

การศึกษาผลกระทบของผลการดำเนินงาน สิ่งแวดล้อม สังคม และธรรมาภิบาล ต่อความยืดหยุ่นขององค์กร

Research on impact of ESG Performance on corporate resilience

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หมิงต้า หลี่*

Mingda Li*

เสี่ยวหยิง ฉาง**

Xiaoying Chang**

*, **วิทยาลัยนานาชาติ มหาวิทยาลัยธุรกิจบัณฑิต

*, **International College, Dhurakij Pundit University

*Email: limingda1111@qq.com

**Email: changxiaoying.f@163.com

บทคัดย่อ

การวิจัยนี้ใช้ทฤษฎีการส่งสัญญาณเป็นกรอบทฤษฎีหลัก โดยตั้งอยู่บนบริบทการเปลี่ยนแปลงสู่การพัฒนาคุณภาพสูงของเศรษฐกิจจีน สร้างแบบจำลองทฤษฎีว่า ด้วยผลการดำเนินงานด้าน ESG ต่อความยืดหยุ่นขององค์กร มีวัตถุประสงค์เพื่อศึกษาความสัมพันธ์ระหว่างผลการดำเนินงานด้าน ESG กับความยืดหยุ่นขององค์กร โดยใช้แบบจำลองเอฟเฟกต์คงที่ แบบจำลองเอฟเฟกต์สไลด์กลาง และการวิเคราะห์ความหลากหลายกับตัวอย่างบริษัทจดทะเบียนในตลาดหลักทรัพย์จีนในช่วงปี ค.ศ. 2010-2023 ผลการวิจัยเชิงประจักษ์พบว่า 1. ผลการดำเนินงานด้าน ESG มีอิทธิพลเชิงบวกต่อความยืดหยุ่นขององค์กร 2. ความสามารถในการระดมทุนและการสนับสนุนจากรัฐบาลทำหน้าที่เป็นตัวกลางในความสัมพันธ์ระหว่างผลการดำเนินงานด้าน ESG กับความยืดหยุ่นขององค์กร 3. ผลการเสริมสร้างความยืดหยุ่นขององค์กรจาก ESG จะเด่นชัดกว่าในองค์กรขนาดใหญ่ ไม่เพียงแต่ให้แนวทางที่เป็นไปได้สำหรับองค์กรในการดำเนินแนวคิด ESG เพื่อบรรลุการพัฒนาที่ยั่งยืนเท่านั้น แต่ยังเป็นพื้นฐานทางทฤษฎีสำหรับภาครัฐในการส่งเสริมให้ภาคธุรกิจเปิดเผยรายงาน ESG ซึ่งจะเอื้อประโยชน์ต่อการพัฒนาอย่างยั่งยืนของทั้งภาคส่วนระดับจุลภาคและเศรษฐกิจโดยรวม

คำสำคัญ: ผลการดำเนินงานด้านสิ่งแวดล้อม สังคม และธรรมาภิบาล (ESG) ความยืดหยุ่นขององค์กร ศักยภาพทางการเงินขององค์กร การสนับสนุนจากภาครัฐ

Abstract

Taking signalling theory as the core theoretical foundation, this study builds a theoretical model of ESG performance on corporate resilience based on the realistic background of China's high-quality economic development and transformation. The purpose is to explore the influential relationship between ESG performance and corporate resilience. Fixed-effect model, mediation-effect model and heterogeneity analysis are used to study the sample of A-share listed companies in China's Shanghai and Shenzhen markets from 2010 to 2023, and the empirical results show that: 1. ESG performance positively affects corporate resilience; 2. financing ability and government support mediate the relationship between ESG performance and corporate resilience; 3. for large enterprises, the effect of ESG performance on corporate resilience improvement is more obvious. This study not only provides a feasible pathway for enterprises to actively implement ESG principles in pursuit of sustainable development but also offers a theoretical foundation for the government to promote corporate ESG disclosure, thereby contributing to the sustainable development of both micro-level entities and the broader socio-economic system.

Keywords: ESG Performance, Corporate Resilience, Financing Capacity, Government Support

Introduction

The ESG (Environmental, Social, and Governance) concept embodies the high-quality concept of the trinity of green economic development, social responsibility and effective corporate governance, and encourages enterprises to focus on long-term value, which is not only a cutting-edge criterion for evaluating the comprehensive capability of enterprises at present, but also an important hand in promoting the sustainable development of enterprises. Due to the deterioration of the environment, the macro-environmental uncertainty is increasing day by day, resulting in the current business problems occur frequently, it puts businesses in a difficult position to survive and thrive. To survive and develop in adversity, enterprises must have the resilience ability to withstand crises. Meanwhile, corporate resilience is the micro manifestation of macroeconomic resilience (Williams et al., 2017), which directly affects the resilience and security of the national industrial chain. The potential contributions of this paper are: (1) Explored the enhancement effect and mechanism of ESG performance on corporate resilience, which further enriches the research on the economic consequences of ESG performance and the factors influencing corporate resilience. (2) Enriched the innovation of research content based on Signaling Theory in the study of the relationship between the impact of ESG performance on corporate resilience.

Research Objectives

1. To reveal the extent and mechanism of the impact of ESG performance on corporate resilience.
2. To broaden the application scenarios of corporate ESG reports and provide relevant decision support and management suggestions for corporations.
3. To provide suggestions for realizing long-term sustainable development of corporations from a micro perspective, aiming to provide useful references for policymaking by government and other official organizations.

Literature Review

ESG performance: Research on the economic impact of ESG performance has focused on three areas: company value, investment and funding, and company risk. 1. The impact of ESG performance and firm value. Research has shown that good ESG performance can contribute to improved financial performance and higher firm value (Broadstock et al., 2020). 2. Wen et al. (2024), based on the exponential utility function, incorporate ESG scores and ESG risk (uncertainty factors) into active portfolio management and derive the analytical solution of the model. The study finds that ESG risk adjusts the optimal portfolio and helps to mitigate the loss caused by ESG deviation. 3. Research on ESG performance and firm risk. ESG performance is significantly negatively associated with firm risk-taking, and firms with good ESG performance tend to have lower levels of risk (Bouslah, 2018).

Corporate Resilience. Current academic research on the factors influencing corporate resilience mainly includes self-organizational factors and external social factors.

1. Self-organizational factors. Firms with self-efficacy personality traits, efficient organizational structure have a stronger ability to withstand sudden crises; in times of hardship and stress, capable leaders can lead employees and enterprises to quickly recover and return to their normal state (Hillmann & Guenther, 2020); good intra-organizational relationships can enhance trust among members, increase the degree of coordination and information sharing among members, and form psychological and social stability in adverse situations (Kim & Lim, 2020), all of which contribute to shaping and enhancing corporate resilience.
2. External social factors. Firms can use the social network relationships they have built to accelerate their recovery to their original state when facing difficulties (Waldman et al., 2001).

A review of the literature reveals the following. First, there is a paucity of research on the economic consequences of ESG performance that incorporates ESG performance and corporate resilience into the same framework. Second, the research on the factors affecting corporate resilience is still insufficient, and there is a lack of research on the relationship between ESG performance and corporate resilience using Financing Capacity and Government Support as mediating variables.

Hypothesis Development

The impact of ESG performance on corporate resilience. ESG performance covers a variety of dimensions, such as environmental, social, and corporate governance, and the ESG evaluation system integrates several corporate indicators and performs complex composite calculations, reflecting the comprehensive development quality of the enterprise (Yoon et al., 2018). According to the Signaling Theory, a company's information disclosure system can send signals to external information users about the current status of the company's operations and the direction of its development, and companies with better ESG performance will disclose the relevant information more proactively, which improves the company's information transparency. it sends signals to relevant stakeholders about its good ESG performance, sends positive signals about the company's high-quality and sustainable development, and attracts the attention of stakeholders with environmental preferences and long-term value-seeking stakeholders (Bissoondoyal-Bheenick et al., 2023). which in turn enhances the company's ability to anticipate, adapt to, and withstand external risks with the support of resources from multiple stakeholders, i.e., Good ESG performance plays a positive role in corporate resilience. Based on the above analysis, this study proposes Hypothesis 1:

H1: ESG performance has a positive impact on corporate resilience.

ESG Performance, Financing Capability and Corporate Resilience. A company's financing capability refers to its ability to make the least costly choice among various financing instruments and to raise the required funds in full and on time. On the one

hand, good ESG performance helps to improve corporate financing channels, and using good ESG performance as a positive signal can be transmitted to the securities market, third-party financial institutions such as banks, upstream and downstream of the supply chain, and other stakeholders to obtain financing support (McCahery et al., 2016). Good ESG performance strengthens the cooperative relationship among multiple supply chain members, such as consumers, suppliers, and platforms (Allen et al., 2005), which enhances the creditworthiness of companies and thus reduces their financing pressure. In particular, suppliers, third-party financial institutions, and bond issuance serve as important sources of corporate financing, and good ESG performance is more conducive to corporate access to supply chain credit funds, lower-cost long-term loans, and bond financing by increasing the confidence of all stakeholders in corporate development (Apergis et al., 2022). Which is reflected in the improvement of corporate resilience. Based on the above analysis, this study proposes Hypothesis 2:

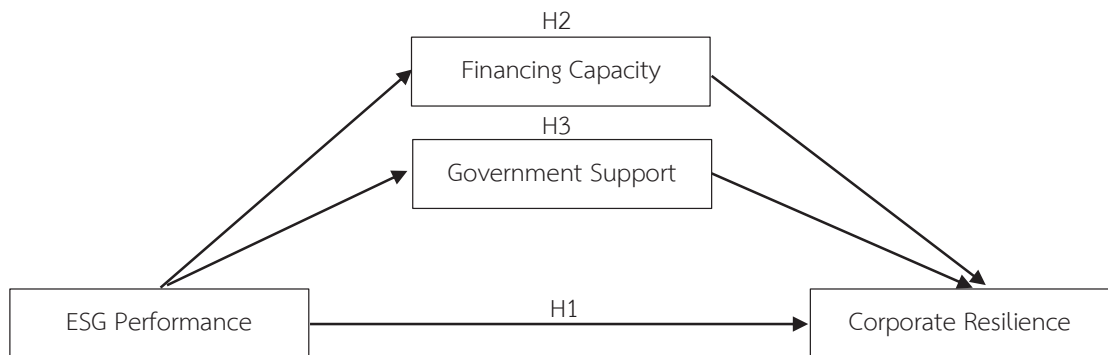
H2: Financing capability plays a mediating effect in the mechanism of the positively correlated impact relationship between ESG performance and corporate resilience.

ESG performance, government support, and corporate resilience. Good ESG performance by obtaining government support can generate the power of government incentives, such as improving the external institutional environment of enterprises, releasing policy signals (Bamgbade et al., 2017), which has a positive effect on enhancing corporate resilience. 1. The improvement of the external institutional environment of enterprises can enhance the productivity of enterprises and improve the quality of their products, which can help enterprises to adjust their configuration in response to changes in external conditions (Mccarthy et al., 2017) and allocate available resources more rationally, thereby improving resource utilization and promoting high-quality sustainable enterprise development, which can enhance the resilience of corporations for sustainable development. 2. The government issues policy signals that strongly support and protect the survival and development of enterprises, which can enhance the trust of all parties to improve cohesion, and improve the vitality of enterprise survival and development. Based on the above analysis, this study proposes Hypothesis 3:

H3: Government support plays a mediating effect in the mechanism of the positively correlated impact relationship of ESG performance on corporate resilience.

Figure 1

Research Conceptual Framework



Empirical Design and Sample Selection

This study is based on a sample of A-share listed companies in China's Shanghai and Shenzhen markets from 2010 to 2023, a total of 26,720 samples from 3,836 listed companies spanning were ultimately selected. and the sample is screened: first, financial and insurance and real estate listed companies are excluded; second, samples with special status such as ST, PT and samples with missing financial data are excluded.all continuous variables required for the empirical analysis were winsorized at the 1% and 99% levels. The data used in this study are from (CSMAR) and (WIND), and the data of macroeconomic variables are from China Statistical Yearbook.

Explanatory Variables ESG Performance (ESG). This study assigns values 1-9 to each of the nine grades in the CSI ESG ratings. respectively, and the annual median of the ESG scores is used as a measure of the ESG performance of the sample companies, which is referred to as ESG, and the larger the score, the better the ESG performance of that company.

Explained variable corporate resilience (Res). This study deconstructs corporate resilience into shock absorption capacity and resilient growth capacity, Shock absorbing capacity is measured by the standard deviation of a company's monthly stock returns in the current year. resilient growth capacity is measured by the cumulative sales growth of the company during the year. Finally, the entropy weighting method is used to calculate the above two indicators to obtain a comprehensive score of corporate resilience, labeled Res, which indicates that the larger the value of the score, the stronger the corporate resilience.

The intermediate variable Financing Capacity (FCA). In this study, the FCA indicator is constructed as the “absolute value of the SA index”. “SA Index = $-0.727 \times \text{SIZE} + 0.043 \times \text{SIZE}^2 - 0.04 \times \text{Age}$ ”. Where the formula SIZE = $\ln(\text{total assets} / 1 \text{ million})$, Age is the age of the company (listed), SA index is negative, the greater the absolute value of SA, the greater the financing constraints of the company. The worse the financing capacity.

Mediating variable government support (Support). In this study, it is measured by dividing the total value of the amount of government grants received by firms by 100,000,000 adjusted size based on the government grant entries in (CSMAR). A larger ratio of government support (Support) indicates a higher intensity of government support.

Control variables. (1) Net profit margin of total assets (ROA). (2) Fixed assets ratio (FIR). Measured by the ratio of property, plant and equipment to total assets. (3) Concentration of shareholdings (TOF). Measured by the sum of the shareholdings of the company's top five shareholders as the degree of equity concentration. (4) Age of the firm (AGE). Measured by the natural logarithm of the age of the firm. (5) Market capitalization to book value ratio (PTB). Measured by the ratio of net assets to total market capitalization B. (6) Asset structure (CAS). Measured by the ratio of net fixed assets and net inventories to total assets. The year dummy variable (YEAR) is also included in this study to control for the effect of time on the results of the study. To examine the impact of ESG performance on corporate resilience, this study constructs a two-way fixed effects Model (1) to regress hypothesis H1:

$$Res_{i,t} = \alpha_0 + \alpha_1 ESG_{i,t} + \alpha_t Controls + u_i + v_t + \varepsilon_{i,t} \quad (1)$$

where is the corporate resilience of firm i in year t; denotes the ESG performance of firm i in year t; Controls denotes other control variables that include firm characteristics. In this study, the regression coefficients α_1 in Model (1) are expected to be significantly positive, indicating that there is a significant positive relationship between ESG performance and firm resilience, thus testing the H1 hypothesis. Following the practice of most scholars, this study adopts a stepwise regression model to explore the mediating effect. Model (2) and Model (3) are constructed:

$$MeD_{i,t} = \beta_0 + \beta_1 ESG_{i,t} + \beta_t Controls + u_i + v_t + \varepsilon_{i,t} \quad (2)$$

$$Res_{i,t} = \gamma_0 + \gamma_1 ESG_{i,t} + \gamma_t MeD_{i,t} + \gamma_t Controls + u_i + v_t + \varepsilon_{i,t} \quad (3)$$

where are the mediating variables, including financing ability (FCA) and government support (Support). If the coefficient β_1 in Model (2) and the coefficient γ_2 in Model (3) are significant, then the mediating effect exists. Verify that hypotheses H2 and H3 are valid.

Analysis of Empirical Results

Table 1 shows the results of descriptive statistics. In corporate resilience (Res), the minimum value is 0.00, and the maximum value is 1.00, indicating that the sample corporate resilience varies widely, while the sample mean is at 0.5049, indicating that the distribution of corporate resilience is very different, despite the large differences in resilience among individuals, but can show a certain normal distribution pattern. The explanatory variable ESG Performance, with a minimum value of 1.00, a maximum value of 8.00 and a mean of 4.1149, suggests that the ESG ratings of the sample companies are more evenly distributed, with half of the companies' ratings clustered in the middle and upper scores.

Table 1

ESG Performance and Corporate Resilience: Descriptive Statistics Table

Variable	N	Mean	S.D.	Min	Median	Max
Res	26720	0.5049	0.312	0.00	0.60	1.00
ESG	26720	4.1149	0.978	1.00	4.00	8.00
FCA	26720	3.8592	0.273	1.80	3.87	5.73
Support	26720	0.7759	3.524	0.00	0.18	193.80
ROA	26720	0.0342	0.072	-0.99	0.03	1.28
FIR	26720	0.9199	0.095	0.06	0.95	1.00
TOF	26720	51.1267	15.450	0.81	50.62	99.23
AGE	26720	2.9696	0.314	1.39	3.00	4.19
PTB	26720	0.5882	0.272	0.00	0.56	1.90
CAS	26720	0.3602	0.171	0.00	0.35	0.97

The column in Table 2 Model 1 is presented shows the results of the regression, which is significant at the 1% level. the column where Model 2 is presented shows the regression results with the addition of control variables and the regression coefficient is 0.0025 which is significant at 1% level. It indicates that ESG performance has a positive effect on corporate resilience. Hypothesis H1 is verified. After adding control variables to Model 2, only the regression coefficients of the three control variables, the ratio of tangible assets (FIR), the concentration of equity (TOF), and the ratio of market capitalization book-to-bill (PTB), are 0.2333, 0.0002, and 0.0527, respectively, all of which are significant at the 1% level. This indicates that the higher the tangible assets ratio, the higher the equity concentration, and the higher the market capitalization book-to-bill ratio, the greater the effect on improving corporate resilience.

Table 2*ESG Performance and Corporate Resilience: Benchmark Model Regression Results*

	Model 1	Model 2
	Res	Res
ESG	0.0030***	0.0025***
	(7.461)	(6.281)
ROA		0.0043
		(0.803)
FIR		0.0233***
		(4.991)
TOF		0.0002***
		(5.057)
AGE		-0.0003
		(-0.048)
PTB		0.0527***
		(15.415)
CAS		-0.0018
		(-0.585)
_cons	0.0145***	-0.0373**
	(3.038)	(-2.127)
Year	Yes	Yes
ID	Yes	Yes
N	26720	26720
Adj.R2	0.987	0.987
F	6.2e+04	5.9e+04

Robust t-statistics in parentheses. *, **, and *** indicate two-tailed p-value is less than 0.10, 0.05, and 0.01, respectively.

To investigate the mediation effect. Firstly, the constructed Model (1) is used to test the relationship between the effects of ESG performance (ESG) and corporate resilience (Res), and the first step is empirically validated. Secondly, (FCA) was added to Model (2), and the regression coefficient was -0.0048, which was significant at 1% level, and (Support) was added to Model (2), and the regression coefficient was 0.1109, which was significant at 1% level. Third step, the (FCA) is added to Model (3), and the regression coefficient is -0.0147, which is significant at the 10% level; and the regression results of (Support) are added to

Model (3), which shows that the regression coefficient is -0.0010, which is significant at the 1% level. Then, the mediating effect of Financing capacity and Government support is valid, Hypotheses H2 and H3 are valid. Meanwhile, the regression coefficients are significant at 1% level then it indicates that the mediating effect is partially mediated. The results are shown in Table 3.

Table 3

A Test of the Mediating Effect of Financing Capacity and Government Support

	Model 3 FCA	Model 4 Res	Model 5 Support	Model 6 Res
ESG	-0.0048*** (-5.963)	0.0025*** (6.082)	0.1109*** (6.630)	0.0026*** (6.468)
FCA		-0.0147* (-1.672)		
Support				-0.0010*** (-2.905)
ROA	0.0087 (0.938)	0.0044 (0.828)	0.0318 (0.138)	0.0043 (0.807)
FIR	-0.0535*** (-3.637)	0.0225*** (4.867)	-0.0132 (-0.056)	0.0233*** (4.978)
TOF	-0.0010*** (-6.310)	0.0002*** (4.762)	0.0092*** (3.299)	0.0002*** (5.337)
AGE	-0.0163 (-0.697)	-0.0005 (-0.088)	1.3307** (2.481)	0.0011 (0.188)
PTB	0.0041 (0.717)	0.0528*** (15.406)	0.4274** (2.435)	0.0532*** (16.009)
CAS	-0.0199* (-1.748)	-0.0021 (-0.679)	0.0045 (0.014)	-0.0018 (-0.580)
_cons	3.7166*** (55.444)	0.0172 (0.551)	-4.0887*** (-2.812)	-0.0414** (-2.441)
Year	Yes	Yes	Yes	Yes
ID	Yes	Yes	Yes	Yes
N	26720	26720	26720	26720
Adj.R ²	0.963	0.963	0.698	0.987
F	873.0004	873.0004	5.8794	6.0e+04

Robust t-statistics in parentheses. *, **, and *** indicate two-tailed p-value is less than 0.10, 0.05, and 0.01, respectively.

This study uses grouped sample regression to examine the effect of differences in the size of firms. A dummy variable (Size) was created to reflect these differences. The dummy variable was constructed to reflect differences in firm size by grouping firms by median firm size. Large-scale firms were assigned a value of 1, and small-scale firms were assigned a value of 0. The regression results are shown in Table 4. Model 7 shows the regression results for large-scale firms. The regression coefficient is 0.0028, which is significant at the 1% statistical level. Model 8 shows the regression results for small-scale firms. The regression coefficient is 0.0015, which is not significant. We also conducted a Chow intergroup coefficients test with an empirical P-value of 0.0000, which passed the intergroup coefficients test. The statistical results show higher and significant regression coefficients for large-scale firms.

Table 4

Analysis of Firm Size Heterogeneity

	Model 7: large-scale firms	Model 8: small-scale firms
	Res	Res
ESG	0.0028***	0.0015
	(5.664)	(1.562)
ROA	0.0138**	-0.0113
	(2.009)	(-1.271)
FIR	0.0146**	0.0456***
	(2.320)	(4.235)
TOF	0.0002***	0.0002**
	(5.027)	(2.337)
AGE	0.0012	-0.0090
	(0.141)	(-0.846)
PTB	0.0516***	0.0919***
	(13.571)	(15.353)
CAS	-0.0025	-0.0052
	(-0.731)	(-0.697)
_cons	-0.0355	-0.0446
	(-1.533)	(-1.438)
Year	Yes	Yes
ID	Yes	Yes
N	19221	7499
Adj.R ²	0.986	0.989
F	8.3e+04	3.4e+04

Robust t-statistics in parentheses. *, **, and *** indicate two-tailed p-value is less than 0.10, 0.05, and 0.01, respectively.

Results and Discussions

Results: The main regression results indicate a coefficient of 0.0030, significant at the 1% level, providing strong evidence for the main hypothesis. Furthermore, the mediation model tests are significant at the 10% and 1% levels, respectively, demonstrating the presence of a mediation effect. 1. Good ESG performance of firms can significantly improve their corporate resilience; 2. ESG performance affects corporate resilience through Financing capacity and obtaining government support; 3. Heterogeneity study finds that the ESG performance of large-scale firms contributes more significantly to corporate resilience than that of small-scale firms.

Discussions: This study offers a novel perspective on the impact of ESG performance on corporate resilience, wherein we consider the heterogeneity of firm size and explore the mediating role of financing capacity and government support. The integration of ESG concepts into strategic decisions of firms not only provides novel ideas for future sustainable development, but also encourages firms to embrace ESG concepts and adapt to sustainable development trends, thereby realizing both economic and social benefits. It also serves as a guide for investors, prompting them to prioritize ESG performance, with the potential to mitigate investment risks, generate long-term value, and contribute positively to the sustainable development of society. However, the impact of ESG is inherently long-term, and due to objective limitations, many companies with relatively short listing periods also have shorter research periods, which cannot fully reflect the long-term impact of ESG.

Conclusions and Recommendations

Conclusions: Firstly, it is evident that firms have the capacity to enhance their corporate resilience through the implementation of commendable ESG practices. In addition, the heterogeneity characterization indicates that the promotion effect of ESG performance on corporate resilience is more pronounced in large-scale firms. Secondly, a firm's commendable ESG performance can function as a positive signal to its stakeholders, which can exert an influence on corporate resilience through financing capacity and access to government support.

Recommendations: Enterprises must possess the foresight to implement ESG development strategies with unwavering commitment, thereby fortifying their corporate resilience. Moreover, enterprises must prioritize the integration of ESG practices into their daily operations and management, proactively fulfilling their social responsibilities, and enhancing their environmental management and corporate governance. In accordance with the signaling theory, enterprise development should adeptly integrate external resources, seeking in-depth cooperation with financial institutions and suppliers that are conducive to the enterprise. Furthermore, enterprises should prioritize risk management by identifying

and assessing the risks posed by ESG factors, and establish a risk early warning mechanism. This will enhance their ability to cope with risks and improve corporate resilience.

Recommendations for Future Research

Firstly, the objective of this study is to compare and analyze the impact of external factors on different industries. This will enhance the study's conclusions. The external shocks experienced by the research sample enterprises are divided by statistical means. The intervals with the greatest impact are then selected for the re-verification of the research conclusions. Secondly, the integration of computer crawler technology during the research process facilitates the acquisition of comprehensive information about enterprises. It is hoped that the findings of this study can provide valuable insights for companies in Thailand, and future research could expand the sample to include Thai firms for further exploration.

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