

Research on the Impact of Institutional Investor Exit Threats on Management Tone Manipulation

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Abstract. With the continuous development of China's capital market, textual information in annual reports has increasingly become an important channel for investors to understand a firm's development prospects. As the most valuable part of textual information disclosure in annual reports, the Management Discussion and Analysis (MD&A) section, owing to its high subjectivity, provides room for management to manipulate tone. Using Chinese A-share listed firms on the Shanghai and Shenzhen stock exchanges from 2007 to 2024 as the research sample, this paper examines the impact of institutional investor exit threats on management tone manipulation. The results show that institutional investor exit threats significantly curb management tone manipulation, and this conclusion still holds after robustness tests including the replacement of the dependent variable, the instrumental variable method, propensity score matching, and the Heckman two-stage model. Mechanism tests indicate that exit threats inhibit tone manipulation by constraining managers' self-serving behavior and improving corporate information transparency. Further analysis reveals that the governance effect of exit threats is stronger in state-owned enterprises, in firms located in regions with a lower degree of marketization, and in firms with lower Type II agency costs, and that exit threats can enhance firm value by curbing tone manipulation. This paper extends the research on the governance effect of exit threats and on management tone manipulation, and provides implications for regulators, listed firms, and investors.

Keywords: Institutional investor exit threats, Management tone manipulation, Management Discussion and Analysis, Textual information disclosure, Corporate governance.

1. Introduction

Information disclosure is the cornerstone of the sound operation of capital markets, and its quality directly affects the efficiency of investors' decision-making. Information disclosure by listed firms consists of standardized financial information and non-standardized textual information. Financial figures intuitively reflect a firm's financial position, whereas textual information serves as a detailed explanation and supplement to standardized financial information. Existing studies show that textual information in annual reports can provide investors with information beyond financial figures, such as the operating background, development strategy, and future prospects of firms [1-3]. In particular, the Management Discussion and Analysis (MD&A), which combines both a retrospective summary and a forward-looking outlook, has become a key information carrier for investors to gain insight into firm value and risk since it was formally introduced by the China Securities Regulatory Commission (CSRC) in 2002.

However, compared with financial figures, management enjoys greater discretion in writing and disclosing MD&A, and its use of language is more flexible, which facilitates tone manipulation for motives such as enhancing reputation and satisfying private interests. With the development of textual analysis techniques, studies have found that management strategically manipulates the sentiment tone of MD&A to accommodate self-serving behaviors such as earnings management, financial restatements, or insider trading [4-6]. Such tone manipulation misleads investors by adding excessively optimistic textual information, exacerbates information asymmetry in the capital market, and impairs the efficiency of resource allocation and capital pricing [7]. Therefore, how to effectively curb management tone manipulation has become a focus of common concern for regulators and academia.

At present, the regulation of textual information in China still faces challenges. On the one hand, textual information is inherently ambiguous and subjective and is difficult to audit and review as precisely as financial data, which provides room for managerial opportunistic behavior [8]. On the other hand, although the CSRC stipulates the disclosure content of MD&A, its requirements are mainly set from the perspective of disclosure scope and completeness, and there is a lack of unified and quantifiable standards for the sentiment tendency and optimism of the text, making precise regulation difficult. This dilemma highlights the importance and urgency of relying on market-based governance mechanisms to constrain managerial textual information disclosure behavior.

Against this background, the governance role of institutional investors has attracted increasing attention. Under the highly concentrated ownership structure characterized by “a single dominant shareholder” in China, institutional investors often find it difficult to directly challenge controlling shareholders or management through voting rights, and academia has therefore begun to focus on another governance mechanism of “voting with their feet”—the exit threat. Institutional investors with information advantages can send negative signals to the market through the threat of selling their shares, triggering stock price declines and thereby directly disciplining managerial opportunistic behavior through compensation contracts tied to stock prices [9-11]. Existing studies have found that exit threats can curb earnings management, reduce financial restatements, and constrain opportunistic share reductions by executives and tunneling by large shareholders. However, whether their governance effect can extend to the field of qualitative textual information manipulation represented by MD&A tone manipulation still lacks systematic theoretical discussion and empirical testing.

Accordingly, this paper takes Chinese A-share listed firms on the Shanghai and Shenzhen stock exchanges from 2007 to 2024 as the sample to test the impact of institutional investor exit threats on management tone manipulation. The results show that exit threats significantly curb management tone manipulation, and this conclusion still holds after robustness tests such as the instrumental variable method, propensity score matching, and the Heckman two-stage model. Mechanism tests indicate that exit threats inhibit tone manipulation by reducing executives' excess compensation and improving corporate information transparency. Further analysis reveals that this governance effect is more pronounced in state-owned enterprises, in firms with a lower degree of marketization, and in firms with lower Type II agency costs, and that exit threats can enhance firm value by curbing tone manipulation.

The contributions of this paper are mainly reflected in three aspects. First, it extends the research boundary of the governance effect of exit threats from quantitative financial information manipulation to qualitative textual information manipulation, enriching the literature on institutional investor governance and textual information disclosure. Second, it introduces an informal market-based governance mechanism into the analytical framework of the determinants of management tone manipulation, broadening the relevant research perspective. Third, it reveals the transmission paths through which exit threats affect tone manipulation from the two perspectives of managerial manipulation motives and the corporate information environment, providing empirical evidence and implications for regulators, listed firms, and investors.

2. Literature Review and Research Hypotheses

2.1. Institutional Investor Exit Threats

Institutional investors refer to professional financial intermediaries that conduct securities investment activities with their own funds or trust funds, mainly including securities investment funds, social security funds, insurance companies, qualified foreign institutional investors (QFII), securities firms, and trust companies. Compared with individual investors, institutional investors have significant advantages in information collection and processing, professional analytical capability, and capital scale, and have become an important force in the external governance of listed firms [10].

An institutional investor exit threat refers to an informal corporate governance mechanism in which institutional investors, by virtue of their information advantages and shareholding-scale

advantages, use the potential large-scale exit as a bargaining chip to convey negative signals to management, thereby constraining managerial opportunistic behavior. Unlike the traditional “voice” mechanism, the exit threat is a more subtle and efficient informal governance mechanism [12]. Institutional investors do not actually sell their shares; rather, they treat exit as a credible strategic bargaining chip, and may substantially reduce their holdings if their demands are not met. The core binding force of this threat lies in the possibility of triggering negative market expectations and exerting downward pressure on stock prices [10], thereby guiding management to pursue the maximization of firm value and shareholder wealth and effectively curbing opportunistic behavior [13].

Existing studies show that the exit threat, as a low-cost and high-efficiency monitoring approach, can effectively constrain managerial opportunistic behavior. First, with respect to earnings management, outside blockholders can, through exit threats, raise the marginal cost and lower the marginal benefit of earnings management, thereby curbing both accrual-based and real earnings management [14-16]. Second, with respect to agency problems, the exit threat of non-controlling large shareholders can effectively curb self-serving behaviors such as fund occupation by controlling shareholders, alleviate Type II agency problems [17], and reduce both types of agency costs [18]. Third, with respect to the quality of information disclosure, large shareholders can, through the threat of selling shares, force management to improve the quality of financial reports, and this effect is more pronounced in firms where managerial wealth is more closely tied to stock prices [11]; institutional investor shareholding can also curb management's opportunistic manipulation of disclosure tone [19]. Fourth, with respect to corporate decisions, the exit threat can curb opportunistic share reductions by executives [20] and improve corporate governance in multiple dimensions.

2.2. Management Tone Manipulation

Textual tone refers to the sentiment tendency and attitudinal orientation embedded in written text. In corporate information disclosure, it specifically refers to the positive or negative sentiment conveyed by management in annual reports, earnings communication conferences, and MD&A. Management tone manipulation refers to the behavior in which management, out of self-serving motives, strategically adjusts the language of MD&A, tending to increase the use of positive words and reduce the use of pessimistic and negative words, so that the disclosure tone deviates from the firm's true fundamentals [21], in order to influence information users' perceptions and decisions. According to Huang et al. [4], MD&A tone can be decomposed into a “normal tone” that reflects the firm's fundamentals and an “abnormal tone” that deviates from the true performance level, the latter being a manifestation of management's strategic information disclosure and thus an opportunistic behavior. Compared with traditional earnings management, because language is inherently ambiguous, tone manipulation offers greater room for manipulation, is lower in cost, and is more difficult to regulate [6], and has therefore increasingly become an important issue of concern to academia and regulators.

With regard to determinants, existing studies mainly examine managerial characteristics, firm characteristics, and external factors, and find that management manipulates tone for self-serving purposes to accommodate earnings management or insider trading [8]. With regard to economic consequences, management tone helps investors forecast performance and assess firm value, but abnormal tone manipulation is associated with higher stock price crash risk, bankruptcy risk, and probability of financial restatement [5,7,22]. However, existing research on the determinants of tone manipulation mainly focuses on managerial and firm characteristics while paying less attention to the influence of investors, who are important participants in the capital market, which provides the entry point for this paper.

2.3. Research Hypotheses

Institutional investors are investment entities composed of professional teams, possessing systematic capabilities for information acquisition, processing, and analysis. They have both the

incentive and the ability to monitor management, reduce short-term-oriented behavior, and help improve corporate governance [29]. Based on principal–agent theory, information asymmetry theory, and reputation theory, this paper argues that institutional investor exit threats can curb management tone manipulation.

First, from the perspective of principal–agent theory, the separation of ownership and control leads to significant differences between the interest objectives of management and those of shareholders [23]. Management tends to pursue short-term private interests through low-cost means such as tone manipulation, whereas shareholders are more concerned with long-term value growth. This conflict of interests gives management an incentive to conceal negative information and embellish operating conditions, exacerbating Type I agency problems. The exit threat can alleviate this conflict through interest alignment: facing the risk of large-scale share reductions and stock price declines, management has an incentive to maintain good relations with shareholders and enhance interest alignment, thereby paying more attention to long-term value creation rather than self-serving behavior [11]. At the same time, the exit threat prompts firms to improve internal governance and information disclosure systems, increasing the difficulty and cost of tone manipulation and thereby weakening management's self-serving motives [18].

Second, from the perspective of information asymmetry theory, management can directly obtain first-hand information about the firm's operating results and financial position, whereas outside investors can only make decisions based on publicly disclosed information, resulting in severe information asymmetry between the two [24]. Because textual information is subject to weaker monitoring than financial figures and management holds greater discretion, the regulatory cost faced by tone manipulation is very low [6]. The exit threat can improve the corporate information environment and alleviate information asymmetry between shareholders and management [19], and can also promote firms to improve their information disclosure systems, making it easier for investors to identify tone manipulation through industry comparison and thereby reducing management's impression management motives.

Third, from the perspective of reputation theory, the professional reputation of management is directly related to the value of its human capital, and the managerial labor market is essentially a competitive market based on reputation [26–27], while corporate reputation is an important intangible asset that affects financing costs, business cooperation, and market valuation [28]. The purpose of management tone manipulation is to build a good image in order to gain investor trust and market recognition. However, once tone manipulation is detected by the market, management will face reputation penalties for inconsistency between words and deeds and will damage corporate reputation [28]. The exit threat conveys negative signals about the quality of corporate governance to the market, which may trigger stock price declines and damage corporate reputation, and management's personal wealth and professional reputation are highly dependent on stock price performance. Out of consideration for long-term reputation damage, management constrained by exit threats will restrain short-sighted behavior and reduce opportunistic tone manipulation.

Based on the above analysis, this paper proposes hypothesis H1:

H1: Institutional investor exit threats can effectively curb management tone manipulation behavior.

3. Research Design

3.1. Sample Selection and Data Sources

The split-share structure reform in China was basically completed by the end of 2006, and the reform of accounting standards was completed in 2007. Considering that the measurement of the core explanatory variable in this paper involves stock liquidity, in order to avoid distortion in the measurement of liquidity indicators caused by the imbalance in stock circulation in 2006 and earlier, and to ensure the comparability of financial data during the sample period, this paper selects Chinese A-share listed firms on the Shanghai and Shenzhen stock exchanges from 2007 to 2024 as the research sample, and processes them according to the following criteria: (1) excluding financial industry listed

firms; (2) excluding ST and *ST firms in abnormal trading status; (3) excluding samples with missing key indicators; and (4) winsorizing continuous variables at the 1% and 99% levels. The MD&A textual tone data are obtained from the CNRDS database, and institutional investor shareholding and other financial data are obtained from the CSMAR database. After screening, a total of 34,412 firm–year observations are obtained.

3.2. Variable Definitions

The dependent variable is management tone manipulation. Following Huang et al. [4], this paper first constructs net positive tone based on the LM dictionary [32]: following Davis and Tama [30], $TONE1 = (\text{number of positive words} - \text{number of negative words}) / \text{total number of words}$; following Price et al. [31], $TONE2 = (\text{number of positive words} - \text{number of negative words}) / (\text{number of positive words} + \text{number of negative words})$. Then, using the residual method, net positive tone is decomposed into normal tone and abnormal tone. The residual of model (1) is the abnormal positive tone (ABTONE1, ABTONE2), which is used as the proxy variable for management tone manipulation, focusing on upward tone manipulation.

$$TONE1/TONE2_{i,t} = b_0 + b_1Ro_{a,i,t} + b_2Ret_{i,t} + b_3Size_{i,t} + b_4Bm_{i,t} + b_5Ret_SD_{i,t} + b_6Ro_{a_SD_{i,t}} + b_7Age_{i,t} + b_8Loss_{i,t} + b_9D_Ro_{a,i,t} + \varepsilon_{i,t} \quad (1)$$

The explanatory variable is the institutional investor exit threat (IET). Following the research of Dou et al. [11] and Chen Kejing et al. (2019) [18], this paper uses the interaction term of stock liquidity and institutional investor competition intensity as the proxy variable for the institutional investor exit threat. When measuring the intensity of institutional investor competition, considering that the influence of institutional investors with lower shareholding ratios is weaker, institutional investors whose shareholding ratio of the same type in the same year is below 2% are excluded. The specific calculation formula is as follows:

$$IET_{i,t} = Liquid_{i,t} \times IICOMP_{i,t} \quad (2)$$

where $IET_{i,t}$ represents the intensity of the institutional investor exit threat, and a larger value indicates a higher degree of exit threat; $Liquid_{i,t}$ represents stock liquidity, measured by the average daily turnover rate of tradable shares, and the higher the stock liquidity, the easier it is for institutional investors to exit through market transactions; and $IICOMP_{i,t}$ represents the intensity of institutional investor competition, and the specific calculation formula is as follows:

$$IICOMP_{i,t} = -1 \times \sum_{k=1}^N (IO_{k,i,t} / IO_{i,t})^2 \quad (3)$$

$IICOMP_{i,t}$ is obtained by multiplying the Herfindahl–Hirschman Index (HHI) of institutional investor shareholding by -1 , where $IO_{k,i,t}$ represents the number of shares of firm i held by the k -th institutional investor in year t , $IO_{i,t}$ represents the total number of shares of firm i held by all institutional investors in year t , and N represents the total number of institutional investors holding shares of firm i in year t .

The control variables include firm characteristics (firm size, $Size$; book-to-market ratio, Bm ; shareholding ratio of the largest shareholder, $Top1$; management compensation, $Salary$), financial indicators (leverage, Lev ; return on assets, ROA ; cash flow ratio, $Cashflow$; fixed asset ratio, $Fixed$; total asset turnover, ATO), corporate governance (proportion of independent directors, $Indep$; board size, $Board$; management shareholding ratio, $Mshare$; CEO duality, $Dual$; institutional investor shareholding ratio, $INST$) and stock return, RET , and year and industry fixed effects are controlled. The definitions of the main variables are shown in Table 1.

Table 1. Variable definitions

Variable type	Variable name	Symbol	Definition
Explanatory variable	Management tone manipulation	ABTONE1	Residual of model (1) (based on TONE1)
		ABTONE2	Residual of model (1) (based on TONE2)
	Institutional investor exit threat	IJET	Interaction term of stock liquidity and institutional investor competition
	Firm size	Size	Natural logarithm of total assets at year-end
	Book-to-market ratio	Bm	Total assets/total market value
	Shareholding ratio of the largest shareholder	Top1	Shares held by the largest shareholder/total shares
	Management compensation	Salary	Natural logarithm of total management compensation
	Leverage	Lev	Total liabilities/total assets at year-end
	Return on assets	ROA	Net income/total assets
	Fixed asset ratio	Fixed	Net fixed assets/total assets
	Total asset turnover	ATO	Operating revenue/average total assets
	CEO duality	Dual	Whether the chairman and the general manager are the same person
	Institutional investor shareholding ratio	INST	Shareholding ratio of institutional investors
	Stock return	RET	Annual individual stock return with cash dividends reinvested

3.3. Model Design

To test hypothesis H1, this paper constructs the following model:

$$ABTONE1/ABTONE2_{i,t} = \alpha_0 + \alpha_1 IJET_{i,t} + \sum \beta Controls_{i,t} + Year + Industry + \varepsilon_{i,t} \quad (4)$$

where ABTONE represents management tone manipulation, IJET represents the intensity of the institutional investor exit threat, Controls denotes the control variables, and Year and Industry represent year and industry fixed effects, respectively. α_1 is expected to be significantly negative; that is, institutional investor exit threats can curb management tone manipulation.

4. Empirical Results and Analysis

4.1. Descriptive Statistics

Table 2 reports the descriptive statistics of the main variables. The mean of ABTONE1 is 0.005 and its standard deviation is 0.111, and the mean of ABTONE2 is 0.001, indicating that the overall degree of tone manipulation among the sample firms is relatively low, although there are certain differences across firms. The mean of IJET is -1.137 and its standard deviation is 1.142, indicating that sample firms generally face some pressure of exit threats, with considerable variation. In terms of the control variables, the mean of Size is 22.420 and the mean of Bm is 0.594, indicating that the sample firms are generally growth-oriented; the mean of Lev is 0.458, indicating a moderate level of financial leverage; the mean of ROA is 0.026, indicating large differences in profitability across firms; and the mean of INST is 0.442, indicating a relatively high institutional investor shareholding ratio with significant variation.

Table 2. Descriptive statistics

Variable	N	Mean	S.D.	Median	Min	Max
ABTONE1	34,412	0.005	0.111	0.011	-0.327	0.265
ABTONE2	34,412	0.001	0.022	0.001	-0.061	0.056
IJET	34,412	-1.137	1.142	-0.748	-8.186	-0.035
Size	34,412	22.420	1.282	22.250	19.410	26.450
Bm	34,412	0.594	0.273	0.569	0.049	1.298
Top1	34,412	0.325	0.146	0.301	0.074	0.758
Lev	34,412	0.458	0.200	0.456	0.055	0.928
ROA	34,412	0.026	0.070	0.029	-0.578	0.229
Fixed	34,412	0.221	0.163	0.188	0.002	0.769
ATO	34,412	0.645	0.451	0.544	0.054	3.106
INST	34,412	0.442	0.232	0.455	0.001	0.940
RET	34,412	0.155	0.619	0.007	-0.832	6.465

4.2. Regression Analysis

Table 3 reports the regression results of the institutional investor exit threat and management tone manipulation. Columns (1) and (2) present the results without controlling for year and industry fixed effects, and columns (3) and (4) present the results after controlling for two-way fixed effects. The coefficients of IIET are -0.003, -0.001, -0.002, and -0.0004, respectively, all significantly negative at the 1% level, indicating that the institutional investor exit threat can significantly curb management tone manipulation and exert a governance effect, and hypothesis H1 is verified.

In terms of the control variables, Size, ROA, and Fixed are significantly negatively correlated with management tone manipulation, indicating that larger firms face stricter market regulation and information disclosure requirements, that more profitable firms do not need to embellish performance through tone manipulation, and that firms with a higher proportion of fixed assets have a lower degree of tone manipulation. Bm, Salary, Lev, Dual, and RET are significantly positively correlated with management tone manipulation, indicating that value-oriented firms, highly leveraged firms, and firms with weaker internal supervision have stronger motives for tone manipulation. INST is significantly positive only in column (3) and insignificant in column (4), indicating that the governance effect of institutional shareholding alone is unstable, further highlighting the importance of the core explanatory variable IIET.

Table 3. Test results of hypothesis H1

VARIABLES	(1) ABTONE1	(2) ABTONE2	(3) ABTONE1	(4) ABTONE2
IIET	-0.003*** (-5.56)	-0.001*** (-6.00)	-0.002*** (-2.61)	-0.0004*** (-3.35)
Size	-0.001 (-0.91)	-0.000 (-1.16)	-0.008*** (-5.76)	-0.002*** (-8.87)
Bm	0.043*** (11.73)	0.007*** (9.55)	0.028*** (6.62)	0.005*** (6.13)
Top1	-0.061*** (-6.90)	-0.012*** (-7.02)	-0.015* (-1.76)	-0.003* (-1.79)
Salary	0.021*** (17.19)	0.004*** (16.70)	0.009*** (7.02)	0.001*** (5.22)
Lev	0.051*** (10.53)	0.011*** (10.91)	0.050*** (10.59)	0.012*** (12.23)
ROA	-0.029*** (-3.95)	-0.007*** (-5.10)	-0.014** (-2.04)	-0.004*** (-2.60)
Fixed	-0.037*** (-5.77)	-0.005*** (-3.70)	-0.024*** (-3.82)	-0.002 (-1.22)
Cashflow	0.001 (0.14)	0.003* (1.96)	0.009 (1.12)	0.004** (2.43)
ATO	0.031*** (14.24)	0.006*** (14.45)	0.027*** (12.58)	0.006*** (13.81)
Indep	0.013 (0.82)	0.001 (0.19)	0.012 (0.80)	0.001 (0.27)
Board	-0.007 (-1.39)	-0.003*** (-2.58)	0.007 (1.36)	0.001 (1.28)
Mshare	-0.105*** (-11.82)	-0.025*** (-13.92)	0.001 (0.13)	-0.004** (-2.54)
Dual	0.004** (2.19)	0.000 (1.42)	0.004** (2.49)	0.001* (1.72)
INST	-0.004 (-0.63)	-0.003*** (-2.60)	0.015** (2.38)	0.001 (1.06)
RET	0.008*** (8.56)	0.001*** (7.00)	0.005*** (4.27)	0.001*** (5.52)
Constant	-0.320*** (-12.13)	-0.056*** (-10.62)	-0.014 (-0.37)	0.021*** (2.69)
Industry FE	No	No	Yes	Yes
Year FE	No	No	Yes	Yes
Observations	34,412	34,412	34,412	34,412
Number of Stkcd	3,944	3,944	3,944	3,944
Adjusted R-squared	-0.071	-0.071	0.073	0.053

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively; t-values are reported in parentheses.

4.3. Robustness Tests

4.3.1. Replacement of the Dependent Variable

Following Wang Huajie and Wang Kemin [8], future earnings of the firm are added to the tone model, and the estimated abnormal positive tone (ABTONE_FE) is used as an alternative measure. The test results are shown in Table 4, where the coefficient of IIET is still significantly negative at the 1% level, consistent with the baseline results.

Table 4. Test results for the replacement of the dependent variable

VARIABLES	(1) ABTONE_FE1	(2) ABTONE_FE2
IIET	-0.002*** (-3.83)	-0.001*** (-4.57)
Control	Yes	Yes
Constant	-0.320*** (-12.13)	-0.056*** (-10.62)
Industry FE	Yes	Yes
Year FE	Yes	Yes
Observations	31,298	31,298
Number of Stkcd	3,577	3,577
Adjusted R-squared	0.063	0.039

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively; t-values are reported in parentheses; Control denotes all control variables.

4.3.2. Instrumental Variable Method

To alleviate the endogeneity problems caused by reverse causality and omitted variables, this paper uses the industry–year mean of IIET excluding the focal firm as the instrumental variable. The test results are shown in Table 5. The first-stage coefficient is significantly positive and the F statistic is far greater than 10, rejecting the weak instrumental variable hypothesis; the coefficient of IIET in the second stage is significantly negative at the 1% level, indicating that the institutional investor exit threat significantly curbs management tone manipulation and confirming the robustness of the previous results.

Table 5. Test results of the instrumental variable method

VARIABLES	(1) IIET	(2) ABTONE1	(3) ABTONE2
mean_IIET	0.249*** (16.04)		
IIET		-0.040*** (-3.55)	-0.012*** (-4.81)
Control	Yes	Yes	Yes
Constant	-1.746*** (-4.39)	-0.333*** (-3.74)	-0.085*** (-4.38)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	34,248	34,248	34,248
Number of Stkcd	3,942	3,942	3,942
Adjusted R-squared	0.276	0.071	-0.086

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively; t-values are reported in parentheses; Control denotes all control variables.

4.3.3. Propensity Score Matching

This paper divides the sample into a treatment group and a control group according to the annual industry median of IIET, and performs 1:1 nearest-neighbor matching using firm characteristics as covariates. Figure 1 is the balancing test plot, which shows that after matching there is no significant difference in the standardized bias of each covariate. The test results are shown in Table 6, with 16,033 effective samples obtained, and the coefficient of IIET is still significantly negative at the 5% and 1% levels.

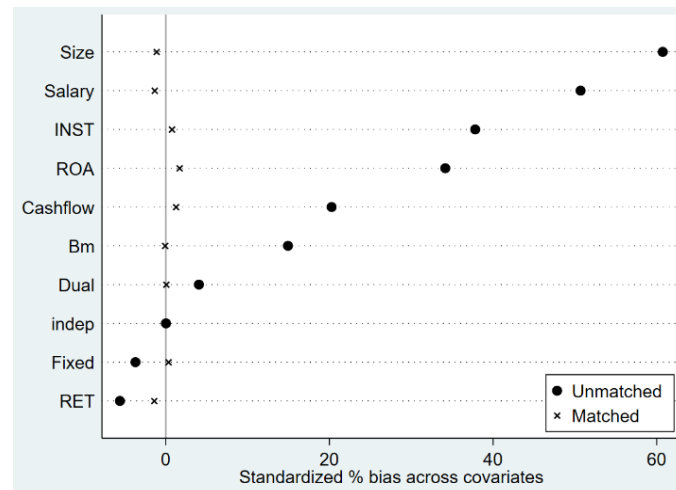


Figure 1. Balance test plot

Table 6. PSM test results

VARIABLES	(1) ABTONE1	(2) ABTONE2
IJET	-0.002** (-2.09)	-0.0005*** (-2.61)
Control	Yes	Yes
Constant	-0.151*** (-2.61)	-0.009 (-0.79)
Industry FE	Yes	Yes
Year FE	Yes	Yes
Observations	16,033	16,033
Number of Stked	3,512	3,512
Adjusted R-squared	-0.040	-0.066

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively; t-values are reported in parentheses; Control denotes all control variables.

4.3.4. Heckman Two-Stage Model

To control for the sample self-selection problem, this paper uses whether the firm is included in the CSI 300 Index as the exclusion restriction variable to estimate the inverse Mills ratio (IMR). The test results are shown in Table 7, where the IMR is significant at the 1% level and the coefficient of IJET is still significantly negative at the 1% level. The above tests indicate that the conclusions of this paper are robust.

Table 7. Test results of the Heckman two-stage model

VARIABLES	(1) DET	(2) ABTONE1	(3) ABTONE2
D300	0.106*** (2.76)		
IJET		-0.002*** (-3.68)	-0.001*** (-4.19)
Control	Yes	Yes	Yes
Constant	-10.949*** (-28.44)	0.155*** (3.19)	0.050*** (5.07)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	34,348	34,348	34,348
Number of Stked	3,943	3,943	3,943
Adjusted R-squared	0.295	0.073	0.054

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively; t-values are reported in parentheses; Control denotes all control variables.

5. Mechanism Tests

Based on the preceding theoretical analysis, this paper further tests whether the exit threat curbs tone manipulation through the two paths of constraining managerial self-serving behavior and improving corporate information transparency.

5.1. Managerial Self-Interest

This paper uses executives' excess compensation (Overpay) as the proxy variable for managerial self-interest. The test results are shown in Table 8. The coefficient of IIET on Overpay is -0.006, significant at the 1% level, indicating that the exit threat significantly reduces executives' excess compensation and thereby weakens their self-serving motives; after adding Overpay to the baseline model, the coefficient of Overpay is significantly positive at the 1% level and the coefficient of IIET remains significantly negative, indicating that the exit threat curbs tone manipulation by reducing excess compensation [33-34].

Table 8. Mediation test results for managerial self-interest

VARIABLES	(1) ABTONE1	(2) ABTONE2	(3) Overpay	(4) ABTONE1	(5) ABTONE2
IIET	-0.002*** (-2.60)	-0.0004*** (-3.36)	-0.006*** (-4.78)	-0.001** (-2.49)	-0.0004*** (-3.22)
Overpay				0.013*** (5.21)	0.003*** (6.44)
Control	Yes	Yes	Yes	Yes	Yes
Constant	-0.014 (-0.38)	0.021*** (2.71)	-6.203*** (-71.85)	0.063 (1.52)	0.040*** (4.84)
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	34,412	34,412	34,412	34,412	34,412
Number of Stkcd	3,944	3,944	3,944	3,944	3,944
Adjusted R-squared	0.073	0.054	0.723	0.074	0.055

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively; t-values are reported in parentheses; Control denotes all control variables.

5.2. Corporate Information Transparency

Following Wang Yaping et al. [35], this paper measures information transparency by the sum of the absolute values of discretionary accruals over the past three years (Opaque), where a larger value indicates lower information transparency. The test results are shown in Table 9. The coefficient of IIET on Opaque is -0.005, significant at the 1% level, indicating that the exit threat improves corporate information transparency; after adding Opaque, its coefficient is significantly positive and the coefficient of IIET remains significantly negative, indicating that the exit threat curbs tone manipulation by improving the corporate information environment.

Table 9. Mediation test results for corporate information transparency

VARIABLES	(1) ABTONE1	(2) ABTONE2	(3) Opaque	(4) ABTONE1	(5) ABTONE2
IIET	-0.001** (-2.47)	-0.0004*** (-3.22)	-0.005*** (-3.66)	-0.001** (-2.27)	-0.0004*** (-3.17)
Opaque				0.005* (1.67)	0.001** (2.34)
Control	Yes	Yes	Yes	Yes	Yes
Constant	-0.020 (-0.52)	0.020*** (2.59)	-0.136* (-1.66)	-0.020 (-0.50)	0.020*** (2.62)
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	34,412	34,412	34,412	34,412	34,412
Number of Stkcd	3,944	3,944	3,944	3,944	3,944
Adjusted R-squared	0.073	0.054	-0.063	0.069	0.054

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively; t-values are reported in parentheses; Control denotes all control variables.

6. Further Analysis

6.1. Nature of Ownership

This paper divides the sample into a state-owned enterprise (SOE) group and a non-SOE group for subsample regressions. The test results are shown in Table 10. In the SOE group, the coefficients of IET are -0.002 and -0.001, significantly negative at the 5% and 1% levels, respectively; in the non-SOE group, they are -0.001 (insignificant) and -0.0003 (significant at the 10% level), indicating that the governance effect of the exit threat is stronger in state-owned enterprises. This may be because SOE managers are more sensitive to external reputation information out of consideration for political promotion and career security, and because the internal governance of SOEs is relatively weak, so the marginal role of external governance is greater.

Table 10. Heterogeneity test results by nature of ownership

VARIABLES	ABTONE1		ABTONE2	
	(1) State-owned	(2) Non-state-owned	(3) State-owned	(4) Non-state-owned
IET	-0.002** (-2.45)	-0.001 (-1.22)	-0.001*** (-2.71)	-0.0003** (-1.98)
Control	Yes	Yes	Yes	Yes
Constant	0.022 (0.39)	-0.007 (-0.10)	0.030*** (2.64)	0.018 (1.24)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	14,493	19,919	14,493	19,919
Number of Stkcd	1,197	2,747	1,197	2,747
Adjusted R-squared	0.093	0.083	0.071	0.069
Chow Test P	0.000***		0.000***	

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively; t-values are reported in parentheses; Chow Test P denotes the p-value of the Chow test for between-group differences.

6.2. Degree of Marketization

This paper divides the sample into a high-marketization group and a low-marketization group according to the annual median of the marketization index. The test results are shown in Table 11. In the low-marketization group, the coefficients of IET are -0.002 and -0.001, significantly negative at the 1% level and larger than those in the high-marketization group, with a significant between-group difference, indicating that the governance effect of the exit threat is stronger in regions with a lower degree of marketization. In these regions, legal protection is weaker and internal governance is relatively weak, so the exit threat, as an external governance force, plays a more significant role.

Table 11. Heterogeneity test results by degree of marketization

VARIABLES	ABTONE1		ABTONE2	
	(1) High marketization	(2) Low marketization	(3) High marketization	(4) Low marketization
IET	-0.001* (-1.81)	-0.002*** (-2.70)	-0.0004** (-2.57)	-0.001*** (-3.12)
Control	Yes	Yes	Yes	Yes
Constant	-0.041 (-0.36)	-0.074 (-1.45)	0.009 (0.40)	0.009 (0.83)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	17,477	16,935	17,477	16,935
Number of Stkcd	3,345	2,317	3,345	2,317
Adjusted R-squared	0.012	0.007	-0.002	-0.017
Chow Test P	0.000***		0.000***	

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively; t-values are reported in parentheses; Chow Test P denotes the p-value of the Chow test for between-group differences.

6.3. Type II Agency Costs

This paper divides the sample into high and low groups according to the median of the ratio of other receivables to total assets. The test results are shown in Table 12. In the group with lower Type II agency costs, the coefficients of IIET are -0.002 and -0.001, significantly negative at the 5% and 1% levels, respectively, whereas they are insignificant in the higher group, with a significant between-group difference. This indicates that when controlling shareholders have a strong tunneling motive, the exit threat faces the dual task of constraining tunneling and constraining tone manipulation, governance resources are dispersed, and its governance effect on tone manipulation is weakened.

Table 12. Heterogeneity test results by Type II agency costs

VARIABLES	ABTONE1		ABTONE2	
	(1) High Type II agency cost	(2) Low Type II agency cost	(3) High Type II agency cost	(4) Low Type II agency cost
IIET	-0.001 (-0.78)	-0.002** (-2.47)	-0.0002 (-1.06)	-0.001*** (-3.00)
Control	Yes	Yes	Yes	Yes
Constant	-0.009*** (-3.95)	-0.004* (-1.86)	-0.002*** (-5.65)	-0.002*** (-3.93)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	17,210	17,185	17,210	17,185
Number of Stkcd	2,968	3,083	2,968	3,083
Adjusted R-squared	0.029	-0.016	0.013	-0.045
Chow Test P	0.000***		0.000***	

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively; t-values are reported in parentheses; Chow Test P denotes the p-value of the Chow test for between-group differences.

6.4. Economic Consequences

This paper further tests whether the exit threat can enhance firm value by curbing tone manipulation. Following existing research, this paper uses Tobin's Q to measure firm value. The test results are shown in Table 13. The coefficient of IIET on Tobin's Q is 0.055, significantly positive at the 1% level; after adding ABTONE, the coefficients of ABTONE1 and ABTONE2 are significantly negative at the 1% level, and the coefficient of IIET remains significantly positive, indicating that the exit threat can improve the corporate information environment by curbing management tone manipulation and thereby enhance firm value.

Table 13. Test results of economic consequences

VARIABLES	(1) TobinQ	(2) ABTONE1	(3) ABTONE2	(4) TobinQ	(5) TobinQ
IIET	0.055*** (10.41)	-0.002*** (-2.61)	-0.0004*** (-3.35)	0.054*** (10.29)	0.054*** (10.26)
ABTONE1				-0.460*** (-8.88)	
ABTONE2					-2.101*** (-8.16)
Control	Yes	Yes	Yes	Yes	Yes
Constant	10.291*** (29.60)	-0.014 (-0.37)	0.021*** (2.69)	10.285*** (29.62)	10.286*** (29.85)
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	34,412	34,412	34,412	34,412	34,412
Number of Stkcd	3,944	3,944	3,944	3,944	3,944
Adjusted R-squared	0.434	0.073	0.053	0.436	0.436

Note: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively; t-values are reported in parentheses; Control denotes all control variables.

7. Conclusion

With the continuous development of China's capital market and the ongoing improvement of the information disclosure system, textual information such as MD&A plays an increasingly important role in corporate information disclosure. Taking Chinese A-share listed firms on the Shanghai and Shenzhen stock exchanges from 2007 to 2024 as the sample, this paper studies the impact of institutional investor exit threats on management tone manipulation. The main conclusions are as follows.

First, institutional investor exit threats can significantly curb management tone manipulation; that is, the stronger the exit threat, the less abnormal positive tone in MD&A. This indicates that the exit threat, as an important external governance mechanism, can effectively constrain management's textual tone manipulation behavior, and this conclusion still holds under robustness tests such as the instrumental variable method, propensity score matching, and the Heckman two-stage model.

Second, mechanism tests show that the exit threat curbs tone manipulation mainly by constraining managerial self-serving behavior and improving corporate information transparency. The exit threat significantly reduces executives' excess compensation, weakening their motive to seek private benefits through tone manipulation, and improves the corporate information environment, thereby constraining management's manipulation behavior.

Third, further analysis shows that the governance effect of the exit threat is more pronounced in state-owned enterprises, in firms with a lower degree of marketization, and in firms with lower Type II agency costs. The analysis of economic consequences shows that the exit threat can enhance firm value by curbing tone manipulation.

The conclusions of this paper have the following implications. For regulators, MD&A disclosure rules should be further refined, text mining techniques should be introduced to build an early-warning system for abnormal tone monitoring, and the complementary role of market-based governance mechanisms should be brought into full play. For listed firms, investor relations management should be optimized, information transparency should be improved, and compensation assessment mechanisms should be strengthened. For investors, the shareholding structure of institutional investors and the authenticity of tone should be incorporated into the investment framework to improve the ability to identify abnormal tone.

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