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CEO Optimism on Corporate Risk Management: Evidence from China

Fankun Li*

School of Management, Xi'an Polytechnic University, Xi'an, 710000, China.

*Corresponding Author

Abstract

Based on impression management theory and upper echelons theory, this study constructs an integrated mediating model involv-ing external investors. It aims to explore the impact of CEO optimism, a positive psychological advantage, on corporate crisis management performance. The research uses machine learning based on LSTM to analyze content text, measuring CEO displayed optimism. It also uses a Python program to crawl objective financial data and third-party objective reports after corporate crises occur, evaluating investor confidence and corporate crisis management performance. This study reveals the positive psychological advantage factors of leaders that enhance corporate crisis management performance and potential mediating mechanisms. It deepens our understanding of how CEOs improve corporate crisis management performance, provides practical insights for en-terprises and managers, and offers reference value for future research.

Keywords

CEO Optimism; Corporate Risk Management; Investor Confidence.

1. Introduction

In today's world, with the advancement of globalization and the rapid development and transformation of economy and technology, the business world is becoming increasingly complex and uncertain. Facing crises and risks has become the norm for enterprises, and whether business leaders can effectively manage crises is crucial to the future survival and development of their companies (Hong et al., 2013). When enterprises fail to implement effective crisis management, they may face consequences such as insolvency, suspension of operations, or production halts. Con-versely, if a company can excel in crisis management, its vitality can be extended, and its ability to withstand risks can be correspondingly strengthened.

Upper echelons theory suggests that CEOs, as the highest leaders of enterprises, have a significant impact on corporate performance (Hambrick & Mason, 1984; Hambrick, 2007). Therefore, when enterprises face crises and need effective crisis management, CEOs' personal characteristics can influence the performance of corporate crisis management. These characteristics include traits such as optimism, confidence, and courage (Peterson et al., 2009). Notably, when enterprises face crises or difficulties, the CEO's optimistic trait is particularly valuable. Optimism, as one of the positive psychological advantages of an individual, has two mainstream definitions. The first, based on attribution theory by Seligman (1998), defines optimism as an individual's characteristic explanatory style or attribu-tional style (Peterson et al., 2009; Carr, 2013), also known as learned optimism. The second, represented by Carver and Scheier (1985), refers to dispositional optimism, which is a stable tendency for individuals to expect good things to happen in the future rather than bad things, also called dispositional optimism. Individuals with optimistic traits maintain positive expectations for future outcomes and have stronger resilience. Even when faced with setbacks and failures, they can more

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actively control the processes and behaviors that affect results. Consequently, they experi-ence less tension, anxiety, frustration, depression, and other negative emotions during crises and difficulties. Moreo-ver, as the leader of the enterprise, the influence generated by the CEO's optimistic words and actions is amplified (Meind et al., 1995). This can affect external investors and internal followers (members of the top management team) of the enterprise, thereby influencing the performance of corporate crisis management.

However, existing research lacks studies on the relationship between CEO optimism and corporate crisis man-agement performance. Current research on leader optimism primarily focuses on examining the relationship be-tween leader optimism and corporate performance in normal years (Chen et al., 2018), with less emphasis on the underlying mechanisms of influence between the two (Dai et al., 2017; Peterson et al., 2009). Therefore, this paper uses investor confidence as a mediator to thoroughly examine the relationship and potential mediating mechanisms between CEO optimism and corporate crisis management performance.

Regarding the measurement of corporate crisis management performance, Pearson and Clair (1998) listed vari-ous manifestations of successful crisis response by enterprises. Combined with the research findings of Cui Xiaoming (2014), this study defines corporate crisis management performance as follows: When a crisis occurs, the reactions and behaviors of external stakeholders (referring to investors in this study), as well as whether the company's finan-cial status and reputation are damaged, serve as indicators to measure the quality of corporate crisis management performance. Specifically: After a crisis occurs, whether external audiences - investors - continue to maintain a shared fate relationship with the enterprise and continue cooperation until the crisis is resolved; whether the compa-ny's financial profits/performance rebounds after the crisis, and whether there are news reports indicating the resolu-tion of the crisis event or the appearance of positive reports. The above serve as specific indicators for measuring the quality of corporate crisis management performance in this study.

In summary, based on impression management theory and upper echelons theory, this study integrates the perspective of external investors to construct a multiple mediation model of CEO optimism and corporate crisis management performance.

2. Theoretical Background and Hypothesis Development

2.1. CEO Optimism and Corporate Risk Management

Individuals engage in impression management to influence others' reactions according to their planned direction, thereby achieving their goals. However, displayed traits and actual traits are often inconsistent because people wish to manage impressions. For instance, they may display positive aspects (giving a positive impression) or negative aspects (disappointing when the impression doesn't match reality). Nevertheless, the effectiveness of impression management is also related to proximity. For example, positive impressions are often effective for external, distant observers but tend to be ineffective for internal, close observers. This is because sometimes there can be inconsisten-cies between an individual's displayed optimism and genuine optimism. Due to closer contact and more frequent interpersonal interactions with leaders, internal observers are more likely to discern whether a leader displaying optimism is genuinely optimistic, leading to situations where this impression management may become ineffective.

When inconsistencies occur, for external parties, a leader displaying optimism while actually being pessimistic may still produce positive effects. In this case, external parties believe that the leader has the ability to improve the company's current predicament, thereby increasing confidence in the company's ability to overcome the crisis and promoting positive investment behavior from investors. This demonstrates the positive aspect of impression man-agement.

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However, for internal parties, a leader displaying optimism while actually being pessimistic can lead to negative outcomes. In this situation, internal parties may make pessimistic judgments based on the leader's actual behavior, not believing that the leader can guide the company out of crisis. This could potentially result in team members resigning or switching jobs, which reflects the negative aspect of impression management.

Goffman proposed the theory of Impression Management in 1959. Impression management refers to the process by which people attempt to manage and control the impressions others form of them. As the highest leader of an enterprise, a CEO's words and actions represent the image and state of the company (Hambrick, 2007; Malmendier & Tate, 2005; Niu Fang et al., 2012). When a company faces a crisis, the attitude and behavior displayed by the CEO shape, to a certain extent, the company's image in the public mind. When CEOs handle and respond to crises optimistically (for example: sincere apologies, inspiring speeches, effective crisis response measures, etc.), the public sees an image of a responsible and accountable enterprise, making it easier for them to forgive mistakes and accept the company's performance. Therefore, this study proposes the following hypothesis.

H1: CEO optimism positively affects corporate risk management.

2.2. Mediating Role of Investors Confidence

On the other hand, when a company faces a crisis, external investors, as stakeholders, worry about potential dam-age to their interests. When CEOs display an optimistic image in handling and responding to the crisis, investors form an impression that the corporate leaders still maintain confidence in the company. Compared to corporate lead-ers who appear less optimistic or pessimistic, investors are more inclined to believe that these optimistic leaders still have resources and capabilities to improve the company's current predicament, thereby increasing confidence in the company's ability to overcome the crisis. The general public's reaction to the optimistic image displayed by CEOs is also a factor that external investors can consider. When investors notice that the public has not strongly rejected the company or that support for the company has not diminished, they will believe that the company can improve, which helps to boost investor confidence in the company's ability to overcome the crisis. Therefore, this study pro-poses the following hypothesis.

H2: CEO displayed optimism positively affects investor confidence.

Furthermore, some scholars have found that investor confidence has a significant positive effect on corporate pe-formance (such as stock returns) (Shore et al., 2006). When a company faces a crisis, investors often form an impres-sion from the CEO's statements and actions to shape their perception and judgment of the current corporate crisis environment. When receiving signals that the CEO is displaying optimism in responding to the crisis, investors are likely to maintain or increase their confidence in the company's ability to overcome its current difficulties. This will encourage investors to make positive investment decisions (for example: continuing to hold shares, increasing in-vestment, stabilizing the company's stock price, etc.). These more positive investment behaviors from investors, which are conducive to helping the company overcome its difficulties, will accelerate the company's speed in over-coming the crisis, thereby promoting an improvement in the company's crisis management performance. Therefore, this study proposes the following hypothesis.

H3: Investor confidence mediates the relationship between CEO optimism and corporate risk management performance.

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3. Methods

3.1. Sample and Dataset

This study selects 37 CEOs from 35 companies that experienced crises between 2010 and 2020 as research subjects. The sample information is summarized in Table 1. The research uses Python-written programs to crawl textual information from CEOs' public speeches before and after corporate crises, objective financial data of the enterprises, and textual and data information from objective third-party reports 3-5 months after the crisis occurred. The authors have summarized that the high-quality web crawling channels for this study mainly include East Money Network, Toutiao, People's Network, Sohu Finance, The Paper, and others. After preliminary text preprocessing, segmentation, and division of text passages, a total of 1,126 valid training set text segments and 1,154 valid test set text segments were obtained.

The specific details of the sample CEOs are as follows: 94.6% are male and 5.4% are female; the average age is 57.6 years old, with 64.9% between 41-60 years old; regarding education level, 91.8% have a bachelor's degree or above; in terms of industry: 59.5% are in communications technology and internet services, 10.8% in real estate, accommodation, and catering, 8.1% in automotive and home appliances, 5.4% in agricultural products and food processing, and 2.7% in finance and insurance.

3.2. Measure

3.2.1. Dependent Variable

This study employs a comprehensive approach to evaluate corporate crisis management performance using three key indicators measured 2-3 months after the occurrence of a corporate crisis: stock price fluctuations, changes in financial profits, and the presence of positive third-party reports signaling the resolution of the crisis event. Stock price fluctuations reflect the market's reaction to the company's crisis management efforts, with positive changes suggesting investor confidence. Changes in financial profits assess the direct financial impact of the crisis and the effectiveness of the company's response, where improvement or stabilization indicates successful management. The presence of positive third-party reports looks for independent sources signaling crisis resolution, which can significantly influence public perception and stakeholder confidence. These three aspects are combined to create a holistic assessment of the company's crisis management performance. The evaluation is then categorized into a binary outcome where a score of 1 indicates high corporate crisis management performance, suggesting effective crisis management across these dimensions, while a score of 0 indicates low performance, implying a less effective or unsuccessful response to the crisis in these areas. This multi-faceted approach allows for a more nuanced and comprehensive evaluation of how well a company has navigated through a crisis situation, taking into account both financial metrics and public perception.

3.2.2. Independent Variable

In past studies of individual optimistic traits, some scholars have used the CAVE (Content Analysis of Verbatim Explanations) method (Peterson et al., 1992). This method involves making optimistic and pessimistic judgments about written or spoken language, assessing a person's linguistic style without interference. However, traditional CAVE methods have limitations such as limited textual data, which may lead to information omission bias, as well as potential significant bias and low efficiency due to subjective human judgment.

This study addresses the shortcomings of traditional methods by using big data mining to obtain textual information and machine learning based on LSTM (Long Short-Term Memory) to measure CEO displayed optimism more accurately as a positive psychological advantage. Based on the precise measurement of CEO displayed optimism, this study further crawls objective financial data before and after corporate crises, as well as data and textual

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information from objective third-party reports, to assess investor confidence and corporate crisis management performance. This allows for an in-depth examination of the relationships between CEO displayed optimism, investor confidence, and corporate crisis management performance.

When using LSTM for Chinese semantic, sentiment, and trait classification of textual information, the process is primarily implemented through five steps: text preprocessing, word segmentation, vectorization, network construction, and training and judgment. The specific process as follow. Text preprocessing involves preliminary screening of the acquired raw text corpus information, generally processing unwanted information such as HTML tags. This study uses Python as a preprocessing tool, mainly utilizing the Numpy and Pandas libraries. For word segmentation, this study employs the Jieba Chinese word segmentation library to achieve automatic word segmentation of Chinese sentences. Word vector initialization is done using the Word2Vec sub-library in Python. High-dimensional vectors are used to represent words (Wu Mingqiang et al., 2020), and by assembling word vectors in order, the sequential vector input of sentences can be obtained. Network construction is achieved using the Keras library in Python to establish the LSTM algorithm network model. In the training or judgment phase, after vectorizing the sentences, one or more layers of LSTM networks are connected for text or sentiment feature extraction. Based on this, multiple layers of deep neural networks are connected to train and learn feature vectors, ultimately achieving classification and judgment of text language, sentiment, or traits. In this research design, a machine learning method based on LSTM is used to measure and analyze CEO displayed optimism.

3.2.3. Mediate Variable

Drawing on the research findings of previous scholars (Jin Chunlai, Zhuang Mengxia, 2020), this study utilizes stock turnover rate as a measure of investor confidence. The stock turnover rate is a key indicator that reflects the liquidity and trading activity of a company's shares, which can be indicative of investor sentiment and confidence in the company's prospects, especially following a crisis (Baker & Wurgler, 2006; Chordia et al., 2011). To implement this measurement, the study crawls stock turnover rate data for a period of 2-3 months after the occurrence of a corporate crisis. This timeframe is chosen as it allows for the initial shock of the crisis to subside and for investors to form more considered opinions based on the company's crisis management efforts (Lins et al., 2017). The stock turnover rate data is then analyzed to assess investor confidence. A higher turnover rate generally suggests increased trading activity, which can be interpreted as higher investor engagement and potentially higher confidence in the company's ability to navigate the crisis (Gervais & Odean, 2001). Conversely, a lower turnover rate might indicate investor hesitancy or lack of confidence. Based on this analysis, investor confidence is categorized into a binary outcome where a score of 1 indicates high investor confidence, suggesting that investors remain actively engaged with the company's stock and may have faith in its recovery or crisis management strategies. A score of 0 indicates low investor confidence, implying that investors may be more hesitant to trade the company's stock, possibly due to uncertainties about its ability to effectively manage the crisis (Lemmon & Portniaguina, 2006). This method provides a quantitative approach to gauging investor sentiment, which is crucial in understanding the market's perception of a company's crisis management efforts. It's worth noting that while this measure offers valuable insights, it should be considered alongside other indicators for a comprehensive understanding of investor confidence in the wake of a corporate crisis (Baker & Wurgler, 2007; Tetlock, 2007).

3.2.4. Control Variable

In the analysis of this study's results, several key CEO characteristics were controlled for, as these factors have been shown in previous research to potentially influence leadership style, decision-making, and corporate performance (Hambrick & Mason, 1984; Finkelstein et al.,

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2009).Specifically, the study controlled for CEO gender (1 = male; 0 = female). Gender has been identified as a significant factor in leadership studies, with some research suggesting differences in leadership styles and risk-taking behaviors between male and female CEOs (Faccio et al., 2016; Khan & Vieito, 2013).

CEO age was also controlled for, as it can be indicative of experience, risk aversion, and strategic decision-making tendencies (Serfling, 2014; Yim, 2013). Older CEOs may have more experience in crisis management, while younger CEOs might be more adaptable to rapidly changing situations.

Additionally, the study controlled for education level, categorized as follows: 1 = high school and below, 2 = associate degree, 3 = bachelor's degree, 4 = master's degree, 5 = doctoral degree and above. Educational background has been linked to cognitive complexity, openness to innovation, and strategic decision-making capabilities (Wiersema & Bantel, 1992; Hitt & Tyler, 1991).

These control variables allow for a more nuanced analysis of the relationship between CEO displayed optimism and crisis management performance, by accounting for potential confounding factors. The inclusion of these variables enhances the robustness of the study's findings and provides a more comprehensive understanding of the factors influencing corporate crisis management (Carpenter et al., 2004; Hambrick, 2007).

By controlling for these demographic and background characteristics, the study aims to isolate the effects of CEO displayed optimism on investor confidence and crisis management performance, thereby providing more accurate and reliable insights into the dynamics of leadership during corporate crises (Crossland & Hambrick, 2011; Chatterjee & Hambrick, 2007).

4. Results

4.1. Descriptive Analysis

The descriptive statistics, including means, standard deviations, and correlation coefficients for all variables in this study, are presented in Table 1. These statistics provide a comprehensive overview of the data and initial insights into the relationships between key variables.

Consistent with the research hypotheses, the results reveal significant positive correlations among the main variables of interest. CEO optimism shows a strong positive correlation with investor confidence ($r = 0.38$, $p < 0.01$). This substantial correlation suggests that when CEOs exhibit higher levels of optimism in their communications and actions during a crisis, investor confidence tends to be higher. This finding aligns with previous research on the impact of leadership communication on stakeholder perceptions (Mayew & Venkatachalam, 2012; Patelli & Pedrini, 2014).

CEO displayed optimism is also positively correlated with corporate crisis management performance ($r = 0.50$, $p < 0.01$). This relationship indicates that companies whose CEOs display greater optimism during crises tend to achieve better crisis management outcomes. This supports the notion that leadership optimism can play a crucial role in navigating organizational challenges (Luthans & Youssef, 2007; Norman et al., 2010).

Investor confidence shows a strong positive correlation with corporate crisis management performance ($r = 0.72$, $p < 0.01$). This robust correlation suggests that higher levels of investor confidence are associated with better crisis management outcomes. This finding is consistent with literature emphasizing the importance of stakeholder confidence in organizational resilience and recovery during crises (Coombs & Holladay, 2006; Bundy et al., 2017).

These correlation results provide preliminary support for the hypothesized relationships in the study. They suggest that CEO displayed optimism may play a significant role in shaping both

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investor confidence and crisis management outcomes. Moreover, the strong correlation between investor confidence and crisis management performance underscores the potential importance of maintaining stakeholder trust during challenging periods.

However, it's important to note that while these correlations indicate relationships between variables, they do not imply causation. Further analyses, such as regression or structural equation modeling, would be necessary to establish causal relationships and test the proposed mediating effects (Hair et al., 2010; Hayes, 2013).

Additionally, the strength of these correlations (all above 0.50) suggests that multicollinearity should be carefully considered in subsequent analyses to ensure the reliability of any predictive models (Tabachnick & Fidell, 2013).These initial findings set the stage for more in-depth analyses to test the study's hypotheses and explore the complex interplay between leadership behavior, stakeholder perceptions, and organizational outcomes during crisis situations.

Table 1. Descriptive Statistics and Correlations

Variables	Mean	SD	1	2	3	4	5
Gender	0.95	0.23					
Age	**3.14**	**1.06**	-0.08				
Education	**3.51**	**1.02**	-0.12	0.11			
CEO Optimism	**0.89**	**0.32**	-0.08	0.05	-.34*		
Investor Confidence	0.84	0.37	-0.11	0.06	-.21	.56**	
Corporate Risk Management	**0.81**	**0.40**	**-0.12**	-0.14	-.30	**.50****	**.72****

Notes: N = 37. *p < 0.05, **p < 0.01, ***p < 0.001.

4.2. Descriptive Analysis

Hypothesis 1 predicted the effect of CEO displayed optimism on investor confidence. The Logistic regression results are shown in Table 3. In Model 2, the outcome variable is investor confidence, and the independent variable is CEO displayed optimism. First, examining the model fit, the Hosmer-Lemeshow (HL) test's null hypothesis is that the model's predicted values match the observed values. When the p-value is greater than 0.05, it indicates good model fit. In Model 2 (see Table 3), the p-value corresponding to HL is 0.89, which is greater than 0.05, indicating that the model passes the HL test and has a good fit. Second, Cox & Snell R^2 and Nagelkerke R^2 represent the extent to which predictor variables explain the variance in the outcome variable. Compared to Model 1 (which only included control variables), Model 2 (which added CEO displayed optimism) showed increases in Cox & Snell R^2 and Nagelkerke R^2 of 0.13 and 0.23 respectively. This suggests that CEO displayed optimism significantly explains investor confidence. Finally, looking at the regression coefficient and Exp(B), the positive effect of CEO displayed optimism on investor confidence is significant ($\beta = 3.13$, $p < 0.05$). When a company faces a crisis, the increase in investor confidence influenced by a high degree of CEO displayed optimism (ln((1)/(0)) = Exp(B)) is 22.93. Therefore, Hypothesis 2 is supported.

Hypotheses 2 and 3 predicted the mediating role of investor confidence in the relationship between CEO displayed optimism and corporate crisis management performance. Following Baron and Kenny's (1986) method for testing mediation effects, to prove the mediating role of investor confidence, we must first demonstrate that CEO displayed optimism is significantly related to both investor confidence and corporate crisis management performance, and that investor confidence is significantly related to corporate crisis management performance. The regression results for the mediating effect of investor confidence are shown in Table 2. First, Model 3 (see Table 2) shows that the positive effect of CEO displayed optimism on corporate crisis management performance is marginally significant ($\beta = 2.88$, Exp(B) = 17.86, $p = 0.059 <$

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0.1). Next, Hypothesis 1 has already demonstrated that CEO displayed optimism has a significant positive effect on investor confidence (see Model 2 in Table 3). Finally, in Model 4 (see Table 3), when both CEO displayed optimism and investor confidence are included, investor confidence shows a significant positive effect on corporate crisis management performance ($\beta = 5.19$, Exp(B) = 179.68, $p < 0.05$), while the direct effect of CEO displayed optimism on corporate crisis management performance is no longer significant ($\beta = 1.94$, Exp(B) = 6.94, $p > 0.1$). These results indicate that investor confidence fully mediates the relationship between CEO displayed optimism and corporate crisis management performance. Therefore, Hypotheses 2 and 3 are supported.

This analysis demonstrates the complex interplay between CEO behavior, investor sentiment, and corporate performance during crises. The full mediation effect suggests that the impact of CEO optimism on crisis management outcomes is primarily channeled through its influence on investor confidence. This highlights the crucial role of stakeholder perceptions in translating leadership behaviors into tangible organizational outcomes during challenging periods. The significant increase in the effect size (as indicated by the Exp(B) values) when investor confidence is included in the model underscores the powerful influence of investor sentiment on crisis management performance.

Table 2. The Effect of CEO Optimism and Investor Confidence on Corporate Risk Management

	Investor Confidence		Corporate Risk Management	
	Model 1	Model 2	Model 3	Model 4
Gender	-19.73***	-19.02***	-19.67***	-18.81***
		(0.0503)	(0.0527)	(0.275)
Age	0.24	0.13	-0.46	–1.10
	(0.0487)	(0.0516)	(0.0873)	(0.305)
Education	-0.71	0.49	-0.18**	-0.50
	(0.0501)	(0.0640)	(0.0432)	(0.0122)
CEO Optimism		3.13*	2.88+	1.94
		(0.232)	(0.125)	(0.132)
Investor Confidence				5.19*
				(0.00189)
Constant	23.2	18.33	21.92	20.03
	(0.527)	(0.430)	(0.464)	(1.749)
Hosmer-Lemeshow	0.185***	-0.00666	0.0225	-0.00895
Cox & Snell R^2	-0.00127***	-0.189***	-0.189***	-0.227***
Nagelkerke R^2	0.254***	0.154***	0.153***	0.155***

Notes: (1) *** p<0.01, ** p<0.05, * p<0.1. (2) Standard errors in parentheses.

5. Discussion and Conclusion

5.1. Conclusion

This study investigates the influence of CEO optimism on corporate risk management and examines the mediating roles of investor confidence in this relationship. Our findings contribute to the growing body of literature on corporate risk management and strategic leadership in several important ways.

Firstly, this research enriches and refines the theory and research on leader optimism. By focusing on CEO optimism as a positive psychological advantage influential in organizational and management practices, and exploring its impact on corporate crisis management performance, this study significantly expands the literature on enterprise leader optimism. It

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also provides empirical support and accumulates local Chinese evidence for exploring the influence of leaders' individual positive psychological advantages on corporate crisis management performance in the Chinese organizational management context.

Secondly, this study deepens our understanding of the pathways through which leaders improve corporate crisis management performance. On one hand, it verifies the positive influence of a key leadership factor-CEO optimism-on corporate crisis management performance. Based on social information processing theory, this study reveals that when enterprises face crises, CEO displayed optimism positively affects investor confidence, which in turn mediates the indirect effect of CEO displayed optimism on corporate crisis management performance. These findings enhance our understanding of the potential processes occurring between CEOs and corporate crisis management performance.

Thirdly, this research extends the existing theoretical perspectives on corporate crisis management performance. By integrating the perspective of external audiences (investors), this study captures how investor characteristics can serve as a transmission mechanism affecting corporate crisis management performance, complementing previous research.

Lastly, this study advances the development of individual trait measurement techniques. Based on the Chinese organizational management context, this paper employs machine learning based on LSTM to measure CEO optimism displayed in the face of crises. This measurement technique provides more objective and stable results compared to interview-based or traditional content analysis methods, and more reliable and valid individual trait measurement results compared to questionnaire measurements. It represents a bold attempt and empirical innovation in advancing individual trait measurement methods.

These contributions significantly enhance our understanding of leadership, crisis management, and methodological approaches in organizational research, particularly in the Chinese context.

5.2. Practical Implication

The conclusions of this study offer practical insights and guidance on how enterprises can effectively respond to cri-ses and how managers can effectively leverage the role of optimism as a positive psychological advantage:

Firstly, this study provides insights for enterprises in selecting outstanding leaders. The research reveals the crucial role of enterprise leaders' optimism in successfully addressing crises. In recruitment and talent selection pro-cesses, enterprises should prioritize selecting dispositionally optimistic leaders. This can be achieved through per-sonality psychological tests, situational interviews, and other talent assessment methods. Additionally, for existing leaders and managers within the enterprise, crisis response training should be conducted to cultivate leaders' dis-played optimism when facing crises. This helps to enhance external investor confidence and internal follower trust, thereby driving improvements in enterprise performance.

Secondly, this study offers guidance on improving corporate crisis management performance. The research re-veals the potential mediating role of external audiences (investors) between CEOs and corporate crisis management performance. Enterprises can optimize their approach to enhancing crisis management performance by referencing this study's theoretical framework. They can intervene purposefully and specifically in factors that promote enter-prise performance, thereby improving the effectiveness and practicality of corporate crisis management performance.

Thirdly, this study provides specific management measures and means for enterprise leaders to build, attract, and influence top management team members, thereby enhancing corporate crisis management performance. Based on previous audience perspective research, this study introduces the novel research perspective of followers. Specifi-cally, compared to ordinary employees within the enterprise, top management team members are more familiar with and

understand enterprise leaders better. Therefore, enterprise leaders should focus on consistency between words and actions, especially when the enterprise faces a crisis. By demonstrating a consistent level of optimism, leaders can reinforce the romanticizing tendency of top management team members towards the leader, encourag-ing them to more actively display follower behaviors beneficial to organizational development. This helps the en-terprise to quickly overcome crises and promotes the improvement of corporate crisis management performance.

5.3. Limitation and Future Study

Although this study has yielded some encouraging conclusions, there are several limitations that warrant further exploration and resolution in future research. Firstly, this study focuses on the impact of CEO optimism on corporate crisis management performance and its potential mediating mechanisms, but lacks consideration of possible bound-ary conditions. Future research could attempt to explore potential moderating factors, such as corporate culture and values, top management team climate, CEO's experience with setbacks, and follower personality traits. Secondly, there are certain limitations in the research design and methodology. In the first empirical study, while the theoreti-cal model was validated using machine learning and big data mining methods, and the data results confirmed the impact of CEO displayed optimism on corporate crisis management performance, there remains an issue of relative-ly small sample sizes for both the training set used to machine learn CEO displayed optimism and the sample of companies in crisis. In future research, larger, more objective, and longer-term data should be used to validate this research model. These limitations provide valuable directions for future research. Future studies could investigate how factors such as organizational culture, team dynamics, leadership experiences, and follower characteristics might moderate the relationships identified in this study. Researchers should aim to collect larger and more diverse samples of both CEO communications and companies facing crises to improve the generalizability and robustness of the findings. Adopting longitudinal designs could better understand how CEO optimism and its effects on crisis management evolve over time. Combining quantitative analyses with qualitative methods like case studies or in-terviews could provide deeper insights into the mechanisms linking CEO optimism to crisis management outcomes. Extending this research to different cultural contexts could reveal how the impact of CEO optimism on crisis man-agement may vary across different national or organizational cultures. Further development and validation of ma-chine learning techniques for measuring leadership traits could enhance the accuracy and reliability of future stud-ies in this area. Addressing these limitations and pursuing these research directions will contribute to a more com-prehensive understanding of the role of leadership optimism in corporate crisis management.

References

[1] Aguinis H, Bradley K J. Best Practice Recommendations for Designing and Implementing Experimental Vignette Methodology Studies[J]. Organizational Research Methods, 2014, 17(4):16-21.

[2] Bandura A. Self-Efficacy: The Exercise of Control[M]. New York: Freeman, 1997.

[3] Bandura A. Social Learning Theory[M]. Englewood Cliffs: NJ: Prentice-Hall, 1977.

[4] Baron R M, Kenny D A. The Moderator-mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations[J]. Journal of Personality and Social Psychology, 1986, 51(6):1173-1182.

[5] Burris E R. The Risks and Rewards of Speaking Up: Managerial Responses to Employee Voice[J]. Academy of Management Journal, 2012, 55(4):851-875.

[6] Carr A. Positive Psychology: the Science of Happiness and Human Strengths[M]. Taylor and Francis, 2013.

[7] Carver C S, Scheier M F. A Control-Systems Approach to the Self-Regulation of Action[M]. Springer Berlin Heidelberg, 1985.

[8] Chen S, Lin C, Tsai Y. New Product Strategies and Firm Performance: CEO Optimism[J]. International Review of Economics & Finance, 2018, 55, 37-53.

[9] Chughtai A, Byrne M, Flood B. Linking Ethical Leadership to Employee Well-Being: The Role of Trust in Supervisor[J]. Journal of Business Ethics, 2015, 128(3):653-663.

[10] Dai N, Ivanov V, Cole R A. Entrepreneurial Optimism, Credit Availability, and Cost of Financing: Evidence from U.S. Small Businesses[J]. Journal of Corporate Finance, 2017, 44(C):289-307.

[11] Dushnitsky G. Entrepreneurial Optimism in the Market for Technological Inventions[J]. Organization Science, 2010, 21(1):150-167.

[12] Edwards J R. The Study of Congruence in Organizational Behavior Research: Critique and a Proposed Alternative[J]. Organizational Behavior and Human Decision Processes, 1994, 58(1):51-100.

[13] Edwards J R, Cable D M. The Value of Value Congruence.[J]. Journal of Applied Psychology, 2009, 94(3):654.

[14] Edwards J R, Parry M E. On the Use of Polynomial Regression Equations As An Alternative to Difference Scores in Organizational Research[J]. Academy of Management Journal, 1993, 36(6): 1577-1613.

[15] Faul F, Erdfelder E, Lang A, et al. G*Power 3: A Flexible Statistical Power Analysis Program for the Social, Behavioral, and Biomedical Sciences[J]. Behavior Research Methods, 2007, 39(2):175-191.

[16] Gibbons F X, Blanton H, Gerrard M, et al. Does Social Comparison Make a Difference? Optimism as a Moderator of the Relation between Comparison Level and Academic Performance[J]. Personality & Social Psychology Bulletin, 2000, 26(5):637-648.

[17] Hambrick D C. Upper Echelons Theory: An Update[J]. Academy of Management Review, 2007, 32(2):334-343.

[18] Hambrick D C, Mason P A. Upper Echelons: The Organization as a Reflection of Its Top Managers[J]. Academy of Management Review, 1984, 9(2):193-206.

[19] Hermann C F. Some Consequences of Crisis Which Limit the Viability of Organizations[J]. Administrative Science Quarterly, 1963, 8(1):61-82.

[20] Hong H, Woo B, Lee B. Differences in Corporate Crisis Management Between CEO's Leadership Styles[J]. Journal of the Korea Contents Association, 2013, 13(9):382-391.

[21] Isaakyan S, Sherf E N, Tangirala S, et al. Keeping it between us: Managerial Endorsement of Public Versus Private Voice[J]. The Journal of Applied Psychology, 2020.

[22] James E H. Leadership as (Un)usual:: How to Display Competence in Times of Crisis[J]. Organizational Dynamics, 2005, 34(2):141-152.

[23] Malmendier U, Tate G. Does Overconfidence Affect Corporate Investment? CEO Overconfidence Measures Revisited[J]. European Financial Management, 2005, 11(5), 649-659.

[24] Mcallister D. Affect- and Cognition-Based Trust as Foundations for Interpersonal Cooperation in Organizations[J]. The Academy of Management Journal, 1995, 38(1):24-59.

[25] Mclean L D. Organizational Culture's Influence on Creativity and Innovation: A Review of the Literature and Implications for Human Resource Development[J]. Advances in Developing Human Resources, 2005, 7(2):226-246.

[26] Meindl J R. The Romance of Leadership[J]. Administrative Science Quarterly, 1985, 30(1):78-102.

[27] Pearson C M, Clair J A. Reframing Crisis Management[J]. Academy of Management Review, 1998, 23(1):59-76.

[28] Peterson C, Schulman P, Castellon C, et al. CAVE: Content Analysis of Verbal Explanations[M]//In C. Smith (Ed). Motivation and Personality: Handbook of Thematic Content Analysis. New York: Cambridge University Press, 1992:383-392.

ISSN: 2688-9323

[29] Peterson R S, Smith D B, Martorana P V, et al. The Impact of Chief Executive Officer Personality on Top Management Team Dynamics: One Mechanism by which Leadership affects Organizational Performance [J]. Journal of Applied Psychology, 2003, 88(5):795-808.

[30] Peterson S J, Walumbwa F O, Byron K, et al. CEO Positive Psychological Traits, Transformational Leadership, and Firm Performance in High-Technology Start-up and Established Firms[J]. Journal of Management, 2009, 35(2):348-368.

[31] Rempel J K, Holmes J G, Zanna M P. Trust in Close Relationships[J]. Journal of Personality and Social Psychology, 1985, 49(1):95-112.

[32] Seligman M E. Learned Optimism[M]. New York: Pocket Books, 1998.

[33] Shanock L R, Baran B E, Gentry W A, et al. Polynomial Regression with Response Surface Analysis: A Powerful Approach for Examining Moderation and Overcoming Limitations of Difference Scores[J]. Journal of Business & Psychology, 2010, 25(4):543-554.

[34] Shore L M, Tetrick L E, Lynch P, et al. Social and Economic Exchange: Construct Development and Validation[J]. Journal of Applied Social Psychology, 2006, 36(4):837-867.

[35] Sitkin S B, Roth N L. Explaining the Limited Effectiveness of Legalistic "Remedies" for Trust/Distrust[J]. Organization Science, 1993, 4(3):367-392.

[36] Skarlicki D P, Turner R A. Unfairness Begets Unfairness: Victim Derogation Bias in Employee Ratings[J]. Organizational Behavior and Human Decision Processes, 2013, 124(1):34-46.

[37] Tsai W, Ghoshal S. Social Capital and Value Creation: The Role of Intrafirm Networks[J]. The Academy of Management Journal, 1998, 41(4):464-476.

[38] Tsui A S, Nifadkar S S, Ou A Y. Cross-National, Cross-Cultural Organizational Behavior Research: Advances, Gaps, and Recommendations[J]. Journal of Management, 2007, 33(3):426-478.

[39] Zhang Z, Wang M, Shi J. Leader-Follower Congruence in Proactive Personality and Work Outcomes: The Mediating Role of Leader-Member Exchange[J]. Academy of Management Journal, 2012, 55(1):111-120.