Board Faultline and Corporate Fraud

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Abstract. Drawing on data analysis of Chinese A-share listed companies between 2011 and 2022, this paper examines how board faultlines affect corporate fraud. The results indicate that: (1) board faultlines have a significant inhibiting effect on corporate fraud and impede corporate fraud involving different levels of punishment; (2) A high level of environmental uncertainty can improve the cohesion of the board team. But when the first largest shareholder is in absolute control of the enterprise, the influence of the board Faultline is weakened.

Keywords: board faultlines, corporate fraud, environmental uncertainty, ownership concentration.

1. Introduction

Corporate fraud has been a persistent problem detrimental to the development of China's capital market, which not only leads to the loss of reputation and the decline of share prices, but also seriously undermines investor confidence and affects the efficiency of capital operation. In general, it poses a serious threat to the high-quality development of the capital market. The board of directors, as an important component of the company's internal governance, plays a decision-making and supervisory role. The effectiveness of the board's governance directly determines the level of corporate governance, which has a bearing on the future development of the company and the interests of shareholders. In recent years, scholars have paid attention to the heterogeneous characteristics of board members as team diversity has become an irreversible trend in talent allocation. However, existing research has not reached a consistent conclusion on the relationship between director characteristics and corporate fraud. Therefore, in the context of irreversible team diversity and the inevitable existence of team faultlines, it is important to explore the impact of board faultlines on its governance effectiveness and corporate fraud.

2. Basic Theory and Research Hypotheses

2.1 Concept and Impact of Board Faultlines

Group faultlines is a set of imaginary cutoff lines based on one or more features of the team members, which divide the team into subteams by aggregating members with similar features while splitting members with different features. (Lau and Murnighan, 1998) [1].

For the classification of group faultlines, Bezrukova et al. (2009) believe that group faultlines can be divided into information-based and social category faultlines through the Informational and social category characteristics of team members [2]. Social category characteristics are attributes such as race/ethnic background, nationality, sex, and age. Informational characteristics are underlying attributes of individuals that are directly job related (such as educational background, professional background, occupational background and tenure) and are important in the completion of a task.

Scholars have analysed the impact of group faultlines mainly from a social category perspective and an information processing perspective. Under the social category perspective, members within sub-teams are closely related, but interactions between sub-teams are usually skeptical and prejudiced, with misunderstandings and antagonisms, seriously affecting team identity and trust. Conflicts triggered by faultlines can also inhibit the willingness of subgroups to interact and communicate with each other, leading to greater disagreement in the development and implementation of decision-making programs and increasing the cost of coordination within the team. Under the information

processing perspective, the advantage of faultlines is realized through the aggregation within subteams and collaboration between subteams. Cronin et al. (2011) believe that the positive utility arises primarily through a process of cognitive integration — the degree to which teammates develop the ability to understand each other's' interpretive frameworks [3]. Team members focus more on how to capitalize on the strengths of their subgroups' knowledge backgrounds so that the team has access to a more multifaceted base of information and decision-making.

2.2 Board Faultlines and Corporate Fraud

On the one hand, board faultlines may discourage corporate fraud by making collusion more difficult and increasing the cost of violations. First, the team conflicts and rivalries triggered by board faultlines create stronger checks and balances between different subgroups and improve the board's supervision, reducing the likelihood of collusion among board members. Second, board faultlines make it more difficult for management to collude with the whole board, increasing the cost of management's violations and thus discouraging corporate fraud. The "close ties" between directors and management, based on similar characteristics, are one of the factors contributing to the development of a self-interested motive on the part of management. However, the existence of board faultlines suggest that the board is split into different subgroups due to factors such as interpersonal relationships and intellectual backgrounds. The stronger the faultlines are, the greater the differences and distinctions between the subteams. Difficulty for management to establish "goodwill" with multiple, highly diverse subgroups at the same time, making it more difficult for management to collude with the whole board.

On the other hand, under the information processing perspective, the boardroom faultlines improves the board's supervisory capacity, enhances the firm's ability to respond to crises, relieves operational pressures, and thus reduces the likelihood of corporate fraud. The existence of board faultlines suggest that the board team is diverse, with differentiated knowledge structures, professional experience, and social capital. First, a diverse board team brings multiple channels of information and a wealth of knowledge and experience, reduces internal information asymmetry, and improves the board's supervisory capacity. When board faultlines are formed because of work-related attributes such as functional background, specialization, and tenure, the cognitive integration process can facilitate discussion, learning, and reflection within the board of directors. The collision of thought prompte board members to reassess their positions and deepen their understanding of possible problems and alternative solutions in the decision-making process, which helped to promote high-quality decisions. Second, a diverse board team also means diverse social capital. Cull and Xu (2005) find that the political connections of management can bring implicit benefits to the financing of a company [4]. The social capital of the board of directors, as an important hub linking the enterprise to the external environment, facilitates access to key information and valuable resources, and mitigates the constraints and uncertainties imposed on the organization by the external environment.

To sum up, board faultlines can reduce corporate fraud by making collusion more difficult, improving board oversight, and easing the pressure on firms to operate. This paper puts forward the following hypothesis:

H1: Board faultlines can curb corporate fraud.

3. Research Design

3.1 Sample Selection and Data Sources

This paper selects data of 20011–2022 Chinese A-share listed companies as the object of study. To improve the rigor of research, the sample data were processed as follows:

First, we eliminated ST and ∗ST companies. Second, we eliminated companies in the financial sector. Third, we eliminated companies with incomplete board features, financial, and governance data disclosure. Finally, our initial sample consists of 22,131 firm-years. To eliminate the influence

of extreme values, this paper carries out minorizing for continuous variables at the 1% level. We obtain the information on board features, company financials and industry classification from the Chinese Stock Market and Accounting Research (CSMAR) database.

3.2 Variables and Measures

3.2.1. Dependent Variable

The dependent variable of this paper is corporate fraud and use of probability of corporate fraud (Violation) as measures of corporate fraud. The value of Violation is 1 if the firm was penalized by the SEC for fraud during the year, and 0 otherwise.

3.2.2. Independent Variable

The independent variable of this paper is board faultlines. This paper selects age, gender, tenure, functional background and education level to measure faultlines and divides faultlines into strength (Fstrength) and distance (Fdistance). The measurement method for faultlines is based on Thatcher's method (Thatcher et al., 2003) and Bezrukova's method (Bezrukova et al., 2009) [5, 2]. The detail equation for calculating Fstrength and Fdistance is as follows:

$$Fstrengt\hbar = \frac{\sum_{j=1}^{p}\sum_{k=1}^{2} n_k^g \left(\overline{x_{Jk}} - \overline{x_j}\right)^2}{\sum_{j=1}^{p}\sum_{k=1}^{2}\sum_{i=1}^{n_k^j} \left(\overline{x_{\iota Jk}} - \overline{x_j}\right)^2} \tag{1}$$

In Eq. (1), n stands for the number of members on the board; p stands for the total number of features examined; g stands for the classification; n_k^g represents the number of members in subteam k, which is classified by way of g; $\overline{x_{Jk}}$ represents the average value of members in subteam k on characteristic j; $\overline{x_{\iota Jk}}$ represents the value of member g on characteristic j in subteam k; $Fstrengt\hbar$ is the strength of board faultlines under the g classification and is between 0 and 1. The larger the value, the stronger faultline strength, and vice versa.

$$Fdistance = \sqrt{\sum_{j=1}^{p}\left(\overline{x_{J1}} - \overline{x_{J2}}\right)^2} \tag{2}$$

In Eq. (2), $\overline{x_{J1}}$ and $\overline{x_{J2}}$ represent the average value of members in two different subteams on characteristic j. The larger the value, the larger the faultline distance, and vice versa.

3.2.3. Control Variable

The control variables include company size (Size), size of the board of directors (Boardsize), percentage of independent directors (Indep), institutional investors' shareholding (Inst), asset liability ratio (Lev), Tobinq (Tq), stock volatility (Retvol) and stock turnover ratio (Turnover). Variables are specifically defined as shown in Table 1.

Table 1. Main Variables

Variable type	Variable name	Abbreviation	Variable description
Dependent variable	Corporate fraud	Violation	1 if the firm was penalized by the SEC for fraud during the year, and 0 otherwise
Independent variable	Faultline strength	Fstrength	As shown in Eq (1)
	Faultline distance	Fdistance	As shown in Eq (2)
Control Variable	Company size	Size	Total company capital
	Size of the board of directors	Boardsize	Members of the board at the end of the year
	Percentage of independent directors	Indep	Percentage of independent directors on the board
	Asset liability ratio	Lev	Ratio of total liabilities to total amount of company assets
	Tobinq	Tq	Ratio of market value to total amount of company assets
	Stock volatility	Retvol	Annual volatility of daily corporate stock returns
	Stock turnover ratio	Turnover	Annual turnover rate of the enterprise's outstanding shares for the year

4. Data Analysis

4.1 Descriptive Statistics and Correlation Test

The descriptive statistics show that the mean value of Fstrength is 0.484 with a standard deviation of 0.094; the mean value of Fdistance is 1.997 with a standard deviation of 0.530; the mean value of Violation is 0.164. The correlation between independent variables is not more than 0.6. It is proved that there are no serious multiple collinearities among the variables in the study model, which can be further studied. The correlation coefficient matrix of the main variables is shown in Table 2.

Table 2. Correlations coefficient of each variable

Variable	1	2	3	4	5	6
(1) Violation	1					
(2) Fstrength	-0.011	1				
(3) Fdistance	-0.008	0.596***	1			
(4) Size	-0.035***	-0.118***	-0.132***	1		
(5) Boardsize	-0.027***	-0.282***	-0.144***	0.266***	1	
(6) Indep	0.012*	0.177***	0.070***	0.012*	-0.524***	1
(7) Inst	-0.069***	-0.118***	-0.117***	0.432***	0.233***	-0.052***
(8) Lev	0.085***	-0.081***	-0.101***	0.500***	0.139***	-0.004
(9) Tq	-0.013*	0.023***	0.025***	-0.367***	-0.117***	0.041***
(10) Retvol	0.057***	0.040***	0.031***	-0.256***	-0.133***	0.024***
(11) Turnover	0.016**	0.072***	0.076***	-0.366***	-0.129***	0.009

Variable	7	8	9	10	11
(1)Violation					
(2)Fstrength					
(3)Fdistance					
(4)Size					
(5)Boardsize					
(6)Indep					
(7)Inst	1				
(8)Lev	0.195***	1			
(9)Tq	-0.023***	-0.265***	1		
(10)Retvol	-0.158***	-0.053***	0.370***	1	
(11)Turnover	-0.228***	-0.129***	0.115***	0.592***	1

*Significant at 10% level; **significant at 5% level; ***significant at 1% level.

4.2 Regression Analysis

This paper uses multiple linear regression in Stata 17.0 software to analyze the relationship between board faultlines and corporate fraud. The results are detailed in Table 3, in which models 1 and 2 carries out regression analysis on board faultlines and corporate fraud. Model 1 shows that there is a significant negative correlation between faultline strength (Fstrength) ($\beta1 = –0.756$, $p < 0.01$) and corporate fraud (Violation); model 2 shows that there is a significant negative correlation between faultline distance (Fdistance) ($\beta2 = 0.-0.124$, $p < 0.05$) and corporate fraud (Violation). Thus, H1 was verified in this study.

Table 3. Board faultlines and corporate fraud

	Model 1	Model 2
Variable	Violation	Violation
Fstrength	-0.756***	
	(-2.64)	
Fdistance		-0.124**
		(-2.42)
Size	-0.132***	-0.134***
	(-3.94)	(-3.98)
Boardsize	-0.019	-0.012
	(-0.88)	(-0.54)
Indep	0.498	0.465
	(0.82)	(0.76)
Inst	-0.514***	-0.504***
	(-3.78)	(-3.71)
Lev	2.019***	2.019***
	(11.73)	(11.74)
Tobinq	-0.101***	-0.101***
	(-3.75)	(-3.76)
Retvol	41.931***	41.900***
	(9.55)	(9.54)
Turnover	-0.033***	-0.033***
	(-5.39)	(-5.35)
Constant	0.613	0.455
	(0.73)	(0.55)
Observations	22,131	22,131
Industry FE	Yes	Yes
Year FE	Yes	Yes
Pseudo R-squared	0.0632	0.0632

4.3 Further Analysis

4.3.1. Environmental Uncertainty

The operation and development of enterprises cannot be separated from the influence of the external environment, and the decision-making process of the board of directors will inevitably face the uncertainty of the environment. Richard et al. (2019) believes that in more dynamic environments, the negative effect of social category faultlines on team performance diminishes or is no longer significant. With high environmental uncertainty, board members will will put aside conflicts and biases and engage in more information exchange and knowledge sharing to cope with environmental shocks. As a result, the board's ability to monitor is improved and the disincentive to corporate ffraud is enhanced. The measurement method for environmental uncertainty is based on Ghosh and Olsen (2009) [6]. Subsequently, the sample is categorized into two groups, high and low environmental uncertainty, based on the median environmental uncertainty.

Models 3~6 is used to explore the impact of environmental uncertainty on the relationship between board faultlines and corporate fraud. When the group sample is EU = 0, faultline strength (Fstrength) and distance (Fdistance) are negative but not significant ($\beta1 = –0.278$, $p > 0.1$; $\beta2 = –0.012$, $p > 0.1$). When the group sample is EU = 1, faultline strength (Fstrength) and distance (Fdistance) are negative and significant ($\beta1 = –1.112$, $p < 0.01$; $\beta2 = –0.211$, $p < 0.01$).

4.3.2. Ownership Concentration

In our sample, the mean value of the shareholding of the first largest shareholder is 33.77%, which indicates that the sample has a high level of ownership concentration. When the first largest shareholder is in absolute control of the enterprise, it is difficult to form effective constraints among the large shareholders and the checks and balances among the directors will be broken. With the voice of the company in the hands of the directors representing the largest shareholders, the influence of the board Faultline is weakened, as is its inhibiting effect on corporate fraud. The sample is categorized into two groups, absolute and non-absolute control, according to whether the first largest shareholder's shareholding is more than 50% or not.

Models 7~10 is used to explore the impact of ownership concentration on the relationship between board faultlines and corporate fraud. When the group sample is AS = 0, faultline strength (Fstrength) and distance (Fdistance) are negative and significant ($\beta1 = –0.714$, $p < 0.05$; $\beta2 = –0.124$, $p < 0.05$). When the group sample is AS = 1, faultline strength (Fstrength) and distance (Fdistance) are negative but not significant ($\beta1 = –0.992$, $p > 0.1$; $\beta2 = –0.124$, $p > 0.1$).

Table 4. Impact of environmental uncertainty and ownership concentration on the relationship between board faultlines and corporate fraud

	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Variable	Violation	Violation	Violation	Violation	Violation	Violation	Violation	Violation
	EU=0	EU=1	EU=0	EU=1	AS=0	AS=1	AS=0	AS=1
Fstrength	-0.278	-1.112***			-0.714**	-0.992		
	(-0.69)	(-3.10)			(-2.40)	(-1.13)		
Fdistance			-0.012	-0.211***			-0.124**	-0.124
			(-0.16)	(-3.40)			(-2.34)	(-0.72)
Size	-0.132***	-0.134***	-0.133***	-0.136***	-0.093**	-0.368***	-0.093***	-0.377***
	(-2.75)	(-3.29)	(-2.76)	(-3.33)	(-2.56)	(-3.88)	(-2.58)	(-3.97)
Boardsize	-0.036	0.006	-0.033	0.016	-0.032	0.046	-0.025	0.053
	(-1.16)	(0.25)	(-1.07)	(0.63)	(-1.35)	(0.88)	(-1.06)	(1.06)
Indep	-0.191	1.185	-0.214	1.144	0.512	0.920	0.483	0.875
	(-0.22)	(1.59)	(-0.25)	(1.54)	(0.77)	(0.60)	(0.73)	(0.56)
Inst	-0.605***	-0.443***	-0.600***	-0.431**	-0.478***	0.111	-0.470***	0.147
	(-3.26)	(-2.61)	(-3.24)	(-2.54)	(-3.11)	(0.32)	(-3.05)	(0.43)
Lev	2.329***	1.806***	2.335***	1.801***	2.005***	2.275***	2.003***	2.286***
	(9.37)	(8.48)	(9.39)	(8.47)	(10.87)	(4.84)	(10.87)	(4.86)
Tobinq	-0.021	-0.141***	-0.021	-0.141***	-0.096***	-0.122	-0.096***	-0.122
	(-0.53)	(-4.34)	(-0.53)	(-4.33)	(-3.39)	(-1.42)	(-3.39)	(-1.42)
Retvol	30.855***	41.629***	31.007***	41.610***	41.850***	34.115***	41.827***	33.935***
	(4.42)	(7.65)	(4.44)	(7.62)	(8.87)	(2.70)	(8.86)	(2.68)
Turnover	-0.027***	-0.030***	-0.027***	-0.029***	-0.032***	-0.032*	-0.032***	-0.032*
	(-2.94)	(-3.61)	(-2.95)	(-3.58)	(-4.73)	(-1.88)	(-4.70)	(-1.85)
Constant	0.747	0.487	0.607	0.312	-0.237	5.269**	-0.395	5.125**
	(0.64)	(0.47)	(0.52)	(0.30)	(-0.26)	(2.46)	(-0.44)	(2.41)
Observations	10,936	11,192	10,936	11,192	18,776	3,355	18,776	3,355
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.0639	0.0686	0.0638	0.0689	0.0634	0.1006	0.0634	0.1001

4.4 Robustness Check

To ensure the robustness of the research results, a robustness test was carried out. Regarding remeasurement of the dependent variable, this study selects the degree of violation and the frequency of corporate fraud. The regression results using the new measuring method are consistent with the previous regression results.

In endogenous control, considering the possible endogeneity between independent variables and dependent variables, dealing with data in a lag stage can solve this problem. Therefore, this paper deals with board faultline data in a lag phase. Regression analysis shows that the research results are not affected. Through a new round of analysis, it is proved that the conclusion of this study has certain robustness and reliability.

5. Summary

This paper verifies the relationship between board faultlines and corporate fraud. Using a sample of Chinese A-share listed companies from 2011-2022 as the object of study, we find that board faultlines have a significant inhibitory effect on corporate fraud. This inhibition is more significant when environmental uncertainty is high. When the first largest shareholder is in absolute control of the enterprise, the influence of the board Faultline is weakened, as is its inhibiting effect on corporate fraud.

As the high frequency of corporate fraud, the research has some practical significance. First, for the listed company, directors with different background characteristics can be introduced to strengthen the internal checks and balances, enrich the sources of information and improve the effectiveness of the board of directors on corporate governance. Second, for the SEC, it is useful to implement differentiated management of the company based on the strength of the board 's faultlines. Strengthen the supervision of companies with simple board composition and difficult mutual restraint among members. Third, for the investors, based on the previous focus on the company's financial data, investors can consider the relationship between the board 's faultlines and corporate fraud. By analyzing the composition of the board of directors of listed companies, they can judge whether there are faultlines and the strength of the faultlines, and then make reasonable investment decisions.

References

[1] Lau D C, Murnighan J K. Demographic diversity and faultlines: The compositional dynamics of organizational groups [J]. Academy of management review, 1998, 23 (2): 325 - 340.

[2] Bezrukova K, Jehn K A, Zanutto E L, et al. Do workgroup faultlines help or hurt? A moderated model of faultlines, team identification, and group performance[J]. Organization science, 2009, 20 (1): 35 - 50.

[3] Cronin M A, Bezrukova K, Weingart L R, et al. Subgroups within a team: The role of cognitive and affective integration [J]. Journal of Organizational Behavior, 2011, 32 (6): 831 - 849.

[4] Cull R, Xu L C. Institutions, ownership, and finance: the determinants of profit reinvestment among Chinese firms [J]. Journal of Financial Economics, 2005, 77 (1): 117 - 146.

[5] Thatcher S M B, Jehn K A, Zanutto E. Cracks in diversity research: The effects of diversity faultlines on conflict and performance [J]. Group decision and Negotiation, 2003, 12: 217 - 241.

[6] Ghosh D, Olsen L. Environmental uncertainty and managers' use of discretionary accruals [J]. Accounting, Organizations and Society, 2009, 34 (2): 188 - 205.