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The Impact of Mandatory ESG Disclosure on Share Price

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Abstract: The importance of sustainable development has attracted public attention. To achieve the global sustainable development goals, copious countries have recently begun formulating and implementing mandatory ESG (Environment, Social and Governance) disclosure policies. This has prompted the research community to investigate the impact of compulsory disclosure on the interests of corporate stakeholders, such as share price. According to stakeholder theory, long-term value-based theory, resource-based theory, and efficient market hypothesis, ESG mandatory disclosure will have short-term and long-term impacts on stock prices. Specifically, from the short-term perspective, good ESG reports will lead to rapid growth. Then the price will return to normal level. Moreover, in the long term, this has no significant impact on share prices. This article will use event research methods and linear regression models to specifically study the impact of Apple's ESG report disclosure on stock prices. Finally, research has found that in a normal environment, mandatory ESG disclosure will have a positive short-term impact on share price according to the good quality of ESG reports, while this will have a negative influence on stock price due to the poor quality of ESG reports. However, in special circumstances such as the 2022-2022 global epidemic period and long-term perspective, the disclosure of ESG reports has no significant impact on stock prices.

Keywords: Mandatory ESG disclosure, Short-term influence, Fluctuations, Long-term influence.

1. Introduction

According to the importance of the global environmental problem, the public pays more attention to whether companies fulfil corporate social responsibilities. In the business environment, the preference of external investors is moving towards sustainability. Thus, the quality of ESG reports is becoming increasingly essential. In this case, to prove the development of sustainability, the United Nations proposes global sustainable development goals [1]. In addition, Khandelwal, Sharma and Chotia pointed out that the credit of external investors can be enhanced by disclosing corporate ESG reports so that the share price will be positively influenced [2]. Moreover, copious countries have recently promulgated mandatory disclosure policies, such as the Corporate Sustainability Reporting Directive (CSRD), to improve corporate transparency and allow investors to understand the enterprises' more detailed sustainability strategies and make more reasonable investment decisions.

As more and more countries implement mandatory disclosure policies, research on the impact of disclosure has become increasingly essential. Acquisitions are an essential means for enterprises to

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expand sales scale and corporate size. One study discussed that the number of companies M&A businesses increases due to mandatory ESG disclosures created [3]. However, research conclusions may not apply to the current business environment because the 2003 European Commission Financial Reporting Directive has been promulgated for a long time. Moreover, the scope of the research is limited to European companies or companies operating main business in Europe. Furthermore, Wang pointed out that mandatory ESG information disclosure rules for banks can enhance the ESG disclosure performance of borrowing companies [4]. This is because banks include more environmental action clauses in loan contracts. The study suggests that governments also focus on corporate ESG disclosures, indirectly pushing companies to align with global sustainability goals through banks. However, a limitation of this study is that the research basis only includes American companies in developed countries. Therefore, the applicability of the conclusions to developing countries and regions needs further investigation.

Then, regarding the sustainable investment of ESG reports on retail investors, Li, Watts & Zhu pointed out that ordinary retail investors in the United States are more concerned about ESG report information influencing the company's financial performance [5]. To be more specific, if ESG reports are beneficial for corporate financial performance, retail investors will buy shares. Nevertheless, this study did not further examine the impact of sustainable investment by retail investors on company stock prices.

Finally, another study investigated the influence of ESG reports on stock liquidity. The research result, ESG disclosure regulation enhances the information environment and positively influences capital markets, has been found [6]. However, this research also fails to investigate the influence on the share price. Thus, to supplement existing research, this article will examine the impact of mandatory disclosure in ESG reports on company stock prices.

The main purpose of this paper is to explore the impact of mandatory ESG disclosure on the share price, especially on the short-term and long-term influence. In addition, the event research method and linear regression models will be utilised to analyse a sample company named Apple to find the results. Finally, this paper will provide some valuable insights into the influence of mandatory ESG disclosures for companies in developed markets.

2. Data and Methods

2.1. Research Sample

This paper uses the event research methods and linear regression models to explore the impact of ESG mandatory disclosure policies on the company's stock price by studying Apple.

This is because, first of all, the American business environment has developed relatively well and belongs to the developed market. Then, although the United States does not have a unified bill on mandatory disclosure of ESG, relevant U.S. government agencies have been focusing on ESG disclosure for a decade. For example, the U.S. Congress enacted the Dodd-Frank Act, requiring companies to disclose in ESG reports whether the sources related to their mineral resources are conflict areas [7]. Furthermore, the U.S. Securities and Exchange Commission also recently promulgated the Proposed Climate Risk Disclosure Rules requiring listed companies to disclose climate risks. In this case, the relevant data disclosed by American companies on ESG are relatively comprehensive.

Moreover, when studying the impact of ESG, the technology industry is representative. In addition, Apple is a representative company in this industry, with a 29% global market share in 2023, and has performed well in fulfilling corporate social responsibility. Therefore, choosing Apple as a research sample will make the research results more representative.

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2.2. Data Collection

The main data used in this paper are Apple share prices, S&P 500 prices, and non-financial information such as ESG reports and conference call texts from 2015 to 2024, and will be collected from Yahoo Finance, FactSet and Apple's official website.

3. Research Result

3.1. Short-term Effect

According to the efficient market hypothesis, the share price should reflect all existing corporate disclosures. Therefore, the ESG report should be quickly reflected in the share price after being released. Moreover, the relevant information selected from the Apple website and Yahoo Finance is collected in the following tables (Since the statistics of share data are not necessarily continuous on dates, share prices are selected statistical data that are ten consecutive times after the disclosure of the ESG report) [8,9].

Table 1: Apple ESG Policies from 2015 to 2024.

Year	Policy
20/04/2015	Reducing carbon emissions from all facilities by 75% before 2018.
15/04/2016	93% of equipment uses renewable energy. Increasing investment in carbon neutrality projects.
20/04/2017	Achieving 100% supply chain carbon neutrality by 2030. Promoting a broader circular economy.
19/04/2018	All facilities use 100% renewable energy.
22/04/2019	Expanding renewable energy plan into global supply chains Reducing water consumption
15/09/2020	Global products and supply chains will be 100% carbon neutral by 2030
16/04/2021	Strengthening environmental requirements in the supply chain. Suppliers commit to using clean energy. Promoting sustainability in product design
22/04/2022	Promoting the global carbon neutrality strategy. Launching multiple innovative environmental protection projects. Supply chain partners disclose progress on clean energy plans
20/04/2023	Launching more goals for carbon-neutral and recycled materials use Expanding environmental requirements for suppliers. Focusing on product life cycles and supply chain transparency.
18/04/2024	Continuing to advance 2030 carbon neutrality goal. Increasing the sustainable application of technological innovation. Further disclosing the implementation progress of previous policies.

From Table 1, most of the dates disclosing ESG reports are concentrated around April 22, World Environment Day. However, this is also the period of releasing Apple's quarterly report every year.

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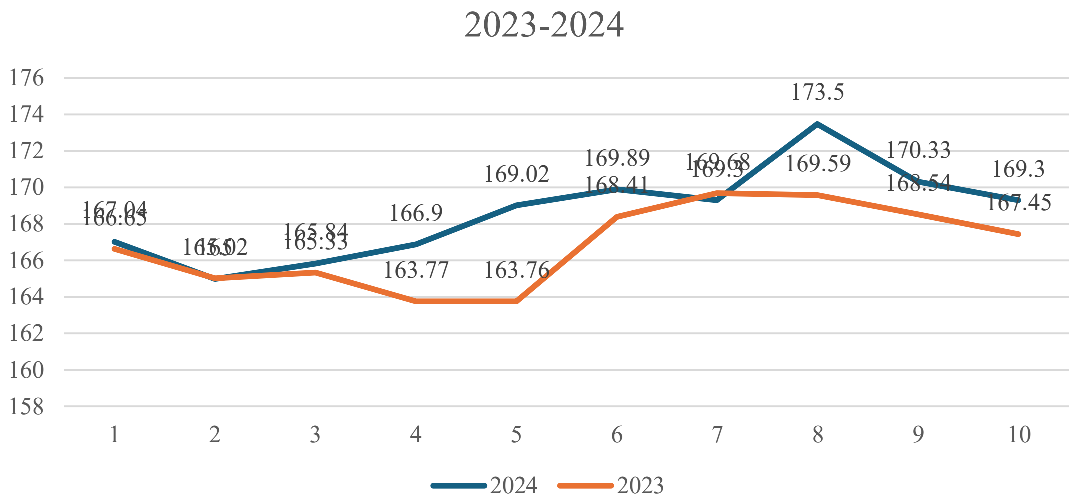

Figure 1: 10 recent share data trends since 2023-2024 ESG announcements.

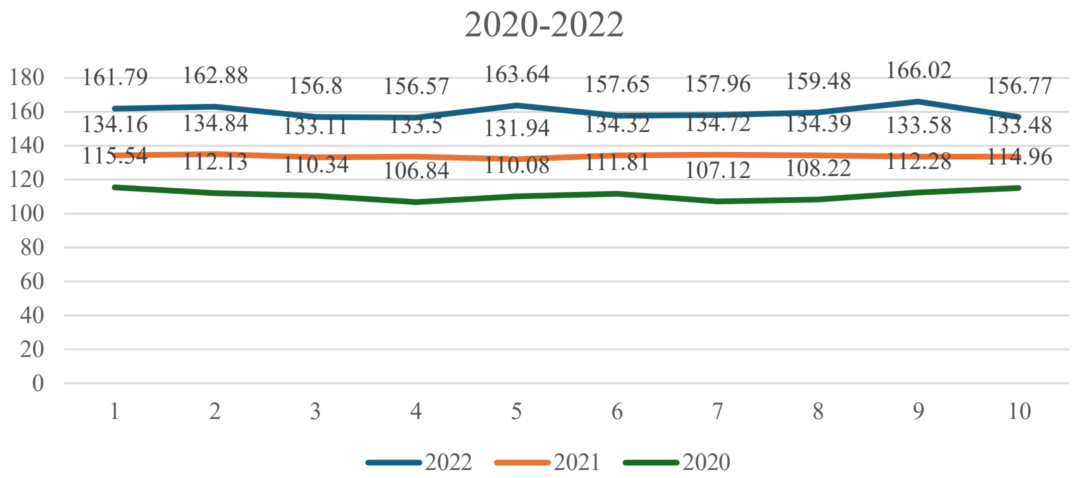

Figure 2: 10 recent share data trends since 2020-2022 ESG announcements.

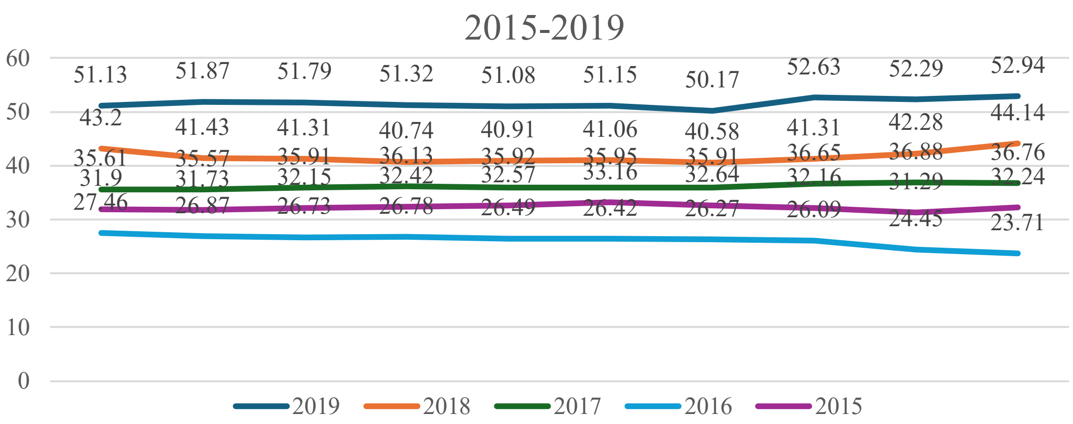

Figure 3: 10 Recent share data trends since 2015-2019 ESG announcements.

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Table 2: Annual Apple quarterly report releasing date

2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
2 May	4 May	28 April	28 April	29 October	30 April	1 May	2 May	26 April	27 April

Therefore, for the accuracy of the results, the influence of performance on stock prices needs to be excluded. From Table 2, Apple's quarterly reports are basically in the last few days of the research range of this paper or are not during the research range. Specifically, the earliest release date of quarterly reports was about seven days after the publication of ESG reports (2022, 2019 and 2015), while none of the remaining data is within the study sample interval. According to the efficient market hypothesis, share prices reflect all financial and non-financial information. For non-financial information, this cannot be quantified in a short time, leading to the stock market usually taking some time to digest and reflect this information after announcing information. Therefore, the impact of good performance and other favourable policies can be ruled out.

In the short term, ESG disclosures have multiple impacts on Apple's share price. Specifically, from Figure 1 and Figure 3, in the first few days after releasing Apple’s ESG report, there was no response to this report according to the market was in the process of digesting the information. The share price is still constantly fluctuating, influenced by complex factors such as the external market environment. Then, the share market began to respond after about one week. Specifically, Apple’s share price increases sharply in the short term due to the good contribution to sustainability. Moreover, the share price will stabilise and return to a slightly higher level than the disclosure date after 2 to 3 days. For example, in 2019, Apple’s share price fell from \$51.13 to \$50.17 due to complex external markets after releasing reports. Furthermore, in the seventh statistical count, according to the market had fully absorbed ESG information, the share price soared to \$52.63 and continued to rise to \$52.94 in the 10th statistical count. Compared with the stock price on April 18 (\$51.13), the day before ESG's release, it was up \$1.81. However, if external investors believe that the corporate ESG report reflects certain sustainable deficiencies and risks, the share price will fall. For example, in 2016, the share price plunged from \$26.09 at the 8th census to \$23.71 at the 10th census after releasing the ESG report according to the American government enhanced the requirement of environment restrictions and the Parias agreement was signed on 22 April 2024. In this case, the investors may think the compliance costs will increase so that the share price decreased in the short term.

Moreover, there are some violent fluctuations in the short term in some special circumstances. For example, Figure 2 shows that during the global COVID-19 period from 2020 to 2022, the trend of 10 consecutive share price data statistics fluctuated greatly in a short period with multiple peaks and troughs after releasing the ESG report. This shows that the external market is more sensitive to the corporate share due to COVID-19, making the influence of ESG disclosure more vague and hardly making a suitable judgment.

In conclusion, in the short term, share prices will change based on the quality of ESG reports in general circumstances. In comparison, the enterprise’s stock price will experience short-term fluctuations, so that can not correctly judge the influence of ESG reports due to the sensitive in special situations.

3.2. Long-term Effect

In the long term, according to the stakeholder theory, a good quality corporate ESG report shows that the enterprise is responsible to other stakeholders such as employees, government, community and the public.

In this case, the corporate transparency is enhanced. Furthermore, the corporate image and financial performance will be positively affected so that the reputation will be better. Moreover,

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according to resource-based theory, reputation is a corporate intangible asset enhancing the competitive advantage, alluring new customers and expanding market share. Thus, disclosure of ESG will positively influence the share price.

To be more specific, for external investors, more and more investors pay attention to the performance of corporate social responsibilities. With Apple continues to disclose high-quality ESG reports, these investors will gradually be attracted and given good evaluation levels. In this case, Apple's share price will maintain a healthy growth trend in the long term.

For the government, following the restriction of disclosing ESG reports can win the trust of the government, allowing Apple to obtain more government support and reducing policy risks.

For customers, this will enhance the corporate reputation and customer cohesion. Then, customers focusing on sustainability will be attracted so that main operating income and financial performance will be promoted. Finally, this can win a positive evaluation from the investment community so, that increasing the share price.

For verifying the above inference, event research will be used in this part. To eliminate the impact of external market factors such as industry trends and market fluctuations on research conclusions, the CAMP model was used to calculate expected returns. To be more specific, Firstly, collecting relevant data from FactSet [10]. Furthermore, calculating the actual rate of return using Equation (1) and the S&P500 index monthly return rate using Equation (2).

$$R_t = \frac{P_t - P_{t-1}}{P_{t-1}} \tag{1}$$

P_t: Current month's closing price.

P_{t-1}: Previous month closing price.

$$R_{mt} = \frac{P_{mt} - P_{mt-1}}{P_{mt-1}} \tag{2}$$

P_{mt}: Current month's closing price.

P_{mt-1}: Previous month closing price.

Then, using the actual return as the dependent variable and the S&P500 index monthly return rate as the independent variable to construct linear regression model Equation (3) to get the expected return.

$$R_{it} = \alpha + \beta * R_{mt} + \epsilon \tag{3}$$

R_{it}: Apple's real rate of return.

α and β: estimated parameters.

R_{mt}: Market return on the S &P500.

ϵ: residual term.

Furthermore, Calculating α and β using linear regression tools and taking the data into Equation (3) to calculate the expected return. And the results of the linear regression analysis were written in Table 3.

Table 3: Regression results.

	Coeff.	SE	t Stat	P-value	Lower 95%	Upper 95%	Lower limit 95.0%	Upper limit 95.0%
Intercept	0.009	0.006	1.682	0.095	-0.002	0.020	-0.002	0.020
X Variable 1	1.233	0.123	10.023	0.000	0.989	1.477	0.989	1.477

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Table 3 shows that α is 0.009 and β is 1.233, which means that when the S &P500 market return is 0, Apple's normal return is 0.009. In addition, for every 1% increase in the S &P500 return, Apple's return is expected to increase by 1.233%.

Then, after getting the above data, putting the data into Equation (3) to calculate the expected return. In this case, the abnormal return and the cumulative abnormal return can be found in the following Table 4.

Table 4: Abnormal return and the cumulative abnormal return

Date	Abnormal rate of return	Date	Abnormal rate of return	Date	Abnormal rate of return
09/20/24	-0.02431405	06/30/21	0.06272054	03/29/18	-0.03390009
08/30/24	-0.00599419	05/28/21	-0.06787067	02/28/18	0.10286944
07/31/24	0.03145175	04/30/21	0.00257656	01/31/18	-0.08890450
06/28/24	0.04380360	03/31/21	-0.05398803	12/29/17	-0.03636852
05/31/24	0.06048227	02/26/21	-0.12225497	11/30/17	-0.02700064
04/30/24	0.03560562	01/29/21	-0.00077047	10/31/17	0.06044762
03/28/24	-0.09853363	12/31/20	0.05980373	09/29/17	-0.09304410
02/29/24	-0.09256607	11/30/20	-0.04799900	08/31/17	0.09299535
01/31/24	-0.07082606	10/30/20	-0.03490021	07/31/17	-0.00015383
12/29/23	-0.04995227	09/30/20	-0.06315843	06/30/17	-0.07215019
11/30/23	-0.00664252	08/31/20	0.11899259	05/31/17	0.04014360
10/31/23	0.01553190	07/31/20	0.08818769	04/28/17	-0.02027768
09/29/23	-0.03760812	06/30/20	0.11571337	03/31/17	0.04016959
08/31/23	-0.03083106	05/29/20	0.01733459	02/28/17	0.07401717
07/31/23	-0.03460874	04/30/20	-0.01002483	01/31/17	0.01669496
06/30/23	0.00551921	03/31/20	0.07551166	12/30/16	0.01651571
05/31/23	0.03255444	02/28/20	-0.02209201	11/30/16	-0.07773393
04/28/23	0.00193356	01/31/20	0.04701946	10/31/16	0.01928545
03/31/23	0.06643043	12/31/19	0.05453217	09/30/16	0.05802345
02/28/23	0.04481985	11/29/19	0.02335025	08/31/16	0.01064361
01/31/23	0.02537742	10/31/19	0.07648913	07/29/16	0.03715070
12/30/22	-0.05856066	09/30/19	0.04277755	06/30/16	-0.05277164
11/30/22	-0.10990604	08/30/19	-0.00687669	05/31/16	0.03738095
10/31/22	0.00208221	07/31/19	0.05120819	04/29/16	-0.15224650
09/30/22	-0.01482164	06/28/19	0.03652940	03/31/16	0.03684043
08/31/22	0.01077591	05/31/19	-0.05546956	02/29/16	-0.01058528
07/29/22	0.06729035	04/30/19	-0.00103803	01/29/16	-0.02168718
06/30/22	0.01304158	03/29/19	0.06592575	12/31/15	-0.09761349
05/31/22	-0.06494934	02/28/19	-0.00534129	11/30/15	-0.01966268
04/29/22	0.00232172	01/31/19	-0.05086560	10/30/15	-0.02791154
03/31/22	0.00436373	12/31/18	-0.01253443	09/30/15	0.00179276
02/28/22	-0.02560237	11/30/18	-0.21506511	08/31/15	-0.00224712
01/31/22	0.04012666	10/31/18	0.04609420	07/31/15	-0.06622623
12/31/21	0.01145362	09/28/18	-0.02259802	06/30/15	-0.02035969
11/30/21	0.10474550	08/31/18	0.14991266	05/29/15	0.01905730
10/29/21	-0.03559657	07/31/18	-0.02542901	04/30/15	-0.01372355

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Table 4: (continued).

09/30/21	-0.01838350	06/29/18	-0.02438839	03/31/15	-0.01891881
08/31/21	-0.00381429	05/31/18	0.09511803	02/27/15	0.01976510
07/30/21	0.02793193	04/30/18	-0.02737353	01/30/15	0.09069867
Total				0.0448960551007147	

From Table 4, the cumulative abnormal return is 0.0448960551007147. This shows that after Apple released ESG report, share price has cumulatively generated positive abnormal returns of approximately 4.49% in the long term. In this case, this means that the long-term impact of mandatory disclosure of ESG reports on share prices is positive. Thus, the conclusion mentioned above were proved to be correct.

4. Enlightenment and Suggestions

4.1. Enlightenment

This research shows that in the short term, share prices will respond immediately to the release of ESG reports. Specifically, the ESG reports reflecting good information cause share price rise, while poor quality of ESG reports exposes sustainability issues with the company so that share price fall.

This shows that external markets and investors are very concerned about the information contained in corporate ESG reports, and stock prices will be directly affected. However, in special markets such as COVID-19 (2020-2022), whether positive or negative, ESG report information has no significant impact on share price. This suggests that in a complex market environment, investors 'responses to information influencing the share market will be more complex.

Moreover, for the long-term influence of Mandatory ESG disclosure on share price, this is positive. To be more specific, this will increase the corporate reputation, government trust, customer cohesion and market shares. In this case, the share price will have long-term healthy growth.

4.2. Recommendations

First, Apple can further disclose more detailed ESG reports to increase its transparency and reduce investors 'short-term stock price fluctuations due to uncertainty. Under special market conditions, companies should pay more attention to the implementation of long-term strategies. Avoid focusing on short-term markets. In summary, companies should pay attention to both the management of the short-term stock market and the implementation of long-term ESG strategies to ensure the long-term stable development of the company.

5. Conclusion

This research concludes that mandatory disclosure of ESG reports will have an impact on stock prices in the short term according to the quality of the report and a positive influence in the long term in normal circumstances. Then, in the special market environment, ESG reports have no significant impact and will fluctuate violently in the short term due to the sensitive reflection for the share market. To be more specific, in the short term, ESG reports having good quality will increase the share price, while poor quality of ESG reports will reduce the share price in the general environment. Then, in special situations such as COVID-19 (2020-2022), the share price will have multiple peaks and troughs according to the public have a more sensitive reflection on the share market. Moreover, for the long term, disclosing ESG reports will make the corporate social responsibilities be assumed, and corporate transparency will be increased. At the same time, the company's reputation will also get

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better. In this case, the company will attract more customers and improve financial performance. Then, the government will increase corporate credit levels and provide more help so that the policy risks such as fines will be reduced. Finally, external investment analysts will raise the expectations for the company and positively adjust the share price based on improved financial performance and information in ESG reports.

To conclude, mandatory disclosure of ESG policies will bring benefits for the enterprises if the company disclose good quality ESG reports.

In future related research, the regional limitations of the conclusions should be verified. For example, investigating whether this research conclusion can provide some valuable reference for developing markets. Then, the share market is only a small part of the capital market. Thus, to further explore the impact of ESG mandatory disclosure on the interests of corporate stakeholders, the impact on the entire capital market should also be paid attention to. Finally, relevant research should also be conducted in other fields, excluding the technology industry, so that conducting cross-industry comparisons can make the conclusion more accurate. In this case, the existing literature will be supplemented.

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