The Impact of Executive Compensation Stickiness on Stock Price Crash Risk

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Abstract: Executive compensation stickiness is a compensation characteristic that links executive pay to company performance, reflecting a tendency among compensation setters to provide generous rewards to executives and relatively fewer penalties. It can be considered an effective incentive mechanism. This paper empirically examines the impact of executive compensation stickiness on stock price crash risk using data from all A-share listed companies from 2010 to 2021. The empirical results show that executive compensation stickiness significantly mitigates stock price crash risk. Further research reveals that in companies with female CEOs, non-financial backgrounds among top executives, and low information opacity, the inhibitory effect of executive compensation stickiness on stock price crash risk is more pronounced. Mechanism tests suggest that executive compensation stickiness reduces agency costs and, thereby, suppresses stock price crash risk. This study extends the understanding of the economic consequences of executive compensation stickiness and factors influencing stock price crash risk, providing practical insights for designing compensation incentive systems for listed companies and maintaining the stability of capital markets.

Keywords: executive compensation stickiness, stock price crash risk, agency costs

1.   Introduction

Since the 1990s, China's capital markets have experienced rapid growth and high-risk coexistence. With the expansion of market size and the increase in the number of investors, stock prices have become more volatile, sometimes experiencing sharp declines and crashes, which have had serious negative impacts on China's economic development. Investor confidence has been shaken, and market stability has been challenged. In this context, studying the factors that contribute to stock price crash risk is of great theoretical and practical significance. It can provide effective references and insights for reducing financial risks in China's capital markets and maintaining their stability and healthy development.

   In the stock market, one important cause of stock price crash risk is the opportunistic behavior of managers arising from agency problems. Under the modern corporate system, managers often face situations where they may sacrifice the long-term interests of the company in pursuit of personal gain, leading to agency problems. Establishing a reasonable executive compensation contract is an effective way to address agency problems. Executive compensation stickiness is a compensation characteristic that links executive pay to company performance—when company performance rises, executive

compensation increases more than it decreases when company performance declines. In the current turbulent stock market, it is worth examining whether the presence of executive compensation stickiness is justified and whether it exacerbates corporate stock price crash risk. Existing literature has systematically studied executive compensation stickiness from the perspectives of financial reporting transparency, social responsibility disclosure, tax avoidance, stock pledging, executive characteristics, and more, but there has been no research on the impact of executive compensation stickiness on stock price crash risk. [1-6]

Against this background, this paper primarily investigates the impact of executive compensation stickiness on stock price crash risk. Executive compensation stickiness, generated through deliberate arrangements by compensation setters, can effectively serve as an incentive, mitigate agency conflicts between executives and shareholders, and thereby, to some extent, reduce stock price crash risk [7,8]. However, executive compensation stickiness resulting from insider control or information asymmetry cannot address agency problems but becomes a form of agency problem itself, potentially increasing stock price crash risk [9,10]. Therefore, the impact of executive compensation stickiness on stock price crash risk requires empirical examination.

This study employs data from A-share listed companies in China from 2010 to 2021 and uses the skewness of individual stock returns to measure corporate stock price crash risk. It employs OLS models and industry-year fixed-effects models to empirically examine the impact of executive compensation stickiness on stock price crash risk. The research findings indicate that executive compensation stickiness significantly mitigates stock price crash risk, and this effect is more pronounced in companies with female CEOs, non-financial backgrounds among top executives, and low information opacity. Mechanism tests suggest that executive compensation stickiness reduces agency costs, thereby suppressing stock price crash risk.

This paper offers the following potential research contributions: Firstly, it expands the field of research on the economic consequences of executive compensation stickiness. Existing literature has focused on the impact of executive compensation stickiness on corporate investment, firm value, and other aspects but has not examined its effect on corporate stock price crash risk [11,12,13]. Therefore, this study provides an in-depth analysis of executive compensation stickiness from the perspective of stock price crash risk. Secondly, it enriches the research on factors influencing corporate stock price crash risk. Existing literature primarily focuses on internal factors such as agency problems and information asymmetry as well as external factors such as market participant behavior and the external environment [14-19]. To the best of our knowledge, there is no literature analyzing the impact of executive compensation stickiness from the perspective of executive compensation incentives in addressing agency problems. This paper explores the impact of executive compensation stickiness on stock price crash risk and its operating mechanisms, thus expanding research in this field.

2. Literature Review

2.1. Literature Review on Executive Compensation Stickiness

Executive compensation stickiness is a compensation characteristic that links executive pay to company performance—when company performance rises, executive compensation increases more than it decreases when company performance declines. Extensive domestic and international research has shown that executive compensation stickiness is a phenomenon that is widely present in various companies [20-22]. The existence of this characteristic allows executives to receive compensation incentives when company performance is on the rise, while also providing them with some protection from penalties when company performance declines. This, to some extent, reflects the tendency of compensation setters to "reward good behavior rather than punish bad behavior," making it a kind of

error-tolerant incentive mechanism for executives [23-25]. The presence of executive compensation stickiness is related not only to deliberate arrangements by compensation setters but also to factors such as insider control and information asymmetry [9].

Executive compensation stickiness affects managerial risk-taking behavior, which in turn influences corporate investment, investment efficiency, and innovation. Steps Danlu and Wen Caihong argue that executives have the power to decide whether to include the returns or losses from risky investments in their compensation calculations. This leads to the existence of executive compensation stickiness and reduces the risk that management bears for new investments, thereby promoting increased corporate investment [11]. Gu Haifeng and Zhai Linyuan suggest that the "light punishment" feature of executive compensation stickiness results in a misalignment of power and responsibility, leading management to abuse investment decisions, causing overinvestment, and reducing investment efficiency. The "reward for excellence" feature of executive compensation stickiness makes management overly focus on short-term performance and financial assets, neglecting physical investments, which results in underinvestment and decreased investment efficiency [12]. Yi Yanxin, Qiu Kaili, and Wang Jing argue that the setting of executive compensation stickiness serves as an error-tolerant mechanism that effectively mitigates management's risk-averse behavior, enhances executives' risk-taking capacity, and stimulates innovative investments, promoting the innovative development of the company [7, 9].

Executive compensation stickiness also alleviates agency problems and inhibits research and development (R&D) manipulation. A compensation system with a "heavy reward and light punishment" feature effectively compensates for the risks that executives face in R&D investment activities, ensuring their compensation and positions reasonably. This fully leverages the incentive role of compensation contracts, aligning the risk preferences and interest objectives of executives with those of shareholders, thus mitigating agency problems and inhibiting management's abnormal reduction of R&D expenditure [8].

2.2. Literature Review on Stock Price Crash Risk

Existing research on stock price crash risk is primarily based on Jin and Myers' "bad news hiding theory," which is developed from agency theory [27]. Jin and Myers argue that the concealment of bad news by management is the fundamental cause of stock price crash risk. When self-interested corporate managers choose to conceal bad news for personal gain to a certain extent, they will be unable to continue hiding the truth. At that point, accumulated bad news will be released into the market, causing significant shocks to stock prices and triggering the risk of a crash [27]. According to existing literature, the causes of stock price crash risk primarily stem from two aspects: managerial opportunistic behavior resulting from agency problems and information asymmetry between companies and investors.

Managerial opportunistic behavior resulting from agency problems is one of the reasons for the formation of stock price crash risk. Inconsistent target functions between shareholders and management lead to the existence of agency conflicts, causing internal members of the company to conceal bad news for the maximization of their own interests, thus triggering stock price crashes. Kim and Jiang Xuanyu suggest that corporate tax avoidance is positively correlated with stock price crash risk, as managers tend to use complex tax avoidance methods to conceal their misappropriation of company interests and the concealment of bad news [28, 29]. Kim et al. argue that stock options incentives are positively correlated with stock price crash risk, as managers may conceal bad news to inflate short-term stock option values [30]. Li Xiaorong and Liu Hang suggest that female executives, compared to male executives, engage in fewer opportunistic behaviors, which helps reduce agency costs and, consequently, decreases stock price crash risk [5]. Lu Guihua and Pan Liuyun argue that

executives with academic backgrounds are effective in mitigating agency conflicts between shareholders and management, which is favorable for reducing stock price crash risk [31].

Information asymmetry between companies and investors is another factor contributing to stock price crash risk. Information asymmetry is a common issue, especially for external investors who find it challenging to assess a company's actual operations. Investors must rely on information disclosed by the company's management to evaluate its operational status. However, such information disclosure is often limited and incomplete, making investors susceptible to accounting fraud and misleading them into believing in stock price "bubbles." Once investors learn about a company's true operational situation and internal problems, the "bubble" bursts, leading to a sharp decline in stock prices [5]. Hutton et al. argue that financial reporting transparency is negatively correlated with stock price crash risk [1]. Pan Yue et al. suggest that transparency of listed companies is negatively correlated with stock price crash risk [32]. Ye Kangtao et al. propose that internal control information disclosure can increase corporate transparency, reduce information asymmetry, and subsequently decrease stock price crash risk [33].

Based on the review of existing relevant literature, it is evident that there is no research examining the impact of executive compensation stickiness on stock price crash risk and its mechanisms. Therefore, this paper theoretically analyzes and tests the direction of the impact of executive compensation stickiness on stock price crash risk and its mechanisms. It aims to complement and enrich the literature on the economic consequences of executive compensation stickiness and factors influencing stock price crash risk, providing theoretical and empirical evidence for designing compensation incentive systems for companies and reducing stock price crash risk.

3.   Research Hypotheses

Executive compensation stickiness may either reduce or increase stock price crash risk. Executive compensation stickiness serves as an effective incentive mechanism and also forms an implicit contract through a reputation mechanism. It can help curb executives' self-interested behavior, alleviate agency problems, and consequently reduce stock price crash risk. However, executive compensation stickiness may also arise from insider control and information asymmetry issues, potentially exacerbating agency problems and thereby increasing stock price crash risk.

On the one hand, executive compensation stickiness may reduce stock price crash risk. Executive compensation stickiness can be seen as a deliberate arrangement by compensation setters that helps mitigate the impact of agency conflicts and, consequently, lowers stock price crash risk. The separation of ownership and control in companies leads to agency problems, implying that the management does not always prioritize maximizing shareholder interests in their decision-making. They may instead seek personal gain, leading to opportunistic behavior and the resulting agency costs [34]. Executive compensation stickiness can be viewed as a reward from shareholders to executives and can be considered an effective incentive mechanism to some extent. Effective incentive mechanisms are an important means of mitigating agency conflicts. Therefore, executive compensation stickiness ensures that executives align more closely with shareholder interests in terms of risk preferences and goals, reducing the occurrence of agency problems and restraining executives' self-interested behavior [35]. Furthermore, when executive compensation does not decrease but instead increases during a decline in company performance, it sends positive signals to the labor market, enhancing executives' reputation. This mechanism not only maintains executives' personal status and social influence but also increases their market value, serving as an incentive and constraint for executives to work harder and reduce self-interested behavior [8]. Thus, the "heavy reward and light punishment" feature of executive compensation stickiness can effectively alleviate agency conflicts between management and shareholders, thereby constraining managerial self-interested behavior. Kothari et al. found that driven by their own interests, corporate management tends to

conceal unfavorable news about operating losses, and these negative messages accumulate over time. When they reach a critical point, they are released collectively, triggering a chain reaction in the market, leading to a sustained decline in stock prices, ultimately resulting in stock price crash risk [36]. Jin and Myers argue that the fundamental cause of stock price crash risk is the management's concealment of negative news about the company. The motivation for management to conceal negative news is often driven by personal gain and a reluctance to make unfavorable information public [27]. Therefore, managerial self-interested behavior increases stock price crash risk. Based on this, this study proposes:

H1a: Executive compensation stickiness reduces stock price crash risk.

On the other hand, executive compensation stickiness may increase stock price crash risk. Due to the existence of insider control and information asymmetry issues, executive compensation stickiness may exacerbate agency problems, thereby increasing stock price crash risk. Insider control gives executives significant power to manipulate their own compensation. For example, management has the authority to decide whether to include "non-recurring gains or losses" and "fair value changes in profit and loss" in executive compensation calculations. When the company receives returns from risky investments, executives can increase their personal compensation by including these returns in the compensation calculation. Conversely, when the company incurs losses from risky investments, executives can exclude these losses from the compensation calculation, avoiding accountability for investment failures [11]. Therefore, in the presence of insider control, executive compensation exhibits sticky characteristics. The existence of information asymmetry issues makes it difficult to discern the reasons for changes in corporate performance, which can lead to compensation setters relying more on the information provided by executives. In such cases, executives often attribute improvements in company performance to themselves and attribute declines in company performance to external factors, making it difficult for compensation setters to accurately determine the true reasons for performance changes. Consequently, in the presence of information asymmetry, executive compensation often exhibits some sticky characteristics [9]. In situations where insider control and information asymmetry problems exist, executive compensation stickiness may be driven by managerial opportunistic behavior, rendering it ineffective as an incentive mechanism and failing to adhere to the optimal contract theory. Instead of resolving agency problems, it becomes a source of agency problems itself. Management may engage in opportunistic behavior due to agency problems, thereby increasing stock price crash risk. Jin and Myers argue that, due to agency conflicts, corporate management typically prioritizes their own interests, leading to the motivation to conceal negative news, ultimately causing stock price crashes [27]. Chen Xiangyu and Wan Peng suggest that stock price crash risk is significantly influenced by agency problems, and as corporate agency costs increase, the associated stock price crash risk also rises [37]. Therefore, executive compensation stickiness may increase stock price crash risk. Based on this, this study proposes:

H1b: Executive compensation stickiness increases stock price crash risk.

4. Research Design

4.1. Sample Selection and Data Source

The sample for this study consists of all A-share listed companies from 2010 to 2021. To meet the research requirements, the following steps were taken to filter the sample: (1) removal of financial and insurance industry listed companies; (2) exclusion of ST (Special Treatment) and PT (Protected) type companies during the research period; (3) removal of observations with missing values for other control variables; (4) to ensure more reliable estimation of stock price crash risk, companies with fewer than 30 trading weeks per year in the sample were excluded [27]. After these filtering steps, a total of 20,385 observations were obtained. All the data used in this study were sourced from the

CSMAR database. To eliminate the influence of extreme values, all continuous variables were winsorized at the 1% level.

4.2. Definition of Main Variables

4.2.1. Dependent Variable: Company Stock Price Crash Risk (NCSKEW)

Following the measurement method of Chen et al. and Hutton et al., the Negative Conditional Return Skewness (NCSKEW) of individual stocks was used to measure stock price crash risk [1, 39]. The measurement method is as follows:

First, individual stock i's weekly returns for each year were regressed as follows:

$$R_{i,t} = \alpha_i + \beta_1 R_{m,t-2} + \beta_2 R_{m,t-1} + \beta_3 R_{m,t} + \beta_4 R_{m,t+1} + \beta_5 R_{m,t+2} + \epsilon_{i,t} \qquad (1)$$

where $R_{i,t}$ represents the weekly return of individual stock i in week t, considering reinvestment of cash dividends, and $R_{m,t}$ is the average return of all A-share stocks in week t weighted by market capitalization. The weekly returns of stock i were adjusted for market movements to obtain $W_{i,t} = LN(1 + \epsilon_{i,t})$.

Second, Negative Conditional Return Skewness (NCSKEW) was constructed based on $W_{i,t}$ as follows:

$$NCSKEW_{i,t} = -[n(n-1)^{\frac{3}{2}} \sum W_{i,t}^3]/[(n-1)(n-2)(\sum W_{i,t}^2)^{\frac{3}{2}}] \qquad (2)$$

where n represents the number of trading weeks for stock i each year. A larger NCSKEW value indicates a more severe negative skewness, indicating higher stock price crash risk.

4.2.2. Independent Variable: Executive Compensation Stickiness (STICK)

This study followed the methods of Bu Danlu and Wen Caihong, as well as Lei Yu and Guo Jianhua, to measure executive compensation using the compensation of the top three executives [11, 24]. The calculation process for executive compensation stickiness is as follows: First, calculate the annual growth rate of executive compensation and the annual growth rate of company net profit for each year from 2006 to 2021. Second, divide the annual growth rate of executive compensation by the annual growth rate of company net profit for the same year to obtain the relative change value for each year. Next, during the sample period (2010-2021) and the rolling five-year periods in the previous four years, calculate the mean relative change values for net profit increase and net profit decrease, respectively. Finally, subtract the mean relative change value for net profit decrease from the mean relative change value for net profit increase for each company for each year, resulting in the annual rolling five-year executive compensation stickiness (STICK) for each company. In addition, considering the significant differences in order of magnitude between the executive compensation stickiness variable and other variables, this study divided STICK by 100 to eliminate its impact on regression coefficients.

4.2.3. Control Variables

Drawing on existing literature and considering data availability, this study selected market-level and company-level control variables as follows [1, 16, 38, 39]:

(1) Market-level: Monthly average excess turnover rate (DTURN), annual average weekly return (RET), and volatility of annual weekly returns (SIGMA).

(2) Company-level: Company age (AGE), debt ratio (LEV), duality of chairman and CEO positions (DUAL), management ownership ratio (MHOLD), and opacity (OPACITY).

In addition, year-specific dummy variables and industry-specific dummy variables were introduced to control for year-fixed effects and industry-fixed effects. The specific definitions and measurement methods of the main variables are shown in Table 1.

Table 1: Variable Definitions and Measurement.

Variable	Variable Name	Measurement Method
NCSKEW	Negative Conditional Return Skewness	Calculated according to formula (2); a larger NCSKEW indicates higher stock price crash risk
STICK	Executive Compensation Stickiness	Calculated as described in the text; STICK divided by 100 to address scale differences
DTURN	Monthly Average Excess Turnover Rate	Difference between the average turnover rate of stock i in the current year and the previous year
RET	Annual Average Weekly Return	Average weekly return of stock i for the current year
SIGMA	Volatility of Annual Weekly Returns	Standard deviation of weekly returns of stock i for the current year
AGE	Company Age	Natural logarithm of (1 + years since company establishment)
LEV	Debt Ratio	Debt ratio = (end-of-year total debt) / (end-of-year total assets)
DUAL	Chairman and CEO Duality	Equals 1 if the chairman and CEO positions are held by the same individual; otherwise, 0
MHOLD	Management Ownership Ratio	Ratio of the number of shares held by management at the end of the year to the total number of shares
OPACITY	Company Opacity	Measured as the sum of absolute values of manipulable accruals over the previous three periods, calculated using the adjusted Jones model (Dechow et al., 1995)

4.3. Research Model

The sample in this study forms unbalanced panel data from both the company and time dimensions. To test the impact of executive compensation stickiness on stock price crash risk as hypothesized in H1, Model (3) is constructed. This model controls for year-fixed effects and industry-fixed effects while clustering the standard errors at the company level. If H1a holds, implying that executive compensation stickiness promotes stock price crash risk, β_1 is expected to be significantly positive.

If H1b holds, suggesting that executive compensation stickiness inhibits stock price crash risk, β_1 is expected to be significantly negative.

$$NCSKEW_{i,t} = \beta_0 + \beta_1 STICK_{i,t} + \beta_2 DTURN_{i,t} + \beta_3 RET_{i,t} + \beta_4 SIGMA_{i,t} + \beta_5 AGE_{i,t}$$

$$+\beta_6 LEV_{i,t} + \beta_7 DUAL_{i,t} + \beta_8 MHOLD_{i,t} + \beta_9 OPACITY_{i,t}$$

$$+ \sum YEAR + \sum INDUSTRY + \epsilon_{i,t} \tag{3}$$

5. Empirical Results Analysis

5.1. Descriptive Statistics

Table 2 presents the descriptive statistics of key variables in this study. According to the statistical data, the mean and standard deviation of executive compensation stickiness (STICK) are 0.0233 and 0.0736, respectively. On average, it suggests that executive compensation is relatively insensitive to performance when net profit decreases, while it becomes more sensitive when net profit increases. Furthermore, there is significant variation in executive compensation stickiness across different companies. The 25th percentile of STICK is 0.0006, indicating that in more than 75% of cases in the sample, executive compensation exhibits stickiness characteristics (STICK values greater than 0). This suggests that listed companies tend to provide substantial rewards to executives and relatively fewer penalties. The standard deviation of the stock price crash risk indicator NCSKEW is 0.750, indicating significant variation within the sample. The values of other variables fall within reasonable ranges.

Table 2: Descriptive Statistics of Key Variables.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variable	N	mean	sd	min	p25	p50	p75	max
NCSKEW	20,385	-0.325	0.750	-2.451	-0.743	-0.284	0.120	1.713
STICK	20,385	0.0233	0.0736	-0.0854	0.00061	0.00538	0.0182	0.533
DTURN	20,385	-1.924	32.25	-217.2	-17.90	-1.311	12.99	102.9
RET	20,385	0.00261	0.00912	-0.0159	-0.00343	0.00160	0.00733	0.0360
SIGMA	20,385	0.0630	0.0246	0.0260	0.0459	0.0577	0.0735	0.159
AGE	20,385	2.589	0.455	1.609	2.197	2.639	2.996	3.367
LEV	20,385	0.479	0.209	0.0530	0.320	0.481	0.634	0.942
DUAL	20,385	0.222	0.416	0	0	0	0	1
MHOLD	20,385	0.0666	0.134	0	0	0.000216	0.0478	0.680
OPACITY	20,385	0.240	0.178	0.0300	0.118	0.191	0.307	0.995

5.2. Correlation Analysis

Figure 1 reports the Spearman correlation coefficients of the main variables in this study. Excluding the influence of other factors, there is a noticeable negative correlation between executive compensation stickiness (STICK) and stock price crash risk (NCSKEW). The results suggest that, in essence, executive compensation stickiness can mitigate stock price crash risk. The maximum correlation coefficient among the variables is 0.4448, indicating that there is no severe multicollinearity issue among these variables.

Variable	NCSKEW	STICK	DTURN	RET	SIGMA	AGE	LEV	DUAL	MHOLD	OPACITY
NCSKEW	1									
STICK	-0.0163**	1								
DTURN	-0.1308***	0.0021	1							
RET	-0.2030***	0.0097	0.5111***	1						
SIGMA	-0.1596***	-0.0330***	0.4155**	0.4086***	1					
AGE	-0.0014	-0.0172**	0.0301***	-0.0021	-0.0982***	1				
LEV	0.0001	-0.0164**	0.0031	-0.0269***	-0.0190**	0.2011**	1			
DUAL	0.0072	-0.0116*	0.0086	0.0104	0.0801***	-0.1570***	-0.0870***	1		
MHOLD	-0.0055	0.0336***	0.0350***	0.0127*	0.1038***	-0.4448***	-0.2113**	0.2208***	1	
OPACITY	0.0264***	-0.0062	-0.0476***	-0.0838***	0.0356***	0.0070	0.0887***	0.0366***	-0.0102	1

Figure 1: Spearman Correlation Coefficients of Key Variables.

5.3. Multiple Regression Analysis

This study employed Model (3) to test the impact of executive compensation stickiness on stock price crash risk, and the empirical results are presented in Table 3. The regression results in column (1) show that, without controlling for other variables, the estimated coefficient for STICK is negative but not statistically significant. In column (2), further control for market-level variables that affect crash risk, the regression results indicate that the estimated coefficient for STICK is -0.163 and significant at the 5% level. In column (3), further control for company-level variables that affect crash risk, the regression results show that the coefficient for STICK is -0.170 and significant at the 5% level. After controlling for other factors, for every 100-unit increase in executive compensation stickiness, stock price crash risk decreases by 0.116. This result validates the hypothesis H1a proposed in this study: executive compensation stickiness significantly reduces stock price crash risk.

Table 3: Regression Results of Executive Compensation Stickiness and Stock Price Crash Risk.

Variable	(1) NCSKEW	(2) NCSKEW	(3) NCSKEW
STICK	-0.116	-0.163**	-0.170**
	(-1.50)	(-2.22)	(-2.34)
DTURN		0.000	0.000*
		(1.39)	(1.75)
RET		-16.499***	-16.063***
		(-17.42)	(-16.98)
SIGMA		-6.589***	-6.980***
		(-17.34)	(-18.32)
AGE			-0.029*
			(-1.88)
LEV			0.051*
			(1.69)
DUAL			0.021

Table 3: (continued).

			(1.50)
MHOLD			0.042
			(0.84)
OPACITY			0.170***
			(5.31)
Intercept	-0.025	0.461***	0.486***
	(-0.49)	(7.78)	(6.73)
Year	YES	YES	YES
Industry	YES	YES	YES
Observations	20,385	20,385	20,385
R-squared	0.037	0.108	0.111

Note: Robust t-statistics, clustered at the company level, are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

6. Robustness Tests

6.1. Handling Endogeneity Issues

6.1.1. Propensity Score Matching (PSM)

Given that companies can autonomously determine executive compensation, stock price crash risk may be one of the factors considered in setting executive compensation contracts. Companies with low stock price crash risk might establish sticky executive compensation contracts to reward executives. Consequently, there may be a sample selection issue in assessing the impact of executive compensation stickiness on stock price crash risk.

To address this sample selection issue, we employ the Propensity Score Matching (PSM) method to mitigate potential endogeneity problems in the model. We divide the sample into two groups based on the median of executive compensation stickiness (STICK): the high stickiness group (greater than or equal to the median) and the low stickiness group (less than the median). We use RET, LEV, SIZE, SOE, SIGMA, DUAL, OPACITY, as well as year and industry dummy variables as covariates and perform sample matching using the 1:1 nearest neighbor matching method. Table 4 presents the results of balance tests, indicating that the means of all covariates between the treatment and control groups differ significantly before matching but become statistically insignificant after matching. This demonstrates the necessity of matching and the reliability of the matching results.

Subsequently, we conduct regressions using the matched sample, and the results are shown in Table 5. The regression results reveal that the coefficient of executive compensation stickiness (STICK) with stock skewness (NCSKEW) is -0.275, significant at the 1% level, indicating that even after addressing the sample selection issue, executive compensation stickiness significantly reduces stock price crash risk.

Table 4: Covariate Balance Test Results of PSM Matching.

Indicator	Sample	Mean		t-value
		Treatment	Control	
RET	Before Matching	0.003	0.003	4.53***
	After Matching	0.003	0.003	-0.88
SIGMA	Before Matching	0.062	0.064	-5.60***
	After Matching	0.062	0.063	-1.44
LEV	Before Matching	0.461	0.482	-8.00***
	After Matching	0.461	0.461	-0.44
DUAL	Before Matching	0.237	0.224	2.36**
	After Matching	0.237	0.243	-1.30
OPACITY	Before Matching	0.234	0.239	-2.34**
	After Matching	0.234	0.233	0.73
SIZE	Before Matching	22.515	22.296	12.94***
	After Matching	22.514	22.510	0.31
SOE	Before Matching	0.421	0.454	-5.16***
	After Matching	0.421	0.419	0.24

Table 5: PSM Regression Results.

Variable	(1) NCSKEW
STICK	-0.275***
	(-2.86)
DTURN	0.000
	(1.15)
RET	-15.553***
	(-12.21)
SIGMA	-6.830***
	(-13.44)
AGE	-0.029
	(-1.48)
LEV	0.033
	(0.85)
DUAL	0.023
	(1.30)
MHOLD	-0.007
	(-0.10)
OPACITY	0.178***
	(4.11)
Intercept	0.524***
	(6.03)
Year	YES
Industry	YES
N	10,960
R-squared	0.110

6.1.2. Instrumental Variable Approach

Given that stock price crashes are often due to management concealing bad news, boards of directors may be motivated to regain market confidence by dismissing executives or implementing pay cuts. In China, the cost of dismissing executives is relatively high, and there are various considerations involved. Reducing executive compensation is a more convenient approach [40]. Thus, when a company faces a higher stock price crash risk, the board of directors might implement pay cuts for executives to mitigate the risk, resulting in decreased executive compensation stickiness.

To address the issue of reverse causality, we follow the approach of Xu Yue and select the median executive compensation stickiness (MEDIANSTICK) within the industry by year as the instrumental variable for executive compensation stickiness (STICK). The rationale is that the annual industry median executive compensation stickiness is related to the executive compensation stickiness of the company [26]. Li Wenjing et al. found that the greater the gap between a company's executive compensation and the industry average in the previous year, the larger the increase in executive compensation for that year, indicating a significant influence of industry compensation growth on executive compensation formulation in China [41]. Since executive compensation stickiness can be viewed as an intentional arrangement by compensation decision-makers, it is also influenced by the average industry executive compensation stickiness. Additionally, this median represents the level of executive compensation stickiness in the industry by year and does not directly affect the company's stock price crash risk. Therefore, using the annual industry median executive compensation stickiness as an instrumental variable for executive compensation stickiness satisfies the two criteria for instrumental variable selection.

We conduct a two-stage least squares (2SLS) regression with instrumental variables, and the results are presented in Table 6. Column (1) shows the first-stage 2SLS regression results, indicating that the first-stage F-statistic is 264.12, validating MEDIANSTICK as a weak instrumental variable. Moreover, MEDIANSTICK exhibits a significant positive relationship with STICK, meeting the requirement of instrument relevance. The second-stage 2SLS regression results in column (2) demonstrate that the coefficient of executive compensation stickiness (STICK) with stock skewness (NCSKEW) is -1.162, significant at the 10% level. This suggests that, even after controlling for endogeneity, executive compensation stickiness still significantly reduces stock price crash risk.

Table 6: 2SLS Regression Results with Instrumental Variables.

Variable	First Stage STICK	Second Stage NCSKEW
MEDIANSTICK	0.956***	
	(16.25)	
STICK		-1.162*
		(-1.93)
DTURN	0.000	0.000*
	(0.55)	(1.79)
RET	-0.006	-16.068***
	(-0.07)	(-18.98)
SIGMA	-0.093***	-7.068***
	(-2.79)	(-21.42)
AGE	-0.000	-0.029**
	(-0.19)	(-2.12)
LEV	-0.006**	0.044*
	(-2.33)	(1.66)

Table 6: (continued).

DUAL	-0.000	0.021
	(-0.04)	(1.64)
MHOLD	0.002	0.045
	(0.40)	(0.98)
OPACITY	0.010***	0.180***
	(3.14)	(5.94)
Intercept	0.024***	0.517***
	(3.32)	(7.21)
Year	YES	YES
Industry	YES	YES
N	20,385	20,385
R-squared		0.101
F	264.12***	

6.1.3. Fixed Effects Model

While we have controlled for market-level and firm-level variables affecting crash risk, as well as year and industry effects, there may still be omitted variables at the individual level that do not change over time but affect stock price crash risk. To alleviate potential omitted variable bias, we employ panel data and control for firm-specific effects. The regression results are presented in Table 7. The results show that executive compensation stickiness (STICK) is significantly negatively correlated with stock skewness (NCSKEW), with a coefficient of -0.169, significant at the 10% level. This indicates that even after accounting for firm-specific effects, executive compensation stickiness continues to significantly reduce stock price crash risk.

Table 7: Regression Results with Fixed Individual Effects.

	(1)
Variable	NCSKEW
STICK	-0.169*
	(-1.94)
DTURN	0.001***
	(3.85)
RET	-15.498***
	(-17.49)
SIGMA	-8.855***
	(-22.89)
AGE	-0.055
	(-0.77)
LEV	0.111**
	(2.30)
DUAL	-0.008
	(-0.44)
MHOLD	-0.012
	(-0.11)
OPACITY	0.047

Table 7: (continued).

	(1.25)
Intercept	0.357*
	(1.91)
Year	YES
Firm	YES
N	20,077
R-squared	0.266

6.2. Alternative Indicator Tests

6.2.1. Substituting the Dependent Variable

Drawing from the methodologies of Hutton et al. and Chen et al., we employ the Stock Return Upward and Downward Volatility Ratio (DUVOL) to measure stock price crash risk [1,38]. The specific calculation formula is as follows:

$$DUVOL_{i,t} = \log\{[(n_u - 1)\sum_{DOWN} W_{i,t}^2]/[(n_d - 1)\sum_{UP} W_{i,t}^2]\} \tag{4}$$

Here, n_u represents the number of weeks where the stock's returns $W_{i,t}$ after market adjustments for stock i exceed the annual average returns W_i, and n_d represents the number of weeks where $W_{i,t}$ falls below W_i. $W_{i,t} = LN(1 + \epsilon_{i,t})$, with $\epsilon_{i,t}$ being the residual from equation (1). A higher value of DUVOL indicates a greater leftward skewness in the return distribution, signifying higher crash risk.

The regression results are presented in Table 8, column (1). The results reveal a statistically significant negative correlation at the 10% significance level between executive compensation stickiness (STICK) and Stock Return Upward and Downward Volatility Ratio (DUVOL). This consistency with the baseline model's regression results demonstrates the robustness of our research findings.

6.2.2. Substituting the Independent Variable

In place of the top three executives' compensation, we use the compensation of the top three directors of listed companies as an indicator for calculating executive compensation stickiness (STICK_D). The regression results are shown in Table 8, column (2). The results demonstrate a statistically significant negative relationship at the 1% significance level between executive compensation stickiness (STICK_D) and stock skewness (NCSKEW). This alignment with the baseline model's regression results underscores the robustness of our research findings.

6.2.3. Simultaneously Substituting the Independent and Dependent Variables

Substituting both the dependent variable with Stock Return Upward and Downward Volatility Ratio (DUVOL) and the independent variable with executive compensation stickiness (STICK_D), the regression results are presented in Table 8, column (3). The results show a statistically significant negative relationship at the 1% significance level between executive compensation stickiness (STICK_D) and Stock Return Upward and Downward Volatility Ratio (DUVOL). This consistency with the baseline model's regression results reaffirms the robustness of our research findings.

Table 8: Alternative Indicator Tests: Altering Measurement Methods for Dependent and Independent Variables.

Variable	(1) DUVOL	(2) NCSKEW	(3) DUVOL
STICK	-0.086*		
	(-1.72)		
STICK_D		-0.136***	-0.101***
		(-2.83)	(-3.04)
DTURN	0.000	0.000*	0.000
	(0.72)	(1.88)	(0.91)
RET	-13.588***	-16.209***	-13.662***
	(-22.33)	(-16.99)	(-22.31)
SIGMA	-3.417***	-7.005***	-3.453***
	(-14.25)	(-18.25)	(-14.30)
AGE	-0.014	-0.030*	-0.015
	(-1.40)	(-1.91)	(-1.44)
LEV	0.026	0.053*	0.028
	(1.31)	(1.74)	(1.43)
DUAL	0.008	0.020	0.007
	(0.85)	(1.41)	(0.79)
MHOLD	0.012	0.042	0.011
	(0.37)	(0.83)	(0.35)
OPACITY	0.090***	0.164***	0.086***
	(4.31)	(5.10)	(4.11)
Intercept	0.231***	0.494***	0.238***
	(4.64)	(6.73)	(4.71)
Year	YES	YES	YES
Industry	YES	YES	YES
N	20,385	20,082	20,082
R-squared	0.116	0.112	0.117

6.3. Altering the Sample Scope

When executive compensation stickiness is positive, it indicates the presence of executive compensation stickiness characteristics in listed companies. Therefore, we exclude samples with negative executive compensation stickiness for the regression analysis. The regression results are presented in Table 9. The results reveal that the regression coefficient of executive compensation stickiness (STICK) on stock skewness (NCSKEW) is -0.170, significant at the 5% level. This indicates that even after altering the sample scope, our research findings remain valid.

Table 9: Regression Results with Altered Sample Scope.

Variable	(1) NCSKEW
STICK	-0.170**
	(-2.23)
Dturn	0.001**
	(2.30)
Ret	-15.215***
	(-14.39)
SIGMA	-7.167***
	(-17.00)
AGE	-0.034**
	(-2.03)
LEV	0.047
	(1.40)
DUAL	0.016
	(1.04)
MHold	0.051
	(0.93)
DisOpaque	0.152***
	(4.37)
Intercept	0.509***
	(6.73)
Year	YES
Industry	YES
N	16,223
R-squared	0.110

7. Discussion

7.1. CEO Gender and Stock Price Crash Risk

Female CEOs contribute to mitigating stock price crash risk by restraining executive compensation stickiness driven by managerial opportunistic behavior, thus helping alleviate agency problems. Numerous studies indicate that women tend to exhibit higher ethical standards. Betz et al. found that compared to women, a higher proportion of men engage in unethical behavior [42]. Arlow discovered that women display fewer self-interested behaviors than men [43]. Consequently, female executives are less likely to engage in opportunistic behavior compared to male executives, which is conducive to reducing agency costs [44,45]. In companies with female CEOs, executive compensation stickiness is more likely to be an intentional arrangement by compensation designers compared to companies with male CEOs. This helps mitigate agency problems and effectively reduces stock price crash risk.

To investigate the impact of executive compensation stickiness on stock price crash risk under different CEO genders, this study conducts inter-group difference comparisons through grouped regression. Firstly, the sample is divided into two groups based on CEO gender: the male CEO group (CEOSEX=0) and the female CEO group (CEOSEX=1). Stock skewness (NCSKEW) is used as the dependent variable in the grouped regression analysis, and the results are presented in Table 10. The regression results indicate that in the CEOSEX=0 group, the regression coefficient of STICK on NCSKEW is -0.143, significant at the 10% level, while in the CEOSEX=1 group, the regression

coefficient of STICK on NCSKEW is -0.788, significant at the 1% level. Conducting an SUEST test between the two groups, a chi-square statistic of 6.46 is obtained, significant at the 5% level, indicating the presence of inter-group differences. Therefore, compared to companies with male CEOs, the effect of executive compensation stickiness on reducing stock price crash risk is more pronounced in companies with female CEOs.

Table 10: Heterogeneity Test Results of CEO Gender.

Variable	(1) CEOSEX=0	(2) CEOSEX=1
STICK	-0.143*	-0.788***
	(-1.85)	(-3.98)
DTURN	0.000	0.002*
	(1.08)	(1.92)
RET	-15.527***	-22.354***
	(-15.79)	(-5.56)
SIGMA	-7.039***	-5.622***
	(-17.74)	(-3.78)
AGE	-0.034**	0.027
	(-2.14)	(0.44)
LEV	0.045	0.083
	(1.45)	(0.73)
DUAL	0.014	0.038
	(0.98)	(0.61)
MHOLD	0.025	0.226
	(0.47)	(1.35)
OPACITY	0.185***	0.014
	(5.57)	(0.11)
Intercept	0.502***	0.362
	(6.63)	(1.39)
Year	YES	YES
Industry	YES	YES
N	18,875	1,280
R-squared	0.110	0.162
Chi-square Statistic	6.46**	

7.2. Financial Background of Board and Supervisory Committee Members and Stock Price Crash Risk

The financial background of board and supervisory committee members nullifies the ability of executive compensation stickiness to alleviate agency problems and reduce stock price crash risk. In the upper echelons theory, the cognitive abilities and values of corporate managers have a certain impact on a company's operational decisions [46]. Executives with financial work experience typically possess strong financial consulting capabilities that can influence a company's financial decisions [47]. Therefore, when a company receives returns on venture investments, executives with financial backgrounds are more likely to increase their personal compensation by incorporating "non-recurring gains" and "fair value change gains" into the executive compensation calculation, thereby increasing the returns on venture investments. Conversely, when a company incurs losses from venture investments, executives with financial backgrounds are more likely to exclude these losses

from the compensation calculation, avoiding responsibility for investment failures. In this scenario, executive compensation stickiness arises from managerial opportunistic behavior, making it ineffective in mitigating agency problems and reducing stock price crash risk.

To examine the impact of executive compensation stickiness on stock price crash risk under different financial backgrounds of board and supervisory committee members, this study conducts inter-group difference comparisons through grouped regression. Firstly, the sample is divided into two groups based on whether board and supervisory committee members have financial backgrounds: the group without financial backgrounds (No Fin) and the group with financial backgrounds (Fin). Stock skewness (NCSKEW) is used as the dependent variable in the grouped regression analysis, and the results are presented in Table 11. The regression results indicate that in the No Fin group, the regression coefficient of STICK on NCSKEW is -0.440, significant at the 5% level, while in the Fin group, the regression coefficient of STICK on NCSKEW is -0.102, failing to pass the significance test. Conducting an SUEST test between the two groups, a chi-square statistic of 4.17 is obtained, significant at the 5% level, indicating the presence of inter-group differences. Therefore, when board and supervisory committee members lack financial backgrounds, executive compensation stickiness can effectively reduce stock price crash risk.

Table 11: Heterogeneity Test Results of Financial Background of Board and Supervisory Committee Members.

Variable	(1) No Fin Financial Background	(2) Fin Financial Background
STICK	-0.440**	-0.102
	(-2.56)	(-1.31)
DTURN	0.000	0.000
	(1.42)	(1.15)
RET	-16.136***	-15.877***
	(-9.13)	(-14.33)
SIGMA	-7.715***	-6.738***
	(-11.27)	(-15.15)
AGE	-0.038	-0.027
	(-1.39)	(-1.53)
LEV	0.049	0.053
	(0.90)	(1.53)
DUAL	-0.008	0.032**
	(-0.32)	(1.98)
MHOLD	0.085	0.032
	(1.02)	(0.53)
OPACITY	0.094	0.185***
	(1.48)	(5.07)
Intercept	0.610***	0.444***
	(4.86)	(5.48)
Year	Yes	Yes
Industry	Yes	Yes
N	5,952	14,433
R-squared	0.126	0.111
Chi-square Statistic	4.17**	

7.3. Information Opacity and Stock Price Crash Risk

The problem of information asymmetry renders executive compensation stickiness ineffective in mitigating agency issues and reducing stock price crash risk. In situations with low information asymmetry, it is more difficult for management to engage in concealing negative information, and in such cases, executive compensation stickiness is more likely to be the deliberate arrangement of compensation setters. This arrangement helps alleviate agency problems and effectively reduces stock price crash risk. In contrast, when information asymmetry is high, external investors perceive it as difficult for management to conceal negative information. Due to their pursuit of personal interests, management possesses the motivation and capability to engage in opportunistic behavior by manipulating information [1, 27]. In such situations, executives typically attribute performance improvements to themselves and attribute performance declines to external influences. This makes it difficult for compensation setters to determine the true reasons for performance changes, resulting in executive compensation exhibiting sticky features [9]. In this context, executive compensation stickiness arises from managerial opportunistic behavior, making it ineffective in alleviating agency problems and reducing stock price crash risk.

To examine the impact of executive compensation stickiness on stock price crash risk under different levels of information opacity, this study conducts inter-group difference comparisons through grouped regression. Firstly, the sample is divided into two groups based on the median level of information opacity (OPACITY): the low information opacity group (below the median) and the high information opacity group (equal to or above the median). Stock skewness (NCSKEW) is used as the dependent variable in the grouped regression analysis, and the results are presented in Table 12. The regression results indicate that in the low information opacity group, the regression coefficient of STICK on NCSKEW is -0.331, significant at the 1% level, while in the high information opacity group, the regression coefficient of STICK on NCSKEW is -0.039, failing to pass the significance test. Conducting an SUEST test between the two groups, a chi-square statistic of 4.93 is obtained, significant at the 5% level, indicating the presence of inter-group differences. Therefore, executive compensation stickiness can effectively reduce stock price crash risk only when the company has a lower level of information opacity.

Table 12: Heterogeneity Test Results of Information Opacity.

Variable	(1) Low Opacity	(2) High Opacity
STICK	-0.331***	-0.039
	(-3.10)	(-0.40)
DTURN	0.000	0.000
	(1.22)	(1.20)
RET	-14.022***	-17.856***
	(-9.89)	(-14.14)
SIGMA	-7.281***	-6.856***
	(-13.11)	(-13.24)
AGE	-0.048**	-0.010
	(-2.22)	(-0.46)
LEV	0.047	0.055
	(1.08)	(1.43)
DUAL	0.015	0.024
	(0.73)	(1.32)
MHOLD	-0.036	0.115*

Table 12: (continued).

	(-0.52)	(1.67)
OPACITY	-0.028	0.141***
	(-0.23)	(3.30)
Intercept	0.526***	0.481***
	(5.38)	(4.72)
Year	YES	YES
Industry	YES	YES
N	9,971	10,414
R-squared	0.107	0.123
Chi-square Statistic	4.93**	

8. Mechanism Testing

Executive compensation stickiness can be considered a deliberate arrangement by compensation setters that helps alleviate agency problems. When designing executive incentive plans, compensation setters often take into account various factors, such as performance targets and incentive intensity. From the perspective of executives' individual utility, cash compensation can be seen as a stabilizing factor. When executives are satisfied with their compensation, its motivating effect is not particularly pronounced. However, when executives are dissatisfied with their compensation, it can have a significant negative impact on them [9]. Additionally, executives, as a special type of human resource, may transmit negative signals to the managerial labor market, such as a decrease in their true status and reduced social influence, when their compensation is reduced. Therefore, compensation setters tend to provide generous rewards to executives and relatively few penalties when formulating incentive plans. This approach helps achieve effective motivation, aligns with optimal compensation contract theory, and contributes to mitigating conflicts between executives and shareholders.

The severity of agency problems is positively related to stock price crash risk. One of the causes of stock price crashes is managerial opportunistic behavior resulting from agency problems. Ball argued that corporate executives often selectively disclose information driven by personal interests. They tend to disclose positive information and delay the disclosure of negative information [48]. When corporate executives, acting in their self-interest, reach a point where they can no longer hide bad news, the accumulated negative information is released into the market, leading to a significant impact on stock prices and the subsequent risk of a stock price crash [27]. Chen Xiangyu and Wan Peng suggested that stock price crash risk is greatly influenced by agency problems, and as corporate agency costs increase, the risk of a stock price crash also rises [38]. Therefore, this study posits that executive compensation stickiness can reduce stock price crash risk by lowering agency costs.

In this study, we measured agency costs (AC) based on the research of Huang Zheng and Wu Guoping, Jiang Xuanyu and Xu Nianxing, Ang, and Luo Jinhui, using the management expense ratio (MER) and operating expense ratio (OER) [49-52]. MER represents the ratio of management expenses to operating income, while OER represents the ratio of operating expenses to main business income. Both metrics can reflect the agency costs resulting from agency relationships. A higher MER or OER indicates more severe agency problems within a firm.

To test the impact of executive compensation stickiness on agency costs, this study constructed Model (5), controlling for year and industry fixed effects and cluster-adjusted standard errors at the company level.

$$AC_{i,t} = \beta_0 + \beta_1 STICK_{i,t} + \beta_2 DTURN_{i,t} + \beta_3 RET_{i,t} + \beta_4 SIGMA_{i,t} + \beta_5 AGE_{i,t}$$

$$+\beta_6 LEV_{i,t} + \beta_7 DUAL_{i,t} + \beta_8 MHOLD_{i,t} + \beta_9 OPACITY_{i,t}$$

$$+ \sum YEAR + \sum INDUSTRY + \epsilon_{i,t} \tag{5}$$

Table 13 presents the regression results of how executive compensation stickiness affects agency costs. In column (1), a regression was conducted with the management expense ratio (MER) as the dependent variable and executive compensation stickiness (STICK) as the independent variable. The results show that the estimated coefficient for STICK is -0.033, significant at the 1% level. In column (2), a regression was performed with the operating expense ratio (OER) as the dependent variable and STICK as the independent variable. The results indicate that the estimated coefficient for STICK is -0.070, significant at the 10% level. Both the results in column (1) and column (2) demonstrate that, after controlling for other factors, executive compensation stickiness significantly reduces agency costs. Thus, executive compensation stickiness can effectively reduce stock price crash risk by lowering agency costs.

Table 13: Mediation Analysis Results of Agency Costs.

Variable	(1) MER	(2) OER
STICK	-0.033***	-0.070*
	(-2.84)	(-1.74)
DTURN	-0.000***	-0.000***
	(-7.51)	(-3.95)
RET	-1.327***	-3.942***
	(-10.55)	(-10.92)
SIGMA	1.035***	2.359***
	(15.94)	(12.68)
AGE	0.010***	0.006
	(3.06)	(0.57)
LEV	-0.064***	-0.217***
	(-7.68)	(-9.33)
DUAL	0.008***	0.029***
	(3.23)	(3.60)
MHOLD	-0.013	0.047
	(-1.61)	(1.61)
OPACITY	0.043***	0.073***
	(5.47)	(3.41)
Intercept	0.021	0.223***
	(1.06)	(4.17)
Year	YES	YES
Industry	YES	YES
N	20,382	19,579
R-squared	0.157	0.240

9. Conclusion

This paper empirically examined the impact of executive compensation stickiness on stock price crash risk using all A-share listed companies from 2010 to 2021 as the sample. The main research findings are as follows:

1. Executive compensation stickiness can effectively act as an incentive, thereby mitigating stock price crash risk.

2. Upon closer examination of corporate executive characteristics, it was found that in companies with female CEOs and those where senior executives lack financial backgrounds, executive compensation stickiness has a more pronounced mitigating effect on stock price crash risk.

3. A deeper analysis of corporate information disclosure characteristics revealed that in companies with lower information opacity, executive compensation stickiness has a more significant mitigating effect on stock price crash risk.

4. Mechanism analysis demonstrated that executive compensation stickiness mitigates stock price crash risk by reducing agency costs.

The research findings of this paper hold significant theoretical and practical implications. In terms of theoretical significance, this paper sheds light on the positive implications of increasing executive compensation stickiness from the unique perspective of stock price crash risk. It provides an in-depth exploration of the economic consequences of executive compensation stickiness, further enriching the relevant literature. Moreover, this paper expands the research on factors influencing stock price crash risk, particularly from the perspective of executive compensation incentives. This contributes to the design of mechanisms aimed at reducing stock price crash risk.

From a practical standpoint, this study indicates that increasing executive compensation stickiness helps alleviate agency problems, thereby reducing stock price crash risk. Therefore, to reduce agency costs between shareholders and management and to curb managerial opportunistic behavior, compensation setters in listed companies should design a reasonable compensation incentive system. This system should lean towards offering generous rewards and relatively fewer penalties to executives, ultimately mitigating stock price crash risk. This research is of significant reference value for maintaining the stable operation of capital markets, enhancing investor protection, and promoting understanding of the significance and economic consequences of executive compensation stickiness for various stakeholders in companies.

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