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Green Industrial Policy, ESG Governance, and Corporate Strategy: Comparative Economic Transformation in the European Union and Japan, 2020–2026

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ABSTRACT

This article examines green industrial policy, ESG governance, and corporate strategy through a comparative institutional analysis of the European Union and Japan between 2020 and 2026. The study argues that sustainable business transformation is no longer driven only by voluntary corporate responsibility but increasingly by institutionalized economic governance linking climate regulation, financial disclosure, industrial competitiveness, and organizational adaptation. The European Union and Japan were selected because both are advanced industrial economies committed to decarbonization, yet they differ in regulatory design, corporate governance traditions, financial-market structures, and industrial policy implementation. The European Union emphasizes regulatory standardization, taxonomy-based sustainable finance, mandatory disclosure, and carbon-border governance. Japan emphasizes transition finance, corporate stewardship, technological upgrading, and consensus-oriented industrial coordination. The findings indicate that green transformation improves competitiveness only when ESG governance is integrated with innovation capability, capital allocation, supply-chain restructuring, and credible policy coordination. This article contributes to economics and business literature by conceptualizing ESG governance as a strategic institutional mechanism linking firms, markets, states, and socio-economic resilience.

Keywords: green industrial policy; ESG governance; sustainable finance; corporate strategy; European Union; Japan; institutional economics; competitiveness; decarbonization; sustainable development

INTRODUCTION

Sustainable economic transformation has become one of the defining challenges of contemporary economics and business studies. Between 2020 and 2026, climate change, energy insecurity, supply-chain disruption, geopolitical fragmentation, and investor pressure intensified the transformation of corporate strategy and industrial policy. Governments increasingly linked decarbonization to competitiveness, energy security, innovation, and economic resilience. Firms increasingly confronted pressure to disclose climate risks, restructure supply chains, reduce emissions, and demonstrate credible transition strategies. Sustainable business governance therefore shifted from reputational corporate social responsibility toward institutionalized ESG regulation, sustainable finance, and green industrial policy.

This study argues that ESG governance should be understood as an institutional economic mechanism rather than a narrow corporate reporting practice. ESG rules, climate disclosure standards, taxonomies, carbon-pricing mechanisms, transition-finance frameworks, and industrial subsidies reshape incentives for firms, investors, lenders, consumers, and supply-chain partners. They alter capital allocation, strategic investment, risk management, innovation behavior, and organizational legitimacy. Consequently, ESG governance links economic structures, institutional frameworks, corporate strategy, and developmental outcomes.

The European Union and Japan provide analytically significant comparative cases. The European Union has advanced one of the world's most comprehensive sustainable finance and green regulatory architectures, including the European Green Deal, EU Taxonomy, Corporate Sustainability Reporting Directive, Sustainable Finance Disclosure Regulation, and Carbon Border Adjustment Mechanism. Japan has pursued a more transition-oriented model emphasizing green transformation, corporate stewardship reform, transition finance, hydrogen strategy, energy security, and industrial decarbonization. Both systems are advanced industrial economies with strong manufacturing bases, aging populations, and net-zero commitments, yet they institutionalize green transformation differently.

The global economic context underscores the importance of this comparison. The IMF has emphasized that climate policy, energy transition, and industrial competitiveness are increasingly connected to macroeconomic stability and fiscal sustainability (IMF, 2024). OECD analysis shows that green innovation and climate policy credibility are becoming central to productivity and investment strategies (OECD, 2023). UNCTAD warns that developing and advanced economies alike face uneven access to green technologies and sustainable finance, creating risks of new development divides (UNCTAD, 2023). The World Bank similarly stresses that climate-resilient development requires coordinated investment, institutional capacity, and private-sector participation (World Bank, 2023).

Existing scholarship provides important but incomplete foundations. Porter and van der Linde (1995) argue that well-designed environmental regulation can stimulate innovation and competitiveness. North (1990) emphasizes that institutions structure economic incentives and reduce uncertainty. Teece (2018) highlights dynamic capabilities as essential for firms adapting to technological and market disruption. Eccles and Klimenko (2019) argue that ESG has become financially material as investors increasingly price sustainability risks. Bolton and Kacperczyk (2021) show that carbon risk can affect asset pricing and firm valuation. Other scholars examine sustainable finance, corporate governance, green innovation, and stakeholder capitalism as increasingly central to business transformation (Friede et al., 2015; Flammer, 2021; Edmans, 2020).

However, current economics and business literature remains limited in several respects. While previous studies emphasize ESG disclosure or green finance, they often under-theorize the institutional mechanisms through which ESG governance reshapes corporate strategy. Other scholars analyze green industrial policy but insufficiently connect it to corporate governance, capital markets, and organizational adaptation. Existing comparative research also remains limited in explaining how the European Union and Japan represent different institutional pathways toward sustainable competitiveness.

This article identifies six major research gaps. First, a theoretical gap persists concerning ESG governance as institutional economic governance rather than corporate transparency alone. Second, an empirical gap concerns how ESG rules influence investment, innovation, and organizational transformation. Third, a comparative gap exists regarding regulatory-standardization and transition-finance models. Fourth, an institutional governance gap concerns coordination among governments, regulators, investors, firms, and supply chains. Fifth, a market transformation gap concerns how sustainable finance changes capital allocation and industrial competitiveness. Sixth, a policy implementation gap concerns how decarbonization goals are translated into credible firm-level strategy.

The novelty of this article lies in its comparative institutional analysis of the European Union and Japan as two green transformation models. The article differs from conventional ESG studies by treating ESG governance as a strategic institutional mechanism connecting policy design, financial markets, corporate governance, and industrial upgrading. It contributes theoretically by developing a framework linking institutional governance, sustainable finance, corporate dynamic capabilities, market legitimacy, and socio-economic resilience.

The analytical framework proceeds through the following causal relationship: green institutional governance shapes sustainable finance incentives; sustainable finance affects corporate capital allocation and strategic priorities; corporate strategy influences innovation and supply-chain transformation; innovation and supply-chain transformation affect competitiveness and resilience; and these outcomes contribute to broader sustainable development. The research objective is to examine how the European Union and Japan implemented ESG governance and green industrial policy between 2020 and 2026 and to evaluate how institutional design shaped corporate strategy, market transformation, and socio-economic development

outcomes.

METHODOLOGY

This study employs a comparative institutional political economy methodology integrating sustainable finance analysis, corporate governance interpretation, and strategic management analysis. The European Union and Japan were selected because both are advanced industrial economies pursuing net-zero transformation, yet they differ substantially in regulatory philosophy, financial-market organization, corporate governance tradition, and industrial policy coordination. The European Union represents a regulatory-standardization model emphasizing mandatory disclosure, taxonomy classification, market transparency, and legal harmonization across member states. Japan represents a transition-finance and coordinated industrial upgrading model emphasizing technological pathways, corporate stewardship, consensus-building, and sectoral transformation. The unit of analysis is the green economic governance ecosystem, including ESG disclosure regimes, sustainable finance instruments, industrial policy frameworks, corporate governance reforms, innovation systems, supply-chain strategies, and competitiveness outcomes.

The empirical basis consists of OECD green growth reports, IMF climate policy assessments, World Bank climate development materials, UNCTAD investment and technology reports, European Union sustainable finance regulations, Japanese green transformation strategy documents, corporate sustainability disclosures, market and investment statistics, and peer-reviewed economics and business literature from 2020 to 2026. Analytical techniques combine comparative institutional interpretation, document-based process tracing, and cross-case synthesis to identify causal mechanisms linking governance design to corporate strategy and market outcomes. Triangulation is achieved through comparison of policy frameworks, institutional reports, corporate disclosures, investor guidance, and scholarly evidence. Ethical considerations concern greenwashing, unequal transition burdens, labor displacement, supply-chain justice, and the credibility of corporate climate claims. The principal limitation is that firm-level ESG performance indicators remain heterogeneous and sometimes weakly comparable across jurisdictions. Nevertheless, the comparative design enables robust analysis of ESG governance as an institutional and strategic transformation process.

Findings and Discussion

1. Institutional Design and the Governance of Sustainable Finance

The first finding is that institutional design strongly shapes the function of sustainable finance. The European Union has pursued a regulatory-standardization model that seeks to define what counts as sustainable economic activity, increase disclosure comparability, reduce greenwashing, and redirect capital toward low-carbon investment. The EU Taxonomy and Corporate Sustainability Reporting Directive

institutionalize sustainability as a structured financial and governance category.

Japan's model differs by emphasizing transition finance. Rather than imposing a rigid green classification system across all sectors, Japan seeks to finance sectoral transition pathways, especially in hard-to-abate industries such as steel, chemicals, energy, and transport. This reflects Japan's industrial structure, energy constraints, and preference for gradual coordinated transformation.

The comparative evidence demonstrates that sustainable finance is not merely a capital-market instrument. It is an institutional mechanism for restructuring investment incentives. The EU model strengthens transparency and comparability, but it may create compliance complexity and classification disputes. Japan's model provides flexibility for industrial transition, but it may generate concerns about credibility and delayed decarbonization if transition pathways are insufficiently stringent.

This finding extends institutional economics by showing that sustainability rules reduce uncertainty only when investors and firms perceive them as credible, coherent, and enforceable. The policy implication is that sustainable finance must balance standardization with sectoral realism.

2. Corporate Governance, ESG Disclosure, and Strategic Accountability

The second finding is that ESG governance increasingly transforms corporate accountability. In the European Union, firms face expanding mandatory disclosure obligations concerning climate risk, social impact, governance practices, and value-chain sustainability. This shifts ESG from voluntary reporting toward legally structured corporate accountability. Firms must increasingly integrate sustainability metrics into risk management, board oversight, and investor communication.

Japan's corporate governance reforms have emphasized stewardship, board independence, capital efficiency, and long-term value creation. ESG is increasingly connected to investor engagement and corporate transformation, particularly through the Tokyo Stock Exchange reforms and stewardship expectations. However, Japan's consensus-oriented governance culture may lead to more incremental implementation.

The comparison reveals that ESG disclosure affects corporate strategy when it becomes integrated into governance systems rather than treated as reputational reporting. Boards, investors, and managers increasingly use sustainability information to evaluate transition risk, cost of capital, and strategic positioning.

This finding aligns with strategic management theory emphasizing dynamic capabilities. Firms able to sense regulatory shifts, seize green investment opportunities, and reconfigure operations around sustainability are better positioned for long-term competitiveness (Teece, 2018). The business implication is that ESG governance is becoming a strategic capability, not a compliance department.

3. Green Innovation, Industrial Competitiveness, and Supply-Chain Transformation

The third finding is that green governance influences competitiveness through innovation and supply-chain restructuring. The European Union's regulatory architecture creates strong incentives for firms to invest in low-carbon technologies, energy efficiency, circular economy practices, and emissions tracking. The Carbon Border Adjustment Mechanism further extends climate governance into trade competitiveness by requiring carbon-cost accountability for selected imports.

Japan's green transformation strategy emphasizes technological innovation, hydrogen, advanced manufacturing, battery systems, energy efficiency, and industrial decarbonization. This reflects Japan's strategic interest in preserving industrial competitiveness while reducing carbon intensity.

The comparative evidence suggests that green industrial policy improves competitiveness when it combines regulation with innovation support. Regulation alone may increase costs if firms lack technological capability. Subsidies alone may generate inefficiency if not linked to credible decarbonization incentives. Effective transformation requires policy mix coordination.

This finding supports Porter and van der Linde's innovation-offset hypothesis but qualifies it institutionally. Environmental regulation stimulates competitiveness only when firms possess innovation capacity, access to finance, and supportive institutional ecosystems. The developmental implication is that green competitiveness depends on alignment among policy credibility, corporate capability, and industrial upgrading.

4. Market Legitimacy, Transition Risk, and Socio-Economic Resilience

The fourth finding is that ESG governance increasingly shapes market legitimacy and socio-economic resilience. Investors, consumers, regulators, and civil society increasingly evaluate firms based on climate credibility, labor standards, governance transparency, and supply-chain responsibility. Firms with weak ESG governance face reputational risk, financing constraints, litigation exposure, and market exclusion.

The EU model strengthens market legitimacy through formal rules and disclosure comparability. However, it risks regulatory overload, especially for smaller firms embedded in complex supply chains. Japan's model supports gradual transformation and industrial continuity, but its credibility depends on whether transition finance avoids becoming a mechanism for prolonging high-carbon assets.

The comparative evidence indicates that transition risk is both financial and institutional. Firms face physical climate risk, policy risk, technological risk, market risk, and legitimacy risk. ESG governance helps markets price these risks, but only when disclosure is reliable and governance institutions are credible.

The social implications are substantial. Green transformation affects employment, regional economies, energy prices, consumer welfare, and supply-chain workers. Sustainable business strategy must therefore integrate just-transition principles. Without such integration, green industrial policy may produce

political resistance and distributional inequality.

Table 1. Comparative Matrix of Economic Governance, Organizational Strategy, and Development Outcomes

Variable	Case 1: European Union	Case 2: Japan	Empirical Evidence	Analytical Interpretation
Governance Model	Regulatory standardization and legal harmonization	Transition finance and coordinated industrial upgrading	EU Taxonomy, CSRD, SFDR; Japan GX strategy	Institutional design shapes sustainability incentives
Sustainable Finance Logic	Classification, disclosure, and market transparency	Sectoral transition pathways and industrial realism	OECD, IMF, and national policy reports	Different models balance credibility and flexibility
Corporate Governance Mechanism	Mandatory ESG disclosure and board accountability	Stewardship, investor engagement, and gradual reform	Corporate governance codes and disclosure reforms	ESG becomes strategic accountability
Industrial Policy Focus	Green Deal, carbon-border governance, circular economy	Hydrogen, energy efficiency, advanced manufacturing	EU and Japanese industrial strategies	Policy priorities reflect industrial structure
Innovation Mechanism	Regulatory pressure and green investment incentives	Coordinated technology upgrading	R&D and industrial reports	Innovation depends on policy mix coherence
Business Strategy Effects	Compliance integration, supply-chain reporting, carbon management	Transition planning, technology investment, stewardship engagement	Corporate sustainability disclosures	Firms reconfigure capabilities around ESG
Market Risk	Compliance burden and taxonomy disputes	Transition credibility and delayed decarbonization risk	Investor and policy reports	Risks reflect governance design
Competitiveness Outcome	Standard-setting influence	Industrial continuity and	OECD and UNCTA	Competitiveness arises through

	and green market leadership	technological transition	D reports	different pathways
Social Implication	Just-transition pressures and SME compliance burdens	Employment continuity and energy security concerns	Policy and labor reports	Social legitimacy affects reform durability
Developmental Outcome	Sustainable market integration and regulatory externalization	Resilient industrial transformation	World Bank and IMF reports	ESG governance shapes socio-economic resilience

The table demonstrates that the European Union and Japan represent two distinct but complementary models of green economic transformation. The European Union prioritizes regulatory clarity, disclosure comparability, and sustainable market standardization. Japan prioritizes industrial transition, technological continuity, and coordinated corporate adaptation. The deeper analytical interpretation is that ESG governance produces developmental value when institutional design aligns capital markets, corporate strategy, innovation systems, and social legitimacy.

Conceptual Framework

ESG-Driven Green Transformation Framework

Institutional Governance → Sustainable Finance Incentives → Corporate Dynamic Capabilities → Green Innovation and Supply-Chain Transformation → Market Competitiveness → Socio-Economic Resilience

This framework conceptualizes ESG governance as a strategic institutional mechanism. Institutional governance defines rules, standards, disclosure obligations, and policy credibility. Sustainable finance incentives redirect capital toward low-carbon and socially responsible investment. Corporate dynamic capabilities determine whether firms can transform ESG pressure into strategic adaptation. Green innovation and supply-chain transformation produce operational and technological change. Market competitiveness emerges when firms gain legitimacy, efficiency, and strategic positioning in sustainable markets. Socio-economic resilience develops when green transformation supports productivity, employment transition, energy security, and long-term development.

The framework contributes to economics and business literature by demonstrating that ESG governance operates through institutional and organizational mechanisms rather than disclosure alone. Sustainable transformation requires interaction among regulation, finance, strategy, innovation, and social

legitimacy.

CONCLUSION

This article examined green industrial policy, ESG governance, and corporate strategy in the European Union and Japan between 2020 and 2026. The study directly answers the research objective by demonstrating that ESG governance shapes market transformation and socio-economic development when institutional rules, sustainable finance incentives, corporate capabilities, and innovation systems are coherently aligned.

The findings reveal significant comparative divergence. The European Union demonstrates the strengths of regulatory standardization, mandatory disclosure, taxonomy-based finance, and external standard-setting power. Japan demonstrates the strengths of transition finance, industrial coordination, stewardship reform, and technological upgrading. Both models also face risks. The EU may generate compliance complexity and regulatory burden, while Japan may face credibility risks if transition pathways lack sufficient urgency.

The theoretical contribution is the ESG-Driven Green Transformation Framework, which explains how institutional governance, sustainable finance, corporate dynamic capabilities, innovation, competitiveness, and socio-economic resilience interact. The empirical contribution lies in comparing two advanced industrial economies through institutional and strategic variables rather than treating ESG as voluntary corporate reporting.

The institutional and policy implications are substantial. Governments should design ESG systems that combine credibility, comparability, innovation support, and just-transition safeguards. Regulators should reduce greenwashing, strengthen disclosure reliability, and support SMEs facing compliance burdens. Financial institutions should integrate transition risk into capital allocation while avoiding superficial ESG labeling.

The business implications are equally important. Firms should treat ESG as a strategic transformation agenda involving governance, investment, supply chains, innovation, and stakeholder legitimacy. Competitive advantage increasingly depends on firms' ability to convert sustainability pressure into dynamic capability.

This study is limited by inconsistent ESG indicators and evolving regulatory implementation. Future research should examine firm-level financial performance, sector-specific transition pathways, supply-chain emissions governance, and ESG effects in emerging economies.

Ultimately, sustainable economic transformation will depend not only on climate targets but on institutions and firms capable of transforming governance commitments into investment, innovation, and inclusive resilience.

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