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Inconsistency in Managers' Disclosure Tone: The Signalling Perspective

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Abstract: This article examines the factors contributing to the disparity in managers' disclosure tone from a signalling perspective. According to this viewpoint, managers intentionally choose their tone to convey information to the market. To determine the origin of tone inconsistency, we explored the association between future financial performance (as measured by the rate of return on assets (ROA) and rate of return on equity (ROE)) and future financial risk (as measured by the standard deviation of ROA and ROE) with the tone of management discussion and analyses (MD&As). The Loughran and McDonald dictionaries were utilised to assess managers' tone in the MD&As. Our dataset consisted of 1510 MD&As from 156 companies listed on the Tehran Stock Exchange, covering 2013 to 2022. Multiple regression analysis was employed, controlling for industry and year fixed effects. The findings revealed a significant relationship between future financial performance, future financial risk, and MD&A tone inconsistency. Thus, the biased tone observed in Iranian managers' MD&As can be explained by signalling theory. This study contributes to the existing literature by being the first to investigate signalling as a source of inconsistency in managers' disclosure tone.

Keywords: written tone; tone inconsistency; signalling theory; future returns; future risk

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1. Introduction

This paper is an extension of the work completed by Pouryousof et al. (2022). They investigated the relationship between managers' disclosure tone and the trading volume of investors. The present study examines the relationship between future performance, risk, and inconsistency in managers' disclosure tone from a signalling perspective.

The global accounting landscape has undergone significant changes in recent decades, driven by factors such as the development of capital markets, increased complexity of transactions and economic events, and users' enhanced understanding of accounting information. These changes have imposed new demands on accounting and financial reporting systems, requiring them to adapt while maintaining their effectiveness as information systems. As capital markets evolve, users increasingly seek accurate information regarding companies' financial performance and position. Although primarily concerned with financial information, accounting also encompasses non-financial information within its scope (Liu and Shrestha 2008). Consequently, financial reporting includes both quantitative and qualitative information, including financial statements, cash flow statements, notes to financial statements, earnings announcements, earnings press releases, conference calls, management discussions and analyses (MD&As), letters to shareholders, and external auditors' reports.

Recent studies have highlighted that quantitative information alone does not provide a comprehensive depiction of a company's financial performance, and qualitative financial disclosures play a vital role in aiding stakeholders' interpretation of quantitative information (Huang et al. 2014; Davis et al. 2015; Arslan-Ayaydin et al. 2016; Luo and Zhou 2017; Kiattikulwattana 2019).

In recent years, a growing body of research has examined the readability, tone, clarity, and quality of financial statements and their impact on investor decision-making. While studies on managers' tone of the disclosure have investigated the consequences of tone (Pouryousof et al. 2022; Baginski et al. 2018; Jegadeesh and Wu 2013; Tetlock 2007; Bhattacharya et al. 2007; Shanthikumar 2012; Mikhail et al. 2007; Blankespoor et al. 2019), there remains a significant research gap concerning the underlying reasons for managers' unusual tone, specifically tone inconsistency. Disclosure tone is commonly measured by the relative prevalence of positive and negative words in a text. If the ratio is positive, the tone is optimistic, and vice versa. Tone can be considered normal or abnormal, with abnormal or residual tone representing a part of the tone that deviates from the current performance and circumstances of the company.

Disclosure tone allows managers to influence investor decisions, as there are few regulations governing the form and content of qualitative disclosures, allowing managers considerable discretion in their preparation. This discretion may give rise to tone management, specifically tone inconsistency. Huang et al. (2014) define tone management as "the choice of tone level in a qualitative text that does not align with the concurrent quantitative information".

In recent years, Iran's ranking in the Strength of Investor Protection Index has declined (MoneyShow). Although the voluntary nature of a biased disclosure tone may lead users not to take it seriously, it can mislead investors and result in stock price fluctuations. Consistent with recent studies, shareholders' reactions and market pricing deviations have been attributed to tone management (Pouryousof et al. 2022; Baginski et al. 2018; Jegadeesh and Wu 2013; Tetlock 2007; Bhattacharya et al. 2007; Shanthikumar 2012; Mikhail et al. 2007; Blankespoor et al. 2019). Furthermore, Hossain et al. (2020) find that an abnormal positive disclosure tone is associated with a higher likelihood of receiving a going concern modified audit opinion. Therefore, it is imperative to investigate the origins and determinants of tone inconsistency.

In recent years, Iran has witnessed an increase in profit management, fraud, and embezzlement indicators, coupled with a decline in financial transparency within major institutions. Despite facing significant challenges regarding resources, liquidity, and investment, these issues are not disclosed in financial reports. Instead, managers' tone in explanatory reports tends to be optimistic and biased. Hence, it becomes necessary to investigate the reasons behind this inconsistency and determine whether it is intentional or unintentional. This research aims to explore the origins of the biased tone from different perspectives, and future studies are encouraged to delve into the other two views.

Based on the evidence discussed in the theoretical framework, there are three distinct theories explaining the reasons for tone inconsistency. Signalling theory suggests that managers employ disclosure tone as a signal to the market, aiming to reduce information asymmetry. Agency theory emphasises the opportunistic incentives of managers, while behaviour theory posits that managers' tone inconsistency is unintentional and rooted in their personal characteristics. Thus, it is essential to examine whether disclosure tone inconsistency is a positive phenomenon indicating managers' deliberate signalling efforts to investors, a negative phenomenon reflecting managers' pursuit of personal interests, or the result of unintentional behaviour. This research primarily focuses on the signalling perspective and calls for further investigation into the other two perspectives.

Existing research has identified various factors influencing managers' disclosure tone, such as CEO power and supervision (DeBoskey et al. 2019), financial expertise of the audit committee (Lee and Park 2019), narcissism, gender, and corporate governance (Bassyouny et al. 2020), managers' optimism (Ataullah et al. 2018), financial crisis (Du and Yu 2021), IPO (Thng 2019), managerial job concerns and the content of companies' information disclosure (Arslan-Ayaydin et al. 2020), manager's overconfidence in explanatory notes (Luo and

Zhou 2019), year and industry validity, and readability of managers' reports (Efretuei 2021), SEC statements (Feng and Gao 2020), executive compensation incentives (Mi 2020), media (Wu et al. 2021), earnings management (Kayed 2020), and managers' insider dealings (Xu and Qi 2022). Furthermore, recent studies have explored the existence of biased tone in managers' disclosures and its consequences (Yan et al. 2021; Liu and Nguyen 2020; Luo and Zhou 2019; DeBoskey et al. 2019; Kim 2017; Patelli and Pedrini 2015). However, the reasons for inconsistency and whether it is intentional or unintentional have not been thoroughly investigated. Thus, this research aims to contribute to the literature by examining signalling as a potential source of tone inconsistency in MD&As.

This study provides two main contributions. First, it is the first investigation of factors affecting inconsistency in managers' disclosure tone from the signalling perspective within the Iranian context. Liu and Nguyen (2020) and Loughran (2018) have also called for research into the sources of tone inconsistency. Second, this study expands the common word list by incorporating additional word combinations, addressing a limitation identified in previous studies.

2. Theoretical Framework and Hypothesis Development

Financial information plays a crucial role in organisations and serves various purposes that are less influenced by individual judgment (Askarany and Franklin-Smith 2014; Marzoughi et al. 2018). However, disclosing non-financial information in annual reports is a common approach to reducing information asymmetry between managers and shareholders. Research has shown that qualitative information in MD&As contributes to this reduction in information asymmetry (Feldman et al. 2010; Lee and Park 2019).

On the other hand, studies have indicated that the tone of corporate disclosures tends to exhibit bias (Huang et al. 2014; Wu et al. 2021). According to agency theory, managers may adopt a biased tone aligned with their opportunistic motives and personal interests, potentially misleading investors. Additionally, managers often utilise a positive tone to mask unfavourable news (Loughran and McDonald 2011; Davis et al. 2012; Huang et al. 2014). It has been observed that disclosure tone tends to be more positive before significant events such as share issuances or mergers and acquisitions. Given the conflicting views in the literature regarding managerial disclosure tone, examining the impact of managers' motivations and characteristics becomes crucial.

In summary, three general perspectives exist regarding the sources of inconsistency in managers' disclosure tone: (1) the signalling perspective, which views tone as a means to communicate with investors; (2) the agency perspective, which emphasises managerial opportunism; and (3) the behavioural perspective, which considers managers' personal, occupational, or psychological characteristics.

Yan et al. (2021) discuss three reasons for tone management: (1) managers' rational decision to protect firm value; (2) managers' irrational and opportunistic decision to maintain their reputation; and (3) involuntary behaviours driven by managers' overconfidence. Suppose tone management is a rational decision aimed at signalling to the market. In that case, managers may clearly understand the company's future prospects and view the current performance decline as temporary, leading them to delay the disclosure of negative news to avoid unnecessary value reduction. However, if the performance decline is not temporary, managers might still postpone the disclosure of negative information and adopt a positive tone due to opportunistic motives or overconfidence.

In our study, we investigate the rational motives of managers from the signalling perspective. Previous research has demonstrated that managers' reports in corporate disclosures can reduce information asymmetry between shareholders and managers and contain valuable information for predicting the company's future performance (Abrahamson and Amir 1996; Yuthas et al. 2002; Patelli and Pedrini 2015; Wu et al. 2021; Yan et al. 2021). Merkl-Davies and Brennan (2007) refer to this as the incremental information hypothesis, which suggests that inconsistency in managers' disclosure tone may serve as a signalling mechanism, especially when certain information cannot be disclosed in financial statements.

Therefore, managers' disclosure tone can provide insights into the company's current and future financial performance.

Kayed (2020) demonstrates that managers' disclosure tone can reduce information asymmetry between managers and shareholders. They find a positive association between the tone of earnings announcements and a company's future performance. Similarly, Wu et al. (2021) argue that MD&As can signal management's expectations for the company's future and impact market reactions. They also show that companies with a more optimistic tone exhibit higher future market value. Davis et al. (2008) discovered a positive relationship between managers' disclosure tone, company value, and future returns.

These studies establish a connection between managers' tone and company performance. However, no research has been conducted regarding the effect of tone inconsistency on a company's future performance and risk measures. Therefore, we anticipate that companies with favourable prospects for future performance and lower risk will exhibit a higher tone inconsistency in MD&As to signal this information to the market. Consequently, we propose the following hypotheses:

Hypothesis 1. *A significant positive relationship exists between a company's future performance and tone inconsistency in MD&As.*

Hypothesis 2. *A significant negative relationship exists between a company's future risk and tone inconsistency in MD&As.*

3. Methodology

The study encompasses the entire population of companies listed on the Tehran Stock Exchange (TSE) from 2013 to 2022. The data primarily rely on the TSE's audited financial statements and board reports, which are considered reliable sources of information (Namakavarani et al. 2021; Daryaei et al. 2022; Pouryousof et al. 2022; Shandiz et al. 2022; Nasirzadeh et al. 2022). The sample includes companies that maintained continuous activity throughout the research period, excluding investment firms, insurance companies, banks, credit institutions, and holding and leasing companies due to the unique nature of their operations. Overall, the sample comprises 156 companies.

The measurement of tone in MD&As is performed using MAXQDA 11. Other data are collected through document mining from the CODAL[1] database, which provides financial information on TSE-listed companies. The research model is estimated using ordinary least squares (OLS) regression while controlling for fixed effects of industry and year. This study investigates the factors influencing inconsistency in managers' disclosure tone in MD&As from the signalling perspective. MD&As encompass various topics such as management forecasts, future projects and plans, critical matters, the company's position and performance, risks, and corporate social responsibility (CSR) performance.

There are three justifications for utilising managerial forecasts to investigate managers' tone inconsistency. Firstly, management forecasts are integrated into investors' future earnings expectations (Ajinkya and Gift 1984; Beyer et al. 2010). Secondly, unlike audited financial statements and other qualitative disclosures by managers, management forecasts are predominantly driven by incentives and are forward-looking, making them more prone to bias (Baginski et al. 2018). Thirdly, management forecasts do not occur regularly for most companies, making it challenging for less sophisticated investors to recognise their biased tone (Kim and Verrecchia 1997).

4. Model and Variables

The following models test the relationship between future performance, future risk and inconsistency in managers' disclosure tone. For future performance, we used two proxies: the future rate of return on assets (FUTROA) and the future rate of return on equity (FUTROE). For future risk, we used two proxies containing the standard deviation of the future rate of return on assets (STD_FUTROA) and the standard deviation of the future rate of return on equity (STD_FUTROE). According to the correlation of Main variables (FUTROA with FUTROE and STD_FUTROA with STD_FUTROE), these variables are estimated in separate models. Variables FUTROA and FUTROE are related to hypothesis 1, and STD_FUTROA and STD_FUTROE are associated with the second hypothesis.

$$RSD_{TONEit} = \beta_0 + \beta_1 FUTROA_{it} + \beta_2 STD_{FUTROAit} + \sum \alpha_t\ year \sum \alpha_t\ ind + \sum cont + \varepsilon_{it} \quad (1)$$

$$RSD_{TONEit} = \beta_0 + \beta_1\ FUTROE_{it} + \beta_2 STD_{FUTROEit} + \sum \alpha_t\ year \sum \alpha_t\ ind + \sum cont + \varepsilon_{it} \quad (2)$$

RSD_{TONE} : tone inconsistency; $FUTROA$ is the future returns on assets; FUTROE is future returns on equity; STD_FUTROA is the standard deviation of future asset returns; STD_FUTROE is the standard deviation of future equity returns; $\sum \alpha_t\ year$ are the fixed effects of the year, $\sum \alpha_t\ ind$ are the fixed effects of the industry and $\sum cont$ are control variables. The primary and control variables and their measurement are also presented in Table 1.

Some studies (such as Wu et al. 2021 and Davis et al. 2008) have used "performance" and "risk" variables as independent variables in their models and "tone" as the dependent variable, while in our model, the dependent variable is tone inconsistency (or unusual tone). Table 1 (Panel B) also presents the basis for including control variables.

Table 1. Variables and their measurement.

A. Main Variables					
Variable		**Proxy**	**Measurement**	**Expected Sign**	
Dependent	Residual tone	*RSD_TONE*	The absolute value of the error term in the second equation		
Independent: Hypothesis 1	Future returns on assets	*FUTROA*	Net income of the future period divided by total assets at the end of the current period	+	
	Future returns on equity	*FUTROE*	Net income of the future period divided by equity at the end of the current period	+	
Independent: Hypothesis 2	The standard deviation of asset returns	*STD_FUTROA*	The standard deviation of asset returns for the next two years	−	
	The standard deviation of equity returns	*STD_FUTROE*	The standard deviation of equity returns for the next two years	−	
B. Control variables					
Variable		**Proxy**	**Measurement**	**Expected Sign**	
Firm size		*SIZE*	The logarithm of the market value of equity at the end of the period		+
Growth opportunities		*MB*	Market-to-book value of equity		
Company-specific tone inconsistency		HRSD	Residual tone of managers in the last three years	Huang et al. (2014)	−

Table 1. *Cont.*

B. Control variables					
Variable		**Proxy**	**Measurement**	**Expected Sign**	
Industry-specific tone inconsistency		IRSD	The residual tone of disclosures across the industry	Luo and Zhou (2019) Efretuei (2021)	−
Corporate governance	Gender diversity of the board of directors	GENDERDIV	Percentage of women on the board of directors	DeBoskey et al. (2019) Lee and Park (2019) Bassyouny et al. (2020)	−
	Task diversity	TASKDIV	Percentage of non-executive directors		
	Audit quality	AUDGUL	Equal to 1 if the Iran Audit Organization audits the firm and 0 otherwise		
	Concentration of ownership	CON_OWN	Percentage of shares owned by the largest shareholder		
	Institutional ownership	INS_OWN	Percentage of shares owned by institutional investors		

The independent variables are calculated based on Yan et al. (2021).

5. Measuring Inconsistency in Disclosure Tone

Following Henry (2008) and Henry and Leone (2016), the tone is measured as follows:

$$Tone = \frac{PW - NW}{PW + NW} \tag{3}$$

PW: the number of positive words; NW: the number of negative words.

In this study, we employ the finance-oriented dictionaries developed by Loughran and McDonald (2011) to measure tone. The vocabulary list of the Loughran and McDonald has been translated by Iranian researchers and localised in Iran based on the reports of the board of directors. Subsequently, in line with Huang et al. (2014), we conduct a regression analysis, with TONE as the dependent variable, considering a set of variables that capture performance and financial risk. More specifically, we examine the residual tone, denoted as ε, which represents the unexplained variation in TONE after accounting for the variables in the following model:

$$\begin{aligned} TONE_{it} &= \beta_0 + \beta_1 EARN_{it} + \beta_2 SIZE_{it} + \beta_3 BTM_{it} + \\ &\beta_4 RET_{it} + \beta_4 STD\_EARN_{it} + \beta_4 STD\_RET_{it} + \beta_4 LOSS_{it} + \beta_4 AGE_{it} + \beta_4 \Delta EARN_{it} + \varepsilon_{it} \end{aligned} \tag{4}$$

where $EARN$ is profit; $SIZE$ is the logarithm of the market value of the assets; BTM is the division of the book value to the market value of equity; RET is average monthly return; STD_EARN is the standard deviation of the profit; STD_RET is the standard deviation of the stock return; $LOSS$ is 1 if the company has a profit and 0 otherwise; AGE is the logarithm of the company's age; and $\Delta EARN$ is the change in the profit. The Huang et al. (2014) model has been used in most research investigating abnormal tone (Pouryousof et al. 2022).

6. Findings

Descriptive Statistics

The descriptive statistics reveal that most companies, precisely over 80%, undergo audits conducted by the Iran Audit Organization, which is known for its higher audit quality. Other firms audit the remaining companies. Furthermore, the remaining observations exhibit a normal distribution. For a comprehensive overview of the descriptive statistics, please refer to Table 2.

Table 2. Descriptive statistics.

	Observations	**Mean**	**Median**	**Max**	**Min**	**Std Dev**	**Skewness**
RSD_TONE	1510	0.075	0.052	0.98	0.003	0.057	2.18
FUTROA	1510	0.175	0.15	4.17	−3.56	0.328	2.75
FUTROE	1510	0.81	0.67	67.04	−2.11	1.08	12.39
STD_FUTROA	1510	0.098	0.04	3.79	0.000	0.257	7.6
STD_FUTROE	1510	0.24	0.22	25.18	0.000	1.12	18.53
SIZE	1510	12.08	11.87	20.23	10.35	1.7	0.79
MB	1510	6.32	2.43	2607	−59.96	70.21	28.63
HRSD	1510	0.15	0.09	0.74	0.000	0.081	3.07
IRSD	1510	0.075	0.068	0.48	0.000	0.028	2.11
GENDERDIV	1510	0.065	0.012	0.2	0.000	0.088	1.97
TASKDIV	1510	0.98	0.64	8	0.000	0.33	13.78
CON_OWN	1510	46.08	48.97	94.94	0.000	26.53	−1.76
INS_OWN	1510	46.43	39.35	677	0.000	26.16	4.07
			Frequency Distribution				
		1				0	
AUDGUL	1137		80.07%		283		19.93%

The correlation matrix of research variables is also presented in Table 3. Considering the correlation of independent variables (FUTROA and FUTROE, STD_FUTROA and STD_FUTROE), these variables were estimated in separate models.

Table 3. Correlation matrix.

	RSD_TONE	**FUTROA**	**STD_FUTROA**	**FUTROE**	**STD_FUTROE**	**SIZE**	**MB**	**IRSD**	**HRSD**	**GENDERDIV**	**TASKDIV**	**AUDGUL**	**CON_OWN**	**INS_OWN**
RSD_TONE	1													
FUTROA	0.08 * 0.00	1												
STD_FUTROA	−0.09 * 0	0.011 0.09	1											
FUTROE	0.06 0.01	0.73 * 0.00	0.02 0.39	1										
STD_FUTROE	−0.05 * 0.02	−0.05 * 0.04	0.5 * 0	0.01 0.08	1									
SIZE	−0.01 0.45	−0.05 * 0.03	−0.17 * 0.00	−0.06 * 0.01	−0.01 * 0	1								
MB	0.07 * 0	0.007 0.07	−0.05 * 0.02	−0.06 0	−0.04 0.09	0.06 * 0.02	1							
IRSD	0.03 * 0	0.03 0.14	−0.03 0.17	0.02 0.29	−0.1 * 0	0.01 0.54	−0.01 0.64	1						
HRSD	0.03 * 0	0.008 0.07	−0.02 0.43	0.03 0.22	0.06 0.06	0.07 * 0	0.06 * 0.01	0.15 0	1					
GENDERDIV	−0.05 * 0.03	0.06 0.08	0.07 0.06	0.07 0.06	0.06* 0	−0.11 0.07	0.002 0.9	−0.04 0.09	−0.04 0.06	1				
TASKDIV	0.03 0.02	−0.01 0.63	0.08 * 0	0.01 0.4	0.08 0	−0.19 * 0	0.03 0.14	−0.04 0.09	0.03 0.19	−0.001 0.9	1			
AUDGUL	0.02 0.41	0.07 * 0	−0.00 0.86	0.04 0.06	−0.04 0.08	0.2 * 0	−0.06 * 0.01	0.04 0.07	−0.04 0.12	0.03 0.14	−0.01 * 0	1		

Table 3. *Cont.*

	RSD_TONE	FUTROA	STD_FUTROA	FUTROE	STD_FUTROE	SIZE	MB	IRSD	HRSD	GENDERDIV	TASKDIV	AUDGUL	CON_OWN	INS_OWN
CON_OWN	−0.04 0.08	0.02 0.29	−0.04 0.09	0.04 0.12	−0.00 0.7	0.01 0.5	0.01 0.57	−0.06 * 0	−0.02 0.42	−0.03 0.21	−0.07 * 0	0.03 0.14	1	
INS_OWN	−0.01 0.51	0.05 * 0.04	0.00 0.89	0.01 0.68	0.08 * 0	0.02 * 0	−0.001 0.96	−0.01 0.5	0.1 0	−0.01 0.63	−0.04 0.06	0.16 * 0	0.1 * 0	1

* means significant at 95% (and less than 5% error).

7. Hypotheses Testing

The results are presented in Table 4.

Table 4. Summary of regression model estimation and estimated coefficients.

	Panel A: Model1: ROA		Panel B: Model2: ROE	
	Coefficients (t Statistics)	**VIF**	**Coefficients (t Statistics)**	**VIF**
Constant	0.013 (0.09)		−0.03 (−2.58)	
FUTROA	0.03 * (4.75)	1.02		
FUTROE			0.023 * (3.7)	1.08
STD_FUTROA	−0.107 * (−5.25)	1.03		
STD_FUTROE			−0.006 * (−2.37)	1.06
SIZE	0.0007 (−0.385)	1.16	−0.00001 (−0.02)	1.16
MB	−0.002 (−0.035)	1.2	−0.0001 (−0.03)	1.02
HRSD	0.9 * (21.9)	1.06	0.9 * (20.48)	1.06
IRSD	0.48 * (6.60)	1.09	0.48 * (6.5)	1.09
GENDERDIV	0.02 (1.07)	1.02	0.026 (0.97)	1.02
TASKDIV	0.014 * (3.15)	1.03	0.012 * (2.68)	1.03
AUDGUL	0.0001 (0.05)	1.782	−0.0006 (−0.21)	1.11
CON_OWN	−0.007 (−1.20)	1.03	−0.008 (−1.29)	1.06
INS_OWN	−0.005 (−1.05)	1.16	−0.004 (−1.02)	1.13
Year Fixed Effects	Yes			
Firm Fixed Effects	Yes			
Observations	1510			

Table 4. *Cont.*

	Panel A: Model1: ROA		Panel B: Model2: ROE	
	Coefficients (t Statistics)	**VIF**	**Coefficients (t Statistics)**	**VIF**
The adjusted coefficient of determination (Adjusted R^2)	47.49%		46.47%	
F-statistics	9.37		9.27	
Durbin–Watson	2.21		2.2	

* Significance at the 5% level. The coefficient for each variable is reported, and *t*-test values appear in brackets. None of the variables was supported at 1% and 10%.

The findings presented in Table 4 demonstrate that the fitted model of the research is statistically significant and exhibits satisfactory efficiency. In the first model, approximately 47% of the variations in managers' disclosure tone inconsistency can be explained by changes in the future rate of return on assets (FUTROA) and the standard deviation rate of the future rate of return on assets (STD_FUTROA), along with the variations in the control variables. This value is 46% for the second model. As per the estimation results, in both models (Panel A and Panel B), both the first hypothesis, which posits a positive relationship between future performance and inconsistency in managers' disclosure tone, and the second hypothesis, which suggests a negative relationship between future risk and inconsistency in managers' disclosure tone, are supported at a 95% confidence interval.

Moreover, results in both models indicate a statistically significant positive association between the historical record of tone inconsistency specific to a firm and industry and the presence of biased tone by managers and various tasks. Also, there is no significant effect between biased tone, firm size, growth opportunities, and other corporate governance mechanisms.

The research findings show that managers' reports in corporate disclosures can reduce information asymmetry between shareholders and managers and contain valuable information for predicting the company's future performance according to research (Abrahamson and Amir 1996; Yuthas et al. 2002; Merkl-Davies and Brennan 2007; Davis et al. 2008; Patelli and Pedrini 2015; Kayed 2020; Wu et al. 2021 and Yan et al. 2021).

Robustness Tests

1. The study divided the independent variables into quartiles and subsequently estimated the models for the 1st and 4th quartiles. The estimated coefficients for FUTROA are 0.017 for the 1st quartile and 0.044 for the 4th quartile, exhibiting statistical significance. Notably, there is a discernible disparity in the coefficients of the other independent variables, and all demonstrate statistical significance. This coefficient disparity highlights the impact of future financial performance and risk on tone inconsistency, thus confirming the research hypotheses (see Table 5, Panel A).
2. To further validate the research models, a re-estimation was conducted using a randomly selected subsample comprising 20 percent of the total sample, which consisted of 302 reports. The results from this subsample reaffirmed the statistical significance of the coefficients for the independent variables (see Table 5, Panel B).

Table 5. Results of robustness tests.

Independent Variable	Panel A: Estimating the Models for the 1st and 4th Quartiles		Pane B: Estimating the Models with a Randomly Selected Subsample
	1st Quartile	**4th Quartile**	
FUTROA	0.017 * (3.97)	0.044 * (4.44)	0.045 ** (3.9)

Table 5. *Cont.*

Independent Variable	Panel A: Estimating the Models for the 1st and 4th Quartiles		Pane B: Estimating the Models with a Randomly Selected Subsample
	1st Quartile	4th Quartile	
STD_FUTROA	−0.09 ** (−4.63)	−0.12 *** (−5.36)	−0.13 * (4.9)
FUTROE	0.013 * (3.16)	0.038 * (3.14)	0.031 * (3.85)
STD_FUTROE	−0.008 ** (−3.12)	−0.004 * (−2.85)	−0.005 * (−2.36)

These results are presented only for the main variables. The coefficient for each variable is reported, and *t*-test values appear in brackets. * Significance at the 5% level. ** Significance at the 10% level. *** Significance at the 1% level.

8. Discussion and Conclusions

In this study, we have delved into the intricate relationship between future performance, future risk, and inconsistency in managers' disclosure tone, approaching the topic from a signalling perspective. While prior research has extensively explored the link between tone and future performance and risk, this study's distinct contribution lies in examining the impact of tone inconsistency on a company's future performance and risk.

Our research offers valuable insights into the multifaceted nature of managers' disclosure tone inconsistencies, underlining the importance of comprehending this phenomenon through the lens of signalling theory. Utilising a comprehensive dataset comprising 1510 Management Discussion and Analysis (MD&A) documents from 156 companies listed on the Tehran Stock Exchange over the period from 2013 to 2022, we have ventured into previously uncharted territory within the existing literature, shedding light on the role of signalling theory in elucidating managers' tone variations.

The core findings of our study emphasise the necessity of considering managers' rational motivations when interpreting the tone of their disclosures. By investigating the nexus between future financial performance, future risk, and MD&A tone inconsistency, our research unveils several critical implications that extend to regulators, market actors, and companies.

Implications for Regulators:

Regulators occupy a central role in maintaining the integrity and transparency of financial markets. Our research highlights the imperative for regulators to recognise that opportunistic motivations may not solely drive the use of diverse tones in disclosures by managers but can also serve as a means of signalling vital information to the market. In response, regulatory frameworks should evolve to acknowledge the nuanced nature of tone management, promoting a balanced and informative narrative alongside financial statements. This evolution can contribute to reducing information asymmetry and enhancing overall market efficiency.

Implications for Market Actors (Shareholders, Creditors, Investors):

Market actors, including shareholders, creditors, and investors, heavily rely on management disclosures when making informed decisions. Our study advocates that market participants refrain from automatically attributing inconsistent tones in MD&As to managerial opportunism. Instead, they should consider that managers may intentionally modulate tone to convey crucial insights about the company's performance and risk factors that are not adequately captured in financial statements alone. Recognising the signalling aspect of tone can empower market actors to make more accurate assessments of a company's future prospects and risk profile.

Implications for Companies:

For companies, our research underscores the strategic importance of managing disclosure tone. While our findings suggest that tone inconsistency may stem from rational incentives to signal the market, companies should recognise the delicate balance between informative disclosure and potential misinterpretation. Implementing a well-structured communication strategy that aligns tone with factual information can enable companies to reduce information asymmetry and cultivate trust among stakeholders.

Moreover, our study paves the way for future research to explore other factors contributing to inconsistency in managers' disclosure tone. Subsequent investigations could explore managers' self-interest, personal and psychological characteristics, or broader organisational influences. These avenues of inquiry promise to provide a more comprehensive understanding of the intricate dynamics at play in corporate disclosures.

In conclusion, "Inconsistency in Managers' Disclosure Tone: The Signalling Perspective" enriches our comprehension of the complexities and implications of managers' disclosure tone. By acknowledging the rational motivations underpinning tone management, this research advances our understanding of how companies communicate with stakeholders and how stakeholders interpret these communications. Ultimately, this contributes to enhancing transparency and efficiency in financial markets.

Our findings suggest that the observed biased tone in Iranian managers' MD&As may emanate from rational incentives to signal the market. Managers may possess non-public information about performance and risk in reporting periods that cannot be fully conveyed through financial statements alone, leading them to choose the tone of their qualitative reports as a supplementary means of communication. This aspect underscores the positive dimension of tone management, where managers can effectively use tone to inform the market about a company's performance and reduce information asymmetry.

However, it is essential to acknowledge that managers' biased tone can also arise from opportunistic motives or personal and psychological characteristics. Our results indicate that managers' disclosures about company plans, financial positions, and future performance are geared towards signalling the market or diminishing information asymmetry between managers and shareholders. In line with our research, we encourage future studies to investigate other perspectives and incentives, such as managers' self-interest or personal and psychological characteristics, to gain deeper insights into the factors contributing to inconsistency in managers' disclosure tone.

An important implication of this research is that it underscores the importance of recognising that the choice of tone does not always reflect managers' opportunistic motivations. Therefore, stakeholders, including shareholders, creditors, and legislators, should consider managers' rational motivations when communicating. This nuanced understanding can lead to more accurate assessments of corporate disclosures and promote greater trust and transparency in financial markets.

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Abbreviations

MD&A	Management discussion and analysis
L&M	Loughran and McDonald
SEC	Securities and Exchange Commission

RSD_TONE	Residual tone
CI	Confidence interval
VIF	Variance inflation factor

Note

1 Companies' data can be purchased via the TSE website at: https://mabnadp.com/products/rahavard365 accessed on 20 March 2023. The relevant data is called 'rahavard-novin' and is available under the 'products' category and can be accessed at: https://mabnadp.com/products/rahavard-novin accessed on 20 March 2023. However, due to the government policy and imposed internet ac-cess restrictions, residents outside Iran have limited or no access to many financial institutions, such as banks and their financial statements. Codal (https://codal.ir/ accessed on 20 March 2023) is another website that sells the financial information of compa-nies listed in TSE but may not be accessible from overseas.

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