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Original Research

Managerial Overconfidence and Tone of Management Reports

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ABSTRACT

The purpose of this study was to investigate the effect of managerial overconfidence as a behavioral bias on the tone of management reports, including directors' report and management discussion and analysis (MD&A). In this research, the frequency of technical words was used to measure the tone of the management report, and overinvestment was used as a proxy for managerial overconfidence. The hypotheses were tested on 134 companies over a 4-year period from 2017 to 2020, using multivariate regression models in STATA. The results show that managerial overconfidence is not significantly associated with the positive tone of management reports, but is positively associated with the negative tone of these reports. The results suggest that, due to the uncertainties and risks in the economic environment of Iran and their escalation within the time frame of the present research, overconfident managers tend to use a more negative tone when reporting on risks and uncertainties to avoid the negative consequences of overstatement.

1 Introduction

Management reports provide new and useful information as part of the overall disclosure of a business entity and are thus of interest to investors and analysts. By providing additional information about the company's financial position and performance, these reports help investors in understanding changes in profits, financing needs, liquidity, and the market risks that the company is facing. As of January 20, 2018, the Securities and Exchange Organization (SEO) of Iran has required companies to provide interpretive reports. SEO has also specified the topics and format of these disclosures. Interpretive reports provide information about the goals, resources, relationships, risks, and future prospects of the company, thus helping investors make appropriate decisions [9, 46]. This requires information that is reliable. However, managers have control over the details provided and the language used in their reports. In other words, they can choose the type of information and the manner in which it is disclosed [16]. Managers can moderate the tone of their reports and tend to highlight information that is beneficial to the company [20, 28]. Tone refers to the degree of optimism or pessimism in the language of a report [7]. The main assumption in neoclassical economics is that individuals and companies make rational decisions to maximize their utility. Any deviation from this assumption is considered a bias [4]. In addition, the management is at the core of every company, and managers' behavioral biases can affect their decisions [35]. Due to the limitations to the choice of language and

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the difficulty of verifying the legitimacy of the language based on the existing facts, it seems that tone is affected by the behavioral patterns of managers. Overconfidence is the most important behavioral bias that affects management decisions, including their tone in directors' report and management commentary. According to Malmendier and Tate [42], overconfident managers overestimate the company's future returns, mainly due to their illusion of control over performance results. Since overconfident managers overestimate their ability to control outcomes and underestimate the probability of random events, their predictions indicate an optimistic bias that also affects the accuracy of users' forecasts [28]. Overconfident managers are more likely than their peers to use aggressive accounting methods like earnings management. Overconfidence is positively associated with optimistic bias and misstatement in financial reports [55]. Previous studies [28, 7, 4, 19] have investigated the effect of various behavioral biases, including managerial overconfidence, on the tone of financial reports. However, despite the requirement of Iranian companies to disclose interpretive reports and the effect that the tone of these reports can have on users' decisions, this area has not received much attention from researchers, and the present research tries to fill this gap in the literature. In addition, this study can help researchers and investors further investigate the hidden concepts of corporate information, while expanding the literature on managers' behaviors by examining the effect of managerial overconfidence on the tone of management reports.

The remainder of the article presents the theoretical framework and literature review, followed by the methodology, the findings, and lastly, the conclusions, implications and limitations of the research.

2 Theoretical Fundamentals and Research Background

2.1 MD&A and Its Tone

Companies require new investments to fuel their growth, and when their internal resources are insufficient, they seek external financing to support their development and diversification. However, accessing external funding is contingent upon a favorable investment environment. Therefore, enhancing corporate governance is crucial for attracting global investors. A fundamental principle of corporate governance is disclosure and transparency [30]. According to this principle, companies should furnish stakeholders with timely and accurate information regarding their financial position, performance, ownership structure, strategies, and other material aspects of the business. Annual reports play a particularly significant role in fulfilling this objective as they summarize and elucidate the company's financial performance, strategies, accomplishments, and future prospects for all stakeholders [30]. Companies recognize the annual report as a valuable tool for customers, investors, shareholders, and other stakeholders. Spence [56] asserts that the primary purpose of corporate disclosure is to apprise analysts and investors about the company's quality and value. Verrecchia [59] argues that increased disclosure of financial information reduces information asymmetry and mitigates adverse selection problems. Furthermore, according to Clarke [13], annual reports serve as a means to assure investors about the firm's long-term survival and prosperity. One of the primary sources of such information is the management discussion and analysis (MD&A) [60]. The MD&A provides an evaluation of the company's performance using both quantitative and qualitative measures. It also includes information concerning the company's objectives, resources, relationships, risks, and future plans. Consequently, the management report is a crucial source of information for analysts and investors seeking to assess management performance [9, 46]. Clarkson et al. [14] assert that the MD&A, as part of the overall disclosure by the company, offers incremental new information that proves valuable for investors and analysts. By providing additional insights into the company's operations and financial condition,

MD&As aid investors in comprehending changes in earnings, financing requirements, liquidity, and market risks faced by the company. Much of the information provided in management reports, including the directors' report and MD&A, is in textual form. Hence, even with the establishment of appropriate laws and standards governing the composition of textual information, it remains challenging to restrict the quantity of information presented, the complexity and language used, and the discretion of managers in preparing this information. Tone represents a significant characteristic of textual information in management reports [51]. Tone refers to the extent of optimistic or pessimistic language employed in the text [52]. Some research suggests that reports may be crafted with the aim of impression management, where the text, graphs, and photographs guide users towards a favorable interpretation of the company's activities [63].

In general, there are two main theories concerning the strategies managers employ when disclosing information: incremental information and impression management [8]. According to the incremental information theory, managers share narrative information to address information imbalances [11]. Conversely, the impression management theory suggests that managers provide narrative information with the intention of influencing readers' perceptions of the company's performance [12]. How information is presented, including its readability, complexity, volume, and tone, can impact users' perceptions and evaluations of the company [40]. Tone, in particular, is a crucial aspect. Several studies have demonstrated that the tone of annual reports contains valuable information, and market reactions are observed during the short period surrounding the disclosure based on the report's tone [25, 64]. Jegadeesh and Wu [29] discovered a significant correlation between disclosure tone and market responses to both positive and negative words. They also identified a significant relationship between tone manipulation and a company's market performance near the time of disclosure. Mai et al. [41] assessed the predictive power of textual data in bankruptcy prediction and found that textual data can complement traditional accounting- and market-based variables in predicting bankruptcy. In accounting, tone refers to the extent to which the text of a report includes positive words (e.g., exploitation, success) versus negative words (e.g., sanctions, risk, inflation) [51]. According to Davis et al. [17], one measure of disclosure tone is the difference between the number of positive words and negative words. Hence, a larger difference indicates a more optimistic tone, while a smaller difference indicates the opposite.

2.2 Managerial Overconfidence Theories

2.2.1 The Better-Than-Average Effect

The theory of overconfidence stems from a well-known concept in social psychology called the "better-than-average effect." This effect describes how individuals often view themselves more positively compared to an average person [19]. It influences how people assign causes to outcomes, as individuals tend to believe that their actions will lead to success, leading them to attribute positive results to their own efforts and negative results to mere chance [48].

Moore and Cain [49] argue that the better-than-average effect comes from the fact that people have better information about themselves than they do about others. If skill does not play a role in task performance and performance is attributed entirely to random factors beyond one’s control, then there is insufficient reason for people to consider themselves above or below average. For example, Harris [21] shows that the better-than-average effect is more pronounced in controllable than uncontrollable tasks. Alicke et al. [5] state that having information about others can reduce the better-than-average effect. Moore and Cain [49] show that people rate their performance relatively better on simple tasks

and worse on difficult tasks, and that this better-than-average effect appears stronger when people rate their own performance relative to that of others. This effect is also more pronounced when people are confident about their own performance, but not about the performance of others. This could explain why the better-than-average effect is stronger when people compare themselves to a vague group than when they compare themselves to a specific, known person.

2.2.2 Attribution Theory

Attribution theory is an area of social psychology concerned with how people explain the causes of an event or behavior. It was introduced by Heider [22], and its theoretical frameworks was developed by Kelley [33, 34], Weiner, Nirenberg and Goldstein [62], and Weiner et al. [61]. Attribution theory has gone beyond social psychology and has been used in various management fields. According to this theory, human behavior is driven by a combination of external (e.g., environment, luck) and internal factors (e.g., ability, knowledge). Protecting one's self-esteem is one of the driving factors in attributing causes to events [53]. That is, people tend to consider their successes to be internally caused and their failures externally caused in order to protect their self-esteem. In the case of managers, they may attribute their successes to their own abilities and skills (the person factor), while attributing failures to external factors beyond their control (the environment).

2.2.3 Illusion of Control

The illusion of control refers to the tendency to overestimate our ability to influence outcomes that are beyond our control. According to Langer [37], people often believe that they can control the outcomes they desire, regardless of their actual behavior. The traditional perspective on the illusion of control has linked it with motivational factors [36, 37, 58]. This view suggests that people's perception of control is influenced by their subjective needs, particularly those related to maintaining and enhancing their self-esteem [22]. Some researchers argue that the illusion of control serves as a self-serving bias, protecting individuals from the negative consequences of perceiving events as uncontrollable [6]. Similar to other self-serving biases, the illusion of control is a strategy that boosts self-esteem by allowing individuals to attribute their successes to themselves and attribute failures to external factors like luck [10, 23]. Consequently, when individuals experience a series of successes and failures while striving for a desired outcome, they tend to take credit for the successes and attribute failures to luck or other causes [38]. The illusion of control is a cognitive bias where individuals tend to overestimate their capacity to control or influence events and outcomes, even when they have little actual control. This bias can manifest in different domains of life, such as investment decisions, and can result in overconfidence, inadequate risk assessment, and ultimately, suboptimal choices. Believing in one's ability to control outcomes can lead to overconfidence and a tendency to underestimate risks, which can have negative consequences for decision-making and increase exposure to unfavorable outcomes.

2.3 Managerial Overconfidence and Management Report Tone

Due to their excessive confidence, managers often overestimate future returns, leading to potential delays in recognizing losses and adopting less cautious accounting practices [3, 25]. Furthermore, overconfidence tends to heighten the level of optimism in managerial forecasts [26]. Merrienboer [47] suggests that companies tend to present financial information in a positive manner, particularly when they are under the leadership of overconfident managers. These managers have a tendency to overestimate their own abilities, leading them to overvalue their control over performance outcomes

and underestimate the likelihood of random events. Consequently, in order to align with their excessively positive perceptions, they convey information with a bias towards optimism, which influences the overall tone of their reports [37, 44]. For instance, an overconfident CEO who is selecting an investment project is likely to overemphasize the potential for positive outcomes and underestimate the possibility of negative or adverse shocks to future cash flows [42]. Overconfident managers often hold the belief that their company is undervalued [43]. Given that the tone of disclosure is positively correlated with stock prices [19], overconfident managers may amplify the optimistic tone of earnings press releases in order to counteract low stock prices [27]. Osma et al. [50] argue that overconfident managers attempt to shape investors' perceptions of the company's information environment by employing a positive tone in their reports. Similarly, Hussain [28] finds that overconfident managers are more inclined to use a positive tone in their reports compared to their counterparts.

Overconfident managers may exploit the tone of press releases as a means to mitigate the impact of low stock prices [19]. According to Osma et al. [50], overconfident managers strive to influence investors' perceptions of the company's information environment through the use of a positive tone in their reports. Hussain [28] states that overconfident managers are more likely to employ a positive tone in their reports compared to other managers. Managers are inclined to utilize tone management as a tool to mask the true state of the firm's fundamentals. This practice results in abnormal tone, which deviates from the information available about the company's current and future performance. Abnormal tone can be strategically leveraged to enhance users' perceptions of financial and non-financial reports, thereby misleading investors by concealing the company's poor performance [7].

Gong [19] discovered that managers' overconfidence introduces bias in earnings press releases. Starliper [57] found that using a negative tone to describe a material weakness diminishes the attractiveness of investing in the company. Martikainen et al. [45] observed that certain board characteristics, such as gender, education, financial expertise, and board turnover, exhibit associations with a more negative disclosure tone, while directors' age displays a weaker association with negative disclosure tone. Li et al. [39] demonstrated a positive correlation between the use of positive language in financial disclosure and earnings management, indicating that managers attempt to conceal their earnings management behavior by manipulating the tone of their financial reports. Zakari and Filsaraei [65] identified a significant relationship between the size and independence of the board of directors and the pessimistic tone of financial reports. Bashirimanesh and Ourojoghli [7] demonstrated that managerial overconfidence, manifested through overinvestment and increased capital expenditure, is positively linked to the use of positive language in financial statements. Akbarlou et al. [4] found that managerial optimism and overconfidence are positively associated with an optimistic tone, while managerial myopia has no impact on tone. The formulated hypotheses are based on a comprehensive review of the literature and are presented as follows:

H1: Managerial overconfidence strengthens the positive tone of management reports.

H2: Managerial overconfidence weakens the negative tone of management reports.

3 Methodology

This study is a quantitative, longitudinal, and retrospective (ex-post facto) research. The data are collected using document analysis, expert survey, and textual analysis of management reports (annual report and MD&A). Specifically, document analysis is used to collect information about the financial statements of the sample companies and to establish the theoretical foundations of the research from the books and articles submitted to the Iranian Information and Documentation Center (IRANDOC). In

this research, Rahavard Novin software and website has been used to collect data about the companies' financial statements. Next, more than 2000 words extracted from prior research is presented to and verified by a panel of four experts. Finally, the tone of these words is determined by 10 academics and professionals (including certified public accountants, internal auditor managers, and financial managers of listed companies). Stata 14 and EViews 9 are used for data analysis.

3.1 Models and Variables

In this research, management report tone is the dependent variable and is measured using a specialized Persian word list and quantitative content analysis. Some studies, both foreign and domestic, have used a specialized English word list [40], but translating it has certain drawbacks. For example, an English word may have several Persian equivalents, or the Persian equivalent may not be widely used in Persian texts. In addition, widely used word lists may not be complete and may need to be complemented with an additional set of positive and negative Persian words [51]. To solve this problem, first, a list of more than 2000 words were extracted from the directors' reports and MD&As of the sample companies over the studied time period, which were approved by four professionals and academics. Then, to increase the validity of the word list, it was distributed in the form of a questionnaire among 10 experts in the field of finance and accounting, including certified accountants, financial managers, chief audit executives, and academics. Next, using the final word list and the MAXQDA software, the number of positive and negative words in each report was identified. Finally, following Hussain [28], positive tone (PTONE) is measured as the ratio of positive words to the total number of words, and negative tone (NTONE) is measured as the ratio of negative words to the total number of words. Managerial overconfidence is the independent variable. Following Gomariz and Ballesta [18] and Kashanipour and Mohammadi [32], the model below is estimated after controlling for year and industry fixed effects:

$$Investment_{it+1} = \alpha_0 + \alpha_1 SalesGrowth_{it} + \varepsilon_{it+1} \quad (1)$$

where Investment is the total investment of the company (equivalent to net change in assets) and $SalesGrowth$ is the rate of change in sales (equivalent to changes in sales of the current year compared to the previous year). Positive (negative) values of the residual of Model (1) indicate over-(under)investment in assets. According to Schrand and Zechman [55], overinvestment in assets indicates managers' overconfidence in the company's prospects. Therefore, MOC (managerial overconfidence) is defined as a binary variable that equals 1 for positive residuals, and zero otherwise. The following model is used to test the first hypothesis:

$$PTONE_{it} = \omega + \phi_1 MOC_{it} + \phi_3 TENURE_{it} + \phi_5 CASH_{it} + \phi_6 BLEVERAGE_{it} + \phi_7 MVBV_{it} + \phi_8 ROA_{it} + \vartheta_{it+1} \quad (2)$$

where PTONE denotes positive tone; MOC denotes managerial overconfidence; TENURE denotes CEO tenure and is equal to the number of years that the CEO has been in that position; CASH is cash to asset ratio, calculated as cash divided by total assets; BLEVERAGE is book value of leverage, calculated as total debt divided by the book value of total assets; MVBV is market to book value, calculated as the number of shares outstanding multiplied by the closing price divided by the number of shares outstanding multiplied by book value per share; and ROA is return on assets, which is equal to the ratio of net income to total assets. In Model (2), the coefficient of MOC is expected to be positive and significant. In addition, the following model is used to test the second hypothesis:

$$NTONE_{it} = \omega + \phi_1 MOC_{it} + \phi_3 TENURE_{it} + \phi_5 CASH1_{it} + \phi_6 BLEVERAGE_{it} + \phi_7 MVBV_{it} + \phi_8 ROA_{it} + \vartheta_{it+1} \quad (3)$$

where NTONE denotes negative tone in management reports. Other variables were previously defined. In Model (3), the coefficient of MOC is expected to be negative and significant.

3.2 Sample Selection and Data Collection

The population of this research consisted of all the companies listed on the Tehran Stock Exchange (TSE) between 2016 and 2021. The statistical sample was selected based on a set of criteria: (1) companies whose fiscal year-end did not match calendar year-end (March 20th) or changed during the studied period were removed; (2) companies operating in financial industries (e.g., banks, investment companies, insurance firms, holdings, etc.) were excluded due to the different nature of their activities; (3) companies for which the required data were not available were excluded; and (4) all the data were winsorized at the 1st and 99th percentile to control for the effect of potential outliers. This process limited the sample to 134 companies. See Table 1 for details.

Table 1: Sample selection procedure

Description	N
Total number of TSE-listed firms	530
Companies whose financial year-end does not match calendar year-end (March 20th) or has changed during the studied period	(175)
Companies operating in financial industries	(94)
Companies for which the required data are not available	(127)
Final sample	134

4 Findings

Table 2 reports the descriptive statistics of the main variables. The closeness of median and mean values indicates a normal distribution. On average, 5% of the total assets of the sample companies are held in cash. This is consistent with the results of Aflatooni et al. [2] and Kamyabi and Rastaghi [31]. The 18% average ROA indicates that net profit accounts for 18% of the companies' assets. This finding supports the results of Bashirimanesh and Ourojoghli [7]. Moreover, on average, the market value of stocks is 10 times its book value.

Table 2: Descriptive statistics of the variables

Variables	Mean	Median	Max.	Min.	SD
PTONE	0.080	0.079	0.121	0.039	0.016
NTONE	0.014	0.013	0.028	0.006	0.004
BLEV	0.510	0.506	1.140	0.037	0.228
CASH	0.051	0.034	0.277	0.001	0.052
TENURE	2.861	2.000	17.67	0.020	2.578
MVBV	10.106	6.578	72.713	−5.265	10.875
ROA	0.185	0.163	0.654	−0.230	0.166
MOC population: 96-99 Firm-years: 182					

The mean (median) of positive tone is 0.080 (0.079), indicating indicates positive tone is almost 8 times more frequent than negative tone (0.013). In other words, the managers in the studied sample are much more likely to use a positive tone in their reports. The 0.51 mean value obtained for book leverage indicates that about 51% of the financial resources of the companies are secured through debt. Mean CEO tenure is 2.861 years. Moreover, on average, 5% of the total assets of the sample companies are

held in cash.

Models (2) and (3) with PTONE and NTONE as dependent variables are used to test the first and second hypothesis. The results of these estimates are presented in Tables 3 and 4. The first step is to choose the appropriate model for estimating Model (2), and Chow test is used to compare common-effects and fixed-effects models. The results of Chow test for the first hypothesis show the significance of the statistic (9.32) at the 0.01 level, indicating that the fixed effects model is preferable to the pooled OLS model. In the second step, the Hausman test is used to choose between fixed and random effects. Given that the Hausman test statistic is not significant (5.81), the random effects model is preferable to the fixed effects model for testing the first hypothesis. In the third step, the Breusch-Pagan test is used to choose between random and common effects. The significance of the Breusch-Pagan test statistic (287.97) at the 0.01 level indicates that the random-effects model is preferable to the common-effects model. Therefore, the random effects model is used to estimate Model (2) with PTONE as the dependent variable. The significance of the chi-square statistics (413.97) indicates the presence of heteroskedasticity in Model (2) based on the approach recommended by Wiggins and Poi. Moreover, the significance of the autocorrelation statistics (16.390) indicates the presence of first-order serial correlation in the residuals of Model (2). Therefore, the generalized least squares (GLS) technique is used to simultaneously solve the problem of heteroskedasticity and autocorrelation [2]. The values of variance inflation factor (VIF) for all the variables indicate the absence of strong multicollinearity.

Table 3: Estimation results for Models (2) and (3) with PTONE as the dependent variable

Variables	PTONE			VIF
	Coefficient	t-statistic	Sig.	
Intercept	0.08	68.78	0.00	1.68
MOC	−0.00	−1.65	0.10	1.68
TENURE	−0.00	−3.49	0.00	2.07
CASH	−0.00	−0.48	0.63	2.13
LEV	0.00	1.01	0.31	2.59
MVBV	−0.00	−0.90	0.37	1.96
ROA	−0.00	−0.88	0.38	2.48
	Statistic		Sig.	
Model significance	20.95		0.00	
Chow test	9.32		0.00	
Hausman test	5.81		0.45	
Breusch-Pagan test	287.97		0.00	
Heteroskedasticity test	413.97		0.00	
Autocorrelation test	16.390		0.00	

The first hypothesis predicts that managerial overconfidence will strengthen the positive tone of management reports. However, the estimation results of Model (2) with positive tone (PTONE) as the dependent variable show that except for the coefficient of CEO tenure (−0.00) and the intercept (0.08), the coefficients of the other variables are not significant at the 0.05 level, including managerial overconfidence (−0.00). This is inconsistent with the first hypothesis. As for Model (3) for testing the second hypothesis NTONE as the dependent variable, the significance of the Chow test statistic (8.42) at the 0.01 level indicates that the fixed effects model is preferable to the random-effects model. Moreover, the significance of the Hausman test statistic (14.17) at the 0.05 level and the significance of the Breusch-Pagan test statistic (236.48) at the 0.01 level indicate the preference of the fixed-effects model over the random-effects model. Therefore, the fixed-effects model is used to estimate Model (3).

The next step is to check for classical regression assumptions. The significance of the chi-square statistics (391.98) indicates the presence of heteroskedasticity in Model (3). Moreover, the significance

of the autocorrelation statistics (19.709) indicates the presence of first-order serial correlation in the residuals of Model (3). Therefore, the GLS technique is used to simultaneously solve the problem of heteroskedasticity and autocorrelation. The VIF values obtained for all the variables indicates the absence of strong multicollinearity. The results of estimating Model (3) with negative tone (NTONE) as the dependent variable indicate a significant positive relationship between managerial overconfidence (0.00) and negative tone, which is also inconsistent with the second hypothesis that predicted a significant negative relationship between managerial overconfidence and negative tone.

Table 4: Estimation results for Model with NTONE as the dependent variable

Variables	NTONE			VIF
	Coefficient	t-statistic	Sig.	
Intercept	0.01	0.00	0.00	
MOC	0.00	0.00	0.00	1.68
TENURE	−5.88	0.86	0.86	2.05
CASH	−0.00	0.92	0.92	2.17
LEV	−0.00	0.00	0.00	2.56
MVBV	0.00	0.00	0.00	1.96
ROA	−0.00	0.19	0.19	2.55
	Statistic		Sig.	
Model significance	34.74		0.00	
Chow test	8.42		0.00	
Hausman test	14.17		0.03	
Breusch-Pagan test	236.48		0.00	
Heteroskedasticity test	391.98		0.00	
Autocorrelation test	19.709		0.00	

5 Discussion and Conclusion

The written tone of management reports, including MD&A, can affect users' perception of the information. Since the tone of management reports is influenced by managers' behavioral biases, the present research tried to build on the existing theoretical foundations to investigate the effect of managerial overconfidence on the tone of management reports. Based on the theoretical framework, the first and second hypothesis of the research expected that managerial overconfidence will strengthen positive tone and weaken negative tone in management reports. That is because overconfident managers tend to overestimate their ability and performance outcomes and underestimate the probability of random events. Therefore, in order to realize their overly positive perceptions, they present information with an optimistic bias to manipulate the perceptions of the company's investors and financiers. However, the results of testing first hypothesis showed no significant relationship between managerial overconfidence does and the positive tone of management reports. This finding is inconsistent with the results of Bashirimanesh and Ourojoghli [7], Akbarlou et al. [4], Hussain [28], and Gong [19]. Moreover, the results of testing the second hypothesis showed that managerial overconfidence is positively associated with the negative tone of management reports. In fact, our findings suggest that managerial overconfidence induces greater use of negative tone and has no significant effect on the positive tone of management reports.

These results can in part be attributed to the economic conditions of Iran, including the severity of economic sanctions against the country and the resulting currency depreciation during the studied period. In such a situation, overconfident managers may use a defense mechanism to deny accountability and avoid criticism. That is, by using a more negative tone, they attribute challenges and problems to external factors, since overly optimistic statements, if false or misleading, can have significant negative consequences (undermining investors' trust in the management team, reducing the

reliability of financial reports, and actually damaging the credibility and reputation of managers). Previous studies show that an increase in managerial overconfidence increases the risk of financial distress [15] and decreases financial reporting quality [54, 1]. In addition, based on the self-attribution bias, people tend to attribute positive outcomes to their skills and negative outcomes to external factors. Managers with this bias may downplay their responsibility for poor financial performance and instead attribute it to uncontrollable circumstances, leading to a negative tone in management reports. Given the challenges and problems facing the country's economy, the most important of which is economic sanctions, there is greater pressure on companies for increased accountability. Therefore, managers may be forced to provide more accurate and transparent reports to avoid more negative consequences. Additionally, economic sanctions can limit a country's access to financial resources, which in turn affects managers' ability to effectively implement their plans. When faced with resource constraints, managers may become more cautious and realistic in their assessments and forecasts, thus reducing their overconfidence and promoting a more accurate picture of the situation.

The measures used in this research are based on investment, and due to the escalation of sanctions and price increases during the research period, changes in investment were mostly driven by factors beyond managers' control. Furthermore, in our research environment where macroeconomic variables are fraught with uncertainties and risks, overconfident managers tend to express risks and uncertainties in their reports in order to avoid negative consequences for overstatement. Therefore, they tend to adopt a more pessimistic tone so that in the future, they can claim to have predicted these events beforehand. As a result, the relationship between overconfidence and positive and negative tone has been reversed. Therefore, it is suggested that the main reasons for the growth of assets and sales should be explained more clearly in directors' reports and MD&As so that users can be more appropriately aligned with the tone of the reports. It is also suggested that regulators establish and improve disclosure standards in order to limit managers' discretion in choosing the tone and form of these reports, enhance users' understanding of the information that is provided, and prevent opportunistic behaviors by managers.

Furthermore, future research could compare the positive tone of management reports with the actual performance (e.g., ROA) of the company in order to control for the effect of positive tone on users' perceptions. One of the issues with our research hypothesis is the inconsistency of our findings with prior research. The literature suggests that managerial overconfidence is positively associated with positive tone. However, this relationship was not significant in the investigated time period. Therefore, future research could study the relationship between managerial overconfidence and tone in the years before and after the tightening of economic sanctions and the increase in exchange rate as moderating variables.

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