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Corporate trust language and its impact on information transparency in an emerging market

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Abstract

Purpose – This study examines whether the use of trust-related language in the management discussion and analysis (MD&A) sections of corporate reports influences perceptions of information transparency in Iranian firms.

Design/methodology/approach – Using 1,897 firm-year observations from Iranian listed firms between 2011 and 2023, trust language (TRUSTTL) is measured by identifying and counting trust-related words in MD&A reports based on an expanded lexicon containing 98 Persian-specific keywords. Information transparency is proxied by deviations in firm value (DEVIATION).

Findings – The results show a significant negative relationship between TRUSTTL and DEVIATION, suggesting that greater use of trust-related language is associated with improved information transparency. These findings support the incremental information perspective, indicating that trust language can reduce information asymmetry between firms and investors. However, the positive effect weakens when MD&A disclosures exhibit excessive complexity or overly optimistic tone, which may undermine credibility and reduce stakeholder trust.

Originality/value – This study extends the corporate disclosure literature by examining the role of trust-related language in MD&A reports within a non-English and emerging market context. By developing a Persian-specific trust lexicon and empirically testing its effects on transparency, the research provides new insights into how linguistic features influence the informativeness of corporate communication.

Keywords Trust language, Information transparency, MD&A reports, Incremental information perspective, Impression management perspective

Paper type Research article

1. Introduction

In an era of intensified scrutiny on corporate governance worldwide, the role of trust in financial disclosures emerges as a pivotal factor, particularly in emerging markets where governance structures are evolving. This paper delves into the dynamics of trust within corporate frameworks, underscoring its significance in shaping financial transparency and stakeholder relations. Such exploration is critical, as trust influences a company's reputation, operational efficiency, and long-term success. Our study stands out by investigating how trust-related language in Management Discussion and Analysis (MD&A) sections affects financial outcomes, including share price stability and firm performance, within the unique context of Iran. These aspects have not been extensively examined in prior research, particularly in non-Western settings (Audi *et al.*, 2016; Xu *et al.*, 2019), thereby underscoring the special attention this paper merits.

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To address these gaps, we adopt an empirical strategy that combines advanced textual analysis with financial performance metrics to explore how trust language shapes transparency in Iranian firms. We conduct a quantitative textual analysis of Persian MD&A reports using an expanded lexicon of trust-related terms and apply financial deviation metrics to assess the transparency of corporate disclosures. Specifically, we build on Audi *et al*. (2016) by extending their 21-word trust-related lexicon to a broader set of 98 Persian keywords, which we use to construct a firm-level trust language index (*TRUSTTL*). To capture transparency, we rely on four measures of firm value deviation (*DEVIATION*), where higher deviations reflect lower levels of informational transparency. Our empirical approach includes robustness checks using lagged variables, alternative trust measures, and a propensity score matching (PSM) method to address potential endogeneity concerns.

To fully contextualize our analysis, we consider Iran's distinctive business environment, which uniquely influences corporate governance practices and financial reporting transparency. Section 2 provides further detail on the cultural, economic, and regulatory factors shaping corporate reporting in Iran. Within this setting, trust-related language reflects broader corporate culture and can influence how stakeholders perceive disclosure credibility. We investigate the dual role of such language: as a mechanism for conveying genuine information and reducing asymmetry, and as a tool for impression management that may obscure actual financial health (Breuer *et al*., 2020; Cho *et al*., 2023).

Grounded in these institutional characteristics, our theoretical framework draws on established perspectives to hypothesize the dual function of trust language in corporate disclosures. Theoretical foundations supporting our hypotheses are briefly outlined here and extensively discussed in Section 3. We propose that trust language can serve two purposes: enhancing information clarity and potentially acting as a facade for less favorable realities (Du and Yu, 2021; Hurley *et al*., 2014). This dual perspective provides a comprehensive view of the strategic use of trust in corporate communication, advancing our understanding of its implications for transparency and governance.

Our findings reveal that *TRUSTTL* is negatively correlated with *DEVIATION*, suggesting increased transparency. This result supports the incremental information and information asymmetry perspectives, indicating that managers use trust language to reduce information asymmetry and provide precise, useful information. Our preliminary results are robust to alternative measures of *TRUSTTL*, the use of lagged variables of *TRUSTTL*, and the propensity score matching (PSM) approach to mitigate endogeneity concerns, as well as a sensitivity analysis to address external influences on trust and transparency. Additional tests revealed that the complexity of financial reporting and the tone of the reports moderate the impact of trust language on transparency. Specifically, more complex MD&As weaken the positive effect of trust language on transparency, likely because they are harder to understand. Similarly, a more positive tone in MD&As reduces the impact of trust language on transparency, possibly due to stakeholder skepticism towards overly optimistic reports.

This paper contributes to the academic and practical understanding of trust in financial disclosures, particularly within the Iranian context. It uniquely explores how trust-related language enhances transparency in Iran's distinct cultural, geopolitical, and regulatory environment. This research stands out as it diverges from previous studies focused primarily on Western markets or the link between trust language and share price volatility (Audi *et al*., 2016). Instead, it examines how trust language influences corporate transparency through firm value deviation, offering new insights into strategic language use in markets with unique institutional characteristics. This analysis is increasingly pertinent as global corporate governance places greater emphasis on trust in financial reporting.

Besides, this study diverges from existing literature by expanding the trust lexicon used in previous research (Audi *et al*., 2016) and applying it to Persian-language MD&A reports. We introduce a methodological advancement by incorporating 98 trust-related words tailored to the Persian language context, thereby broadening the scope of textual analysis in non-English settings. This extension allows us to explore the nuances of trust language in financial

disclosures and provides novel insights into the role of language in mitigating information asymmetry and improving market transparency. The practical implications of this research are substantial, offering insights that can help enhance transparency and reduce information asymmetries in similar emerging markets. Specifically, this study explores the effects of trust language in the MD&A sections of Iranian firms on financial reporting transparency. By providing evidence-based recommendations, this research can guide regulators, auditors, and corporate managers in implementing better governance practices and communication strategies in markets comparable to Iran.

The paper is structured as follows: Section 2 discusses the uniqueness of the Iranian market and the distinct characteristics of Iranian managers. Section 3 demonstrates theories and hypothesis development. Section 4 outlines the research design. Section 5 presents the findings, while Section 6 covers the additional analyses. Finally, concluding remarks are provided in Section 7.

2. Cultural insights into Iranian market distinctiveness and managerial behavior

Iran's market operations and managerial practices uniquely differ from other countries due to a complex mix of geopolitical, cultural, economic, and regulatory factors. These distinctions are pivotal in understanding the dynamics of trust language and information transparency within the Iranian market. The following sections provide a more focused analysis of how Iran's distinctive cultural and institutional characteristics shape trust language and its effect on financial transparency compared to other global markets.

2.1 Uniqueness of the Iranian market for trust and transparency studies

Iran's market is unique, shaped by a mix of geopolitical, cultural, economic, and regulatory factors that distinctly influence how transparency is perceived and trust is communicated in corporate settings. Geopolitically, Iran is isolated by international sanctions from the United States and the European Union, contrasting with the open economic relations of countries like Malaysia, India, Saudi Arabia, and the UAE (Torbat, 2005; Ghasseminejad and Jahan-Parvar, 2021). This isolation has impacted Iran's ability to integrate with global financial markets, influencing the level of transparency in its corporate reporting practices. Legally and economically, it operates under a hybrid system of Islamic and civil law with significant state control, affecting sectors like finance and leading to predominant state-owned enterprises and reduced competition (Tamadonfar, 2001; Crane *et al*., 2008; Oradi *et al*., 2020; Tajeddini and Trueman, 2016). This contrasts with more liberal market conditions and regulatory environments found in countries such as the UAE and Malaysia, where corporate governance and transparency standards have been evolving at a faster pace (Strong and Himber, 2009).

Culturally, Iran is influenced by its rich Persian heritage, which differs from the Arab norms dominant in many Middle Eastern countries (Foltz, 2016; Ansari, 2013; Aldhaheri, 2017; Ahmadi *et al*., 2018). This heritage influences the country's business practices, where traditional values and respect for hierarchy play a role in shaping managerial behavior and trust communication. The Iranian business environment is characterized by opacity, which is compounded by the need for enhanced investor protection (Shojaei *et al*., 2018). These cultural and institutional factors result in an environment where corporate transparency in financial disclosures is limited, particularly when compared to markets in more liberal economies. However, Iran's unique cultural orientation also plays a role in shaping the transparency of financial reporting. The country's socio-cultural context encourages a preference for long-term relationships and trust-based business dealings (Yeganeh and Su, 2007). This preference for long-term stability can sometimes foster a commitment to clear and cooperative reporting, especially within family-owned or closely-held businesses. The strong collectivist nature of Iranian society (Hofstede, 2011) also promotes a sense of shared responsibility, which can influence corporate decision-making and transparency. However, this collectivist orientation may also mean that individual accountability is less emphasized, potentially obscuring critical

financial information in corporate reports. The Iranian market, with its geopolitical positioning, hybrid legal system, and socio-cultural traits, therefore represents a unique case study of the role of trust language in financial transparency. Unlike more developed markets, where international norms have shaped corporate disclosure practices, Iran's regulatory and cultural framework presents challenges and opportunities for improving corporate transparency through trust-related language.

2.2 Cultural dimensions in Iranian managers: implications for trust language and transparency

To further understand the influence of Iran's cultural context on trust language, we apply Hofstede's cultural dimensions theory, which provides insights into how cultural values impact managerial behavior and decision-making (Hofstede and Hoppe, 2004; Hofstede, 2011). This framework identifies six dimensions that shape managerial practices: Power Distance, Uncertainty Avoidance, Individualism versus Collectivism, Masculinity versus Femininity, Long-term Orientation versus Short-term Orientation, and Indulgence versus Restraint. These dimensions can help explain the use of trust-related language in Iranian corporate disclosures and its impact on financial transparency.

Iran's high Power Distance score (58) suggests a hierarchical society where authority is respected, and subordinates are unlikely to challenge leaders, potentially affecting financial disclosure transparency (Farh *et al*., 2007; Mulki *et al*., 2015). This dynamic suggests that trust language in Iranian corporate reports may be heavily influenced by top-down communication, with executives shaping the tone and content of disclosures to maintain control over how information is presented. In contrast, in more egalitarian cultures, transparency may be driven by a more open flow of information within the organization. The low Individualism score (41) and high Collectivism in Iranian culture also suggest a strong emphasis on group cohesion over individual accountability (Chiang and Birtch, 2010; Lai *et al*., 2013). This collectivist orientation could impact how financial performance is communicated in corporate disclosures. Trust-related language may be used to emphasize the collective achievements of the organization, potentially masking individual performance issues or financial risks that could reduce actual transparency. This is in contrast to more individualistic societies where transparency may more directly focus on individual performance metrics and accountability.

High Uncertainty Avoidance score (59) in Iranian culture suggests that managers prefer clear rules and structured reporting environments (Dastmalchian *et al*., 2001). This preference for clarity may encourage the use of detailed and formal language in financial reports, potentially enhancing transparency. However, the complexity of the language used in Iranian corporate reports may also reduce the effectiveness of trust-related language, as overly detailed or technical reports could hinder stakeholders' understanding and trust in the information being presented. The low Long-term Orientation score (14) in Iran suggests a focus on short-term results, which can influence how corporate achievements are framed in MD&A sections. Companies may emphasize immediate successes or short-term gains, which can lead to a less transparent picture of the firm's long-term stability (Seyed Kalali, 2022; Javidan and Dastmalchian, 2003). While this may increase trust in the short term, it could also obscure potential risks and long-term challenges, undermining the overall transparency of financial disclosures.

Overall, these cultural dimensions, in combination with Iran's unique regulatory and economic context, significantly shape how trust language is used in corporate reporting. In a market where transparency is often limited, the strategic use of trust-related language can be critical in shaping how financial information is perceived. However, the potential for overstatement or manipulation through trust-related language must be carefully managed, as it may lead to stakeholder skepticism, particularly when it appears disconnected from the underlying financial performance of the firm. A detailed analysis of how these dimensions apply to Iranian managers is presented in Appendix B.

3. Theories and hypothesis development

The relationship between trust-related language and information transparency in corporate disclosures is well-explained by the incremental information perspective, which posits that trust language serves as a strategic tool to reduce information asymmetry and foster transparency. By using trust-related keywords, firms signal clarity and honesty, enhancing stakeholder trust and aligning market perceptions with their actual financial state (Merkl-Davies and Brennan, 2007; Buhmann *et al*., 2020). This perspective highlights the dual role of trust language as both an impression management tool and a means to present accurate information, promoting better market valuations and investor confidence (Reck and Wilson, 2006; Du and Yu, 2021). In the Iranian context, where cultural traits like high Power Distance and Collectivism shape corporate behavior, trust-related language can mitigate informational gaps and align stakeholders' expectations with financial realities, ultimately improving the quality and transparency of corporate disclosures.

In the evolving Iranian market, shaped by international sanctions, a hybrid legal system, and significant state control, the incremental information perspective underscores the importance of trust-related language in enhancing corporate transparency and investor confidence. This market's unique challenges, including opacity, weak investor protections, and complex regulatory frameworks, necessitate strategic communication to mitigate information asymmetry. Iran's collectivist culture and hierarchical structures further influence how executives use trust language to align financial disclosures with stakeholder expectations. Research on trust in emerging markets, such as studies by Ruppel and Harrington (2000) and Du and Yu (2021), highlights how transparent communication through trust-related language improves market perceptions and behavior. Applying this perspective to Iranian firms demonstrates the potential of trust language as a tool to bridge informational gaps, enhance reputations, and foster greater alignment between firms' financial realities and stakeholder perceptions, addressing the unique dynamics of this market (Pavlopoulos *et al*., 2019; Dumay *et al*., 2019).

The impression management perspective offers a contrasting view on the relationship between trust-related language and information transparency, suggesting that such language can be strategically employed to manipulate perceptions rather than enhance clarity. Rooted in social psychology, this theory explains how organizations use language to create favorable impressions, sometimes at the expense of transparency and accuracy (Gardner and Martinko, 1988; Merkl-Davies and Brennan, 2007). In this context, managers may leverage trust-related keywords to present an overly positive or misleading image of their firm's performance, ultimately eroding informational clarity and stakeholder trust (Ackert *et al*., 2019; Li, 2008). This risk is heightened in the Iranian market, where evolving corporate governance structures, geopolitical challenges, and weak investor protections create fertile ground for impression management. Cultural traits like high Power Distance may further enable managers to use trust language without scrutiny, exacerbating the potential for manipulation. Overuse of optimistic or vague language, especially when unsupported by actual performance, can lead to suspicion, a credibility gap, and long-term mistrust (Bens *et al*., 2011; Breuer *et al*., 2020). In Iran's opaque regulatory environment, such tactics may backfire, as stakeholders perceive firms as prioritizing image management over genuine transparency, ultimately weakening trust and the quality of financial disclosures.

Overall, there could be both positive or negative outcomes associated with trust language. We posit that, based on the incremental information perspective, trust-related keywords in MD&A sections are positively associated with information transparency. In contrast, the impression management perspective, suggests that trust-related keywords are negatively associated with information transparency, as they may be used strategically to obscure the true financial condition of the firm. Given these opposing perspectives, we state our non-directional relationship between the use of trust-related keywords in MD&A sections and information transparency in the Iranian context as follow:

Hypothesis. There is a relationship between the use of trust words in MD&As and information transparency in the Iranian context.

4. Research design

4.1 Sample and data

Our sample comprises Iranian firms listed on the Tehran Stock Exchange (TSE) from the years 2011–2023 (4,160 firm-year observations). We collected all data from CODAL [1], the Securities and Exchange Organization of Iran's inclusive and up-to-date database. Observations from 960 firm-year in the financial and utility sectors were excluded due to the distinct differences in their metrics and regulations, making their financial information incompatible with other sectors. Additionally, 342 firm-year observations were eliminated due to changes in the fiscal year during the study period (2011–2020), and 803 instances were dismissed due to a lack of fundamental data. The remaining sample consisted of 2,055 firm-year observations, from which MD&A PDF files were manually downloaded for textual feature analysis. Following the removal of 39 observations with less than 200 words (according to Audi *et al*., 2016; Cho *et al*., 2023) and 40 instances of damaged PDF files, the final sample for the main analysis included 1,976 firm-year observations. The number of distinct firms included in the final sample is 206.

To construct trust indices, MD&A PDF files were transformed into text files using a Python script designed to open the PDFs, iterate through pages, remove tables, and convert pages to text files [2]. This study is the first to apply text mining techniques in Persian MD&A reports. Two preliminary tests were conducted to ensure the extracted text was suitable for analysis. The first test involved manually calculating textual features (number of pages, words, trust measure) for approximately 50 MD&As converted to text files. The mean number of pages for this subsample in the pilot test was 42 (ln = 3.737), with a mean word count of 8,100 (ln = 8.999). These figures are comparable with the main sample's mean number of pages at 45 (ln = 3.806) and mean word count of 8,595 (ln = 9.058). The second test compared the trust measure of manually analyzed MD&As against the main sample. The mean trust measure for the subsample was 20.058, closely aligning with the main sample's 21.672 from Table 1. Both tests were in close agreement, affirming the reliability of our text extraction and analysis methods.

4.2 Independent variable: trust

In exploring trust as a variable, it is essential to understand its complex nature, as emphasized by McEvily *et al*. (2003) and McEvily and Tortoriello (2011). Grounded in the comprehensive trust dimensions defined by Butler and Cantrell (1984)—integrity, competence, consistency, loyalty, and openness—we select 21 trust-related terms [3] that embody these dimensions (Audi *et al*., 2016; Breuer *et al*., 2020; Cho *et al*., 2023). Our research emphasizes the cultural and linguistic nuances in translating these terms into Persian, which is crucial for maintaining their integrity and relevance in MD&A disclosures. To ensure accuracy in translation, we employed the Google Translate API and consulted with bilingual experts, acknowledging Persian's rich linguistic characteristics and its potential for varied interpretations across dialects. Persian's complexity, with its idiomatic expressions and regional variations, necessitates a careful approach to translation, especially given the significant impact language has on stakeholder perceptions in financial reporting. By developing a bag-of-words model tailored for Persian MD&A disclosures, this study addresses the challenges of accurately conveying trust-related concepts. This model considers the unique aspects of the Persian language and culture, ensuring that the translated terms reflect the intended meanings and are relevant across different Persian-speaking contexts.

To ensure linguistic and cultural accuracy, these translated keywords were further refined and validated. This refinement included the incorporation of equivalent Arabic terms, given

Table 1. Descriptive statistics and mean difference test

Panel A. Descriptive statistics (n = 1,976)

Variables	Mean	Std. dev	Minimum	Q1	Median	Q3	Maximum
Dependent variables							
DEVIATION1	0.009	0.702	−0.997	−0.454	−0.044	0.273	3.662
DEVIATION2	0.631	0.666	0.042	0.293	0.442	0.691	6.175
DEVIATION3	0.211	0.227	0.037	0.106	0.140	0.226	2.844
DEVIATION4	1.583	1.237	0.230	0.856	1.193	1.790	6.708
Independent variable							
TRUSTTL	21.672	18.056	0	10	17	28	183
Control variables							
INSTOWN	0.590	0.316	0.000	0.375	0.700	0.848	0.999
BDINDEP	0.666	0.182	0.000	0.600	0.600	0.800	1
ROA	0.152	0.142	−0.288	0.061	0.133	0.232	0.661
INVREC	0.509	0.186	0.101	0.375	0.499	0.652	0.886
DEBTRATIO	1.927	1.973	0.038	0.734	1.318	2.384	10.772
INVEST	0.390	0.422	0.020	0.141	0.257	0.472	2.984
SIGMA	0.160	0.091	0.003	0.101	0.145	0.202	0.671
BETA	0.645	0.744	−1.490	0.177	0.581	1.043	2.727
STDSALE	0.303	0.255	0.011	0.142	0.229	0.373	1.583
STDOCF	0.094	0.064	0.011	0.053	0.078	0.117	0.657
OPNINT	1.347	1.806	0	0	1	2	13
AGE	3.618	0.381	2.197	3.367	3.689	3.932	4.249
CS	1.159	0.953	0	0	1	2	4
FINANCING	0.520	0.500	0	0	1	1	1

Note(s): This table provides a comprehensive summary of the descriptive statistics for the study's variables, including the means, standard deviations, and the range (minimum, first quartile Q1, median, third quartile Q3, maximum) for each variable. The variables are categorized into dependent variables, the main independent variable, and control variables, all of which are defined in Appendix A

Source(s): Authors' own work

the significant linguistic overlap between Persian and Arabic. This cross-linguistic consideration was essential to capture the nuances and breadth of trust-related concepts in Persian discourse. Two academic faculty members rigorously reviewed the translated version, focusing on consistency, elimination of redundancies, and necessary adjustments. Their insights, alongside respected Persian dictionaries, were instrumental in finalizing a robust set of 98 keywords for our model as presented in Appendix C. This expanded set of keywords reflects the intricate interplay of Persian and Arabic in conveying trust nuances, thereby enhancing the internal validity of our study. As stated in Section 3.1, these 98 keywords are applied to the 1,976 MD&A text files to measure the trust component. The study tallies the total occurrences of trust words across all files, denoted as *TRUSTTL*. Additionally, for auxiliary analysis, we compute the natural logarithm of one plus *TRUSTTL*, labeled as *TRUSTWC*. In an alternative trust measure, we count the first appearance of these words, recording the resulting variable as *TRUSTF*, which ranges from 1 to 98.

4.3 Dependent variable: information transparency

In this study, information transparency is defined as the extent to which the reported financial information of a company reflects its true financial condition, making it comprehensible and accessible to all stakeholders (Damodaran, 2007; Armstrong *et al.*, 2010). This concept is integral to understanding market dynamics and the efficacy of corporate disclosures in reducing information asymmetry (Hamrouni *et al.*, 2022). To investigate information

transparency within the context of financial disclosures, we operationalize it as the deviation of a firm's market valuation from its book value (Berger and Ofek, 1995; Rhodes-Kropf *et al*., 2005; Chu *et al*., 2019). This operational definition stems from the premise that a smaller deviation between these two values indicates a higher degree of transparency in financial reporting. Conversely, a larger deviation suggests potential issues in the clarity, accuracy, or comprehensiveness of the disclosed information, leading to misalignments between the firm's reported book value and the value perceived by the market.

The choice to use the deviation between market valuation and book value as a proxy for information transparency is theoretically underpinned by the efficient market hypothesis and information asymmetry theory. The efficient market hypothesis suggests that all public information is reflected in stock prices; hence, frequent and detailed disclosures should align market and book values (Bleck and Liu, 2007; Lang *et al*., 2012). Effective trust language in these disclosures could minimize discrepancies between these values, indicating a transparent market where information is swiftly integrated into stock prices. Information asymmetry theory emphasizes that differences in information between management and investors can cause a divergence between perceived firm value and its reported equity (Hussainey and Mouselli, 2010; Chowdhury *et al*., 2018). High-quality, trust-laden disclosures are expected to close this gap, ensuring a consistent understanding of the firm's financial status among all stakeholders.

To quantify informational transparency (or the less deviation in firm value), the methodologies put forth by Berger and Ofek (1995), Rhodes-Kropf *et al*. (2005), and Chu *et al*. (2019) are adopted in this research. The primary step in operationalizing this measure in estimating a firm's value deviation is to employ the equation suggested by Rhodes-Kropf *et al*. (2005). This equation predicts firm value deviation (represented by the error term *DEVIATION1*).

$$Ln\left(m_{ijt}\right) = \beta_0 + \beta_1 Ln\left(B_{ijt}\right) + \beta_2 Ln\left(NI^{+}_{ijt}\right) + \beta_3 I_{<0} Ln\left(NI^{+}_{ijt}\right) + \beta_4 LEV_{ijt} + \varepsilon_{ijt} \quad \text{Equation (1)}$$

In this equation, $Ln\ (m_{ijt})$ represents the natural logarithm of the market capitalization of the sample firm. $Ln\ (B_{ijt})$ refers to the natural logarithm of the book value of equity. *NI* embodies the absolute value of net income, while $I_{<0}$ is a dummy variable that equals one if the net income is negative and 0 otherwise. *LEV* indicates the leverage ratio, computed as dividing a firm's debt by its total assets in a particular industry during a specific year. Greater absolute values of the error terms (positive or negative) suggest a larger deviation in a firm's value, thus implying lesser informational transparency. Additionally, this research employs Eq. (2) to determine the gap between the estimated imputed value and the actual firm value. This method offers another estimate of a firm's value deviation, following the principles laid out by Berger and Ofek (1995) and Rhodes-Kropf *et al*. (2005).

$$\text{DEVIATION} = \text{Ln}\left[\text{Actual value}_{it} / \text{Imputed value}_{it}\right] \quad \text{Equation (2)}$$

Here, $Actual\ value_{it}$ is the sum of equity's market value and debt's book value. $Imputed\ value_{it}$ represents the total capital along with one of three possible accounting items – sales, assets, or Earnings Before Interest, Tax, Depreciation, and Amortization (EBITDA) of the median single-segment firm in a given industry during a particular year. These are respectively referred to as *DEVIATION2*, *DEVIATION3*, and *DEVIATION4*. For instance, in alignment with Rhodes-Kropf *et al*. (2005), this research calculates the imputed value by multiplying the sales revenue by the median market value of a company in the industry during the sample year, divided by the median sales revenue of that industry. The deviation in a firm's value, as defined in this study, is the ratio of the actual market value of the sample firm to its imputed market

value. A lower difference value indicates lower informational transparency (or a higher deviation in the firm's value).

4.4 Main model

The primary aim of this paper is to identify trust-associated words featured in the MD&A reports of firms listed on the TSE. It further scrutinizes if firms that exhibit elevated levels of trust, as suggested by the prevalence of trust-related words, also demonstrate greater information transparency, thereby leading to lesser deviation in a firm's value. The primary regression model used in this paper is presented in Eq. (3). If the coefficient β_1 in this model is negative and statistically significant, it would affirm the central hypothesis under scrutiny.

$$\begin{aligned} DEVIATION_{it} = {} & \beta_0 + \boldsymbol{\beta_1}\, TRUSTTL_{it} + \beta_2\, INSTOWN_{it} + \beta_3\, BDINDEP_{it} + \beta_4\, ROA_{it} \\ & + \beta_5\, INVREC_{it} + \beta_6\, DEBTRATIO_{it} + \beta_7\, INVEST_{it} + \beta_8\, SIGMA_{it} \\ & + \beta_9\, BETA_{it} + \beta_{10}\, STDSALE_{it} + \beta_{11}\, STDOCF_{it} + \beta_{12}\, OPNINT_{it} \\ & + \beta_{13}\, AGE_{it} + \beta_{14}\, CS_{it} + \beta_{15}\, FINANCING_{it} + \sum INDUSTRY \\ & + \sum YEAR + \varepsilon_{it} \end{aligned}$$

Equation (3)

The choice of control variables in the above model is based on earlier literature on textual features, particularly trust and corporate culture (Audi *et al.*, 2016; Hesarzadeh and Rajabalizadeh, 2019, 2020; Hesarzadeh *et al.*, 2020; Breuer *et al.*, 2020; Chen *et al.*, 2020; Cho *et al.*, 2023) and informational transparency (Berger and Ofek, 1995; Rhodes-Kropf *et al.*, 2005; Cheung *et al.*, 2010; Chu *et al.*, 2019; Choi and Jung, 2021; Yu *et al.*, 2022; Kazim *et al.*, 2025). The selected control variables encompass the proportion of institutional ownership (*INSTOWN*), board independence (*BDINDEP*), return on assets (*ROA*), the ratio of inventory plus accounts receivable to total assets (*INVREC*), the total debt to equity ratio (*DEBTRATIO*), the ratio of current assets (excluding debtors and inventories) to current liabilities (*INVEST*), the volatility of firm-specific weekly return (*SIGMA*), market risk as indicated by equity beta (*BETA*), the five-year standard deviation of total sales (*STDSALE*), the five-year standard deviation of operational cash flow (*STDOCF*), qualified audit opinion paragraphs (*OPNINT*), company age (*AGE*), client complexity score (*CS*), and firms' financing activities (*FINANCING*). This regression model also includes year-fixed and industry-fixed effects, with a preference for industry-fixed effects over firm-fixed effects, guided by the preferences manifested in textual analysis literature (Breuer *et al.*, 2020). The control variables are defined in detail in Appendix A.

5. Results

5.1 Descriptive statistics

Table 1 presents a detailed summary of the descriptive statistics for the variables used in this study, including the dependent variables, the main independent variable (*TRUSTTL*), and control variables. The summary includes the mean, standard deviation, and range (minimum, first quartile (Q1), median, third quartile (Q3), and maximum), providing insights into the distribution and central tendency of the variables. These statistics are compared with findings from previous studies in other countries to highlight the unique characteristics of the Iranian context, which forms the foundation of the study's arguments. All variables are defined in Appendix A.

The dependent variables (*DEVIATION1–DEVIATION4*) represent firm deviation ratios. Compared with Chu *et al.* (2019), the Iranian context shows notable differences.

DEVIATION1 in this study has a mean of 0.009 and a standard deviation of 0.702, significantly lower than Chu *et al*. (2019), where the mean was 0.94 (STD = 1.36). The narrower range in the Iranian sample (minimum = −0.997, maximum = 3.662) suggests less variability, likely due to stricter regulatory oversight or market homogeneity. *DEVIATION2* exhibits a mean of 0.631 in this study compared to 0.74 in Chu *et al*. (2019), with a similar standard deviation (0.666 vs. 1.39). While both markets demonstrate a moderate level of deviation, Iranian firms appear slightly more conservative in their capital allocation. *DEVIATION3* and *DEVIATION4* also demonstrate lower averages in Iran (0.211 and 1.583) compared to Chu *et al*.'s findings (0.24 and 3.02), indicating potential cultural and institutional constraints influencing firms' financial decisions. The independent variable, *TRUSTTL*, measures trust-related language in corporate disclosures. Its mean value (21.672, STD = 18.056) reflects significant variability. Comparisons with Cho *et al*. (2023), where *TRUSTTL* averaged 4.863 for firms using trust words, indicate a higher reliance on trust-related terminology in Iranian disclosures. This difference may be attributed to cultural norms and extended keywords from a 21-English-to-98-Persian bag of words, emphasizing trust-building in a less mature capital market.

The control variables reflect a diverse set of firm characteristics, with comparisons to findings from other countries highlighting notable differences and similarities. Institutional ownership (*INSTOWN*) in Iranian firms averages 59%, higher than India's 21% (Mishra and Kapil, 2017) but lower than the 64% observed in Sub-Saharan African countries (Munisi *et al*., 2014). It aligns closely with levels in developed markets such as the UK and the US (Clark and Qiao, 2022), indicating an active institutional investor presence in the Iranian market. This suggests that institutional investors play a significant role in shaping corporate governance in Iran, bridging the gap between emerging and developed markets in terms of institutional involvement. Board independence (*BDINDEP*) averages 66.6%, a figure significantly higher than the 43% in Sub-Saharan African countries (Mohammed *et al*., 2017) and 42% in Malaysia (Munisi *et al*., 2014). It also compares favorably to global averages and slightly exceeds figures from other emerging markets, reflecting governance reforms in Iran aimed at strengthening transparency and accountability. Return on assets (*ROA*) averages 15.2%, matching India's average of 15% (Mishra and Kapil, 2017), slightly lower than Korea's 17% (Choi and Jung, 2021), but higher than Taiwan's 12% (Chu *et al*., 2019). This suggests relatively efficient asset utilization by Iranian firms, albeit still below the 20% reported in developed markets like the US (Cho *et al*., 2023). Debt ratios (*DEBTRATIO*) exhibit considerable variability, with a mean of 1.927 (std. dev = 1.973), which is slightly lower than India's 2.2 (Mishra and Kapil, 2017) but higher than the 1.552 observed in the US (Cho *et al*., 2023). The relatively high debt ratios in Iran highlight a greater tolerance for leverage compared to developed markets, where stricter regulatory limits on leverage are often in place. Firm-specific volatility (*SIGMA*, mean = 0.160) and market risk (*BETA*, mean = 0.645) are broadly in line with findings from other emerging markets, where economic instability typically drives higher risk levels. Firm age (*AGE*), with a log-transformed mean of 3.618 (approximately 36 years on the non-log scale), suggests a younger corporate population compared to mature markets like the US, where firms average more than 4.0 in log-transformed age (Breuer *et al*., 2020). However, it aligns closely with India's 3.45 log-transformed mean (Mishra and Kapil, 2017). These comparisons underscore the unique characteristics of the Iranian market, shaped by its distinct institutional, cultural, and regulatory environment, while also positioning it within the broader spectrum of global corporate behavior.

The correlation matrix discerns a positive relationship of statistical significance between the quartet of firm value deviation measures (information transparency indices), implying their consistent correlation. Conversely, the correlation between the trust measures and firm value deviation is negative, statistically significant, albeit relatively mild. This correlation suggests a potential direct link between trust in companies and information transparency, thus offering

initial evidence that supports the idea: the more trust-related words used, the greater the information transparency (see Table 2).

5.2 Regression results

Table 3 presents the regression results probing the relationship between trust word usage (*TRUSTTL*) and information transparency, represented by firm value deviation (*DEVIATION*). The table features four statistically correlated independent variables, as the correlation matrix confirms.

For every measure of information transparency, *TRUSTTL* displays negative coefficients, ranging from −0.001 to −0.004, all statistically significant at the 0.01 level. This suggests that firms employing trust words have greater informational transparency, as lower firm value deviations indicate. Considering the economic significance, the negative coefficients denote that firms using trust words exhibit lesser firm value variation, which translates to higher information transparency. Specifically, a one-unit increase in the employment of trust words reduces the firm value deviation by between 0.001 and 0.004, subject to the specific model applied. Further, coefficients of control variables such as *INSTOWN*, *BDINDEP*, *SIGMA*, *STDSALE*, and *STDOCF* are positive and statistically significant in some models, resonating with previous research.

Our findings align with the incremental information perspective, which posits that managers utilize trust-related language in MD&A sections to reduce information asymmetry and convey precise, decision-useful information. This strategy is rooted in the idea that transparent communication enhances stakeholder trust and aligns market perceptions with the firm's actual financial state [4], effectively reducing agency costs and enhancing firm value (Merkl-Davies and Brennan, 2007; Davis *et al*., 2015). Additionally, our results support the notion that the use of trust language addresses information asymmetry, aligning internal management interests with those of external investors. Enhanced disclosure quality, as suggested by Armstrong *et al*. (2010) and Hughes *et al*. (2007), not only reduces a firm's cost of capital but also increases firm value, thereby promoting effective governance and closer alignment between market valuations and book values.

Moreover, our findings are particularly significant within the cultural context of Iran, where the strategic use of trust language might reflect and potentially exploit high Power Distance and Collectivism. This cultural backdrop may enhance actual transparency but also raises concerns about the potential for managerial manipulation. We emphasize that high Power Distance in Iran implies that organizational hierarchy strongly influences communication styles, potentially limiting the transparency expected from lower levels of management. Collectivism might also affect financial reporting by prioritizing group harmony over individual accountability, which can obscure critical financial details. The impact of sanctions and Iran's hybrid legal system introduces additional layers of complexity in financial reporting, leading to practices that might not fully align with international norms. These factors necessitate a strategic use of language to navigate through regulatory and economic constraints, profoundly shaping the transparency and reliability of financial disclosures.

Our empirical findings confirm the hypothesis that there is a positive relationship between the use of trust-related keywords in MD&A sections and information transparency in the Iranian context. This relationship is emphasized in Iran's unique market environment, characterized by international sanctions, a hybrid legal system, and a high degree of state control, which necessitates a more strategic approach to communication and transparency (Pavlopoulos *et al*., 2019; Dumay *et al*., 2019). These unique conditions underscore the importance of understanding the cultural and regulatory nuances when interpreting the effects of trust language on transparency in Iran compared to other markets. The incremental information perspective helps explain how trust-related language can be a valuable tool for

Table 2. Correlation matrix (n = 1,976)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)*DEVIATION1*	1									
(2)*DEVIATION2*	0.647***	1								
(3)*DEVIATION3*	0.736***	0.822***	1							
(4)*DEVIATION4*	0.748***	0.668***	0.724***	1						
(5) *TRUSTTL*	*−0.016**	*−0.020**	*−0.010**	*−0.036**	1					
(6) *INSTOWN*	−0.049**	−0.081***	−0.047**	−0.052**	0.214***	1				
(7) *BDINDEP*	−0.026	0.047**	−0.000603	−0.060***	−0.107***	−0.060***	1			
(8) *ROA*	0.108***	0.141***	0.270***	−0.029	0.120***	0.086***	0.098***	1		
(9) *INVREC*	0.054**	−0.052**	0.02	0.068***	−0.038*	−0.062***	−0.151***	0.015	1	
(10)*DEBTRATIO*	0.067***	−0.166***	−0.127***	0.136***	−0.006	0.106***	−0.179***	−0.283***	0.148***	1
(11) *INVEST*	0.088***	0.223***	0.167***	−0.035	0.012	−0.084***	0.145***	0.316***	−0.326***	−0.303***
(12) *SIGMA*	0.364***	0.257***	0.306***	0.290***	−0.027	−0.108***	−0.073***	0.009	0.014	−0.005
(13) *BETA*	−0.020	−0.005	−0.0160	−0.030	0.064***	0.058***	−0.028	0.020	−0.063***	−0.026
(14) *STDSALE*	0.265***	−0.069***	0.225***	0.208***	0.063***	0.007	−0.087***	0.238***	0.044**	0.040*
(15) *STDOCF*	0.210***	0.147***	0.232***	0.122***	−0.007	−0.001	−0.016	0.247***	−0.113***	−0.073***
(16) *OPNINT*	−0.064***	−0.03	−0.137***	0.002	−0.025	−0.121***	−0.054**	−0.340***	3.49E-05	0.169***
(17) *AGE*	0.122***	0.092***	0.067***	0.080***	−0.009	−0.192***	−0.080***	−0.037	0.089***	0.034
(18) *CS*	0.053**	−0.147***	−0.096***	0.088***	0.027	0.059***	−0.212***	−0.350***	0.022	0.381***
(19)*FINANCING*	−0.101***	0.071***	0.016	−0.079***	0.102***	−0.01	0.047**	0.049**	−0.218***	−0.170***
Variables	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	
(11) *INVEST*	1									
(12) *SIGMA*	0.049**	1								
(13) *BETA*	0.027	0.314***	1							
(14) *STDSALE*	0.028	0.228***	0.073***	1						
(15) *STDOCF*	0.304***	0.078***	0.021	0.272***	1					
(16) *OPNINT*	−0.052**	−0.014	0.064***	−0.153***	−0.046**	1				
(17) *AGE*	0.007	0.063***	−0.028	−0.028	−0.018	0.111***	1			
(18) *CS*	−0.186***	0.072***	0.101***	0.251***	0.017	0.222***	0.012	1		
(19)*FINANCING*	0.145***	−0.037*	0.079***	−0.159***	0.008	0.086***	0.021	−0.063***	1	

Note(s): This table presents the correlation coefficients between the study's variables to identify preliminary relationships and the direction of these relationships (positive or negative). Statistical significance levels are denoted by asterisks, where *$p < 0.10$, **$p < 0.05$, and ***$p < 0.01$. This matrix helps in assessing potential multicollinearity issues and the strength of linear associations among variables. All variables are defined in Appendix A

Source(s): Authors' own work

Table 3. Regression results of trust on information transparency

Variable	(1) *DEVIATION1*	(2) *DEVIATION2*	(3) *DEVIATION3*	(4) *DEVIATION4*
TRUSTTL	*−0.003***	*−0.003***	*−0.001***	*−0.004***
	(0.001)	(0.001)	(0.000)	(0.001)
INSTOWN	0.145***	0.037	0.027*	0.075
	(0.040)	(0.042)	(0.014)	(0.080)
BDINDEP	0.157**	0.023	−0.005	0.048
	(0.064)	(0.068)	(0.023)	(0.131)
ROA	−0.051	−0.066	0.159***	−1.272***
	(0.108)	(0.115)	(0.039)	(0.219)
INVREC	0.149**	−0.034	0.087***	0.460***
	(0.076)	(0.081)	(0.028)	(0.155)
DEBTRATIO	0.053***	−0.013*	−0.002	0.091***
	(0.006)	(0.007)	(0.002)	(0.013)
INVEST	−0.004	0.082**	0.001	−0.195***
	(0.033)	(0.035)	(0.012)	(0.068)
SIGMA	0.937***	0.584***	0.255***	1.007***
	(0.150)	(0.160)	(0.055)	(0.306)
BETA	−0.106***	−0.041**	−0.020***	−0.135***
	(0.016)	(0.017)	(0.006)	(0.033)
STDSALE	0.158***	−0.596***	0.030	0.392***
	(0.057)	(0.060)	(0.021)	(0.115)
STDOCF	0.913***	0.742***	0.352***	1.337***
	(0.187)	(0.199)	(0.068)	(0.381)
OPNINT	0.014**	0.017**	0.002	0.031**
	(0.007)	(0.007)	(0.002)	(0.014)
AGE	0.025	0.020	0.003	−0.038
	(0.032)	(0.035)	(0.012)	(0.066)
CS	−0.020	−0.023	−0.010**	−0.036
	(0.014)	(0.015)	(0.005)	(0.030)
FINANCING	−0.055**	0.003	0.014	−0.030
	(0.024)	(0.025)	(0.009)	(0.048)
C	−1.080***	0.307	−0.001	0.616
	(0.188)	(0.200)	(0.069)	(0.384)
YEAR_FE	YES	YES	YES	YES
IND_FE	YES	YES	YES	YES
Obs	1,976	1,976	1,976	1,976
R^2	0.587	0.495	0.481	0.453
Adj R^2	0.575	0.481	0.466	0.437
F	50.330***	34.770***	32.820***	29.310***

Note(s): This table reports the outcomes of regression analyses testing the impact of trust language (*TRUSTTL*) on various measures of information transparency (*DEVIATION1* to *DEVIATION4*). Each column represents a separate regression model with coefficients, standard errors (in parentheses), and significance levels (*$p < 0.10$, **$p < 0.05$, and ***$p < 0.01$). This provides insights into how trust language affects perceptions of transparency across different deviations. It also includes fixed effects for year and industry, and overall model statistics such as R-squared and F-statistics, indicating model fit and overall significance. All variables are defined in Appendix A

Source(s): Authors' own work

firms looking to enhance their reputations and align their financial disclosures with investor expectations in such a complex regulatory and cultural landscape.

5.3 Sensitivity analysis of trust language evaluation through expert and AI evaluations

To strengthen the robustness and validity of our study, we employed a sensitivity analysis that incorporated both expert evaluations and advanced AI tools. This dual approach was designed

to assess the consistency and reliability of our original findings regarding trust language in MD&A reports.

Expert Evaluation Process: We selected a diverse panel of five experts with extensive experience in corporate finance, auditing, and linguistics. Their expertise was crucial for providing an in-depth qualitative analysis of trust language. Each expert was provided with a subset of the MD&A reports analyzed in our study. To ensure a balanced view, reports were selected randomly and anonymized to prevent any bias. Experts were asked to rate the trustworthiness of each report based on a detailed rubric that included criteria such as clarity, transparency, and the use of specific trust-inducing terms. We collected the ratings and converted them into a numerical scale for statistical analysis. The correlation between these expert ratings and our original trust language scores was calculated using Pearson's correlation coefficient. This method was chosen for its appropriateness in measuring the degree of linear association between two continuous variables.

AI Software Evaluation Process: For the AI evaluation, we utilized a semantic analysis tool equipped with capabilities in sentiment analysis and Natural Language Processing (NLP) specifically designed for financial texts (Mishev *et al*., 2020; Xing *et al*., 2018). This tool was configured to identify and assess the use of trust-related language within the MD&A reports, which are often nuanced and context-specific. Semantic analysis in this context involves the extraction and quantification of meanings behind words used in MD&A reports. The AI tool evaluates not only the presence of specific trust-inducing terms but also their semantic context, which includes their association with other words and the overall sentiment of the passages where they appear (Malo *et al*., 2014). NLP techniques also enable the automated analysis of the text at a scale and speed unattainable by human analysts. By applying NLP, we can process large volumes of text data systematically, ensuring consistent evaluations across all reports (Fisher *et al*., 2016). The NLP algorithms are particularly useful in parsing complex sentence structures and understanding the syntax that influences the meaning of trust-related expressions.

The AI tool analyzed the same subset of MD&A reports and provided scores reflecting the perceived trustworthiness based on these linguistic patterns. These scores were then compared with our original dataset to compute a correlation using the same statistical method as with the expert evaluation. The results from both the expert and AI evaluations showed a positive and significant correlation with our original measurements of trust language. Specifically, the Pearson correlation coefficients were 0.78 for expert evaluations and 0.81 for AI evaluations, indicating a strong validation of our original methodology. These findings suggest that our approach not only captures a quantifiable aspect of trust as reflected in linguistic terms but also aligns well with human expert judgments and sophisticated AI assessments. This sensitivity analysis confirms the validity of our methodology in quantifying trust language in MD&A reports.

6. Additional analyses

6.1 Influence of trust alternatives on information transparency

This section details the primary regression analysis utilizing alternatives to trust, specifically *TRUSTWC* (the natural logarithm of *TRUSTTL* plus one) and *TRUSTTF* (the first instance of trust words, ranging between 1 and 98). All coefficients for *TRUSTWC* are statistically significant at the 1% level across models, signifying a negative effect. The effects span from in *DEVIATION1* to −0.089 ($p < 0.01$) in *DEVIATION4*. Similarly, *TRUSTTF* showcases a statistically significant negative effect, with coefficients varying from −0.013 ($p < 0.01$) in *DEVIATION1* to −0.019 ($p < 0.01$) in *DEVIATION4*. Collectively, these findings demonstrate the robustness of the impact of the trust measure on information transparency, specifically that an elevated presence of trust words in MD&As results in enhanced information transparency and reduced firm value deviation (see Table 4).

Table 4. Regression results of trust alternatives on information transparency

Variables	*DEVIATION1*	*DEVIATION2*	*DEVIATION3*	*DEVIATION4*	*DEVIATION1*	*DEVIATION2*	*DEVIATION3*	*DEVIATION4*
TRUSTWC	*−0.074****	*−0.066****	*−0.024****	*−0.089****				
	(0.015)	(0.016)	(0.005)	(0.030)				
TRUSTTF					*−0.013****	*−0.010****	*−0.004****	*−0.019****
					(0.002)	(0.002)	(0.001)	(0.005)
C and CONTROLES	YES	YES	YES	YES	YES	YES	YES	YES
YEAR_FE	YES	YES	YES	YES	YES	YES	YES	YES
IND_FE	YES	YES	YES	YES	YES	YES	YES	YES
Obs	1,976	1,976	1,976	1,976	1,976	1,976	1,976	1,976
R^2	0.586	0.495	0.481	0.452	0.588	0.495	0.482	0.454
Adj R^2	0.575	0.480	0.467	0.436	0.577	0.480	0.468	0.439
F	50.28***	34.72***	32.92***	29.24***	50.65***	34.71***	33.04***	29.51***

Note(s): This table explores the effects of alternative trust measures (*TRUSTWC*, *TRUSTTF*) on information transparency. The regression results are presented in a similar format to Table 3, with additional models comparing different trust metrics. This table helps in understanding whether alternative trust metrics behave similarly or provide distinct insights into the role of trust language. Standard errors in parentheses. All variables are defined in Appendix A. *$p < 0.10$, **$p < 0.05$, and ***$p < 0.01$

Source(s): Authors' own work

6.2 Moderating impact of financial reporting complexity

Our analysis examines how financial reporting complexity affects the efficacy of trust-related language in enhancing MD&A transparency, within the theoretical framework provided by the incremental information perspective. As previously discussed, trust language can reduce information asymmetry and foster greater transparency (Merkl-Davies and Brennan, 2007). In this context, we explore how complexity in financial reporting (Rezaee and Rajabalizadeh, 2025; He *et al*., 2024; Melón-Izco *et al*., 2021), whether due to document length (*LNPAGES*) or more intricate wording (*LNWORDS*), impedes the effectiveness of trust-related language. While trust-related keywords are intended to reduce informational gaps, we find that financial complexity, by increasing cognitive load, obstructs stakeholders' ability to process, understand, and trust the information presented. In line with this, the incremental information theory suggests that clear, concise disclosures are essential for trust-related language to be most effective. Our findings show that as complexity increases, trust cues are harder to perceive, thus reducing their ability to enhance actual transparency. This underscores the importance of clear and accessible financial disclosures to fully leverage the transparency-enhancing potential of trust language (see Table 5).

Regression results support this, showing significant interactions between trust-related language and document complexity indicators, with the impact being notably pronounced in *DEVIATION1* (0.003***), *DEVIATION3* (0.001***), and *DEVIATION4* (0.004**). These interactions highlight how document length and wording complexity impair the transparency-enhancing potential of trust language. These results highlight that financial reporting complexity undermines the potential of trust-related language to improve transparency, confirming the need for clear, concise, and accessible reporting. The contextual significance of Iran in this regard is crucial—given the challenges in its regulatory and institutional frameworks, the complexity of financial reports further obstructs the potential of trust language to enhance transparency. This reinforces the need for simplified and transparent communication within the unique Iranian market, where opacity is a key issue.

6.3 The interplay of tone

This study investigates the dual role of tone [5] in influencing trust and information transparency, drawing primarily on the impression management perspective. The impression management theory suggests that while a positive tone in financial disclosures may enhance trust by aligning stakeholders' perceptions with the company's desired image, it may also be seen as a tactic for presenting an overly favorable view of the firm (Rajabalizadeh, 2025; Hadro *et al*., 2021; Gandía and Huguet, 2021), potentially obscuring its actual financial condition (Merkl-Davies and Brennan, 2011; Melloni *et al*., 2017). In line with this, our findings reveal that a positive tone moderates the relationship between trust and transparency. Specifically, we observe that while a positive tone can boost trust, it also risks being perceived as insincere or manipulative, especially if the trust-related language appears disconnected from the company's true financial state. This aligns with the idea that an overly optimistic tone, when not backed by solid performance, can undermine transparency by masking negative truths. These nuanced findings suggest that the tone plays a complex role in shaping how stakeholders perceive trust and transparency in corporate communications, particularly in the Iranian context.

Statistical analysis in Table 6 shows significant positive interactions between trust-related language and tone, with notable effects in *DEVIATION1* (0.020***), *DEVIATION3* (0.006***), and *DEVIATION4* (0.023*), suggesting that tone plays a nuanced role in shaping perceptions of trust and transparency. These results underline the complex interplay between tone and transparency, emphasizing that while tone can attract stakeholders and enhance trust, it may also conceal the true financial state of the company. This underscores the importance of balancing tone in financial disclosures, especially in the Iranian market, where stakeholder skepticism towards overly optimistic reports may be higher. The unique

Table 5. Moderating impact of financial reporting complexity

Variable	*DEVIATION1*	*DEVIATION2*	*DEVIATION3*	*DEVIATION4*	*DEVIATION1*	*DEVIATION2*	*DEVIATION3*	*DEVIATION4*
TRUSTTL	−0.017***	−0.009*	−0.005***	−0.022**				
	(0.005)	(0.005)	(0.002)	(0.009)				
LNWORDS	−0.097***	−0.073**	−0.044***	−0.153**				
	(0.030)	(0.032)	(0.011)	(0.062)				
LNWORDS × TRUSTTL	*0.003***	*0.001*	*0.001***	*0.004***				
	(0.001)	(0.001)	(0.000)	(0.002)				
TRUSTTL					−0.029***	−0.020**	−0.010***	−0.049**
					(0.009)	(0.010)	(0.003)	(0.019)
LNPAGES					−0.088***	−0.088***	−0.046***	−0.175***
					(0.029)	(0.031)	(0.011)	(0.060)
LNPAGES × TRUSTTL					*0.003***	*0.002**	*0.001***	*0.005***
					(0.001)	(0.001)	(0.000)	(0.002)
C and CONTROLES	YES	YES	YES	YES	YES	YES	YES	YES
YEAR_FE	YES	YES	YES	YES	YES	YES	YES	YES
IND_FE	YES	YES	YES	YES	YES	YES	YES	YES
Obs	1,976	1,976	1,976	1,976	1,976	1,976	1,976	1,976
R^2	0.590	0.496	0.485	0.455	0.590	0.498	0.486	0.455
Adj R^2	0.578	0.482	0.470	0.439	0.578	0.483	0.471	0.439
F	48.96***	33.54***	32.08***	28.37***	48.85***	33.67***	32.15***	28.44***

Note(s): This table assesses the moderating effect of complexity (measured by the natural logarithm of words and pages) on the relationship between trust language and information transparency. It includes interaction terms to see how increases in document complexity influence the trust-information transparency relationship. This analysis helps identify conditions under which trust language may become more or less effective in conveying transparency. Standard errors in parentheses. All variables are defined in Appendix A. *$p < 0.10$, **$p < 0.05$, and ***$p < 0.01$

Source(s): Authors' own work

Table 6. The interplay of tone

Variables	*DEVIATION1*	*DEVIATION1*	*DEVIATION1*	*DEVIATION1*
TRUSTTL	−0.012***	−0.009***	−0.004***	−0.014**
	(0.003)	(0.003)	(0.001)	(0.005)
TONE	0.064	0.039	0.017	0.118
	(0.102)	(0.109)	(0.037)	(0.208)
TONE × *TRUSTTL*	*0.020***	*0.014**	*0.006***	*0.023**
	(0.006)	(0.007)	(0.002)	(0.013)
C and CONTROLES	YES	YES	YES	YES
YEAR_FE	YES	YES	YES	YES
IND_FE	YES	YES	YES	YES
Obs	1,976	1,976	1,976	1,976
R^2	0.590	0.497	0.484	0.454
Adj R^2	0.578	0.482	0.469	0.438
F	49.14***	33.68***	31.97***	28.39***

Note(s): This table examines how the tone, calculated as the ratio of positive to negative words, interacts with trust language to affect information transparency. It includes interaction terms (*TONE* × *TRUSTTL*) to evaluate how the sentiment conveyed in disclosures influences the effectiveness of trust language in enhancing transparency. Standard errors in parentheses. All variables are defined in Appendix B. *$p < 0.10$, **$p < 0.05$, and ***$p < 0.01$

Source(s): Authors' own work

geopolitical and regulatory challenges in Iran mean that trust in corporate communications can be fragile, making it crucial for firms to strike a balance between enhancing trust and maintaining transparency in their financial disclosures.

6.4 Handling endogeneity

Endogeneity issues can arise when an independent variable in a model correlates with the error terms due to factors such as omitted variables, measurement inaccuracies, or reverse causality. Various methodologies can be employed to rectify endogeneity.

Firstly, to probe the impact of lagged independent variables on information transparency, we utilized the method advanced by Cho *et al*. (2023). Using lagged variables is common to diminish the likelihood of reverse causality. More specifically, while a variable at time "*t*" may be affected by an error at the time "*t*," a variable at a time "*t*−1" would not be impacted by an error at time "*t*". Consequently, this variable can be viewed as an exogenous influence on the dependent variable. In our case, using the previous trust value might control this form of endogeneity, i.e. reverse causality. As indicated in Panel A of Table 7, the outcomes derived from the lagged variable method align with our central findings, thereby asserting that trust-enhancing words in MD&As augment information transparency.

Secondly, we addressed endogeneity by adopting the PSM method, following the guidance of Cho *et al*. (2023) and Shipman *et al*. (2017). This technique estimates causal effects by comparing outcomes among units with similar propensity scores, defined as the probability of receiving treatment given a set of observed covariates. In our study, the treatment is conceptualized as the presence of a high volume of trust-associated words. The application of PSM in this scenario allows for matching firms with a high frequency of trust words (treated group) with firms possessing comparable characteristics but fewer trust-associated words (control group). Implementing the PSM approach yields 1,278 pairs of matched firm-years, which are then used to rerun Model (3). Since there are four metrics for information transparency, all derived from the same measures, and as the trust variable in the main regression analysis has a statistically significant negative relationship with all these measures, we employed factor analysis to compute a total measure of information transparency

Table 7. Handling endogeneity

Panel A. Lag of trust Variables	*DEVIATION1*	*DEVIATION2*	*DEVIATION3*	*DEVIATION4*
LAGTRUSTTL	*−0.003***	*−0.003***	*−0.001***	*−0.005***
	(0.001)	(0.001)	(0.000)	(0.001)
C and CONTROLES	YES	YES	YES	YES
YEAR_FE	YES	YES	YES	YES
IND_FE	YES	YES	YES	YES
Obs	1,976	1,976	1,976	1,976
R^2	0.590	0.497	0.484	0.454
Adj R^2	0.578	0.482	0.469	0.438
F	49.14***	33.68***	31.97***	28.39***

Panel B. Propensity score matching Variables	*DEVIATION1*	*DEVIATION2*	*DEVIATION3*	*DEVIATION4*	*DEVIATIONTL*
TRUSTTL	*−0.004***	*−0.003***	*−0.001***	*−0.005***	*−0.018***
	(0.001)	(0.001)	(0.000)	(0.002)	(0.004)
C and CONTROLES	YES	YES	YES	YES	YES
YEAR_FE	YES	YES	YES	YES	YES
IND_FE	YES	YES	YES	YES	YES
Obs	1,278	1,278	1,278	1,278	1,278
R^2	0.569	0.496	0.474	0.478	0.515
Adj R^2	0.553	0.477	0.454	0.458	0.496
F	17.31***	12.03***	10.50***	11.04***	24.04***

Note(s): Panel A controls for potential endogeneity by including a lagged variable of trust language (LAGTRUSTTL) and examining its impact on information transparency. This approach helps in understanding the persistence or delayed effects of trust language. Panel B utilizes propensity score matching to control for selection bias and unobserved heterogeneity by comparing firms with similar characteristics but different levels of trust language usage. The regression models are adjusted accordingly to validate the robustness of the results obtained in other analyses. Standard errors in parentheses. All variables are defined in Appendix B. *$p < 0.10$, **$p < 0.05$, and ***$p < 0.01$

Source(s): Authors' own work

(*DEVIATIONTL*) as an additional fifth measure. The PSM approach results, displayed in Panel B of Table 7, follow our primary findings.

6.5 Enhanced model specification and sensitivity analysis: addressing external influences on trust and transparency

To refine the analysis of the relationship between trust words and information transparency, we integrate theoretical insights from behavioral finance with empirical data. This combination helps assess how external factors such as macroeconomic conditions and investor sentiment might influence the deviation between market and book values, extending beyond mere informational disparities. Building on the incremental information perspective, we enrich our theoretical framework by incorporating aspects of behavioral finance, which suggests that psychological factors and broader market dynamics can significantly influence investment decisions and asset pricing (Akin and Akin, 2024; Gabriel, 2014). This perspective helps explain how trust language might mediate the impact of macroeconomic changes on investor perceptions of firm transparency. Specifically, in volatile markets like Iran or periods of economic uncertainty, trust language could play a crucial role in stabilizing investor expectations by reducing information asymmetry and enhancing the clarity of corporate disclosures (Joyce, 2020).

To provide a comprehensive analysis, we categorize our control variables into two sets based on their nature and the aspects of firm valuation they are expected to influence. The first set of analysis includes firm-specific factors. These additional variables are intended to control for growth potential, merger and acquisition activities, and varying levels of risk, which might independently affect firm valuation. Growth metrics, including past revenue growth rates (*PAST_GROWTH*) and future earnings growth estimates (*FUTURE_GROWTH*), help adjust for expectations about a firm's future economic benefits, which can significantly affect its market valuation independently of its current book value (Alwathainani, 2009; Kryzanowski and Mohsni, 2014). Merger and acquisition activities (*MA_ACTIVITY*) are included to account for valuation effects driven by strategic business decisions that could alter a firm's financial landscape and market perception, separate from its transparency (DeYoung *et al*., 2009; Hossain, 2021). We refine our risk controls by incorporating risk measures like the volatility of earnings (*EARN_VOL*) and industry-specific beta (*IND_BETA*). These metrics adjust for the inherent risk perceived in the firm's operations and sector (Baele and Londono, 2013), providing a clearer view of how much trust words impact actual transparency versus how much is impacted by external risk factors.

The second set of analysis includes macroeconomic and market conditions factors. To further isolate the effects of trust language, we expand the model to include macroeconomic indicators and market sentiment indices. We integrated key macroeconomic indicators (Leuz and Wysocki, 2016; Lee and Yeo, 2016) such as GDP growth rate (*GDPGROWTH*), inflation rate (*INFRATE*), and interest rates (*INTRATE*). Additionally, we construct a composite market sentiment index (Bergman and Roychowdhury, 2008; Firth *et al*., 2015) using principal component analysis, including market returns (*RETURN*), market volatility (*VOLATALITY*), and market liquidity (*LIQUIDITY*). These variables are included to control for the external economic and market conditions that might affect the valuation of firms independently of their financial disclosures.

We run models incorporating these control variables in two groups to observe the robustness of the impact of trust words on the deviation between market and book values. By comparing results from models that incorporate these new variables with those from previous models, we aim to demonstrate that our core findings are consistent, regardless of the inclusion of these additional factors. Additionally, we introduce interaction terms between trust words and the new control variables to explore whether growth potential, M&A activities, market conditions, or economic indicators moderate the influence of trust on transparency. This analysis helps identify whether the effect of trust language varies across different strategic or risk contexts.

Our untabulated tests show that incorporating these control variables does not significantly alter the coefficients related to trust words and deviations. The relationship between trust language and information transparency remains stable. Furthermore, the inclusion of macroeconomic and market sentiment variables and the interaction terms do not yield significant moderation effects, suggesting that the positive influence of trust language on transparency transcends these external factors. This enhanced model specification and sensitivity analysis underscore the robustness of trust language's impact on information transparency, affirming its effectiveness across various economic and market dynamics.

7. Conclusion

We investigate the impact of trust language in MD&A disclosures on information transparency within the Iranian market. Our analysis of trust-related lexicon usage in corporate disclosures reveals that a higher frequency of trust words is associated with increased information transparency. This suggests that firms emphasizing trust in their communications tend to provide more accurate and useful information, thereby reducing information asymmetry and potentially enhancing their actual value. This finding supports research highlighting the positive role of trust in corporate performance (Xu *et al*., 2019) but contrasts with studies

linking trust language to increased share price volatility (Audi *et al*., 2016), decreased investment efficiency (Breuer *et al*., 2020), and diminished effects of earnings announcements (Cho *et al*., 2023).

We make several important contributions to the literature and offers valuable insights for both academics and practitioners. First, this paper provides a unique examination of the role of trust-related language in enhancing information transparency, specifically within the context of Iranian firms. Given Iran's distinct cultural, geopolitical, and regulatory environment, this research is particularly relevant as it explores trust mechanisms in an emerging market where such dynamics are still evolving. Second, diverging from existing literature, this study expands the trust lexicon used in previous research by incorporating 98 trust-related words tailored to the Persian language context. This methodological advancement broadens the scope of textual analysis in non-English settings and allows for a deeper exploration of trust language nuances in financial disclosures. Third, the findings reveal that trust language in MD&A reports is associated with reduced information deviation, supporting the incremental information perspective. This underscores the positive role of trust-related language in aligning market perceptions with a firm's true financial state. Fourth, the study also demonstrates that while trust language can increase transparency, it is subject to the moderating effects of report complexity and tone. This suggests that firms must carefully balance their use of trust language to maintain stakeholder trust and avoid skepticism from overly optimistic disclosures. Finally, for corporate managers, regulators, and investors, the study highlights the benefits of leveraging trust-related language to enhance actual transparency and align investor expectations with actual firm performance. It also emphasizes the need for clear, transparent reporting practices that foster trust without overstatement.

Our results should be interpreted with caution due to potential limitations. First, this study's exclusive focus on the Iranian market and the Persian language may restrict the generalizability of its findings. To address this concern, we ensured rigorous validation of our trust-related lexicon and conducted extensive cross-validation with existing Persian financial texts to bolster the robustness of our analysis. Future research could extend this study by applying our methods to different markets and languages, enabling a comparison of the influence of trust language across various cultural and regulatory environments. Second, the research could explore how CEO characteristics influence MD&A disclosures, including the potential impact of various psychological traits on the trust-information transparency dynamic. Future studies should consider these factors to provide a more nuanced understanding of how individual leadership impacts corporate transparency, enriching the existing literature by mapping a more detailed landscape of how executives' characteristics influence disclosure practices. Finally, as this research pioneers textual analysis in Persian financial reporting, we emphasize the importance of a cautious interpretation of the results. The novel nature of this research presents an opportunity for future investigations to refine and expand the methodologies used here, possibly incorporating machine learning techniques to enhance the analysis of textual data in financial disclosures. This progression could lead to more sophisticated tools for understanding the subtleties of language used in corporate communications across different markets.

Notes

1. https://www.codal.ir/
2. For the processing of Persian text, the Hazm library was utilized due to the constraints in the NLTK Python package for the Persian language. This library carries out tasks such as text cleaning, tokenizing, lemmatizing, POS tagging, shallow parsing, and dependency parsing. It provides interfaces for Persian corpora and is compatible with NLTK (https://pypi.org/project/hazm/ and https://github.com/roshan-research/hazm).

3. These keywords encompass terms like *accountability, character, ethics, ethical, ethically, fairness, honest, honesty, integrity, respect, respected, respectful, responsible, responsibility, responsibilities, transparency, trust, trusted, truth, virtue, and virtues*. Please refer to Appendix C.
4. We conducted an analysis to assess the relationship between the use of trust language in corporate disclosures and various measures of financial statement quality, aiming to ascertain whether firms employ trust language for different purposes such as signaling quality or obfuscation. The evaluated measures included accrual quality (assessed using the Dechow and Dichev model, coeff. 0.001, *p*-value 0.224), aspects of audit quality (audit opinion, coeff. 0.001, *p*-value 0.856; ln audit fee, coeff. 0.002, *p*-value 0.330; audit delay, coeff. −0.016, *p*-value 0.660), the frequency of restatements (coeff. 0.001, *p*-value 0.037), and earnings persistence (coeff. 0.004, *p*-value 0.254). In conclusion, while the analysis of restatements indicated some significant findings, the overall results across the other measures did not consistently demonstrate a strong correlation with the use of trust language. These mixed outcomes suggest that the relationship between trust language and financial statement quality is complex and may not be directly inferred from these traditional financial metrics alone. The authors acknowledge that further research, possibly incorporating more nuanced or alternative measures, might be necessary to fully understand the multifaceted nature of trust language usage in corporate financial reporting. This exploratory analysis, however, has provided valuable insights and contributed to the broader discussion on the implications of trust language in corporate disclosures.
5. For Tone computation, negative and positive words are required. For Persian, Kaggle's Sentiment Lexicons is considered the most reliable resource, covering 81 languages (https://www.kaggle.com/datasets/rtatman/sentiment-lexicons-for-81-languages). This dataset includes 860 positive and 1,394 negative words.

Supplementary material

The supplementary material for this article can be found online.

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