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Original Paper

Configurational Pathways to High ESG Performance: Evidence from Chinese Listed Electronics Firms

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Abstract

Why do firms facing similar sustainability expectations reach high ESG performance through different combinations of resources and governance arrangements? We examine this question for 384 Chinese A-share electronics firms using the technology–organization–environment (TOE) framework and fuzzy-set qualitative comparative analysis (fsQCA). Six conditions observed in 2022—digital transformation, R&D intensity, firm size, financing capacity, institutional ownership, and media attention—are considered alongside Wind ESG scores for 2023. No individual condition, whether present or absent, satisfies the 0.90 necessity-consistency benchmark. Three configurations are associated with high ESG performance: digital transformation–R&D–scale resource synergy, digitally enabled external governance, and R&D–capital monitoring. Firm size is a core condition across the three configurations, while the roles of technological inputs and external governance differ. Overall solution consistency is 0.859228 and solution coverage is 0.528515. Raising the case-frequency cutoff from six to eight reduces the reported solutions to two without eliminating the broader pattern of combined technological, organizational, and environmental conditions. The analysis highlights a distinction between resources shared across successful configurations and conditions that are necessary across all high-ESG cases. Its practical implication is not a single preferred ESG strategy: the results instead point to different resource and governance combinations that merit consideration in technology-intensive firms.

Keywords

ESG performance, Chinese electronics industry, technology–organization–environment framework, fuzzy-set qualitative comparative analysis, digital transformation, institutional ownership

1. Introduction

ESG performance is increasingly considered alongside conventional financial measures when assessing

corporate conduct and long-term prospects. Yet a rating can summarize several underlying practices without revealing how a firm developed the capabilities to achieve them. The financial relevance of ESG practices is examined by Kim and Li.[1] Oprean-Stan et al. connect sustainability reporting and the management of ESG factors with corporate performance and sustainable growth.[2] These perspectives make a distinction worth investigating: identifying the consequences of ESG is not the same as explaining the combinations of conditions associated with stronger ESG outcomes. This paper addresses the latter question.

The electronics industry makes that distinction particularly important. Product cycles are short, firms commit substantial resources to technical development, and coordination across suppliers and customers is often central to operations. Research on listed electronics firms has also examined the relationship between capital structure and performance.[3] These characteristics do not imply that every firm must follow the same sustainability strategy. A digitally advanced firm may have limited financial flexibility; another may possess substantial resources but face stronger investor scrutiny. Technology, organizational capacity, and oversight may therefore matter in different combinations, rather than in a fixed sequence.

Existing ESG research provides several pieces of this explanation, but the pieces are usually examined separately. One line of work considers whether digital transformation is associated with ESG performance.[4] Another addresses the governance implications of institutional ownership.[5] Studies of public participation and government regulation add an external institutional perspective.[6] Evidence concerning strategic emerging-industry policies further broadens the set of possible influences.[7] These strands should not be treated as rival explanations by default: resources within firms and pressures outside them can coexist. A net-effect estimate describes the average association for a particular variable, whereas the present question concerns which conditions appear together among high-ESG firms. The distinction also matters for causal asymmetry: a factor's contribution within one successful configuration does not establish that its absence explains an unsuccessful outcome.

The research question is therefore specific: which combinations of technological, organizational, and environmental conditions characterize high ESG performance among Chinese listed electronics firms? The TOE framework provides a way to classify the six selected antecedents without assuming that they act independently. fsQCA then allows the analysis to focus on conjunctions of conditions and alternative configurations. The dataset covers 384 A-share electronics firms, using 2022 conditions and Wind ESG performance in 2023. Observing the conditions earlier than the outcome establishes a temporal ordering for measurement, but does not rule out omitted influences or establish a causal effect.

Three aspects of the results are especially relevant to this question. First, no single measured condition reaches the conventional necessity threshold, so a universal prerequisite is not supported. Second, three combinations are linked to the high-ESG set, with different technological elements and different involvement of external governance conditions. Third, size recurs as a core feature of all three reported

paths despite not being individually necessary. This last contrast is easily obscured when attention is restricted to individual variables. The findings speak directly to a sample of Chinese listed electronics firms; whether the same combinations characterize other industries or national settings remains open for empirical comparison.

The next section sets out the literature and the TOE-based analytical framework. We then describe the sample and calibration procedure, examine the necessity and configurational results, report the case-frequency sensitivity analysis, and discuss what can—and cannot—be inferred from the observed pathways.

2. Literature Review and Theoretical Framework

2.1 ESG Performance and Its Antecedents

ESG performance reflects a firm's environmental practices, social responsibilities, and corporate governance. Research has considered its implications for financial performance, risk management, reputation, and longer-term growth. Liang et al. connect ESG strategy to dynamic capabilities and sustainable management performance.[8] Mehmood et al. study board gender diversity and ESG performance in the utilities sector.[9] These studies support treating ESG as part of organizational strategy rather than merely a reporting exercise.

Studies drawing on Chinese corporate data have explored several plausible determinants of ESG outcomes. Liu et al. examine the role of innovation capital in the relationship between digital transformation and ESG performance.[10] Fang discusses the potential contribution of R&D innovation to ESG outcomes in the context of VAT credit refunds.[11] Li et al. examine the relationship between ESG responsibility fulfillment, R&D investment, and firms' productive capabilities.[12] Research on financing constraints and corporate value also underscores the importance of organizational resource availability.[13] These relationships, however, need not be uniform across firms: a technologically advanced firm may still face financial barriers, while a resource-rich firm may have a different route to ESG improvement.

2.2 Technological Conditions: Digital Transformation and R&D Intensity

Digital transformation refers here to firms' application of digital technologies and development of digital organizational capabilities. It may improve the collection, transmission, and use of operational information, with possible consequences for internal control, transparency, and supply-chain coordination. Wu et al. examine the capital-market implications of corporate digital transformation.[14] Katsamakas et al. examine digital platforms, social innovation, and ESG.[15] Cao et al. study digitalization and manufacturing green transformation from a resource-orchestration perspective.[16] The present study treats digital transformation as a technological condition whose relevance may depend on the simultaneous availability of resources and governance pressures.

R&D intensity represents the level of investment devoted to innovation and technical improvement. Electronics firms require continuing experimentation and product development. Ding and Zhou

examine R&D investment and supply-chain resilience.[17] R&D can also facilitate environmentally relevant process changes and management improvements, although the conversion of spending into better ESG performance cannot be assumed. Digital transformation and R&D are therefore conceptually related but not interchangeable measures: one focuses on organizational digitalization, the other on resource commitment to research and development. Whether they jointly appear in successful configurations is an empirical matter.

2.3 Organizational Conditions: Firm Size and Financing Capacity

Firm size captures the scale of corporate operations and the resource base potentially available for ESG-related activities. Larger firms may have stronger administrative capabilities and a greater ability to spread fixed costs of monitoring, reporting, and operational upgrades. Size may also imply more complex operations and more intense scrutiny, however, so its role should be interpreted within configurations rather than as an unconditional benefit.

The second organizational condition is financing capacity. Financing capacity is measured using the absolute value of the SA index. Under the operational interpretation adopted in this study, larger values indicate weaker financing constraints and greater financing capacity. The interpretation is sensitive to the coding and sign convention of the index. Conceptually, the availability of financing can support continued R&D, digitalization, and ESG-related expenditure.

2.4 Environmental Conditions: Institutional Ownership and Media Attention

Institutional investors can participate in governance by monitoring managers, evaluating long-run risks, and engaging with firms. Chen and Liu examine the relevance of investor attention to listed firms' ESG performance.[18] Wang et al. investigate institutional-investor ownership networks and corporate ESG performance.[19] The present study represents this governance context through the proportion of shares held by institutional investors.

Media attention may increase the visibility of environmental and governance practices and affect reputational incentives. Song investigates corporate social responsibility, media attention, and firm value in platform enterprises.[20] Media attention is not inherently equivalent to effective oversight: the significance of scrutiny may depend on firms' resources and their capacity to respond. It is therefore examined jointly with the other antecedent conditions.

2.5 TOE Framework and Configurational Reasoning

The TOE framework organizes organizational phenomena around technological, organizational, and environmental contexts. Zeng et al. apply a TOE-based configurational approach to original innovation in enterprises.[21] Wang examines configurations associated with the commercialization of research and technological achievements in high-technology industries.[22] In the present analysis, digital transformation and R&D intensity represent technology; firm size and financing capacity represent organizational resources; and institutional ownership and media attention represent the external governance environment.

This organizing framework motivates an analysis of conjunctions rather than a claim that each of the

six antecedents exerts an independent, constant effect. fsQCA evaluates whether combinations of fuzzy-set memberships are consistent with membership in the outcome set. Its configurational perspective accommodates conjunctural causation, equifinality, and causal asymmetry. Du and Jia discuss qualitative comparative analysis as a configurational approach in management research.[23] Zhang and Du examine QCA applications, research strategies, and methodological considerations in organizational and management studies.[24] Du et al. analyze configurations of business environments and high-quality urban development.[25]

The analytical expectation is consequently open-ended: high ESG performance may be associated with more than one sufficient configuration; technological capability may co-occur with either resource advantages or stronger external governance; and no single antecedent must necessarily be present in every high-ESG case. These are configurational expectations rather than linear hypotheses about marginal coefficients.

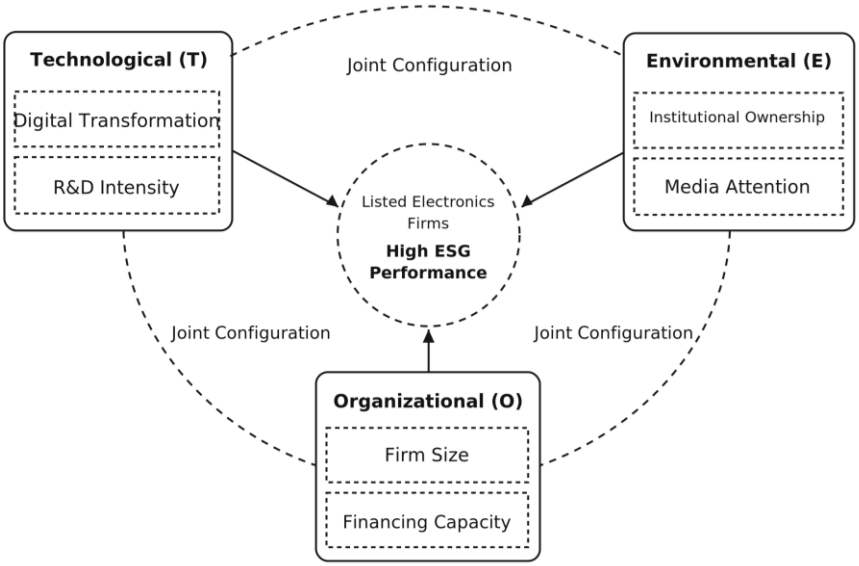


Figure 1. TOE-based Conceptual Framework

3. Research Methodology

3.1 Sample Selection and Data Sources

The sample comprises Chinese A-share listed companies in the electronics industry, classified according to the electronics category of the 2021 revised Shenwan industry classification. The study links antecedent conditions measured in 2022 with ESG performance in 2023 to allow for a possible temporal lag. Matching the relevant company-year records and excluding observations with missing required information produces a final sample of 384 firms.

Wind and CSMAR provide the underlying data. The outcome uses the Wind ESG composite score, while the six antecedent measures are aligned at the company-year level using stock codes and reporting years. The sample therefore compares prior-year conditions with the subsequent ESG

outcome rather than contemporaneous observations.

3.2 Outcome and Antecedent Measures

The Wind ESG composite score is the outcome measure. After calibration, a higher membership score denotes closer membership in the set of high-ESG firms; at the raw-data level, a higher Wind score represents stronger composite performance on environmental, social, and governance dimensions.

The six antecedents operationalize the TOE framework. Technological conditions comprise digital transformation (DT), referring to digital adoption and development, and R&D intensity (RD), representing research investment relative to corporate activity. The organizational dimension includes firm size (SIZE) and financing capacity (FC); the latter is measured using the absolute SA index in the original specification. Institutional ownership (INST), expressed as the institutional shareholding proportion, and media attention (MED) represent the external governance dimension. These proxies distinguish the types of conditions considered in the configuration analysis; they do not directly measure every mechanism that the underlying theory suggests.

3.3 Fuzzy-set Calibration

Each raw measure is converted into a fuzzy-set membership score by direct calibration. The empirical anchors are the sample's 95th percentile for full membership, 50th percentile for the crossover, and 5th percentile for full nonmembership. Table 1 gives the seven sets' respective anchor values. Membership rises as the raw value moves toward the full-membership anchor. Because these anchors are distribution-based, the interpretation of each set also depends on the substantive meaning and direction of the underlying variable.

Table 1. Calibration Anchors

Context	Variable	Set	Full membership	Crossover	Full nonmembership
Outcome	ESG performance	ESG	7.5985	5.9700	5.1515
Technology	Digital transformation	DT	56.138305	40.5550	28.740725
Technology	R&D intensity	RD	0.284693	0.061566	0.019500
Organization	Firm size	SIZE	24.264877	21.896946	20.781182
Organization	Financing capacity	FC	6.937049	4.258198	3.064424
Environment	Institutional ownership	INST	82.343145	35.7012	4.487515
Environment	Media attention	MED	6.113219	4.691348	3.406116

Note. Direct-calibration anchors correspond to the 95th, 50th, and 5th percentiles, respectively.

3.4 Analytical Procedure

The analysis proceeds in three stages. First, each antecedent condition and its negation is evaluated for necessity with respect to high and non-high ESG performance. A consistency value of 0.90 is used as

the conventional necessity benchmark. Second, a truth table is constructed to assess configurations associated with high ESG performance. The truth-table analysis uses a case-frequency cutoff of six and a consistency threshold of 0.870063. Proportional reduction in inconsistency (PRI) consistency is also considered in screening truth-table rows. Parsimonious and intermediate solutions are compared to distinguish core and peripheral conditions. Third, sensitivity to the case-frequency cutoff is assessed by increasing the threshold from six to eight.

Consistency summarizes the extent to which membership in a condition or configuration is contained within membership in the outcome set. Coverage, by contrast, indicates how much of the outcome set is accounted for by the observed configuration. Neither statistic turns the observational comparisons into an experimentally identified causal effect.

4. Empirical Results

4.1 Necessity Analysis

Table 2 presents the necessity analysis of the six antecedents and their negations with respect to high ESG performance and its negation. None attains consistency of 0.90 in either outcome analysis. For high ESG performance, media attention has the highest necessity consistency (0.763510), followed by financing capacity (0.751067); both fall below the conventional necessity threshold. The findings do not support the assertion that any one measured condition, or its absence, is required for high ESG performance.

The analysis of non-high ESG tells a similar story. Even the relatively larger necessity consistencies for the absence of financing capacity (0.769716) and the absence of size (0.763487) remain below 0.90. Failure to identify a necessary single condition does not rule out relationships among the conditions; it makes the sufficiency configurations the relevant next comparison.

Table 2. Necessity Analysis for High and Non-high ESG Performance

Condition	High ESG: consistency	High ESG: coverage	~High ESG: consistency	~High ESG: coverage
DT	0.702770	0.680433	0.606074	0.646702
~DT	0.635103	0.593979	0.700509	0.722016
RD	0.725943	0.730244	0.599951	0.665101
~RD	0.667074	0.602078	0.756668	0.752646
SIZE	0.731036	0.737163	0.570137	0.633593
~SIZE	0.636638	0.573355	0.763487	0.757772
FC	0.751067	0.747439	0.579728	0.635811
~FC	0.634043	0.577869	0.769716	0.773122
INST	0.695416	0.667849	0.597316	0.632185

~INST	0.617002	0.581647	0.686169	0.712870
MED	0.763510	0.726148	0.612210	0.641679
~MED	0.623242	0.593219	0.738725	0.774903

Note. The symbol ~ denotes fuzzy-set negation. A consistency value of 0.90 is used as the necessity benchmark.

4.2 Sufficiency Analysis and Configurational Solutions

The source analysis identifies three configurations of antecedent conditions associated with high ESG performance. Under a case-frequency cutoff of six and a reported truth-table consistency threshold of 0.870063, overall solution consistency is 0.859228 and overall solution coverage is 0.528515. The three configurations have individual consistency scores of 0.889856 (H1), 0.865690 (H2), and 0.894249 (H3). Their respective raw coverage values are 0.407450, 0.399066, and 0.392118. These figures indicate overlap in the cases described by the three configurations; raw coverage values should not be added to obtain overall coverage.

One numerical distinction deserves attention when reading the sufficiency results. H2 has a minimized-configuration consistency of 0.865690, whereas 0.870063 is the reported screening threshold for truth-table rows. The two figures describe different stages of fsQCA and need not be identical; they should not be interpreted as competing estimates of the same quantity.

Table 3. Configurations Associated with high ESG Performance

Antecedent / metric	**H1: digital–R&D–scale synergy**	**H2: digital–external governance**	**H3: R&D–capital monitoring**
Digital transformation	●	•	
R&D intensity	●		•
Firm size	●	●	●
Financing capacity	•	•	•
Institutional ownership		●	●
Media attention	•	●	●
Consistency	0.889856	0.865690	0.894249
Raw coverage	0.407450	0.399066	0.392118
Unique coverage	0.072391	0.0640066	0.0570588
Solution consistency	0.859228	0.859228	0.859228
Solution coverage	0.528515	0.528515	0.528515

Note. ● = presence of a core condition; • = presence of a peripheral condition; blank = condition treated as indifferent in the reported solution. The source table reports no explicit absent-condition symbols. Values and symbol placements are preserved.

4.3 Interpretation of the Three Pathways

H1: Digital transformation–R&D–scale resource synergy. The three core conditions in H1 are digital transformation, R&D intensity, and firm size; financing capacity and media attention appear peripherally. This pattern brings together investment in information-related capabilities, research activity, and an organizational resource base. A plausible reading is that firms with the capacity to pursue both digital and research projects can also accommodate ESG-related managerial demands. The solution does not isolate which activity produces the outcome, however, and it cannot establish a causal interaction between the core conditions.

H2: Digitally enabled external governance. Firm size, institutional ownership, and media attention form the core, accompanied peripherally by digital transformation and financing capacity. Unlike H1, the distinguishing emphasis is not a core R&D condition but the co-occurrence of scale and external scrutiny. Digital capability may help a firm organize and communicate its response to such scrutiny, although engagement and disclosure mechanisms are not directly measured here. R&D intensity is not specified as a present core or peripheral condition in H2.

H3: R&D–capital monitoring. H3 shares with H2 the core combination of firm size, institutional ownership, and media attention. It differs in the technological condition appearing peripherally: R&D intensity is present, while digital transformation is unspecified; financing capacity remains peripheral. The comparison is informative precisely because the governance-centered core stays the same. It describes alternative technological attributes within similar broader configurations, not proof that R&D substitutes causally for digital transformation.

Reading the paths together reveals both commonality and variation. Size is core across H1, H2, and H3, whereas institutional ownership and media attention are jointly core only in H2 and H3. The technological conditions distinguish the pathways more sharply. In fsQCA terms, the results illustrate equifinality among the observed solutions. Their coverage is not exhaustive, and recurrence within the identified paths must not be confused with single-condition necessity across the entire sample.

5. Robustness Checks

A sensitivity analysis raises the case-frequency cutoff from six to eight while keeping the analytical framework unchanged. The revised analysis reports two configurations: an R&D–scale resource synergy pathway and a digitally enabled external governance pathway. Their consistency values are 0.881667 and 0.865690, respectively, and their raw coverage values are 0.480150 and 0.399066. Overall solution consistency is 0.857682, compared with 0.859228 in the principal analysis; overall solution coverage is 0.544156, compared with 0.528515.

Table 4 presents the results of this sensitivity analysis. The reduction from three configurations to two shows that the exact solution structure changes with the minimum case requirement. Nevertheless, a broad pattern of joint organizational, technological, and external governance conditions remains apparent. This result supports a limited interpretation of robustness to the case-frequency threshold, not

an assertion of stability against alternative calibration rules, truth-table settings, or sample definitions.

Table 4. Sensitivity Analysis: Increasing the Case-frequency Cutoff

Antecedent / metric	R&D–scale resource synergy	Digital–external governance
Digital transformation		●
R&D intensity	●	
Firm size	●	●
Financing capacity	●	●
Institutional ownership		●
Media attention	●	●
Consistency	0.881667	0.865690
Raw coverage	0.480150	0.399066
Unique coverage	0.145091	0.0640065
Solution consistency	0.857682	0.857682
Solution coverage	0.544156	0.544156

Note. The case-frequency cutoff is increased from six to eight. ● = presence of a condition; blank = condition not specified in the reported pathway. Core and peripheral conditions are not distinguished in this robustness specification.

6. Discussion

6.1 Organizational Resources as a Recurrent Configurational Feature

A notable result is the different status of firm size in the two types of analysis. It appears as a core condition in H1, H2, and H3, yet its necessity consistency remains below 0.90. This is not a contradiction. The necessity test asks whether high-ESG cases generally belong to the set of large firms; the solutions instead identify the conditions that co-occur within particular high-ESG pathways. In electronics, organizational scale may help sustain research activity, information systems, and the personnel required for ESG-related management. The present analysis is consistent with that interpretation, but it cannot tell us whether expanding a firm's scale would itself improve its ESG score. The significance of size is therefore relational: it appears alongside other conditions rather than operating as a demonstrated stand-alone requirement.

6.2 Distinct Combinations of Technological Investments

The technological pattern is more differentiated than a general claim that technology improves ESG. In H1, both digital transformation and R&D intensity are core. They occur together with scale, suggesting that one identifiable route combines digital capabilities and continued research investment. H2 and H3 take a different form: each has a core defined by scale and external governance, while digital transformation appears peripherally in H2 and R&D intensity in H3. In practical terms, the paths are

compatible with firms drawing on different technological strengths while facing broadly similar organizational and monitoring conditions. However, a difference in the symbolic placement of conditions is not an estimated substitution coefficient. No conclusion about one activity replacing the other follows without further analysis.

6.3 External Governance Within Alternative Paths

The shared governance core in H2 and H3 also warrants a qualified interpretation. Institutional ownership and media attention are both present as core conditions, alongside firm size. Such a combination may bring corporate operations under more sustained examination by investors and public information channels. But the measures do not reveal how actively institutions engage with management or whether media coverage is favorable, critical, or simply frequent. The evidence consequently indicates the configurational relevance of exposure to external monitoring, not the effectiveness of any particular monitoring practice. This distinction matters for managerial implications: visibility alone should not be equated with improved ESG behavior.

6.4 Implications for Configurational ESG Research

The TOE framework helps make sense of these differences without assigning a uniform effect to every antecedent. Its three contexts allow the analysis to compare a pathway centered on technological and scale resources with two pathways that share an externally oriented governance core. fsQCA adds a way to describe these combinations and the fact that the same high-ESG outcome can be associated with more than one pattern. The contribution is consequently a bounded, sector-specific account of conjunctions, not a new universal theory of ESG. Future comparative work could ask whether the recurring role of size, and the different technological elements, also appear under other ownership structures, industry conditions, or national institutions.

7. Conclusion and Implications

7.1 Main Findings

The findings yield three main conclusions. First, none of the six antecedents, whether present or absent, reaches the 0.90 necessity benchmark. Second, the sufficiency analysis identifies three configurations associated with high ESG performance: digital transformation–R&D–scale synergy, digitally enabled external governance, and R&D–capital monitoring. Third, the recurrence of firm size as a core condition contrasts with the changing positions of technological and external governance conditions. Together, these results show that the reported high-ESG pathways share some features without collapsing into a single profile. Increasing the frequency cutoff from six to eight leaves two reported configurations, offering a limited sensitivity check rather than a claim of complete invariance.

7.2 Theoretical Contributions

The theoretical value of the analysis lies in specifying where the TOE contexts intersect in the observed solutions. Rather than assigning a single average role to technology, organizational resources, or environmental scrutiny, it shows the different bundles in which those conditions appear. The repeated

presence of firm size in the sufficient solutions, despite the absence of any necessary individual condition, is particularly instructive for interpreting configurational evidence. These findings extend the empirical discussion of ESG antecedents in a defined sector, while leaving broader causal and cross-country generalizations for future work.

7.3 Managerial and Policy Implications

Managers should read the pathways as alternatives to examine, not as ready-made prescriptions. Firms with established digital systems and a sustained R&D commitment may find it useful to connect these capabilities with ESG-related operational oversight. Where institutional ownership and media attention are more prominent, the findings instead direct attention to the firm's capacity to respond through governance practices and reliable information. The observed prominence of size suggests that resource planning matters across distinct profiles. It does not mean that firms can obtain stronger ESG outcomes simply by expanding assets or increasing spending.

For investors, the results caution against judging ESG prospects from a single visible characteristic, such as digital expenditure or ownership composition. Policymakers face a related issue: firms may differ in the resource combinations available to meet sustainability expectations. These considerations follow from observed configurations and should be treated as directions for evaluation, not as evidence that a particular intervention has been tested successfully.

7.4 Limitations and Future Research

The study has limits that bear directly on interpretation. The sample covers listed electronics firms in one national market, so the configurations cannot automatically be extended to unlisted firms or different industries. The one-year lag separates the measurements chronologically but does not eliminate reverse relationships, unobserved firm characteristics, or persistence in ESG performance. The results also depend on the proxies and calibration anchors selected. In particular, the interpretation of the absolute SA index as financing capacity depends on its actual coding direction and requires verification against the underlying dataset. Finally, the available robustness analysis varies the case-frequency cutoff only. It does not establish stability under alternative PRI criteria, calibration anchors, or ESG measures.

Further studies could compare configurations across industries and jurisdictions, extend the observation period, and test sensitivity to alternative ESG ratings. Measures that distinguish active institutional engagement from passive ownership, or critical media coverage from simple visibility, would be useful for evaluating the governance interpretations proposed here. Replication with fully documented variable construction and truth-table settings would also help determine which aspects of the reported configurations are robust beyond the present specification.

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References

[1] Kim, S., & Li, Z. (2021). Understanding the impact of ESG practices in corporate finance. *Sustainability*, *13*(7), 3746. https://doi.org/10.3390/su13073746

[2] Oprean-Stan, C., Oncioiu, I., Iuga, I. C., & Stan, S. (2020). Impact of sustainability reporting and inadequate management of ESG factors on corporate performance and sustainable growth. *Sustainability*, *12*(20), 8536. https://doi.org/10.3390/su12208536

[3] Le, F., Xu, W., & Cheng, X. (2011). A preliminary examination of the relationship between capital structure and performance among listed electronics firms. *Journal of Shandong Technology and Business University*, (3), 79–82. [In Chinese; translated title].

[4] Wang, H., Wang, S., Zhang, C., & Guo, L. (2023). Does digital transformation improve corporate ESG responsibility performance? Empirical evidence based on the MSCI index. *Foreign Economics & Management*, *45*(6), 19-35. [In Chinese].

[5] He, Q., & Zhuang, P. (2023). How do common institutional investors affect corporate ESG performance? *Securities Market Herald*, (3), 3-12. [In Chinese].

[6] Xu, J., Wei, J., & Lu, L. (2025). The synergistic effects of public participation and government regulation on ESG performance of manufacturing firms. *Technology Economics*, *44*(5), 39-56. [In Chinese].

[7] Tang, X., Zhao, T., Liu, K., & Hou, D. (2024). Strategic emerging industry policies and corporate ESG performance. *Scientific Decision Making*, (4), 22-41. [In Chinese; translated title].

[8] Liang, Y., Lee, M. J., & Jung, J. S. (2022). Dynamic capabilities and an ESG strategy for sustainable management performance. *Frontiers in Psychology*, *13*, 887776. https://doi.org/10.3389/fpsyg.2022.887776

[9] Mehmood, A., De Luca, F., & Quach, H. (2023). Investigating how board gender diversity affects environmental, social and governance performance: Evidence from the utilities sector. *Utilities Policy*, *83*, 101588. https://doi.org/10.1016/j.jup.2023.101588

[10] Liu, Y., Ren, Y., & He, Z. (2025). Can digital transformation improve corporate ESG performance? An explanation based on the mediating role of innovation capital. *Systems Engineering*, *43*(1), 1-13. [In Chinese].

[11] Fang, X. (2024). VAT credit refunds, R&D innovation, and corporate ESG performance. *Friends of Accounting*, (13), 133-140. [In Chinese].

[12] Li, Q., Li, R., Liu, X., Dong, J., & Xu, H. (2025). ESG responsibility fulfillment, R&D investment, and new quality productive forces of enterprises. *Friends of Accounting*, *Supplement 2*, 75-82. [In

Chinese].

[13] Wu, X., Wei, H., Zhou, Z., & Fang, Z. (2025). ESG performance, financing constraints, and firm value. *Friends of Accounting*, (24), 116-122. [In Chinese].

[14] Wu, F., Hu, H., Lin, H., & Ren, X. (2021). Corporate digital transformation and capital market performance: Evidence from stock liquidity. *Management World*, (7), 130-144, 10. [In Chinese].

[15] Katsamakas, E., Miliaresis, K., & Pavlov, O. V. (2022). Digital platforms for the common good: Social innovation for active citizenship and ESG. *Sustainability*, *14*(2), 639. https://doi.org/10.3390/su14020639

[16] Cao, Y., Li, X., Hu, H., Wan, G., & Wang, S. (2023). How does digitalization promote green transformation in manufacturing firms? An exploratory case study from the resource orchestration perspective. *Management World*, (3), 96-112, 126, 113. [In Chinese; translated title].

[17] Ding, X., & Zhou, Z. (2025). The effect of R&D investment on supply chain resilience. *Chinese Journal of Management*. [In Chinese; translated title; publication details not supplied in source].

[18] Chen, X., & Liu, H. (2023). Does investor attention affect listed firms' ESG performance? Evidence from online search volume. *Journal of Zhongnan University of Economics and Law*, (2), 15-27. [In Chinese].

[19] Wang, K., Ding, N., Gao, H., & Wang, C. (2024). How does network-group ownership by institutional investors affect corporate ESG performance? *R&D Management*, *36*(1), 14-26. [In Chinese].

[20] Song, Y. (2022). Corporate social responsibility, media attention, and firm value in platform enterprises. *Journal of Yantai University* (Philosophy and Social Science Edition), *35*(3), 109-124. [In Chinese].

[21] Zeng, J., Li, B., Song, P., & Wang, X. (2023). Pathways driving original innovation in enterprises: A configurational analysis based on the TOE framework. *Science & Technology Progress and Policy*, (1), 71-80. [In Chinese].

[22] Wang, X. (2024). Configurations of scientific and technological achievement transformation in high-tech industries under the TOE framework. *Science Research Management*, *45*(6), 164-173. [In Chinese].

[23] Du, Y., & Jia, L. (2017). A configurational perspective and qualitative comparative analysis (QCA): A new approach to management research. *Management World*, (6), 155-167. [In Chinese].

[24] Zhang, M., & Du, Y. (2019). Applications of QCA in organization and management research: Positioning, strategies, and directions. *Chinese Journal of Management*. [In Chinese].

[25] Du, Y., Liu, Q., Chen, K., Xiao, R., & Li, S. (2022). Business environment ecosystems, total factor productivity, and multiple pathways to high-quality urban development: A configurational analysis from a complex systems perspective. *Management World*, (9), 127-145. [In Chinese; translated title].