***	0.198***	0.196***	0.172***	0.141***	0.142***	0.143***
			(0.0117)	(0.0126)	(0.0132)	(0.0137)	(0.0138)	(0.0138)	(0.0139)
wfr1				−1.041***	−1.008***	−1.008***	−9.16***	−0.915***	−0.909***
				(0.0661)	(0.0663)	(0.0667)	(0.0674)	(0.0674)	(0.0675)
wcurrent				−0.0727***	−0.0753***	−0.0659***	−0.0611***	−0.0613***	−0.0629***
				(0.00337)	(0.00350)	(0.00391)	(0.00397)	(0.00397)	(0.00402)
wcf					0.243***	0.244***	0.105**	0.103**	0.103**
					(0.0445)	(0.0441)	(0.0450)	(0.0450)	(0.0451)
wtb1					0.00220	0.00642	−0.00492	−0.00483	−0.00188
					(0.00473)	(0.00480)	(0.00483)	(0.00483)	(0.00489)
wadr						0.362***	0.602***	0.602***	0.618***
						(0.0565)	(0.0601)	(0.0600)	(0.0598)
wlargesthold						0.00819***	0.00681***	0.00676***	0.00649***
errate						(0.000886)	(0.000855)	(0.000855)	(0.000846)
wnpr							1.587***	1.582***	1.543***
							(0.110)	(0.110)	(0,111)
wstd							−0.143***	−0.141***	−0.140***
							(0.0408)	(0.0408)	(0.0409)
dual								0.0398**	0.0390**
								(0.0160)	(0.0159)
bs									0.175***
									(0.0651)
msr									0.963**
									(0.407)
bshr									−0.667
									(0.427)
trend	0.0403***	0.0421***	−0.00144	0.00687	0.00988*	0.0147***	0.0228***	0.0222***	0.0197***
	(0.00403)	(0.00489)	(0.00520)	(0.00522)	(0.00528)	(0.00533)	(0.00538)	(0.00538)	(0.00540)
trend2	−0.00255***	−0.00265***	−0.00194***	−0.00258***	−0.00269***	−0.00258***	−0.00277***	−0.00273***	−0.00249***
	(0.000252)	(0.00296)	(0.000302)	(0.000305)	(0.000306)	(0.000310)	(0.000312)	(0.000312)	(0.000313)
constant	−0.094***	−0.0997***	−5.265***	−3.703***	−3.715***	−3.718***	−3.125***	−3.146***	−3.390***
	(0.0286)	(0.0322)	(0.247)	(0.271)	(0.289)	(0.294)	(0.296)	(0.296)	(0.306)

Note: Standard deviations are in parentheses, ***, **, and * indicate that the estimated coefficients are significant at the 1%, 5%, and 10% levels respectively.

the coefficient of lwpsy is 1.053, significant at the 1% level, indicating a substantial economic effect.

Macroeconomic conditions (dgdp) are included as controls to account for external economic influences, though they do not significantly affect corporate debt. Firm size (wlasset) shows a positive and significant impact on debt financing, as do profitability (wnpr) and operational risk (wstd), with the latter having a negative coefficient, indicating higher risk may deter debt financing.

At the corporate governance level, the presence of a dual role held by the general manager (dual) is positively associated with debt financing, suggesting centralized power may lead to more aggressive financial strategies. Control variables such as board size (bs) and board shareholding ratio (mshr) also significantly influence corporate debt financing levels, with larger boards and higher shareholding ratios associated with more debt financing.

The model further controls for fixed asset ratio (wfr1), leverage ratio (wadr), current ratio (wcurrent), Tobin's Q (wtb1), and large shareholder ratio (wlargestholderrate), along with time trends (trend and trend2). The positive emotional tone of MD&A significantly influences corporate debt, complementing debt expansion, and this relationship remains robust after controlling for various factors, including macroeconomic conditions and corporate governance structures. Firm size and profitability positively impact debt financing growth, while operational risk negatively affects it.

4.1.1. Robustness test

Table 4, showcasing robustness regression results, adopts a dynamic approach to assess corporate debt growth, controlling for macroeconomic fluctuations. The dependent variable is the corporate debt growth ratio (lg), with the key independent variable being the positive emotional tone in MD&A (lwpsy). Across all models, lwpsy exhibits a positive and significant coefficient, indicating that a positive MD&A tone is associated with increased corporate debt growth, even when considering macroeconomic factors.

The coefficients for lwpsy range from 8.507 to 12.62, all significant at the 1% level, suggesting that a more positive tone in MD&A can significantly boost a company's debt growth. Control variables, including macroeconomic conditions (dgdp), corporate governance, board characteristics, and financial health, are found to significantly impact debt growth ratios, aligning with economic logic.

TABLE 4.
Validation of the Affirmative MD&A Tone's Influence on Corporate Debt Expansion: Rigorosity Examination

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	lg	lg	lg	lg	lg	lg	lg	lg	lg
lwpsy	8.507***	12.62***	10.03***	7.266***	9.646***	9.472***	7.624***	7.620***	8.010***
	(2.106)	(2.152)	(2.152)	(2.125)	(2.183)	(2.191)	(2.190)	(2.190)	(2.192)
dgdp		−3.903***	−4.055***	−4.062***	−3.893***	−3.821***	−3.913***	−3.917***	−3.917***
		(0.313)	(0.311)	(0.305)	(0.303)	(0.301)	(0.300)	(0.300)	(0.300)
wlasset			3.426***	2.809***	2.854***	2.532***	2.167***	2.176***	2.198***
			(0.184)	(0.192)	(0.203)	(0.207)	(0.205)	(0.205)	(0.206)
wfr1				−11.73***	−11.13***	−11.13***	−10.07***	−10.06***	−9.984***
				(0.914)	(0.910)	(0.922)	(0.926)	(0.926)	(0.928)
wcurrent				−0.892***	−0.930***	−0.787***	−0.719***	−0.721***	−0.742***
				(0.0529)	(0.0550)	(0.0572)	(0.0583)	(0.0583)	(0.0587)
wcf					4.211***	4.198***	2.549***	2.534***	2.518***
					(0.642)	(0.636)	(0.635)	(0.636)	(0.636)
wtb1					0.141**	0.182***	0.0486	0.0496	0.0863
					(0.0664)	(0.0679)	(0.0682)	(0.0682)	(0.0690)
wadr						5.142***	7.815***	7.809***	8.005***
						(0.821)	(0.896)	(0.895)	(0.888)
wlargestholderrate						0.0856***	0.0699***	0.0693***	0.0660***
						(0.0123)	(0.0120)	(0.0120)	(0.0120)
wnpr							18.58***	18.53***	18.05***
							(1.524)	(1.525)	(1.546)
wstd							−2.420***	−2.393***	−2.387***
							(0.544)	(0.545)	(0.547)
dual								0.461**	0.449**
								(0.207)	(0.207)
bs									1.948**
									(0.878)
msr									13.40**
									(5.282)
bshr									−9.849*
									(5.695)
trend	0.368***	−0.232***	−0.831***	−0.724***	−0.685***	−0.615***	−0.500***	−0.507***	−0.538***
	(0.0518)	(0.0859)	(0.0983)	(0.0967)	(0.0962)	(0.0950)	(0.0923)	(0.0923)	(0.0918)
trend2	−0.0147***	0.0200***	0.0298***	0.0218***	0.0203***	0.0206***	0.0171***	0.0176***	0.0205***
	(0.00364)	(0.00567)	(0.00577)	(0.00566)	(0.00563)	(0.00564)	(0.00550)	(0.00550)	(0.00545)
Constant	−0.339	2.757***	−68.25***	−49.67***	−51.71***	−50.94***	−43.78***	−44.02***	−46.89***
	(0.331)	(0.419)	(3.808)	(4.080)	(4.384)	(4.542)	(4.485)	(4.484)	(4.591)

Note: Standard deviations are in parentheses, ***, **, and * indicate that the estimated coefficients are significant at the 1%, 5%, and 10% levels respectively.

At the governance level, the presence of a dual-role general manager (dual) and management shareholding ratio (msr) show positive associations with debt growth, while board shareholding ratio (bshr) exhibits a negative relationship, indicating a potential preference for conservative debt strategies among board members who are also shareholders.

Financial indicators such as enterprise size (wlasset), profitability (wnpr), and operational risk (wstd) significantly correlate with debt growth, with size and profitability positively linked, and operational risk negatively related. The coefficients of control variables like Tobin's Q (wtbl), leverage ratio (wadr), and large shareholder ratio (wlargestholderrate) also contribute to a nuanced understanding of corporate debt financing behavior.

The positive emotional tone in MD&A (lwpsy) consistently shows a positive and significant impact on corporate debt growth, supporting the hypothesis H_1 that managerial communication can influence financial strategies and outcomes. This insight is crucial for understanding the multidimensional factors affecting corporate debt financing.

4.2. The Salutary Effect of MD&A's Positive Emotional Cadence on Corporate Profitability and Operational Risks

To encapsulate the instantaneous and enduring impacts of managerial sentiment, the discourse on mediation encompasses both the lagged one-order MD&A positive affective tone (lwpsy) and its non-lagged counterpart (wpsy). This methodology permits a comprehensive examination of the mechanisms by which a positive emotional tone influences corporate debt financing, both directly and indirectly, through its effects on profitability, operational risk, and the caliber of internal controls.

Table 5 offers an analytical exposition on the mediating influences of the positive emotional tone in MD&A concerning a company's profitability, operational risk, and standards of internal control. In the realm of profitability (wnpr), the initial equation's findings reveal that the unlagged MD&A positive emotional tone (wpsy) bears a coefficient of 0.233, significant at the 1% level, denoting a substantial capacity to elevate corporate profitability. The lagged one-order MD&A positive emotional tone (lwpsy), with a coefficient of 0.595, also achieves significance at the 1% level, substantiating the enduring affirmative impact on profitability. The market may interpret a company's positive emotional tone in MD&A as an auspicious signal of future performance, thus bolstering expectations of profitability. Such optimistic forecasts of earnings could reinforce the confidence of financial institutions in the company's debt repayment capabilities, augmenting the likelihood of securing debt financing. These outcomes suggest that a posi-

TABLE 5.

MD&A Tone: Mediator of Profit, Risk, Control in Firms

	(1)	(2)	(3)
VARIABLES	wnpr	wstd	index
wpsy	0.233***	0.267***	−197.6***
	(0.0184)	(0.0482)	(60.75)
lwpsy	0.0595***	−0.02958*	1,317***
	(0.0135)	(0.0366)	(52.98)
dgdp	0.00788***	0.0252***	−3.820
	(0.00116)	(0.00252)	(4.327)
wlasset	0.0198***	0.000655	80.37***
	(0.00130)	(0.00426)	(3.699)
wfr1	−0.0587***	−0.0263	10.58
	(0.00655)	(0.0201)	(19.04)
wcurrent	−0.00190***	0.0156***	−16.51***
	(0.000318)	(0.00140)	(1.149)
wcf	0.0788***	−0.0329***	−587.8***
	(0.00346)	(0.00956)	(15.00)
wtb1	0.00698***	−0.00193	22.71***
	(0.000615)	(0.00137)	(1.562)
wadr	−0.164***	−0.196***	−186.6***
	(0.00610)	(0.0168)	(17.88)
wlargesthold	0.000853***	0.000671**	0.589**
errate	(9.06e-05)	(0.000268)	(0.230)
dual	0.00228	−0.0111**	−9.240**
	(0.00150)	(0.00444)	(4.559)
bs	−0.0124**	0.00974	−11.42
	(0.00540)	(0.0140)	(16.48)
msr	0.0361	0.189*	−915.5***
	(0.0343)	(0.107)	(135.1)
bshr	0.0280	−0.221**	876.1***
	(0.0373)	(0.109)	(140.7)
trend	−0.00179***	0.0277***	−26.83***
	(0.000536)	(0.00165)	(1.733)
trend2	$-4.66e-05$	−0.00189***	1.177***
	(2.92e-05)	(9.04e-05)	(0.0948)
Constant	−0.375***	0.285***	−1,133***
	(0.0279)	(0.0927)	(81.28)

Note: Standard deviations are in parentheses, ***, **, and * indicate that the estimated coefficients are significant at the 1%, 5%, and 10% levels respectively.

tive emotional tone in MD&A might indirectly influence debt financing by enhancing the company's profitability.

In the operational risk (wstd) analysis, the second equation indicates that the unlagged MD&A positive affective tone (wpsy) has a coefficient of 0.267, significant at the 1% level, signifying a correlation between heightened positive tone and increased corporate operational risks. Conversely, the lagged one-order MD&A positive emotional tone (lwpsy) exhibits a coefficient of -0.295, significant at the 10% level, implying that the positive tone, when lagged, could actually mitigate the company's operational risk. This dichotomy may reflect the intricate dynamics by which a positive tone influences risk, with potential for an initial surge in risk followed by a long-term decrease. This could have repercussions for corporate debt financing endeavors, as entities perceived as high-risk may be less likely to secure loans from financial institutions.

Regarding the internal control level (index), the third equation's analysis presents the unlagged MD&A positive emotional tone (wpsy) with a significant coefficient of -197.6 at the 1% level, suggesting a negative association between an increase in positive tone and a decrease in internal control standards. However, the lagged one-order MD&A positive affective tone (lwpsy) shows a significant coefficient of 1317 at the 1% level, indicating that over time, an enhanced positive tone is associated with improved internal control. An elevated positive emotional tone in MD&A might incite expectations of commendable future performance among investors and financial institutions, thereby augmenting the company's stock price and credibility. Yet, in the short term, it could lead to a diminished focus on internal controls by management. The coefficient of lwpsy suggests that an uptick in MD&A's positive emotional tone will, in the subsequent period, lead to better internal control. Thus, neglect of internal controls by management could result in risks and reputational damage, influencing the cost of borrowing and financing options.

The findings elucidate a significant relationship between the positive emotional tone in MD&A and both corporate profitability and operational risks. An upsurge in positive emotional tone significantly amplifies corporate profitability but concurrently escalates operational risks. Moreover, while a heightened positive emotional tone in MD&A might initially result in a decreased emphasis on internal control by management, it is anticipated to foster enhanced internal control in the long term. This establishes Hypothesis H_2. These conclusions offer valuable guidance for enterprises in devising debt financing strategies and crafting MD&A narratives with precision and foresight.

4.3. The Pervasive Impact of Net Intonation Information

Management's tone, reflecting the emotional inclination of textual information, significantly influences investors' perceptions of a company's financial condition and future outlook. The relative lack of stringent regulation over textual expression and the associated challenge of verifying its authenticity provide management with the leeway to modulate their language to shape specific messages.

Baginski et al. (2012) introduced the concept of "linguistic inflation," suggesting that management could sway market interpretations of corporate performance through exaggerated language. Huang et al. (2014) addressed the quantification of this phenomenon by employing a residual method to differentiate between standard and inflated tonality in disclosures. This approach allows for the identification of linguistic discrepancies that deviate from actual performance, offering insights into management's communication strategies and their potential effects on investor decisions.

Table 6 details the mediating effect analysis of the positive emotional tone in MD&A on corporate profitability, operational risk, and the level of internal control. The wddtl equation's results indicate that the key explanatory variable tone (current period tone) and the lagged key explanatory variable ltone (previous period tone) have regression coefficients of 0.000291 and 7.62e-05, respectively, significant at the 1% and 5% levels. This suggests that management's net tone significantly influences corporate debt levels (wddtl), with a stronger impact seen from the current period's positive tone and a weaker impact from the previous period's tone, reflecting the market's more immediate response to current information.

The wnpr equation analysis shows that the current period's tone has a significant positive impact on corporate profitability (wnpr), with a coefficient of 9.26e-05 at the 1% significance level. The previous period's tone, indicated by ltone, does not significantly affect current profitability, suggesting that the market primarily reacts to the latest managerial sentiment.

In the wstd equation, the current period's positive emotional tone is positively correlated with the company's operational risk (wstd), with a coefficient of 3.10e-05 significant at the 1% level. The lagged tone's impact is statistically insignificant, implying that the immediate effect of tone on operational risk is short-lived.

For the index equation, both the current positive tone (tone) with a coefficient of 0.952 and the lagged tone (ltone) with a coefficient of 0.00352 significantly affect the internal control level index (index) at the 1% level. This indicates that the current positive tone is associated with higher in-

TABLE 6.

MD&A Net Tone's Impact: Fixed Effects Analysis

	(1)	(2)	(3)	(4)
VARIABLES	wddt	wnpr	wstd	index
tone	0.000291^{***}	$9.26e-05^{***}$	$3.10e-05^{***}$	0.952^{***}
	(3.99e-05)	(4.97e-06)	(9.67e-06)	(0.00228)
ltone	$7.62e-05^{**}$	$-1.40e-06$	$4.87e-07$	0.00352^{***}
	(3.16e-05)	(2.26e-06)	(6.16e-06)	(0.00132)
dgdp	0.0506^{***}	0.00943^{***}	0.0246^{***}	15.66^{***}
	(0.0154)	(0.00123)	(0.00258)	(0.665)
wlasset	0.159^{***}	0.0254^{***}	0.00378	80.06^{***}
	(0.0157)	(0.00141)	(0.00477)	(0.656)
wfr1	-1.139^{***}	-0.0537^{***}	-0.0315	-6.342^{**}
	(0.0759)	(0.00665)	(0.0219)	(3.207)
wcurrent	-0.0640^{***}	-0.00332^{***}	0.0159^{***}	-16.13^{***}
	(0.00487)	(0.000360)	(0.00170)	(0.192)
wcf	0.692^{***}	0.0129^{**}	-0.0639^{***}	-558.0^{***}
	(0.0757)	(0.00611)	(0.0140)	(2.785)
wtb1	0.00600	0.00938^{***}	-0.00134	20.05^{***}
	(0.00532)	(0.000626)	(0.00143)	(0.256)
wadr	0.404^{***}	-0.165^{***}	-0.196^{***}	-189.7^{***}
	(0.0634)	(0.00663)	(0.0179)	(2.632)
wlargesthold	0.00780^{***}	0.000726^{***}	0.000548^{*}	0.596^{***}
errate	(0.000935)	(9.17e-05)	(0.000281)	(0.0396)
dual	0.0517^{***}	0.00171	-0.0121^{**}	-7.482^{***}
	(0.0180)	(0.00162)	(0.00475)	(0.791)
bs	0.0516	-0.0140^{**}	0.0162	-16.20^{***}
	(0.0671)	(0.00542)	(0.0143)	(2.646)
msr	1.731^{***}	-0.0483	0.164	-851.1^{***}
	(0.536)	(0.0380)	(0.121)	(16.66)
bshr	-1.148^{**}	0.102^{**}	-0.204^{*}	819.9^{***}
	(0.556)	(0.0405)	(0.123)	(17.24)
trend	-0.0179^{***}	-0.00490^{***}	0.0274^{***}	-30.13^{***}
	(0.00659)	(0.000601)	(0.00195)	(0.359)
trend2	-0.00104^{***}	$5.91e-05^{*}$	-0.00192^{***}	$1,097^{***}$
	(0.000356)	(3.17e-05)	(0.000102)	(0.0184)
Constant	-3.228^{***}	-0.438^{***}	0.253^{**}	-916.1^{***}
	(0.352)	(0.0298)	(0.102)	(14.00)

Note: Standard deviations are in parentheses, ***, **, and * indicate that the estimated coefficients are significant at the 1%, 5%, and 10% levels respectively.

ternal control standards, likely due to management's emphasis and investment in controls, while the previous period's tone also has a lasting, albeit weaker, positive effect.

In summary, the positive emotional tone in MD&A exerts a multifaceted impact on a company's financial metrics, with both immediate and lingering effects. Such expressions of optimism can bolster market confidence, potentially leading to enhanced debt financing and profitability in the short term. However, they may concurrently amplify operational risks. Over the longer term, a positive tone correlates with improved standards of internal control. These findings offer valuable insights for companies when crafting their MD&A narrative and debt financing strategies, necessitating a judicious balance between the tone and the actual financial standing of the corporation.

5. FURTHER EXPENSION

5.1. The Symbiosis of Positive MD&A Tone with Earnings Management for Debt Financing Enhancement

In delving into the nexus between managerial tone and earnings management practices, the study employs two distinct metrics: real earnings management (reale) and accrual earnings management (resid). These serve to quantify the dual facets of earnings manipulation. By integrating these metrics with the positive tone of management's discourse (wpsy), the study constructs interactive variables, TOE and TOR, to scrutinize if management modulates the tenor of their annual reports in concert with earnings management tactics, consequently influencing the firm's debt financing strategies.

The findings, however, do not substantiate a connection between these interactive variables and the augmentation of debt financing. This absence of evidence implies that there might not be a concerted effort between the managerial tone and earnings management to sway debt financing levels. As depicted in Table 7, across four distinct models, the coefficient for wpsy is consistently positive and significant at the 1% level, underscoring the affirmative influence of a positive managerial tone on the expansion of corporate debt.

In the initial and second models, neither resid nor tor exhibit statistical significance, indicating no tangible link between a positive managerial tone and the escalation of corporate debt through accrual earnings management. The third and fourth models reveal a significant positive impact of real earnings management on corporate debt, potentially attributed to the

TABLE 7.
The debt financing effect of MDA's positive tone in the context of earnings management

	(1)	(2)	(3)	(4)
VARIABLES	lg	wddtl	wddtl	lg
wpsy	8.564***	1.241***	1.207***	8.091***
	(2.384)	(0.194)	(0.197)	(2.422)
reale			0.389*	6.823***
			(0.200)	(2.607)
toe			−1.277	−26.86
			(1.086)	(14.04)
resid	3.974	0.0271		
	(5.583)	(0.476)		
tor	−0.222	2.962		
	(36.41)	(3.098)		
Constant term	−47.23***	−3.361***	−3.810***	−51.67***
	(4.878)	(0.307)	(0.320)	(5.086)
Other control variables	YES	YES	YES	YES
year&code	YES	YES	YES	YES

Note: Standard deviations are in parentheses, ***, **, and * indicate that the estimated coefficients are significant at the 1%, 5%, and 10% levels respectively.

fact that profitable entities are more likely to inspire creditor confidence. Nevertheless, the interplay between real earnings and positive tone lacks significance, offering substantial validation for the absence of a synergistic relationship between the positive tone in MD&A and earnings management practices in the context of corporate debt expansion. Consequently, Hypothesis H_3 is corroborated.

5.2. Heterogeneity analysis

5.2.1. The Impetus of Corporate Control Rights Heterogeneity

This study categorizes the sample into state-owned and non-state-owned enterprises based on their ownership nature. Table 8 reveals that a positive managerial tone is conducive to the expansion of corporate debt, suggesting that a more optimistic tone in management communication is associated with a higher inclination towards debt financing. Notably, the positive emotional tone (ws) of state-owned enterprises has a negative coefficient in the debt growth equation, significant at the 10% level. This indicates that, when controlling for corporate variables, state-owned enterprises are less inclined to use the positive tone in their MD&A to expand corporate debt compared to non-state-owned enterprises, thus supporting Hypothesis H_3.

This finding underscores the importance of management tone in the financing strategies of non-state-owned enterprises for several reasons. Firstly, a positive tone in annual reports can facilitate more effective communication with creditors and potentially lower financing costs for these non-state-owned entities. Secondly, the optimistic portrayal in annual reports may boost market confidence in the future prospects of non-state-owned enterprises, thereby attracting additional financing. Lastly, for non-state-owned enterprises, the positive messaging within annual reports serves as a vital instrument for securing and sustaining their financial support channels.

5.2.2. The impact of enterprise specialization and heterogeneity on innovation capabilities

The stratification of the subject matter into realms of specialized and innovative enterprises versus those lacking such specialization and innovation is predicated upon their respective capacities for innovation. Upon a meticulous examination of Table 8, it emerges that the coefficient pertaining to the subsequent period's positive affective tonality within the Management Discussion and Analysis (MD&A) segment of specialized and innovative enterprises registers at 0.163, an insignificance that defies statistical relevance. This datum suggests a lack of substantial influence exerted by the MD&A's positive affective tone on the debt financing endeavors of specialized and innovative enterprises. Conversely, within the purview of enterprises that do not lay claim to specialization and innovation, a positive affective tone in the MD&A has been observed to align with an augmentation of corporate indebtedness.

5.2.3. The Impact of Regional Economic Development Heterogeneity

After accounting for the sway of other expository variables, the respective coefficients of lwpsy are observed to be 0.708 at a 5% significance level, 2.212 at a 1% significance level, and 0.266, which proves to be non-significant, in the contexts of eastern, central, and western enterprises respectively. This delineates a notable heterogeneity in the efficacy of MD&A's positive emotional tone in influencing the escalation rate of corporate debt financing across different geographical domains.

In the eastern regions, where the economy is more advanced and infrastructure is robust, attributes such as corporate magnitude and profitability may confer a heightened competitive edge, thereby rendering companies more inclined to adopt a positive tone in their MD&A compared to their western counterparts. This propensity is posited to have a more pronounced effect on the acceleration of corporate debt financing.

Conversely, the central regions, with their intermediary level of economic development and a relatively balanced geographic endowment, may incline towards a more holistic development approach. In this scenario, the positive emotional tone in the MD&A could be construed as a pivotal factor. Moreover, these central enterprises, potentially more reliant on debt financing as a springboard for growth, could place heightened importance on the influence wielded by the positive tone in MD&A over the growth trajectory of their debt financing.

In stark contrast, the western regions, beset with comparatively weaker infrastructure and less advantageous geographic endowments, might divert their focus towards other elements of business operation and strategy.

The positive emotional tone within the MD&A's narrative is observed to exert a diminished impact on the growth rate of debt financing for state-owned enterprises, and this impact is notably absent in the case of specialized and innovative enterprises. Geographically, the eastern region, despite its superior locational endowment, does not manifest the most pronounced influence of the positive emotional tone in MD&A on the growth rate of debt financing. This paradox suggests that enterprises endowed with superior resources may not necessarily gravitate towards leveraging the positive tone in MD&A to catalyze the growth rate of debt financing.

State-owned enterprises, for instance, may enjoy superior resource endowments, such as governmental backing or monopolistic positions, which could ease their access to policy-driven financing and other favorable terms. This ease could diminish their dependence on the positive tone in MD&A. Furthermore, these enterprises might be more oriented towards social welfare and sustainable growth objectives rather than transient financing needs, thus prioritizing financial prudence and long-term value generation over an over-reliance on the positive tone in MD&A to escalate the growth rate of debt financing.

For enterprises distinguished by specialization and innovation, their distinctive products or services may demand a more substantial commitment to research and development and innovation initiatives, thereby indicating a need for a greater infusion of equity capital or venture capital instead of conventional debt financing. Furthermore, given their nascent and underdeveloped status in the marketplace, they might confront elevated financing expenses and hazards. Consequently, the optimistic emotional tone in the Management Discussion and Analysis (MD&A) may not exert a significant influence on the growth rate of debt financing when juxtaposed with other types of enterprises.

TABLE 8.

Heterogeneity analysis results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	state-owned enterprises		Specialized and special new enterprise	Non-specialized and special new enterprises	east	central	west
VARIABLES	wddt	lg	wddt	wddt	wddt	wddt	wddt
lwpsy	1.019^{***}	8.173^{**}	0.163	0.820^{***}	0.708^{***}	1.212^{***}	0.266
	(0.0461)	(0.0269)	(0.00726)	(0.0372)	(0.0322)	(0.322)	(0.0126)
ws	−0.515	-7.448^{*}					
	(−0.0631)	(−0.0665)					
Constant term	-2.989^{***}	-42.47^{***}	-3.303^{***}	-2.980^{***}	-2.759^{***}	-3.597^{***}	-2.686^{***}
	(−9.844)	(−8.839)	(−3.952)	(−9.207)	(−6.811)	(−5.164)	(−3.847)
Other control variables	YES	YES	YES	YES	YES	YES	YES
year&code	YES	YES	YES	YES	YES	YES	YES

Note: Standard deviations are in parentheses, ***, **, and * indicate that the estimated coefficients are significant at the 1%, 5%, and 10% levels respectively.

For those enterprises situated in the eastern region, despite their more favorable geographical endowments, the economic and market milieu of this locale is comparatively mature, which could engender more rigorous competition among firms. This heightened rivalry might attenuate the efficacy of the positive emotional tone in the MD&A. Moreover, eastern enterprises might be more inclined to prioritize steady financial performance and the cultivation of enduring value over and above transient financing demands, thus potentially reducing their reliance on the positive emotional tone in the MD&A.

In the heartland of China, the resource endowment and industrial composition are comparatively balanced, and the rivalry among businesses is more equitable, which may enhance the perceptible benefits of a positive emotional tone in the MD&A. Additionally, these central enterprises might place a heightened emphasis on balanced growth and robust financial health, yet they also require debt financing as a propellant for corporate advancement, hence their dependency on the positive emotional tone in the MD&A could be considerably pronounced.

In the western regions of China, where the locational assets and infrastructure are relatively less developed and the competition among businesses is less fierce, the impact of the positive emotional tone in the MD&A may be comparatively diminished. Moreover, companies in the west might be more focused on the consolidation of resources and the enhancement of investment returns rather than the mere escalation of debt financing. Consequently, their dependence on the positive emotional tone in the MD&A may be relatively subdued.

In essence, these observations corroborate Hypothesis H_4, which posits that the inclination towards leveraging the positive emotional tone in the MD&A varies across enterprises with different levels of resource endowment and competitive market landscapes.

6. SUMMARY AND CONCLUSION

Through meticulous scrutiny of two decades of panel data encompassing non-financial listed entities within China's A-share market, this scholarly endeavor peels back the layers to unveil the intricate nexus between the positive emotional tenor of the management discussion and analysis (MD&A) segment within annual reports and the phenomenon of corporate debt expansion. The study's revelations underscore that the affirmative affective cadence within the MD&A exerts a direct influence on a company's inclination toward debt expansion, while simultaneously mediating this impact through the conduits of profitability, operational risk, and the firmament of internal controls.

The insights gleaned from this research suggest that the executive suite's sanguine narrative possesses the capacity to bolster a corporation's ability to secure debt financing, particularly in scenarios rife with information asymmetry. By employing proactive communicative tactics, management can significantly bolster the assurance of both investors and creditors.

Nonetheless, the study unearths the reality that not every enterprise is either equipped or inclined to harness the positive emotional tone of the MD&A as a lever for debt financing. Enterprises endowed with superior resources, buoyed by a formidable market stance and diminished financing risks, may find the allure of a positive tone in their annual reports to be less imperative for attracting debt financing. Conversely, companies beset by more tenuous resource endowments, grappling with heightened information asymmetry and the burden of financing costs, might perceive the positive emotive tone as a less efficacious instrument, thereby exhibiting a reduced proclivity to harness this approach.

In stark contrast, firms with moderate resource endowments may manifest a greater propensity to capitalize on the positive emotional tone within the MD&A, potentially driven by dual imperatives: the amelioration of information asymmetry and the ambition to garner financial support amidst cutthroat market competition.

The conclusions drawn from this research bestow vital signposts for corporate management in the art of crafting debt financing strategies. They admonish companies to undertake a measured assessment of their resource endowments and market dynamics when contemplating the integration of a positive emotional tone into their financial strategies. Furthermore, for regulatory authorities and investors alike, a profound comprehension of the interplay between MD&A tone and corporate debt financing behaviors is indispensable for a more precise calibration of a company's fiscal well-being and risk contours.

Thus, this study extends beyond enriching the theoretical discourse on the interconnection between the tone of financial reporting and corporate financing actions; it also furnishes empirical validation for pragmatic decision-making endeavors.

List of abbreviations

MD&A: Management's Discussion & Analysis

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