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The Impact of ESG Disclosure on Financial Performance in Oil and Gas Companies: A Difference-in-Differences Analysis

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Abstract: With increasing global attention on sustainable development and corporate social responsibility, more and more countries and regions are requiring companies to disclose information related to environmental, social, and corporate governance (ESG). Especially in the oil and gas industry, ESG information disclosure has become an important means of measuring corporate governance and sustainable development performance. However, there is still controversy in both academic and practical circles regarding whether ESG disclosure can improve financial performance and its impact on companies fulfilling their fiduciary responsibilities. Therefore, this study aims to explore the impact of ESG disclosure on the financial performance of companies in the oil and gas industry, and analyze its relationship with the fulfillment of trust responsibilities.This study adopts the Difference in Differences (DID) method and selects oil and gas companies affected by ESG disclosure policies as research objects. By comparing the changes in financial performance of these companies before and after policy implementation, the role of ESG information disclosure in improving company transparency and reducing information asymmetry is analyzed. In addition, this study also explored the interactive relationship between ESG disclosure and trust responsibility under different legal frameworks, especially in the application of high environmental risk industries. The research results indicate that active ESG disclosure not only helps improve the long-term financial stability of companies, but also enhances shareholder trust and reduces legal risks, especially in regions with sound policies where the effect is more significant. However, research has also found that ESG disclosure may increase short-term costs and conflict with short-term financial goals in trust obligations.

Keywords: ESG disclosure, Trust responsibility, Financial performance, Difference in Differences (DID), Oil and gas industry.

1. Introduction

With the global emphasis on sustainable development and corporate social responsibility, the oil and gas industry is gradually increasing its attention to ESG (Environmental, Social, and Governance) disclosure. The relevant regulations in Europe require large enterprises to disclose their non-financial information annually to enhance transparency and market attractiveness. As a traditional energy industry, oil and gas companies face complex social and environmental issues such as carbon

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emissions and environmental degradation. Active ESG practices can not only improve the company's image, but also enhance financial performance by reducing legal and operational risks. However, industry acceptance of ESG disclosure remains controversial: critics argue that it may contradict short-term financial goals, while proponents argue that it can help improve long-term competitiveness. This study uses the Difference in Differences (DID) method to analyze the impact of ESG disclosure on financial performance, providing theoretical and empirical support for policies and decisions.

This study uses the Difference in Differences (DID) method to examine the impact of ESG disclosure on the financial performance of oil and gas firms. It explores how companies can optimize ESG strategies while maintaining compliance and balancing financial performance with social responsibility. The findings aim to provide insights for policymakers and business leaders, offering both practical guidance and theoretical support for sustainable development in the industry. Through empirical analysis, the study seeks to enhance understanding of the effects of ESG disclosure on corporate governance and financial outcomes.

2. Literature Review

2.1. Legal Basis for Entrustment Responsibility

Entrustment responsibility is a core legal principle aimed at ensuring that the trustee prioritizes the interests of the principal, preventing abuse of power and conflicts of interest. This principle is particularly important in the financial sector, as it can reduce agency costs, enhance market stability, and effectively protect investor rights [1]. In the oil and gas industry, due to its high risk and high return characteristics, delegated responsibility plays a key role in joint venture management and complex contractual relationships, requiring clear contract terms, ensuring transparency, preventing conflicts of interest, and effectively managing legal risks[2]. In recent years, the scope of delegated responsibility has expanded to include environmental, social, and governance (ESG) factors. With the increasing emphasis on sustainable development and corporate social responsibility in society, enterprises not only need to fulfill financial responsibilities, but also need to undertake broader social and environmental responsibilities. Research has shown that incorporating ESG factors can contribute to a company's long-term financial stability and social benefits, and ignoring these factors may be seen as a violation of entrusted responsibility [3]. Schanzenbach and Sitkoff further pointed out that investors' attention to ESG issues is driving courts and regulatory agencies to gradually accept their inclusion in decision-making processes. Strakodonskaya suggested using legal incentives to encourage investors to actively consider ESG factors, in order to reduce environmental and social risks and improve long-term financial performance[4].

2.2. Theoretical Basis for ESG Disclosure

ESG disclosure is a key tool for companies to publicly report their environmental, social, and governance performance, aimed at increasing transparency, reducing information asymmetry, and helping stakeholders evaluate a company's sustainable development performance. The disclosure content covers carbon emissions, water resource utilization, labor conditions, etc., gradually becoming a legal requirement, which helps companies identify risks, reduce compliance costs, and support strategic decision-making. Research shows that ESG disclosure is positively correlated with a company's long-term financial performance, not only enhancing customer trust, brand loyalty, and market reputation, but also reducing capital costs, attracting ethical investors, and enhancing the company's long-term competitiveness [5].

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2.3. Disputes over ESG Disclosure and Trustee Responsibilities

Some scholars believe that ESG disclosure may conflict with fiduciary responsibilities, especially when prioritizing maximum financial returns for shareholders[1]. ESG disclosure focuses on social and environmental risks, which may lead to increased costs and affect short-term returns. Therefore, some people are concerned that overemphasizing ESG standards may cause companies to deviate from their financial goals and weaken their ability to fulfill their fiduciary responsibilities[6].

Critics argue that entrusted responsibility requires companies to focus on the financial interests of shareholders, while ESG disclosure may involve high cost long-term goals, deviating from this core principle. Standardized ESG disclosure increases the cost of data collection and reporting, especially in high-risk industries such as oil and gas, which can weaken a company's competitiveness[7].

Supporters believe that the entrusted responsibility of modern enterprises should include a wider range of stakeholders' interests, and ESG factors are considered an important component of fulfilling entrusted responsibilities in this context[8]. Neglecting these factors may be seen as a breach of fiduciary duty; On the contrary, active ESG practices help improve governance and transparency, enhance company reputation and market value, attract more investors and customers, and ultimately improve overall financial performance.

3. Theoretical Analysis Framework

3.1. Assumptions on the Impact of ESG Disclosures on Fiduciary Obligations

3.1.1. Assumption that ESG disclosure may Enhance a Company's Ability to Fulfill its Fiduciary Obligations

First assumption refers that ESG disclosure improves a company's capacity to meet its fiduciary responsibilities. ESG disclosure, according to studies, helps to lower information asymmetry, increase corporate governance and transparency, and let stakeholders and shareholders better grasp a company's long-term plans and risk-management capacity[9]. Positive ESG disclosure raises shareholder value, lowers capital costs, and draws long-term investors. ESG disclosure can thus enable businesses to properly recognize and control possible environmental and social hazards, prevent legal conflicts or reputation damage, and improve the long-term financial stability of the company[10]. Consequently, ESG disclosure can be considered as a component of a company's fiduciary responsibility, thus safeguarding the long-term interests of owners.

3.1.2. Assumption that ESG Disclosure may Conflict with Fiduciary Obligations

Assumption 2 is that ESG disclosure may conflict with conventional fiduciary responsibilities. Conventional fiduciary responsibility mandates that corporate management give maximizing the financial interests of shareholders top priority. ESG disclosure, on the other hand, entails extra expenses and resource inputs including those related to environmental governance, social responsibility, and corporate governance enhancements, which may not be immediately reflected in financial returns and hence influence the company’s short-term performance[11]. Furthermore, the revelation of ESG data could include subjectivity and uncertainty, which makes management's decision-making more challenging and might cause shareholders to doubt whether they have met their fiduciary responsibilities. Thus, in some situations, especially when juggling short-term financial objectives with long-term sustainable development goals, ESG disclosure may contradict fiduciary requirements.

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3.1.3. Theoretical Analysis of Balancing ESG Factors in Corporate Decision-making

When juggling ESG concerns with financial obligations, companies should base decisions on a multi-level analytical approach. First stakeholder approach should be embraced to add ESG aspects into a company's strategy planning and performance evaluation so that one can thoroughly assess the relative relevance of financial and non-financial goals. Second, communication with stakeholders including shareholders should be strengthened to precisely reveal their ESG goals and plans so improving information openness and credibility and reducing possible conflicts of interest. At the end, it is ensured that these strategies not only meet legal and market needs but also effectively help the long-term financial and social goals of the company by means of continual evaluation and change of ESG initiatives. This strategy helps companies to fulfill both fiduciary responsibility and sustainable development goals in demanding market conditions, hence optimizing stakeholder value.

3.2. Research Methods and Model Construction

3.2.1. Legal Applicability of the Difference in Differences (DID) Method

In the domains of law and economics, the Difference in Differences (DID) approach is extensively applied as a potent instrument for assessing the causal consequences of intervention policies or legislative changes. By using two groups—one receiving intervention and the other acting as a control—the DID approach approximates the causal effects of policy or regulatory changes. Its legal relevance mostly reflects the following features: First of all, the DID approach depends on the "parallel trend assumption," and the trend of the treatment group's and the control group's outcomes should be consistent free from intervention. Legal evaluation depends much on this assumption since it guarantees strong causal inference in non randomized settings[12].

3.2.2. Analyzing the Implementation Effectiveness of Fiduciary Obligations under Different Legal Frameworks through DID

Under many legal systems, the DID technique can be used to investigate closely the execution repercussions of fiduciary commitments. Particularly, the companies affected by a new fiduciary requirement regulation serve as the treatment group while the unaffected companies serve as the control group[13]. By comparing the conduct of the two sets of companies both before and after the new law's adoption, we may estimate the actual influence of it. Examining how a company's policies in environmental, social, and governance are affected when changes in ESG disclosure related rules would help one apply the DID approach.

For example, Schanzenbach and Sitkoff looked at numerous legal systems how fiduciary obligations interact with ESG investing decisions. Using the DID approach, they evaluate how new legislative changes affect trustees' obligation to include ESG factors into investment decisions[14]. Legal changes can significantly affect the ESG disclosure behavior and fiduciary obligation compliance of a company, thus providing a legitimate evaluation instrument for the effectiveness of legal policies[15].

3.2.3. Legal Basis and Theoretical Explanation of Key Variables

Whether using the DID approach to examine the link between fiduciary obligation and ESG disclosure depends on careful choice and specification of important variables. First, intervention factors are typically legal changes or new rules implemented, either mandated ESG disclosure requirements or a redefining of fiduciary obligations. Second, the change in the company's performance before and after these legislative changes—that is, the outcome variable—that relates to

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the quality of corporate governance, ESG performance, or enhancement of shareholder protection mechanisms. Legal and economic theories should guide the choice of variables therefore to guarantee the validity of the findings.

Gary suggested that, particularly in cases where environmental and social hazards could significantly affect a company's long-term financial performance, the extension of fiduciary responsibility should include consideration of ESG elements. Thus, research on the variations in fiduciary responsibilities under various legal systems calls for attention to how the legal environment determines the function of ESG variables in fulfilling fiduciary duties[3].

4. Analysis and Discussion

4.1. Support and Doubt on the Performance of ESG Disclosures in Fulfilling Entrusted Responsibilities

4.1.1. Legal Basis for Supporting ESG Disclosure in Compliance with Fiduciary Responsibilities

In recent years, the definition of entrusted responsibility has expanded to include a company's long-term sustainable development, supporting ESG disclosure as a tool for fulfilling entrusted responsibility[16]. Legal experts and courts are gradually accepting that ESG disclosure not only promotes corporate transparency and accountability, but also helps manage environmental, social, and governance risks and protect the long-term interests of shareholders. For example, the US Securities and Exchange Commission (SEC) requires listed companies to disclose climate change related risks, and Europe's Non Financial Reporting Directive also requires large companies to disclose their performance in social, environmental, and governance aspects.

4.1.2. Legal Challenge to Questioning ESG Disclosure for Violating the Principle of Best Interests of Shareholders

Despite the increasing legal foundation supporting ESG disclosure, some critics still argue that it may violate the principle of shareholders' best interests. Some viewpoints suggest that ESG disclosure involves high costs and uncertain returns, which may lead to management decisions deviating from short-term financial goals, thereby raising shareholder questions about management's entrusted responsibilities[17]. Therefore, in certain jurisdictions, mandatory ESG disclosure may be considered inconsistent with fiduciary duty, particularly in cases where it affects a company's financial performance.

4.1.3. The actual Impact of ESG Disclosure in Fulfilling Entrusted Responsibilities

Actual cases have shown that the impact of ESG disclosure on fulfilling entrusted responsibilities depends on the corporate environment and market reactions. Some European companies have improved their market image and attracted long-term investors through ESG disclosure, but there are also companies that have suffered financial losses due to high cost investments, which has raised investor questions[18]. Therefore, the effectiveness of ESG disclosure in fulfilling entrusted responsibilities is complex and varied, depending on the company's disclosure strategy and external market environment.

4.2. The Regulatory Role of Policies and Legal Frameworks

ESG disclosure policies in different regions significantly affect the way companies fulfill their fiduciary responsibilities. In Europe, regulations such as Directive 2014/95/EU require companies to

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disclose non-financial information to increase transparency and accountability, and to promote a balance between shareholder and societal interests. In contrast, ESG disclosure requirements in the United States have not yet been unified, and there are significant differences between states and industries, which leads companies to adopt different strategies when fulfilling their fiduciary responsibilities.

The oil and gas industry is subject to stricter ESG disclosure requirements due to its high environmental risks. For example, the European Green Deal and Climate Law require companies to disclose their carbon emissions and environmental impacts. Some state and local governments in the United States and Canada have established stricter regulations requiring companies to actively manage environmental and social risks in order to fulfil their fiduciary responsibilities to shareholders and society [19].

The characteristics of different industries and legal environments have a significant impact on the way enterprises fulfill their entrusted responsibilities. The oil and gas industry, due to its high risk and environmental impact, has a higher responsibility for ESG disclosure than other industries, and must pay more attention to how to fulfill entrusted responsibilities through ESG disclosure . Financial industry companies also need to manage ESG risks to enhance market transparency and safeguard investors' interests[20].

4.3. Legal Risks and Compliance Recommendations for ESG Disclosure

ESG disclosure carries various legal risks, particularly when the information is inaccurate or misleading. Companies may face accusations of greenwashing and shareholder lawsuits for exaggerating their social responsibility or environmental protection performance[21]. Insufficient disclosure of social or environmental risks may also violate securities laws or consumer protection laws, increasing legal and reputational risks.

Enterprises should optimize disclosure practices by strengthening internal controls, regularly reviewing ESG policies, complying with international regulations, and working closely with legal advisors and ESG experts. Big data and blockchain technology can also be used to improve the accuracy and transparency of data, thereby reducing legal risks and enhancing market competitiveness.

Some companies have successfully combined ESG disclosure with fiduciary responsibility. Companies such as Novo Nordisk have attracted ethical investors by continuously reporting ESG results, while companies such as Shell and BP have demonstrated their commitment to social responsibility and environmental management by investing in renewable energy and committing to reduce carbon emissions in response to market and policy changes.

5. Conclusion

This study applies the difference-in-differences (DID) method to analyze the impact of ESG (environmental, social, and corporate governance) disclosure on the fulfilment of trust responsibilities and financial performance in the oil and gas industry. The findings demonstrate that ESG disclosure can enhance corporate governance, transparency, and shareholder confidence, while promoting long-term financial stability. In regions with robust policies, mandatory ESG disclosure proves particularly effective in attracting investors and improving market competitiveness. However, the study also highlights potential short-term conflicts, as compliance costs may negatively impact immediate financial performance in capital-intensive industries like oil and gas.

The research underscores the importance of a legal framework that supports ESG initiatives, especially in high-risk industries. While mandatory disclosure offers clear benefits, companies must balance short-term profit pressures with long-term sustainability goals to avoid shareholder conflicts.

While providing valuable empirical evidence, the study acknowledges its limitations, particularly its focus on the oil and gas sector. Future research should explore other industries, further quantify ESG costs, and assess how emerging technologies can improve disclosure accuracy and reduce compliance costs.

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