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Environmental Crisis, Institutional Pressure, and Corporate Disclosure: A Case Study of Zijin Mining

Ming Jiang*

School of Finance and Management, Shanghai University of International Business and Economics, Shanghai 201620, China

**Corresponding author: Ming Jiang.*

Abstract

Against the backdrop of increasingly stringent environmental governance requirements, environmental information disclosure has become a critical tool for firms to respond to societal expectations and maintain legitimacy. Drawing on legitimacy theory, this study takes the "July 3" environmental pollution incident and the "September 21" explosion accident of Zijin Mining in 2010 as the research context. Using annual reports from 2008 to 2014 as the sample, this paper examines the evolution of corporate environmental information disclosure before and after environmental crises, and analyzes its mechanism in repairing corporate brand image. Furthermore, the analysis is extended by incorporating the perspective of changes in national regulatory frameworks. The findings indicate that under the impact of environmental crises, corporate environmental disclosure exhibits a staged evolution from symbolic disclosure to responsive disclosure, and ultimately to institutionalized disclosure. Following the crises, under regulatory and public opinion pressure, firms significantly increase disclosure content and strengthen responsiveness. As governance progresses, disclosure becomes more systematic and quantitative. Further analysis shows that institutionalized disclosure enhances information transparency, helps mitigate negative public opinion, and promotes the restoration of corporate legitimacy and brand image. Meanwhile, the strengthening of national environmental disclosure regulations plays a crucial role in driving this process.

Keywords

environmental information disclosure, legitimacy theory, environmental crisis, brand image repair, Zijin Mining

1. Introduction

1.1 Research Background

With the intensification of global climate change and the deepening of sustainable development concepts, low-carbon transformation has become a key direction of economic development. Under China's "dual carbon" goals, green transformation continues to advance. As key agents in resource allocation, firms' environmental behaviors not only affect ecological governance outcomes but also directly influence social evaluation and market perception. This is particularly true for heavily polluting industries, where environmental incidents often trigger heightened public scrutiny and stricter regulatory intervention, thereby damaging corporate brand image.

Corporate brand image, as an important intangible asset, relies heavily on public trust and recognition. In recent years, academic research has explored mechanisms for maintaining corporate reputation through corporate social responsibility, public pressure, and environmental information disclosure. Existing studies suggest that public pressure significantly affects corporate environmental disclosure behavior (Xiao, 2018; Wang, 2020), and that negative media coverage can prompt firms to respond through increased disclosure (Shen and Feng, 2012). At the same time, some studies argue that firms may engage in strategic disclosure or impression management under pressure to alleviate external skepticism (Jiang, 2016; Pan et al., 2019).

From the perspective of firm value, prior research mainly examines how disclosure level or quality affects market performance, generally finding that high-quality disclosure enhances firm value (Tang et al., 2016; Ren, 2013). However, most existing literature remains static in nature, paying insufficient attention to whether disclosure logic undergoes staged changes under environmental shocks and how it contributes to brand repair. For heavily polluting firms, whether environmental disclosure serves merely as a short-term response tool or evolves into an institutionalized governance mechanism remains an open question.

1.2 Research Questions

Within the framework of legitimacy theory, this study focuses on Zijin Mining, using its annual reports from 2008 to 2014 and related materials. As a representative firm in a heavily polluting industry, Zijin Mining experienced a process of “image damage—legitimacy reconstruction—brand repair” following environmental incidents, providing a typical case for examining changes in environmental disclosure under crisis conditions.

This paper addresses the following research questions:

1. How did the content structure, depth, and narrative logic of environmental information disclosure evolve before and after the 2010 environmental incidents?

2. How did Zijin Mining respond to increasingly stringent national environmental disclosure regulations and adjust its disclosure practices?

3. How do national regulatory requirements for heavily polluting firms drive the continuous optimization of environmental disclosure, and how does disclosure contribute to brand image repair?

2. Literature Review

2.1 Environmental Information Disclosure

With the deepening of sustainable development concepts, environmental information disclosure has gradually evolved from a supplementary element into a central component of corporate external communication. Existing studies mainly focus on three aspects: the determinants of disclosure, its economic consequences, and strategic disclosure behavior.

A large body of literature suggests that corporate environmental information disclosure is significantly influenced by external pressures. Wang Xia (2020) argues that disclosure behavior largely represents a response to legitimacy pressure. Xiao Hua (2018), using the “Songhua River incident” as an example, finds that environmental emergencies significantly increase firms’ willingness to disclose environmental information. In terms of specific drivers, media and government are widely regarded as key forces. Shen Hongtao et al. (2012) point out that media coverage generates continuous constraints through public opinion, particularly in negative contexts, where firms are more inclined to increase disclosure.

Meanwhile, as regulatory systems continue to improve, corporate environmental disclosure has gradually shifted from voluntary behavior to a more institutionalized and regulated practice. International studies reach broadly consistent conclusions. Craig Deegan (2002) and Dennis M. Patten (2002) both argue that when corporate environmental performance is questioned, firms tend to strengthen disclosure in response to external pressure.

Regarding economic consequences, existing research mainly focuses on firm value and capital market reactions. Ren Li (2013) suggests that environmental disclosure helps reduce information asymmetry, thereby enhancing firm value. Tang Yongjun et al. (2016) find a positive relationship between disclosure quality and firm value. In international research, this issue is often examined within the ESG framework. Suraj Srinivasan Dhaliwal et al. (2011) show that high-quality disclosure helps reduce the cost of capital and improves investor confidence.

However, some studies argue that the economic effects of disclosure are not stable. Differences in disclosure quality and environmental performance across firms may lead to heterogeneous market reactions. Building on this perspective, some scholars further explore strategic disclosure choices. Jiang Wei (2016) suggests that under negative public pressure, firms may increase disclosure as a form of impression management. Pan Ailing et al. (2019) find that firms may adopt “strategic green behavior” to guide public attention, while actual environmental performance does not necessarily improve accordingly.

Therefore, environmental information disclosure does not always directly reflect a firm’s environmental performance. In certain contexts, it primarily serves the functions of maintaining legitimacy and repairing corporate reputation.

2.2 Legitimacy Theory and Corporate Response Mechanisms

Legitimacy theory provides an important analytical framework for understanding corporate environmental information disclosure. Mark C. Suchman (1995) argues that the survival and development of firms depend on social acceptance. When corporate behavior deviates from societal expectations, a legitimacy crisis may arise, prompting firms to adjust their behavior or disclosure strategies.

In the context of environmental governance, environmental information disclosure has become a key instrument for legitimacy management. Following environmental incidents or external criticism, firms typically respond by increasing disclosure and strengthening environmental investments in order to convey positive signals and alleviate external pressure. Media supervision and government regulation play critical roles in this process.

Empirical studies suggest that under the joint influence of public opinion and institutional constraints, firms gradually develop relatively stable disclosure mechanisms (Shen Hongtao et al., 2012). At the same time, legitimacy crises are often accompanied by damage to corporate brand image. Firms therefore need to continuously disclose governance measures and improvements in environmental performance in order to rebuild public trust.

2.3 Evolution of National Regulations on Environmental Information Disclosure

With the continuous improvement of China’s environmental governance system, regulatory requirements for corporate environmental information disclosure have become increasingly stringent. The revised Environmental Protection Law in 2014 explicitly requires firms to disclose pollutant emission information and strengthens legal accountability.

On this basis, regulatory authorities have gradually raised disclosure requirements for key polluting enterprises, requiring them to regularly report information such as pollution sources, governance measures, and environmental protection investments. Overall, environmental information disclosure in China has been transitioning from a voluntary practice to a more institutionalized and standardized system.

2.4 Literature Evaluation and Research Gaps

Existing studies have developed a relatively systematic analytical framework from the perspectives of determinants, economic consequences, and strategic behavior. However, several limitations remain.

First, most studies rely on large-sample empirical methods and focus on variable relationships, paying insufficient attention to the dynamic and staged evolution of disclosure behavior under environmental crisis shocks. For heavily polluting firms in particular, disclosure strategies may differ significantly across stages, and this process requires further exploration.

Second, the relationship between environmental information disclosure and corporate brand image repair lacks systematic analysis. Most existing studies treat reputation as an outcome variable, with limited attention to how disclosure contributes to alleviating public skepticism and rebuilding trust from the perspective of legitimacy reconstruction.

In terms of case selection, this study focuses on Zijin Mining for three main reasons. First, the firm operates in a typical heavily polluting industry. Second, it experienced consecutive environmental and safety incidents in 2010, providing clear temporal reference points for analysis. Third, relevant disclosure data are relatively complete, enabling longitudinal analysis.

This case therefore provides a valuable opportunity to examine the interaction between institutional pressure and corporate disclosure behavior.

3. Case Background and Event Overview

3.1 Firm Profile

Zijin Mining Group Co., Ltd., established in 1993, is one of China's major non-ferrous metal enterprises, with operations covering the exploration, extraction, and smelting of resources such as gold, copper, and zinc. With the expansion of its business scale, the company has engaged in resource development both domestically and internationally. Its production processes involve multiple stages, including mining, ore dressing, and smelting.

Mining enterprises are highly resource-dependent, and their production processes are typically associated with wastewater discharge, air emissions, and tailings disposal, resulting in significant environmental impacts. Consequently, such firms face higher environmental governance requirements and regulatory pressure. In this context, corporate environmental behavior is more likely to attract attention from governments, media, and the public.

Prior to 2010, the company had disclosed certain environmental information in its annual reports, such as pollutant emissions and environmental protection investments. However, such disclosures were largely fragmented and lacked an independent structure. Overall, disclosure during this period mainly focused on demonstrating environmental performance and regulatory compliance, exhibiting a certain degree of symbolic characteristics while providing limited information on environmental risks and governance mechanisms.

3.2 Overview of the 2010 Environmental Incidents

On July 3, 2010, a wastewater leakage accident occurred at the Zijinshan Copper Mine, polluting the Ting River basin and causing the death of aquatic organisms, which attracted widespread public attention. Regulatory authorities promptly intervened, initiating investigations and requiring rectification. Continuous media coverage placed the firm under significant public scrutiny.

In September of the same year, an explosion occurred in another mining area, resulting in casualties and further intensifying external concerns regarding the firm's environmental and safety management practices. The combination of these two incidents imposed simultaneous regulatory and societal pressure on the firm.

From the perspective of legitimacy theory, when corporate behavior deviates from public expectations, its foundation of social acceptance is undermined, necessitating corrective actions. Following these environmental incidents, the company significantly increased the disclosure of environmental governance and rectification measures in its annual reports, demonstrating a clear shift toward responding to external concerns.

3.3 Changes in Environmental Information Disclosure Before and After the Crisis

A review of annual reports from 2008 to 2014 reveals significant changes in the company's environmental information disclosure before and after the incidents. Prior to the crisis, disclosure was limited in scale and mainly focused on pollutant emissions and environmental investments, presented in a dispersed manner and primarily intended to demonstrate governance outcomes.

After the incidents, under pressure from public opinion and regulatory authorities, the company substantially increased relevant disclosures, emphasizing environmental management and governance measures to address public concerns. Over time, disclosure gradually became more standardized, with pollutant emissions and environmental investments forming relatively stable reporting structures.

Continuous disclosure reduced external uncertainty to some extent, helping to mitigate negative impacts and restore public trust.

4. Evolution of National Environmental Disclosure Regulations and Corporate Pressure Mechanisms

4.1 Pre-2010: Initial Exploration Stage of Environmental Disclosure Systems

Before 2010, China's environmental information disclosure system was still in its early stage. It was primarily characterized by policy guidance, lacking systematic institutional arrangements and mandatory requirements. Although government agencies had begun to pay attention to corporate environmental disclosure, most regulations remained at a principled level without unified and explicit standards.

Under weak institutional constraints, firms had considerable discretion in disclosure practices. Environmental disclosure was often motivated by image maintenance and legitimacy acquisition rather than strict compliance requirements. As a result, disclosures mainly focused on environmental performance and compliance narratives, lacking systematic structure and comparable quantitative information.

From the perspective of legitimacy theory, when external institutional pressure is limited, firms tend to adopt symbolic disclosure strategies—communicating limited information to signal environmental concern without fully disclosing environmental risks or governance mechanisms. This pattern is consistent with Zijin Mining's disclosure practices prior to 2010.

4.2 Around 2010: Strengthening Regulation Driven by Environmental Incidents

Around 2010, with the occurrence of multiple environmental pollution incidents, public attention to corporate environmental behavior increased significantly, and government regulation became stricter. In this context, environmental information disclosure began to transition from voluntary arrangements to more binding institutional requirements.

Major environmental incidents tend to amplify public pressure and prompt regulatory tightening. Media coverage plays a crucial role in this process by sustaining public attention and indirectly pushing policy adjustments.

At the institutional level, regulatory authorities gradually strengthened disclosure requirements for key polluting entities, requiring firms to disclose pollutant emissions, governance measures, and environmental investments. Compared to earlier disclosure practices focused on image presentation, disclosures during this period were more directly aimed at responding to external concerns.

From a behavioral perspective, when legitimacy is challenged, firms commonly increase disclosure to respond to scrutiny and reduce uncertainty. Thus, the combined effects of environmental incidents and institutional changes around 2010 pushed corporate environmental disclosure into a "responsive" stage.

4.3 Around 2014: Standardization and Institutionalization of Disclosure

The revised Environmental Protection Law implemented in 2014 is widely regarded as a major turning point in China's environmental governance. It introduced clearer requirements for corporate environmental disclosure, mandating key polluting entities to publicly disclose pollutant emission information and accept social supervision.

Subsequently, China gradually established a more comprehensive environmental disclosure framework, requiring firms to regularly disclose emission data, governance measures, environmental facility operations, and environmental investments. This significantly improved the standardization and transparency of disclosure.

Institutionalized disclosure helps reduce information asymmetry between firms and external stakeholders, making corporate environmental behavior more observable and assessable. It also strengthens external supervision and imposes continuous constraints on firms.

As the system evolves, environmental disclosure is no longer merely a response to external pressure but becomes integrated into routine corporate management, forming part of the overall governance system.

4.3.1 Mechanisms Through Which Institutional Evolution Affects Disclosure

The case clearly illustrates the relationship between institutional changes and corporate disclosure behavior. Under weak institutional constraints, disclosure was primarily symbolic, aimed at demonstrating environmental performance and maintaining corporate image.

With the occurrence of environmental incidents and tightening regulation, firms faced pressure from government, media, and the public, leading to a significant increase in disclosure focused on rectification measures and environmental investments, reflecting a more responsive approach.

As institutions became more developed, disclosure stabilized and became more systematic and detailed. Information on pollutant emissions, environmental investments, and governance projects gradually formed standardized structures, indicating that disclosure had been incorporated into routine management.

Overall, the evolution of national regulations constitutes a key source of legitimacy pressure. Firms continuously adjust disclosure strategies to adapt to changing institutional environments, shifting from short-term responses to long-term governance. Thus, national environmental disclosure systems not only influence disclosure content and format but also play a foundational role in corporate image repair.

5. Staged Evolution of Environmental Information Disclosure Logic

5.1 Pre-Crisis: Symbolic Disclosure (2008–2009)

Before the 2010 environmental incidents, environmental disclosures in Zijin Mining's annual reports were relatively limited and fragmented. Relevant content was mainly embedded in sections such as business reviews or corporate social responsibility, without forming an independent disclosure module.

Disclosure content primarily focused on environmental performance. For example, the 2008 report highlighted achievements such as high environmental ratings and "zero discharge" of tailings water, while the 2009 report emphasized reductions in pollutant emissions below national and provincial averages. Such disclosures were largely positive and image-oriented.

At the same time, statements were often general and principle-based, such as "attaching great importance to environmental protection" and "complying with national regulations", with limited discussion of specific governance mechanisms. Overall, disclosure in this stage emphasized compliance and environmental awareness while providing insufficient information on environmental risks and governance systems.

This pattern is typically defined as symbolic disclosure, where firms use limited information to reinforce a positive image without fully addressing key environmental issues.

5.2 Post-Crisis: Responsive Disclosure (2010–2013)

The 2010 environmental incidents exposed the firm to significant pressure from regulators, media, and the public, severely challenging its legitimacy. In response, the firm actively increased environmental disclosure.

The 2010 annual report shows that environmental expenditures rose significantly, and the company began disclosing information on key monitored enterprises. Disclosure content expanded to include accident rectification, safety management, and environmental investments.

As governance progressed, subsequent reports included more detailed information on environmental management activities, such as safety inspections and risk mitigation measures. Between 2012 and 2013, disclosures on pollutant emissions, waste treatment, and environmental fees became more structured and detailed.

Overall, disclosure during this stage was clearly responsive, aiming to address environmental incidents, reduce uncertainty, and alleviate external pressure. This aligns with legitimacy theory, whereby firms use disclosure to respond to social scrutiny and maintain legitimacy.

5.3 Post-Crisis Stage: Institutionalized Disclosure (2014)

As environmental governance became normalized, corporate environmental disclosure shifted from crisis response to institutionalized management. The 2014 annual report shows significant improvements in both governance and disclosure.

The firm began systematically presenting environmental governance outcomes, including the achievement of "zero industrial wastewater discharge" in multiple subsidiaries and the promotion of green mining initiatives. Environmental investments increased substantially, indicating the establishment of a sustained investment mechanism.

Green mining was incorporated into the firm's development strategy, reflecting a shift from single pollution control to coordinated development between resource extraction and ecological protection. Disclosure structures also became more stable, with standardized modules covering emissions, investments, and governance projects.

At this stage, environmental disclosure was no longer merely reactive but embedded in corporate governance and strategic development, exhibiting clear institutionalized characteristics.

5.4 Disclosure Evolution and Brand Image Repair

Legitimacy theory suggests that corporate survival depends on social acceptance. When firms deviate from societal expectations, legitimacy is challenged and must be restored through appropriate actions.

The Zijin Mining case demonstrates a clear evolution from symbolic to responsive and ultimately to institutionalized disclosure. This transition is reflected not only in increased disclosure quantity but also in a shift from image-oriented content to substantive governance information.

In the early crisis stage, increased disclosure helped respond to public concerns and explain rectification efforts, thereby alleviating public pressure. As governance progressed, stable disclosure structures emerged, continuously communicating environmental performance improvements.

This process reduced information asymmetry, enabling stakeholders to better understand corporate environmental behavior, thereby mitigating negative perceptions. Consequently, the firm gradually restored legitimacy and rebuilt trust with stakeholders.

Moreover, the continuous improvement of national disclosure systems provided an institutional foundation for this process by enhancing transparency and credibility, ultimately facilitating brand image repair.

6. Future Strategies and Policy Implications

6.1 Improving Environmental Disclosure Regulations

To enhance the effectiveness of environmental disclosure systems, further refinement is needed to improve both enforceability and operability. While current regulations mainly target key polluting entities, some non-key firms may also pose significant environmental risks. Expanding disclosure requirements based on risk orientation would improve coverage and transparency.

Standardizing disclosure content is also essential. Current flexibility leads to inconsistencies across firms, reducing comparability. Introducing clearer disclosure standards and more quantitative indicators would enhance both readability and accountability.

In addition, disclosure frequency could be improved. Current annual reporting may not capture real-time environmental performance. With advancements in data platforms, firms could adopt more timely disclosure mechanisms, such as periodic updates on emissions and governance progress.

Finally, relying solely on self-disclosure is insufficient. Introducing third-party verification mechanisms would enhance credibility and provide more reliable information for regulators and stakeholders.

6.2 Future Regulatory Strategies

In the long run, improving environmental disclosure requires not only better rules but also effective regulatory approaches. Heavily polluting industries should remain a primary focus, with continuous monitoring of emissions, environmental investments, and facility operations.

Rather than simply introducing new regulations, evaluating the implementation of existing policies is equally important. In addition, combining regulatory constraints with incentive mechanisms can create sustained motivation for firms. For example, linking disclosure performance to financing conditions, ratings, or policy support can transform disclosure into a value-generating activity.

With the development of green finance, environmental information is increasingly important for investment decisions. Enhancing standardization and integration with capital markets would strengthen its role in resource allocation.

International experience can also be leveraged to improve domestic systems, particularly in areas such as data platforms and environmental information management.

6.3 Conclusion

As China's environmental disclosure system continues to improve, firms will face increasingly stringent compliance requirements. However, this process will not only enhance corporate environmental governance but also strengthen public trust, providing firms with advantages in global competition.

Future policy innovation and institutional development will offer stronger legal support for sustainable corporate development while ensuring greater transparency in environmental governance.

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