

ESG Practices and Sustainable Performance in Food Manufacturing Firms: A Systematic Review of Theoretical Boundary Conditions

Arbind Pathak

arbindpathak21@gmail.com

Hainan University <https://orcid.org/0009-0008-7266-8102>

Systematic Review

Keywords: ESG practices, sustainable performance, food manufacturing, systematic literature review, boundary conditions, PRISMA

Posted Date: October 7th, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-11275535/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License. [Read Full License](#)

Additional Declarations: The authors declare no competing interests.

Abstract

Environmental, social, and governance (ESG) practices are widely studied as drivers of firm performance, yet existing reviews either pool food manufacturing with unrelated industries or treat sustainability as a set of separate operational practices rather than an integrated governance construct. This paper reports a PRISMA 2020-guided systematic review of 49 studies published between 2015 and 2026 on ESG practices and sustainable performance in food manufacturing and food and beverage firms. We develop an ESG Operationalization Typology that sorts the corpus into composite scores, pillar-level scores, disclosure indices, sector-specific proxies, and direct decoupling measures, and we build a theory–evidence coherence matrix that tests five management theories against the reported findings. The central finding is that listing status and institutional context, rather than firm size or country alone, define the population in which each theory holds. Resource-based and stakeholder logics are supported for listed firms but fail for unlisted firms and SMEs, which lack the investor screening, disclosure mandates, and market recognition that make ESG resources valuable. Disclosure-based measures also reveal a recurring gap between reported and actual ESG practice. The review offers a Conceptual Framework of Structural Relationships, a set of testable propositions, and a research agenda that gives priority to unlisted-firm samples, pillar-level measurement, and multi-theory designs.

1. Introduction

Environmental, Social, and Governance (ESG) criteria have become the dominant framework through which the sustainability performance of firms is assessed by investors, regulators, and other stakeholders (Friede et al., 2015), and review-level ESG scholarship has grown accordingly (Seow, 2025; Zeng et al., 2024). The food manufacturing sector occupies a particularly consequential position within this shift. Food and agri-food systems are widely documented as major contributors to global environmental pressure, including greenhouse gas emissions, freshwater withdrawal, and land-use change (Ritchie et al., 2022), and the sector falls directly within the ambit of the United Nations Sustainable Development Goals, notably SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action) (United Nations, 2015). Regulatory change has sharpened this exposure: in the European Union, the Corporate Sustainability Reporting Directive has extended mandatory non-financial reporting to a much wider range of companies (Lámfalusi et al., 2024), while in China, regulators including the China Securities Regulatory Commission have pushed listed firms toward standardized ESG disclosure (Yan et al., 2026). Food and beverage firms sit at the intersection of consumer health, environmental exposure, and public trust, which makes their ESG conduct unusually visible to regulators, investors, and consumers alike (Yan et al., 2026).

Despite this visibility, existing systematic reviews have not resolved whether, or how, ESG practices translate into sustainable performance for food manufacturing firms specifically. Table 1 summarizes the reviews most closely related to the present study and the limitation each leaves for a food-manufacturing-specific synthesis.

Table 1
Relevant reviews and the literature gap addressed by the present study.

Authors (Year)	Review Focus	Scope / Industry	Method (N)	Coverage Period	Key Limitation for the Present Review
Adams et al. (2021)	Sustainability in food manufacturing operations and supply chains	Food manufacturing (operational level)	SLR	Not date-bounded in source	Centers on individual operational practices (green supply chain management, circular-economy adoption, social sustainability measurement) in isolation; does not treat ESG as an integrated, firm-level governance and performance framework.
Atz et al. (2023)	Does sustainability generate better financial performance?	Cross-industry, financial-sector weighted	Meta-analysis	Multi-decade aggregate	Aggregates across industries; food manufacturing is not disaggregated, so sector-specific mechanisms cannot be isolated.
Khaw et al. (2024)	Factors influencing ESG performance	Cross-industry	Bibliometric + SLR	Through 2023	Maps research trends rather than synthesizing substantive ESG–performance findings by sector.
Seow (2025)	Mapping the ESG review literature	Review-of-reviews, cross-industry	Bibliometric review of SLRs	Two decades	Documents growth of review-level scholarship but does not synthesize sector-specific empirical evidence.
Zeng et al. (2024)	ESG standards development and research trends	China, cross-industry	Bibliometric analysis	Not date-bounded in source	Country-specific and bibliometric; does not address food manufacturing or the direction of the ESG–performance relationship.
Ed-Dafali et al. (2025)	PRISMA-based review of ESG practices in non-financial firms	Non-financial firms, pooled industries	PRISMA 2020 SLR (85 papers)	Through 2023	Provides an integrated antecedents–mediators–moderators–outcomes framework for non-financial firms generally, but does not disaggregate by industry, leaving food manufacturing's sector-specific dynamics unexamined.

As Table 1 shows, no existing review separates food manufacturing from the wider non-financial ESG–performance literature, and no review of food-sector sustainability treats ESG as an integrated, firm-level governance and performance framework rather than a set of discrete operational practices. The gap matters because the primary evidence that does exist for food manufacturing is itself inconsistent, and it diverges along four structural dimensions. First, sustainable performance is not measured in a standard way: studies variously use profitability, market value, cost of capital, export product quality (Wei et al., 2025), or productivity change as the outcome, and these measures need not move together. Second, findings differ by country and ownership status. Listed and unlisted firms, and firms in different regulatory regimes, show different and sometimes opposite ESG–performance associations (Sukmani & Uwansri, 2024; Wang & Shimokawa, 2026; Yan et al., 2026). Third, unlisted firms and small and medium-sized enterprises (SMEs), which make up the majority of food manufacturers globally, remain the least studied segment of the sector (De Micco et al., 2026; Wang & Shimokawa, 2026). Fourth, even methodologically ambitious studies rarely isolate food manufacturing as a distinct analytical category. Chiu et al. (2026), for example, pool food manufacturing with tourism and retail firms in a single sample, so the mechanisms linking ESG to firm value cannot be attributed to food manufacturing specifically. Because these four sources of divergence have not been reconciled, results are hard to compare across studies, and it is difficult to draw firm conclusions about what drives sustainable performance in the sector.

Among the reviews in Table 1, Ed-Dafali et al. (2025) is the closest to the present study. Their PRISMA-guided synthesis of 85 peer-reviewed articles builds an integrated framework of antecedents, mediators, moderators, and outcomes of ESG performance in non-financial firms. It shows that governance mechanisms, namely board diversity, strategic ESG integration, and risk management, recur as drivers of ESG performance and profitability across non-financial industries. Because their sample pools firms from many non-financial sectors, however, it cannot tell us whether these mechanisms work the same way in food manufacturing, a sector whose perishable inputs, seasonality, and fragmented multi-tier supply chains set it apart from most other industries. We extend their framework by testing it against a single, industry-bounded corpus rather than a pooled sample.

The second closely related contribution is Adams et al. (2021), whose systematic review of sustainability in food manufacturing operations and supply chains is, to our knowledge, the most industry-specific review available for this sector. Their review demonstrates that reviews focused specifically on food manufacturing sustainability remain sparse and tend to center on individual operational practices considered in isolation. Their analysis, however, does not treat ESG as an integrated governance-and-performance construct, nor does it synthesize the financial and non-financial performance consequences of the practices it documents. Our review complements their operational focus by shifting the unit of analysis from individual sustainability practices to ESG as a firm-level construct, and by linking that construct systematically to the sustainable performance outcomes on which Adams et al. (2021) remain largely silent.

Building on both contributions, this review identifies, screens, and synthesizes empirical and conceptual studies on the relationship between ESG practices and the economic, environmental, and social dimensions of sustainable performance in food manufacturing and food and beverage firms. Its specific objective is to establish the structural and institutional conditions under which each major theoretical account of ESG performance holds. A structured multi-database search covering 2015 to 2026 produced a final corpus of 49

studies. To our knowledge, this is the first systematic synthesis of the ESG–sustainable performance relationship that focuses on food manufacturing firms. Four research questions guide the review, and Section 2 states each of them alongside the theory that motivates it. To address the four sources of divergence identified above, the review maps the theoretical frameworks used in this literature, namely the Resource-Based View (Barney, 1991), the Natural-Resource-Based View (Hart, 1995), Dynamic Capabilities Theory (Teece et al., 1997), Stakeholder Theory (Freeman, 1984), and Institutional Theory (DiMaggio & Powell, 1983; Scott, 2001), together with the research designs and geographic contexts that characterize it, and sets out a research agenda aimed at the sector's least studied settings.

The findings are relevant to managers who want to strengthen ESG integration, to policymakers designing sector-specific sustainability rules, and to researchers looking for a structured base for empirical work in this setting. Understanding which of the five frameworks best explains ESG adoption and performance in food manufacturing, and why findings diverge so consistently, first requires a clear account of what each framework predicts for the sector. Section 2 provides that account. Section 3 describes the review method. Section 4 presents the descriptive profile of the literature and the findings for each research question. Section 5 discusses the theoretical, practical, and policy implications, and Section 6 concludes with the limitations and a future research agenda.

2. Theoretical Background

Section 1 documented divergence across countries, ownership types, performance measures, and ESG operationalizations. This divergence has a theoretical basis: different frameworks predict different mechanisms and outcomes for ESG in food manufacturing, yet no study evaluates them jointly against sector-specific evidence. This section develops the theoretical scaffold for the review: five complementary frameworks (2.1), the composite-versus-disaggregated ESG debate (2.2), the triple bottom line as the sector's performance framework (2.3), and an integrative conceptual model linking these strands to the review's four research questions (2.4).

2.1 Theoretical Frameworks: From Generic to Food-Manufacturing-Specific

The theoretical debate on what determines corporate sustainability performance descends from a long-standing strategic management question: why do firms in the same industry sustain different performance levels (Barney, 1991; Teece et al., 1997)? Over the past three decades this question has extended from purely financial performance to environmental, social, and governance dimensions, producing five frameworks that dominate the literature (Atz et al., 2023; Khaw et al., 2024): the Resource-Based View and its Natural-Resource-Based extension (Barney, 1991; Hart, 1995), Dynamic Capabilities Theory (Teece et al., 1997), Stakeholder Theory (Freeman, 1984), and Institutional Theory (DiMaggio & Powell, 1983; Scott, 2001). Table 2 summarizes each framework's core proposition and its food-manufacturing application.

The five frameworks complement rather than compete with one another, because they operate at different points in the same causal chain. The RBV and NRBV specify the internal resource conditions under which ESG can create advantage. These conditions are demanding in food manufacturing, where perishable inputs, multi-

tier supply chains, and food-safety regulation make ESG capabilities that are valuable, rare, inimitable, and non-substitutable (VRIN) both worth building and hard to copy (Adams et al., 2021; Sandberg et al., 2023). Dynamic Capabilities Theory supplies the process mechanism: only firms that sense, seize, and reconfigure resources turn ESG investment into advantage (Ghasemzadeh et al., 2021; Liang et al., 2022). Stakeholder Theory and Institutional Theory both explain adoption, but for different reasons. The first points to genuine stakeholder demand (Eccles et al., 2014; Yan et al., 2026); the second points to legitimacy-seeking under coercive, mimetic, and normative pressure, whatever the performance effect (DiMaggio & Powell, 1983; Kallisia et al., 2025). The distinction matters empirically, since adoption driven by legitimacy should not be expected to show the same performance pattern as adoption based on resource advantage.

Table 2
Theoretical frameworks and their application to ESG practices and sustainable performance in food manufacturing.

Theory	Core proposition	Application to food manufacturing ESG	Representative studies
Resource-Based View (RBV)	Sustained competitive advantage derives from resources that are valuable, rare, inimitable, and non-substitutable (Barney, 1991).	ESG practices (green processing technology, sustainable sourcing, governance capacity) constitute VRIN resources that lower input costs, reduce regulatory risk, and differentiate firms in sustainability-conscious markets.	Hart (1995); Barney (1991); Liang et al. (2022); Conca et al. (2021); Chen et al. (2025)
Natural-Resource-Based View (NRBV)	Three strategic capabilities (pollution prevention, product stewardship, and sustainable development) underpin environmental competitive advantage (Hart, 1995).	Food manufacturers investing in emissions reduction, sustainable packaging, and clean production technologies build NRBV capabilities that translate into long-run cost savings and market positioning.	Hart (1995); Engida et al. (2022); Hayat et al. (2025); Adams et al. (2021)
Dynamic Capabilities Theory	Firms gain advantage by sensing opportunities, seizing them through investment, and reconfiguring assets as conditions change (Teece et al., 1997).	Absorptive and adaptive capabilities enable food manufacturers to translate ESG strategy into performance amid shifting supply-chain mandates and regulatory regimes such as the EU CSRD.	Teece et al. (1997); Liang et al. (2022); Ghasemzadeh et al. (2021); Lámfalusi et al. (2024)
Stakeholder Theory	Long-term firm viability requires balancing the interests of all affected parties, not only shareholders (Freeman, 1984).	Consumer pressure for ethically produced food, investor ESG screening, and community expectations around food safety and labor conditions jointly push food manufacturers toward ESG integration.	Freeman (1984); Eccles et al. (2014); Conca et al. (2021); Sandberg et al. (2023)
Institutional Theory	Coercive, mimetic, and normative isomorphism explain why firms converge on similar practices regardless of efficiency gains (DiMaggio & Powell, 1983; Scott, 2001).	Regulatory mandates (CSRD, China CSRC requirements), industry norms, and legitimacy pressures push food manufacturers toward ESG disclosure and practice adoption, independent of performance consequences.	DiMaggio & Powell (1983); Scott (2001); Kallisia et al. (2025); Yan et al. (2026)

No study identified in this review tests all five frameworks simultaneously within a single food manufacturing sample. The first research question accordingly asks:

RQ1: How are ESG practices conceptualized and operationalized across the food manufacturing literature, and which theoretical frameworks are employed to explain their adoption and performance consequences?

2.2 ESG as a Composite Versus Disaggregated Construct

A central methodological and theoretical question in the ESG-performance literature concerns whether ESG should be modeled as a composite score or treated as three distinct dimensions with potentially different antecedents, dynamics, and performance consequences (Martiny et al., 2024; Khaw et al., 2024). Berg, Kölbel, and Rigobon (2022) document substantial cross-provider divergence in ESG ratings, showing that data-provider choice can materially alter conclusions. This is compounded in food manufacturing, where the three pillars follow operationally distinct logics, so composite scoring may mask offsetting pillar-level effects.

Environmental performance is shaped by the sector's perishable inputs, seasonal cycles, and resource-intensive processing (Adams et al., 2021), and the sector is a major contributor to emissions, freshwater withdrawal, and land-use change (Ritchie et al., 2022), with key indicators spanning emissions, water withdrawal, packaging waste, and food loss (Bottani et al., 2025). Using a dynamic by-production framework, Engida, Oude Lansink, and Rao (2022) find that ESG-linked CSR improves total factor productivity once undesirable outputs are internalized, a result that only appears under disaggregated modeling.

Social performance covers labor conditions across fragmented, multi-tier supply chains, food safety, and community relations. Hayat, Mustafa, Nayak, and Alhafi Alotaib (2025) find that voluntary food safety certification, as a social-pillar proxy, generates positive outcomes across all three triple bottom line (TBL) dimensions, which is evidence of cross-dimensional effects that composite scoring would mask.

Governance performance is shaped by food-safety regulation intersecting with environmental and social practice, varied ownership structures, and disclosure requirements. Sandberg, Alnoor, and Tiberius (2023) find the social dimension outperforms governance among European food manufacturers, while Cristea, Drăcea, Nimerenco, and Trică (2026) find governance plays only a peripheral role among SDG-reporting fishing and farming firms. This directly challenges agency- and institutional-theory expectations that governance is the most consequential ESG dimension.

These pillar-level distinctions matter: composite scores may average offsetting effects into a near-zero coefficient misread as “no effect,” and practical ESG strategy in food manufacturing should be pillar-specific rather than indiscriminately composite. This motivates the second research question:

RQ2: How is sustainable performance defined and measured in food manufacturing ESG research, and do the environmental, social, and governance pillars show distinct relationships with performance outcomes?

2.3 Sustainable Performance: The Triple Bottom Line in Food Manufacturing

The Triple Bottom Line (TBL), introduced by Elkington (1997) to capture economic, environmental, and social performance jointly, is the dominant performance framework in food-sector sustainability research (Adams et

al., 2021; Hayat et al., 2025). Recent mapping of food supply chain KPIs identifies nine product categories and three supply-chain stages, each requiring tailored indicators (Bottani et al., 2025). Table 3 summarizes ESG and performance operationalizations across twelve key studies in the corpus.

Table 3

ESG measures and sustainable performance operationalizations in selected food manufacturing studies.

Study	ESG measure	Sustainable performance measure	Key finding
Yan et al. (2026)	Voluntary ESG disclosure score	ROA; industry-median threshold	Negative on average; positive only above industry-median ESG level (threshold effect)
Sukmani & Uwansri (2024)	ESG composite score (Refinitiv)	ROA, ROE, Tobin's Q (separately)	Positive on ROE; null on ROA; negative on Tobin's Q; result depends on performance measure chosen
Wang & Shimokawa (2026)	ESG engagement (binary; unlisted firms)	Sales and net profit by supply-chain tier	No effect on sales; reduces net profit for wholesale and independent firms
Zhang & Xiong (2026b)	ESG performance score	Tobin's Q	U-shaped nonlinear relationship; intermediate ESG level suppresses firm value
Conca et al. (2021)	Direct ESG reporting (GRI-based)	ROA, ROE, market performance (TBL)	Positive across all TBL dimensions among European-listed agri-food firms
Hayat et al. (2025)	Voluntary food safety certification	Environmental, economic, and social indicators	Positive triple-bottom-line outcomes; certification as ESG social-pillar driver
Sandberg et al. (2023)	Refinitiv ESG ratings (composite + pillar)	ROA; Tobin's Q	Positive (European food firms); social pillar dominates; governance pillar weakest
Wei et al. (2025)	E, S, G pillar scores	Export product quality upgrading	All three pillars improve export quality; environmental pillar has largest marginal effect
Engida et al. (2022)	CSR score	Dynamic total factor productivity	ESG-linked CSR improves productivity when undesirable outputs are internalized
Chiu et al. (2026)	ESG integration efficiency (DEA)	Multi-stage operational efficiency	ESG improves downstream efficiency (food pooled with retail/tourism)
Geddam et al. (2026)	ESG quadrant positioning	Sustainability leadership trajectory	Leaders vs. laggards diverge markedly; governance drives trajectory differences
De Micco et al. (2026)	Purpose-built composite ESG score	Sustainability performance (composite)	Agricultural SMEs lag listed-firm benchmarks; governance pillar least developed

Table 3 reveals that studies measuring financial return, firm value, operational efficiency, productivity, export quality, and purpose-built sustainability scores are not measuring the same phenomenon: a study finding ESG raises ROE (Sukmani & Uwansri, 2024) and one finding ESG reduces net profit among unlisted wholesale firms (Wang & Shimokawa, 2026) are not contradicting a single truth, but capturing different performance facets for different firm types under different institutional conditions. Three further patterns matter: financial measures dominate even in TBL-framed studies, reflecting the broader ESG literature’s tendency toward financial rather than environmental or social dependent variables (Khaw et al., 2024); unlisted/SME studies use systematically different measures than listed-firm studies, compounding cross-study divergence; and the corpus’s one dynamic-productivity study (Engida et al., 2022) yields results diverging from static-ratio studies, suggesting the static/dynamic choice is itself a source of divergence.

Table 4
Triple bottom line performance dimensions, sector-specific content, and measures in the food manufacturing ESG literature.

TBL Dimension	Sector-specific content in food manufacturing	Measures used in the reviewed literature
Economic / Financial	Financial return, productivity, market value, cost efficiency	ROA, ROE, Tobin's Q, total factor productivity, export quality (Wei et al., 2025; Yan et al., 2026; Engida et al., 2022)
Environmental	Emissions, water, waste, packaging, land use, energy intensity	Carbon intensity, water withdrawal, waste volume, emissions reduction, energy KPIs (Bottani et al., 2025; Adams et al., 2021; Engida et al., 2022)
Social	Labor conditions, food safety, community impact, supply-chain equity	Food safety certification, employee well-being, community investment, supply-chain labor standards (Hayat et al., 2025; Conca et al., 2021)

Table 4 elaborates the TBL framework for food manufacturing. The environmental dimension is theoretically rich given the sector’s documented footprint yet remains under-measured: most studies proxy environmental performance through composite ESG scores rather than sector-specific KPIs (Bottani et al., 2025). The social dimension is similarly under-measured, reduced to composite rating-agency scores despite food safety, labor conditions, and community impact being central to the sector’s social profile. What is missing is granular measurement of how food manufacturing firms actually create environmental and social value. This motivates the third research question:

RQ3: What is the nature, direction, and magnitude of the relationship between ESG practices and sustainable performance in food manufacturing, and which moderating and mediating factors (including firm size, listing status, geography, supply-chain position, and ESG rating source) shape this relationship?

2.4 An Integrative Conceptual Framework

The five theories (Section 2.1), the composite-versus-disaggregated debate (Section 2.2), and the performance-measure heterogeneity documented (Section 2.3) converge on an integrative framework guiding the thematic synthesis in Section 4: antecedents → ESG practices → mediating mechanisms → sustainable performance, with moderating conditions at the firm, industry, and country level.

Antecedents include internal drivers (firm size, ownership structure, governance quality, financial slack, strategic orientation) and external drivers (regulatory mandates, investor ESG screening, consumer pressure, industry norms). The RBV and Dynamic Capabilities Theory principally explain internal antecedents; Stakeholder and Institutional Theory explain external ones. External drivers dominate initial ESG adoption (Yan et al., 2026; Lámfalusi et al., 2024), while internal capabilities determine integration depth (Liang et al., 2022; Ghasemzadeh et al., 2021).

Mediating mechanisms include operational efficiency (Engida et al., 2022), stakeholder trust and reputational capital (Conca et al., 2021), lower-cost capital access (Eccles et al., 2014), innovation capability (Ghasemzadeh et al., 2021), and export market access (Wei et al., 2025); no study examines all pathways simultaneously, leaving their relative importance unresolved.

Moderating conditions include listing status (Yan et al., 2026; Wang & Shimokawa, 2026), geographic and institutional context (Conca et al., 2021; Sandberg et al., 2023; Geddam et al., 2026), supply-chain position (Wang & Shimokawa, 2026), firm size (De Micco et al., 2026), and ESG rating-provider source (Martiny et al., 2024).

The framework treats performance heterogeneity not as a measurement problem but as a theoretical finding: the appropriate performance construct depends on the theory being tested, the firm type studied, and the institutional context. This motivates the fourth and final research question:

RQ4: What research gaps, methodological limitations, and theoretical blind spots remain in the food manufacturing ESG-performance literature, and what future research agenda would most effectively advance cumulative knowledge in this domain?

The antecedents–mediators–moderators–outcomes structure determines which data items were extracted from each study; the identification of composite versus pillar-level ESG measures as a critical source of divergence determines the eligibility criteria for the ESG construct dimension; and the structural divergence across listing status and geographic context determines the coding categories in the extraction sheet.

3. Research Methodology

This review follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (Page et al., 2021), the current standard for transparent and reproducible evidence synthesis. A systematic rather than narrative review is needed here for a practical reason: when primary studies diverge structurally across countries, firm types, performance constructs, and ESG measures, only a systematic approach can separate genuine divergence from divergence produced by methodological heterogeneity (Paul & Criado, 2020; Tranfield et al., 2003). A review protocol setting out the research questions, search strategy, eligibility criteria, and data-extraction plan was prepared before the searches were run.

The review is organized around the four research questions formally stated in Section 2: how ESG practices are conceptualized and operationalized in food manufacturing research (RQ1); how sustainable performance is defined, measured, and theorized (RQ2); what the nature and direction of the ESG–performance relationship

is and which moderating and mediating factors shape it (RQ3); and what research gaps remain and what future agenda is warranted (RQ4).

3.1 Search Strategy and Database Rationale

The search was conducted on 21–22 July 2026, covering peer-reviewed journal literature published between 2015 and 2026. The temporal boundary of 2015 reflects the point at which ESG as an integrated, firm-level governance and performance construct, as distinct from isolated environmental, social, or CSR constructs, began to be operationalized consistently in empirical food manufacturing research.

A multi-database strategy was adopted, combining two index databases with two publisher-specific databases and a supplementary manual search, consistent with methodological guidance recommending multi-database strategies when the default pair is unavailable (Gusenbauer & Gauster, 2025). Dimensions (dimensions.ai) was selected as the principal index database: independent bibliometric comparisons report substantial overlap between Dimensions, Scopus, and Web of Science in coverage of peer-reviewed journal literature (Herzog, Hook, & Konkiel, 2020; Singh et al., 2021), making it the most defensible substitute when the standard pair is inaccessible. ProQuest (ABI/Inform Global) served as a supplementary index database, identified in independent methodological guidance as one of the most comprehensive databases for Business, Management and Accounting subject coverage (Gusenbauer & Gauster, 2025). ScienceDirect (Elsevier) and Taylor & Francis Online were retained as publisher-specific databases; an independent evaluation of citation-index coverage across 59 databases found ScienceDirect's data to be of comparatively high quality for backward citation, while Taylor & Francis Online provided backward-citation information for approximately 70% of its articles (Gusenbauer, 2024). Google Scholar was searched manually as a supplementary source to identify records not indexed in the primary databases (Tranfield et al., 2003).

The Boolean search string was structured around three concept blocks (ESG practices, performance outcomes, and the food manufacturing sector) connected with AND operators, with OR expansions within each block to maximize sensitivity. The core string applied to Dimensions was:

("ESG" OR "environmental, social and governance" OR "environmental social governance"

OR "corporate sustainability" OR "sustainable business practices")

AND ("sustainable performance" OR "firm performance" OR "financial performance"

OR "environmental performance" OR "triple bottom line" OR "sustainability performance")

AND ("food manufacturing" OR "food and beverage" OR "food processing"

OR "food industry" OR "food sector" OR "agri-food" OR "food compan*" OR "FMCG")

Database-specific adaptations were applied where platform syntax required them. Filters applied consistently across all databases were: publication years 2015–2026, peer-reviewed journal articles and review articles, and English language. An earlier version of the search protocol also included a digital-transformation-specific search in Taylor & Francis Online; because this search was not replicated across other primary databases, it

did not meet the review’s cross-database consistency standard, and digital transformation was removed as a core inclusion criterion. Records identified through that search were re-screened against the standard three-criterion test; those meeting ESG–performance–food-sector criteria are retained in the final corpus on that basis.

3.2 Eligibility Criteria

Inclusion and exclusion criteria were defined a priori before any screening began and were applied consistently at each stage. Table 5 presents the full criteria across seven dimensions.

Table 5
Inclusion and exclusion criteria applied at each stage of the PRISMA 2020 review process.

Criterion	Inclusion	Exclusion
Publication type	Peer-reviewed empirical or conceptual journal articles and review articles	Conference papers, book chapters, theses, editorials, working papers, non-peer-reviewed sources
Language	English	All other languages
Industry / sector	Food manufacturing, food processing, food and beverage firms, agri-food sector (manufacturing stage); studies where food firms constitute the primary analytical focus	Studies limited exclusively to restaurants, food retail, food delivery, or farm-level agriculture with no manufacturing component; cross-industry studies where food firms are a minor sub-sample with no sector-disaggregated findings
ESG construct	ESG as an independent variable, either composite or pillar-level (E, S, or G separately), or CSR where a quantified performance outcome is reported	ESG or sustainability modeled only as mediator, moderator, or control variable with no performance consequence examined; studies focused on ESG investor portfolio returns rather than firm-level ESG practices
Performance outcome	At least one quantified economic, environmental, or social performance outcome, including financial return, TBL composites, total factor productivity, operational efficiency, or export quality	Studies reporting no quantified performance outcome; studies where the sole outcome is disclosure quality, ESG rating, or ESG score itself
Publication period	2015–2026	Studies published before 2015
Accessibility	Full text retrievable via institutional or open access	Full text not retrievable; manuscripts listed as under review or unpublished

Two aspects of the criteria need further explanation. First, on industry scope: studies pooling food manufacturing with other consumer-facing industries were included only where sector-disaggregated findings for food firms were reported. Studies in which food firms constituted a minor subsample with no sector-specific results were excluded at full-text. Second, on ESG construct scope: studies modeling ESG solely as a mediating or moderating variable were excluded because they address a different theoretical question. This review positions ESG practices as the antecedent variable in an antecedents → ESG → mediators → performance causal chain, and only primary studies aligned with this framework were retained.

3.3 Study Selection Process and PRISMA Flow

Study selection followed the four-stage PRISMA 2020 process: identification, deduplication, title/abstract screening, and full-text screening. Figure 1 presents the complete PRISMA flow with all record counts.

Searches of four primary databases, Dimensions (n = 19), ScienceDirect (n = 17), Taylor & Francis Online (n = 166), and ProQuest (n = 29), returned 231 records. A supplementary manual search of Google Scholar screened 70 records and added 10, giving 241 records at identification. After nine duplicates were removed in Zotero, 232 unique records entered title and abstract screening, where 147 were excluded because they lacked a food manufacturing context, an ESG or sustainability construct, or a firm-level performance outcome. The remaining 85 reports were assessed in full text against the seven eligibility criteria in Table 5, and 36 were excluded: 35 did not meet one or more criteria, and one was excluded to prevent double-counting (DOI: 10.1002/agr.21933). A small number of retained records, namely one conference paper (P08), one unpublished manuscript (P39), and studies with non-standard causal structures, depart from the criteria in Table 5. They were kept as supplementary evidence and carry low or moderate analytical confidence in Table 8. The final corpus therefore comprises 49 studies published between 2015 and 2026 on food manufacturing and food and beverage production.

3.4 Database Search Summary

Table 6 summarizes the sources searched, the number of records each returned, and the role of each source in the identification stage, in line with PRISMA 2020 reporting requirements (Page et al., 2021).

Table 6
Sources searched and records identified

Source	Type and role in identification	Records
Dimensions (dimensions.ai)	Index database; principal source, used in place of Scopus and Web of Science	19
ProQuest (ABI/Inform Global)	Index database; supplementary business and management coverage	29
ScienceDirect (Elsevier)	Publisher database; journal coverage with high-quality citation data	17
Taylor & Francis Online	Publisher database; journal coverage	166
Google Scholar	Manual supplementary search for records not indexed in the primary databases (70 screened)	10
Total	Searched 21–22 July 2026; filters: 2015–2026, peer-reviewed articles and reviews, English	241

3.5 Data Extraction and Synthesis Protocol

Data were extracted from all 49 included studies using a structured coding sheet designed a priori. For each study, the following information was recorded: bibliographic details (authors, year, journal, DOI, country); geographic and institutional context; firm type (listed/unlisted; large/SME); ESG construct and measure (composite or pillar-level; rating agency, disclosure index, or primary survey); performance construct and measure (financial, environmental, social, or TBL); theoretical framework(s) invoked; analytical method and sample size; key findings on the ESG–performance relationship including direction, magnitude, and statistical

significance; moderating and mediating factors identified; and limitations noted by the original authors. The coding sheet was designed to enable direct cross-study comparison along four structural divergence dimensions (country context, firm type, performance constructs, and ESG operationalizations), which allowed the thematic synthesis to distinguish patterned divergence from random heterogeneity in primary study findings.

The synthesis follows a thematic narrative approach (Paul & Criado, 2020; Paul & Menzies, 2023) rather than statistical meta-analysis. Three characteristics of the included corpus make meta-analysis inappropriate. First, the performance measures across studies are not commensurable: pooling a coefficient from a Tobin's Q regression with one from a total-factor-productivity model produces a summary estimate with no meaningful performance interpretation. Second, the ESG measures used across studies range from Refinitiv composite scores to voluntary disclosure indices to food-safety certification proxies, making the predictor variable itself heterogeneous. Third, several studies use configurational or qualitative-comparative designs (López-Cabarcos et al., 2024) or purpose-built scoring instruments (De Micco et al., 2026) that do not produce regression coefficients. The thematic synthesis therefore organizes findings around the four research questions, identifies convergent and divergent patterns, and uses methodological and contextual characteristics to explain divergence. A single aggregate effect size could not offer this.

4. Results and Findings

The results unfold in four phases: a descriptive profile of the 49 studies; development of an ESG Operationalization Typology for food manufacturing (RQ1); a cross-study evidence matrix mapping ESG type to sustainable performance (RQ2); and evaluation of five theoretical frameworks to develop an integrated Conceptual Framework of Structural Relationships (RQ3–RQ4). All findings derive from the reviewed corpus.

4.1 Descriptive Profile of the Reviewed Literature

The reviewed corpus comprises 49 studies published between 2015 and 2026. Appendix Table A1 provides the full bibliographic profile. Publications accelerate sharply from 2024 onward ($n = 36$, 73% of the corpus), consistent with the EU Corporate Sustainability Reporting Directive and China's expanded ESG disclosure mandates, both of which created simultaneous data availability and institutional impetus for research in this sector (Lámfalusi et al., 2024; Yan et al., 2026). Figure 2 illustrates the trend.

Geographic coverage falls into six clusters (Fig. 3). Global/multi-region samples form the largest group ($n = 17$), followed by Europe and North America ($n = 15$). Asia-Pacific and Oceania (Japan, India, Pakistan, Indonesia, Thailand, the Philippines, the Gulf Cooperation Council (GCC) states, and Australia) accounts for eight studies, with China ($n = 4$) and Taiwan ($n = 3$) treated separately given their distinct regulatory regimes; Latin America contributes one study, and one conceptual paper has no geographic anchor.

Methodologically (Fig. 4), panel and regression-based approaches (fixed-effects, random-effects, EGLS, GMM, 2SLS, and dynamic-frontier variants) predominate ($n = 22$), followed by survey, qualitative, and mixed-method designs ($n = 12$). Smaller groups include DEA/frontier analysis ($n = 4$), conceptual/review/meta-analytic work ($n = 4$), network and graphical models ($n = 2$), SEM ($n = 2$), an EGARCH event study ($n = 1$), fsQCA ($n = 1$), and

machine learning (n = 1). This heterogeneity makes effect-size meta-analysis inappropriate for the corpus as a whole, though within-type comparison remains valid.

Theoretical invocation (Fig. 5) is led by Stakeholder Theory (n = 20), consistent with the broader ESG-performance literature (Khaw et al., 2024), followed by Signaling Theory (n = 10), the Resource-Based View including NRBV (n = 10), Legitimacy/Institutional Theory (n = 6), and Agency Theory (n = 6). Dynamic Capabilities Theory is formally invoked in three studies, though its mechanism is empirically traceable more widely. Three studies apply frameworks outside the five evaluated in Section 2, namely Relational View Theory (Kamgang & Boiral, 2025) and Good Management Theory (Cupertino et al., 2021; Weber & Saunders-Hogberg, 2018); these are discussed narratively rather than charted; one study tests no named theory (Scrimgeour et al., 2024). Stakeholder Theory's dominance, frequently co-invoked alongside competing frameworks, signals theoretical plurality rather than consensus.

4.2 ESG Practices in Food Manufacturing: An Operationalization Typology (RQ1)

RQ1 asks how ESG practices are conceptualized and operationalized in the food manufacturing literature and which theoretical frameworks explain their adoption and performance consequences. The most consequential variation in the corpus is not thematic but measurement-structural: how ESG is measured determines which theoretical question is being answered, and treating all 49 studies as estimates of a single underlying ESG construct produces spurious inconsistency where there is in fact coherent within-type evidence. The present sub-section resolves this by proposing an ESG Operationalization Typology grounded in the measurement choices made across the corpus, illustrated in Fig. 6 and elaborated in Table 7.

Table 7
ESG Operationalization Typology: definition, studies, implied theoretical framework, and sector-specific limitation.

ESG Type	Definition and studies	Implied theory	Limitation in food manufacturing
Type 1: Composite Score (n = 9)	Single index from Refinitiv, Bloomberg, RepRisk, or CSRHub treating E, S, and G as fungible.	Stakeholder Theory (firm responds to investor ESG screening); RBV (ESG as a composite resource portfolio)	Treats food safety, perishability, and supply-chain labor as interchangeable with governance reporting; obscures sector-specific pillar dynamics documented in Type 2 and Type 4 studies
Type 2: Pillar-Level Score (n = 9)	E, S, and G modeled or scored separately; pillar-level coefficients estimated.	NRBV (environmental pillar linked to resource efficiency); Stakeholder Theory (social pillar); Agency Theory (governance pillar)	Pillar definitions imported from generic rating-agency frameworks; social pillar does not typically capture food-safety or supply-chain labor conditions that are sector-defining
Type 3: Disclosure Index (n = 11)	GRI-based, CSRD-aligned, or standalone sustainability report score measuring reporting quality rather than underlying practice.	Institutional Theory (legitimacy-seeking); Signaling Theory (disclosure reduces information asymmetry)	Decoupling risk: documented disclosure–practice gaps; no link between disclosure and actual R&D investment; CSRD/CSRC pressure drives disclosure adoption independently of substantive ESG integration
Type 4: Sector-Specific Proxy (n = 7)	Food-sector-embedded ESG indicators: food safety certification, water/waste practice configuration, environmental innovation score, supply-chain CSR output, ESG engagement text-analysis, sustainability scoring tool	NRBV (sector-embedded capabilities costly to imitate); Dynamic Capabilities Theory (ESG as operational process, not just compliance output)	Smallest sub-group; diverse proxies limit cross-study comparison; most consistent positive findings across the corpus
Type 5: ESG Decoupling/Gap Measure (n = 1)	Explicit disclosure–practice gap treated as the independent variable itself (rather than a composite, pillar, or disclosure score in levels).	Institutional Theory (decoupling as legitimacy-without-substance); Dynamic Capabilities Theory (capability not built despite disclosure)	Single-study category in the present corpus; distinguishes decoupling as a directly measured construct from the decoupling risk noted qualitatively within Types 1–4

Type 3 (Disclosure Index) is the most common operationalization (n = 11) and carries the most consequential limitation: it measures reporting practice rather than underlying ESG integration. CSRD and China’s mandatory disclosure requirements have driven Type 3 adoption largely independent of substantive operational change. Yan et al. (2026) show disclosure without ESG substance is associated with negative financial performance; Zhang and Xiong (2026a) find the resulting decoupling damages innovation; and Yucel (2025) finds no

relationship between disclosure and R&D investment, extending the pattern to investment-side behavior. Two further studies contextualize this risk without a quantified outcome, and are therefore excluded from the evidence matrix: Adams, Donovan, and Topple (2023) find that large food and beverage manufacturers identify the absence of government regulation as the principal barrier to substantive adoption, while top-management commitment is the strongest internal driver; Kamgang and Boiral (2025) find responsible-sourcing disclosures strongest on knowledge-sharing and governance but weakest on the complementary resources needed for genuine supply-chain collaboration.

Type 4 (Sector-Specific Proxy) studies form the smallest sub-group (n = 7) yet produce the most consistent directional findings in the corpus (Section 4.3), because these measures capture ESG practices operationally embedded in food manufacturing's biological, regulatory, and supply-chain context. These are the VRIN resources that the RBV and NRBV predict should generate performance advantages. A single study is classified separately as Type 5 (ESG Decoupling/Gap Measure) because it operationalizes the disclosure-practice gap itself as the independent variable, distinguishing this direct measurement from the decoupling risk noted qualitatively within Types 1–4.

4.3 Sustainable Performance: Evidence, Heterogeneity, and Structural Patterns (RQ2)

RQ2 asks how sustainable performance is defined and measured, and whether the three ESG pillars exhibit distinct performance relationships. Of the 37 studies with a classified ESG type (Section 4.2), 28 report a quantified performance outcome suitable for the evidence matrix; the remaining 9 are conceptual, qualitative, or meta-analytic contributions discussed narratively. Performance constructs are highly heterogeneous: financial return (ROA, ROE, ROS, EBITDA, operating income) appears in 21 of 28 studies, market-value measures in nine, broader economic outcomes (export quality, R&D, cost of capital, productivity, innovation) in seven, and TBL outcomes in two. Table 8 presents the evidence matrix.

Table 8

Evidence matrix: ESG operationalization type × sustainable performance construct × finding direction.

Paper	ESG Type	Performance Construct	Direction	Listing Status	Confidence*
P19	T1	Financial (ROA, ROE)	Positive	Listed (EU food)	High
P34	T3	Financial + Market (Tobin's Q)	Positive	Listed (EU28)	High
P11	T2	Financial + Operational	Positive	Listed (global)	High
P22	T2	Financial + Operational	Pos. (financial); Neg. (op. growth)	Listed (Europe)	High
P10	T1	Financial (ROE/ROA/Tobin's Q)	Mixed (3 constructs, 3 answers)	Listed (global)	Moderate
P02	T3	Financial (ROA, ROE, Tobin's Q)	Neg. below median → Pos. above	Listed (China)	High
P23	T1	Financial	U-shaped (threshold ~ 0.53)	Listed (China agri-food)	High
P32	T1 + T2	Financial (ROA, ROE, ROS)	Positive (amplified by globalization)	Listed (Taiwan)	Moderate
P25	T3	Financial + Cost of debt	Limited / partial	Unlisted SME (Italy)	Moderate
P04	T1	Market value	Null (individually)	Listed (Indonesia)	Low
P05	T1	Market + Financial	Mixed (translation-stage failure)	Listed (Taiwan)	Moderate
P36	T4	Market value (Tobin's Q > 1)	Positive (multiple configurations)	Listed (global)	High
P24	T3	Cost of equity capital	Positive (lower cost)	Listed (developed)	High
P29	T3	Cost of capital (WACC/debt/equity)	Mixed / weak	Listed (GCC)	Moderate
P35	T2	Export quality	Positive (green tech + brand mediation)	Listed (China)	High
P16	T5	Innovation (patents)	Negative (decoupling hurts)	Listed (China)	High
P26	T3	R&D investment	Null	Listed (global)	High
P03	T2	3-stage operational performance	Mixed (pillar- and stage-dependent)	Listed (Taiwan)	High
P44	T4	Dynamic productivity (TFP)	Mixed (avg. decline; profitable firms manage better)	Listed (EU)	High

Paper	ESG Type	Performance Construct	Direction	Listing Status	Confidence*
P15	T4	Sales and net profit	Null (sales); Neg. (wholesale profit)	Unlisted (Japan)	High
P42	T4	TBL (E, Econ, Social separately)	Positive (cert- and pillar-specific)	Listed (Pakistan)	High
P07	T4	Market cap + ESG score	Positive (real innovation → market cap)	Listed (global)	High
P09	T2	Financial (quantile-stratified)	Mixed (quantile-dependent)	Listed (global)	High
P01	T3	Firm performance composite	Positive	SME survey (E. Europe)	Moderate
P49	T2	Sustainability efficiency (network DEA) + market efficiency	Mixed; governance pillar positive; E and S pillars negative unless paired with a proactive business strategy	Listed (44 multinational food firms)	High
P33	T3	Operating profitability (EBITDA)	Negative (marginal)	Unlisted SMEs (Spain)	Moderate
P08	T1	Financial return (ROE)	Negative	Listed (BRICS)	Low
P39	T1	Financial performance (ML-predicted)	Positive (mandatory > voluntary disclosure)	Mixed (W. Europe/N. America)	Low

*Note. * Analytical confidence rated High (peer-reviewed journal, adequate sample size, primary data with a clearly specified method); Moderate (peer-reviewed but smaller sample, or a less established outlet); Low (conference paper, preprint, or a sample too small to support the reported inference).*

Three patterns emerge from Table 8. First, Type 4 studies are the most internally consistent, with every directional result positive or partially positive; the sole exception, Wang and Shimokawa (2026), studies unlisted Japanese wholesale firms, where the institutional infrastructure converting sector-embedded ESG into advantage is absent. Second, Type 3 (disclosure) findings diverge structurally rather than randomly: positive where disclosure couples with substantive governance reform (Europe) or reduces information asymmetry (developed markets); null for R&D investment; negative where disclosure outstrips practice; and limited in developing or transitional environments. This pattern fits Institutional Theory, since disclosure spreads under coercive/normative pressure but its performance consequences depend on whether it reflects genuine change. Mirón Sanguino et al. (2026) add a further negative case: CSR disclosure has a marginally negative effect on EBITDA among 185 Spanish agri-food SMEs where average disclosure maturity is very low (7.26%), suggesting that immature disclosure, and not only misrepresented disclosure, can carry a short-term cost. Third, Type 1 (composite) studies produce mixed findings even within the same study: Sukmani and Uwansri (2024) report a positive ROE effect, null ROA effect, and negative Tobin's Q effect from one sample, reflecting that composite scores blend capability (which drives performance) with compliance (which does

not). Zhang and Xiong's (2026b) U-shaped result formalizes this: below an ESG threshold of approximately 0.53, additional investment is net compliance cost; above it, ESG becomes genuine capability.

On the pillar question, Type 2 studies confirm that E, S, and G behave as structurally distinct predictors. Lu, Chou, et al. (2026, P03) find water/energy compliance hurts operational efficiency while employee health and safety improves innovation, with governance only weakly effective. Sichigea et al. (2025) find all three pillars hurt operational growth short-term but help profitability and employability. Sandberg et al. (2023) find the social dimension outperforms governance financially; Wei et al. (2025) find the environmental pillar carries the largest marginal effect on export quality. This pattern, with the environmental pillar linked to costly but long-run advantage, the social pillar to stakeholder trust, and governance the weakest and most heterogeneous, matches the NRBV/Stakeholder/Agency differentiation mapped in Table 7. Lu, Ting, and Li (2026) extend it to a multinational panel: governance consistently raises efficiency, while environmental and social pillars reduce it unless paired with a proactive business strategy.

4.4 Theoretical Coherence and the Conceptual Framework of Structural Relationships (RQ3 and RQ4)

RQ3 asks what moderating and mediating factors shape the ESG-performance relationship; RQ4 asks what gaps remain. Table 9 compares the five frameworks' predictions against the evidence in Table 8; Fig. 7 integrates all findings into a Conceptual Framework of Structural Relationships that populates the integrative model from Section 2.4 with the specific mechanisms, boundary conditions, and decoupling risks identified in the corpus.

Table 9

Theory × evidence coherence matrix: predictions, confirmations, qualifications, and required extensions for the food manufacturing ESG context.

Theory	Core prediction (food manufacturing context)	Studies confirming	Studies qualifying / contradicting	Required extension
Resource-Based View (RBV)	VRIN ESG resources generate sustained financial advantage; food manufacturing's fragmented supply chains make ESG resources difficult to imitate	consistent positive ESG–financial findings in listed EU and Taiwanese firms; governance pillar consistently raises efficiency across 44 multinational food firms, consistent with a VRIN governance capability	unlisted Japan: null/negative; composite ESG negative ROE; mixed by measure	VRIN advantage is listing- and institution-contingent: ESG resources require investor ESG screening and regulatory disclosure mandates to be recognized as valuable; absent for unlisted SMEs
Natural-Resource-Based View (NRBV)	Pollution prevention, product stewardship, and sustainable development create environmental competitive advantage; food manufacturing's biological inputs and emissions profile make this theory particularly apt	real environmental innovation → ESG + market cap; environmental performance → financial; ISO 22000 → resource efficiency	water/energy compliance hurts operational efficiency short-term; small avg. productivity decline before profitable firms moderate it	Short-run NRBV tensions: biological inputs and processing costs create a compliance-cost lag before long-run environmental capability generates performance advantages
Dynamic Capabilities Theory	Capability quality, not ESG commitment level, determines performance; food firms reconfiguring supply chains under CSRD face a high operational integration demand	ESG → export quality via green technology and brand reputation; capability mediation confirmed; ESG costs operational growth short-term, gains financially long-term; business strategy determines whether E/S pillar investment becomes a capability or a cost	disclosure not linked to R&D investment; symbolic adoption; decoupling damages innovation; capability not built despite disclosure	Capability decoupling is pervasive: food manufacturing firms routinely adopt ESG disclosure without building the operational integration capabilities that DCT requires for performance gains
Stakeholder Theory	Balancing investor, consumer, regulator, and community demands drives ESG adoption and long-run viability; particularly strong in food manufacturing	consistent with stakeholder logic in European listed contexts; food safety cert → TBL performance; consumer/regulator pressure mechanism	unlisted Japanese firms: ESG hurts wholesale profit; stakeholder salience absent for unlisted; investor-owned > cooperative on ESG; stakeholder	Stakeholder salience is ownership-conditional: the theory works for listed firms with active investor ESG screening; breaks down for unlisted firms,

Theory	Core prediction (food manufacturing context)	Studies confirming	Studies qualifying / contradicting	Required extension
	given consumer health exposure		salience varies by ownership	cooperatives, and contexts without mandatory disclosure
Institutional Theory	Coercive, mimetic, and normative isomorphism explain ESG adoption independent of performance benefits; especially relevant as CSRD and CSRC mandates accelerate disclosure independently of substantive ESG integration	disclosure without substance → negative performance; legitimacy-seeking, not substantive; small Italian SMEs disclose minimally on social/governance; resource-constrained institutional response	real environmental innovation rewarded; symbolic disclosure not; Institutional Theory explains spread, not performance; decoupling actively harmful	Legitimacy trap: Institutional Theory explains why ESG disclosure has spread rapidly in food manufacturing without proportional performance gains; NRBV and DCT are needed to explain when and how firms move beyond legitimacy compliance to genuine performance impact

The RBV and NRBV are confirmed subject to a listing- and institution-contingent boundary condition. VRIN ESG resources generate sustained advantage for listed firms under active regulatory and investor scrutiny (European, Taiwanese, and, conditionally, Chinese firms), as reinforced by Lu, Ting, and Li's (2026) finding that governance consistently raises efficiency across 44 multinational firms, but not for unlisted Japanese firms and small Italian SMEs, where the same investment yields null or negative results. This reflects a structural mechanism, not a conventional moderator: VRIN's value and non-substitutability conditions depend on institutional infrastructure (investor screening, disclosure mandates, consumer differentiation) that is absent in unlisted/SME contexts, making this a population-defining boundary rather than a strength-of-effect difference.

Dynamic Capabilities Theory explains why identical ESG commitments produce divergent outcomes within similar institutional contexts. Chiu et al. (2026) identify a translation-stage failure where governance does not automatically convert to market value; Zhang and Xiong (2026a) show decoupled disclosure damages innovation absent organizational learning; Yucel (2025) finds no link between disclosure and R&D investment. Zhang and Xiong's (2026b) U-shaped result is consistent: below threshold, ESG is compliance cost; above it, genuine capability. Lu, Ting, and Li (2026) provide the clearest direct test: identical pillar investment yields efficiency losses under a reactive strategy but gains under a proactive one, showing strategic capability, not commitment per se, converts investment into performance.

Institutional and Stakeholder Theory jointly explain the European-Chinese divergence and the listed-unlisted divide. European listed firms under post-CSRD pressure face both coercive isomorphism and genuine stakeholder expectation, producing consistent positive findings; Chinese listed firms face coercive pressure

without comparable stakeholder salience, producing Yan et al.'s (2026) negative disclosure-alone finding; unlisted/SME firms face both mechanisms more weakly, producing null or negative results. The implication for RQ4 is direct: expanding sampled institutional variety, particularly unlisted firms across regulatory intensities, is the most efficient next step for testing these boundary conditions.

Figure 7 embeds these findings in a unified structural model: antecedents (internal and external drivers) initiate ESG adoption; the ESG practices component disaggregates by operationalization type linked to its implied theoretical pathway; mediating mechanisms distinguish confirmed pathways (green innovation, reputation, efficiency, capability integration) from the decoupling risk, shown as a dashed feedback arrow; sustainable performance outcomes reflect the full heterogeneity in Table 8; and the boundary conditions bar represents the structural moderators (listing status, regulatory regime, firm size, and ownership) that determine which theoretical pathway is active in a given context.

5. Discussion

Our analysis of the 49-study corpus addresses the first three research questions directly and reveals a literature whose disagreements are not random noise but the product of identifiable structural conditions. On RQ1, ESG is operationalized through four main logics (composite scores, pillar-level scores, disclosure indices, and sector-specific proxies), plus one direct decoupling measure, and theoretical framing tracks measurement choice: composite-score studies lean on the Resource-Based View, disclosure-index studies on Institutional Theory, sector-embedded-proxy studies on the Natural-Resource-Based View. This alignment, rather than any inherent theoretical weakness, is the single largest source of the divergence documented in Tables 8 and 9: an apparent theoretical disagreement is frequently a measurement disagreement wearing theoretical clothing.

Proposition 1

Composite ESG scores should be treated as the weakest operationalization for testing Resource-Based View and Institutional Theory predictions simultaneously, because they average across mechanisms (genuine capability advantage and legitimacy-seeking disclosure) that the two theories treat as distinct and often oppositely signed. Future studies testing either theory in food manufacturing should adopt pillar-level or sector-specific measures that isolate the mechanism under test, rather than a single aggregate index that cannot in principle distinguish between them.

On RQ2, the disaggregated evidence matrix confirms the three pillars behave as structurally distinct predictors rather than interchangeable components of a single construct. Governance is the most consistently rewarded across listed-firm contexts; environmental shows the sharpest divergence between short-run compliance cost and long-run capability advantage; social is the least frequently isolated despite the sector's acute exposure to labor and food-safety risk. This extends Sichigea et al.'s (2025) finding that ESG can act as a short-term operational cost and a long-term financial gain simultaneously: our synthesis shows this is a structural feature of the environmental pillar specifically, one a composite ESG score would necessarily average away.

Proposition 2

Studies that report a null or negative aggregate ESG–performance relationship in food manufacturing should be re-examined at the pillar level before being interpreted as evidence against the business case for sustainability, since a null aggregate finding is fully consistent with a positive governance effect being cancelled by a negative short-run environmental compliance-cost effect.

On RQ3, the theory-evidence analysis in Table 9 identifies a boundary condition cutting across all five frameworks: listing status and institutional context, not firm size or country alone, determine which pathway is active. The RBV's VRIN logic holds for listed firms under active scrutiny and fails for unlisted firms in the same region, because the institutional infrastructure that makes ESG resources valuable is itself absent outside listed markets. It is a population-defining condition, not a conventional moderator. Stakeholder Theory shows the same pattern for a related reason: investor-owned firms outperforming cooperatives confirms that stakeholder salience is ownership-conditional, since cooperative governance dilutes the investor pressure the theory presumes.

Proposition

a. The Resource-Based View and Stakeholder Theory should be tested as listing- and ownership-contingent rather than universal explanations of ESG performance in food manufacturing; future studies sampling unlisted firms, cooperatives, and SMEs should expect null or negative findings not as a contradiction of theory but as confirmation that the theory's scope conditions are unmet in that population.

Dynamic Capabilities Theory explains why identical formal ESG commitments produce divergent outcomes even within the same institutional context. Lu, Ting, and Li's (2026) finding that business strategy determines whether environmental and social pillar investment becomes a capability or a cost is the clearest direct test of this logic, reinforced by the decoupling evidence in Yucel (2025) and Zhang and Xiong (2026a), where disclosure without organizational learning damages rather than merely fails to improve performance. Institutional Theory, finally, explains why ESG disclosure continues to spread despite this decoupling risk: coercive and normative isomorphic pressure under the CSRD and China's CSRC mandates rewards adoption independent of substantive integration, producing a legitimacy trap.

Proposition

b. Future empirical work should treat capability decoupling (the gap between disclosed ESG commitment and demonstrated organizational learning) as a measurable construct in its own right, rather than an unobserved residual, since the corpus shows it is systematically associated with negative innovation and R&D outcomes specifically.

A related geographic pattern deserves attention. European listed firms under post-CSRD disclosure show consistently positive ESG-financial associations, while Chinese listed firms under comparably strong CSRC pressure show the opposite (Yan et al., 2026). Institutional Theory alone cannot explain this; Stakeholder Theory's multi-constituency salience, which is weaker where investor screening and consumer differentiation remain immature, provides the missing piece. Coercive pressure produces disclosure; coercive pressure combined with stakeholder salience produces disclosure that markets reward.

Proposition 4

Cross-country comparisons of ESG–performance findings in food manufacturing should report the maturity of investor ESG screening and consumer sustainability differentiation alongside the regulatory disclosure regime, since our evidence suggests that disclosure mandates alone, without accompanying stakeholder salience, can produce a null or even negative performance association that a purely institutional account would not predict.

Taken together, these findings answer RQ1 through RQ3 with a single unifying claim: the food manufacturing ESG–performance literature does not disagree about whether ESG matters, but about which firms, under which institutional conditions, and through which mechanism it matters.

6. Conclusion and Implications

6.1 Originality and Academic, Managerial, and Policy Implications

This review’s original contribution is to shift the unit of analysis in food manufacturing sustainability research from a catalogue of discrete operational practices to ESG as an integrated, firm-level governance and performance construct, and to systematically test five established management theories against a single, industry-bounded corpus rather than a pooled cross-sector sample. To our knowledge, no prior review has shown that the boundary condition determining which theory applies in food manufacturing is listing status and institutional context rather than firm size, country, or industry sub-segment alone. This finding reframes several apparently contradictory results as complementary evidence for one underlying structural pattern, rather than as unresolved noise, although it rests on a still-limited unlisted-firm sample, as noted in the limitations below.

The theory–evidence coherence matrix in Table 9 offers a template that future reviews in adjacent sectors can adapt: rather than asking which theory best explains ESG performance in general, our approach asks under which population and measurement conditions each theory’s predictions hold, fail, or require extension. This distinction between universal and scope-conditional theoretical claims is, we believe, the paper’s most transferable methodological contribution, extending the integrative approach of Ed-Dafali et al. (2025) by testing it against a single, industry-bounded corpus rather than a pooled non-financial sample.

For managers, because the governance pillar is the most consistently rewarded ESG dimension among listed EU and Taiwanese firms specifically, management teams operating under comparable regulatory or investor scrutiny should prioritize governance quality (board structure, transparency, and risk oversight) as the most reliable near-term lever for improving both ESG standing and financial performance. Firms in unlisted, cooperative, or SME contexts, where the same governance investment does not reliably translate into measurable returns, should instead treat ESG adoption as a longer-horizon capability-building exercise, pairing environmental and social investment with genuine operational integration rather than disclosure alone.

For policymakers, because Institutional Theory explains rapid disclosure adoption independent of performance benefit, mandates such as the EU Corporate Sustainability Reporting Directive and China’s CSRC requirements risk expanding the legitimacy trap our evidence identifies, in which disclosure volume rises with

no matching rise in substantive ESG integration, unless paired with verification mechanisms. Where investor ESG screening and consumer sustainability differentiation remain immature, regulators should consider complementary measures, such as mandatory investor ESG reporting or consumer-facing certification schemes, alongside disclosure mandates, particularly for the food-safety and supply-chain dimensions unique to this sector.

6.2 Limitations and Future Research Directions

This review has four limitations. First, Scopus and Web of Science were inaccessible during the search period; the multi-database strategy adopted in their place cannot fully rule out coverage gaps relative to the default pair. Second, the near-absence of unlisted/SME firms (four of 49 studies) means the listing-status boundary condition rests on a thin evidentiary base for the unlisted side. Third, the a priori exclusion of grey literature, while standard for peer-reviewed quality, may bias the corpus toward published, more often positive, findings, so the consistently positive Type 4 results should be read with this in mind. Fourth, the review was conducted by a single reviewer without a second-coder verification step at any stage; eligibility criteria were applied consistently and revisited iteratively, but independent dual coding cannot be ruled out as a source of screening bias.

These limitations directly motivate the future research agenda that follows from RQ4. First, and most urgently, future primary research should target unlisted and SME food manufacturers directly, since this population constitutes the majority of firms in the sector globally yet remains the least studied, and our boundary-condition finding can only be properly tested with a larger unlisted-firm sample. Second, future studies should treat capability decoupling as a directly measured construct, for instance through paired disclosure-versus-audit or disclosure-versus-operational-KPI designs, rather than inferring it indirectly from a mismatch between disclosure and performance. Third, given that no study in the corpus tests more than one of the five theoretical frameworks within the same sample, future work explicitly designed to test the Resource-Based View, Dynamic Capabilities Theory, and Institutional Theory jointly within a single food manufacturing dataset would allow the boundary conditions proposed here to be tested directly rather than inferred across studies. Fourth, qualitative and mixed-method designs remain under-represented relative to panel regression approaches; interview- and case-based methods are particularly well suited to opening the capability-decoupling mechanism that quantitative designs in this corpus can only detect indirectly. Fifth, future cross-country comparisons should directly measure stakeholder salience (investor ESG screening intensity and consumer sustainability differentiation) as an explicit variable, rather than treating regulatory regime as a sufficient proxy for the institutional environment as a whole.

To conclude, the food manufacturing ESG–performance literature has reached a stage where further single-country, single-provider, or single-theory studies are unlikely to resolve its central disagreements. What the field needs next is not more evidence of whether ESG pays off in food manufacturing, but deliberately designed studies that hold measurement type, listing status, and theoretical framework constant one at a time, so that the boundary conditions this review has identified by synthesis can finally be confirmed by direct test. Our position is that theoretical accounts of ESG performance in food manufacturing should be evaluated, and reported, as scope-conditional claims tied explicitly to listing status and institutional context, rather than as universal propositions. Guided by this view, we close by posing a question to the field: given how strongly

listing status and institutional context shape which theory applies, can any single theoretical account of ESG performance ever be complete without specifying, in advance, the population to which it is meant to apply?

Declarations

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Competing interests: The author has no relevant financial or non-financial interests to disclose.

Ethics approval: Not applicable. The study is a review of published literature and involved no human participants or animals.

Consent to participate and publish: Not applicable.

Data availability: This review analyzed published studies only, all of which are listed in Appendix Table A1. The data-extraction sheet is available from the corresponding author on reasonable request.

Protocol registration: This review was not formally pre-registered on a public registry. A review protocol specifying the research questions, search strategy, and eligibility criteria was developed prior to conducting the searches (Section 3), consistent with common practice in management and business systematic reviews.

Reviewer statement: This review was conducted by a single author. Database searching, deduplication, title/abstract screening, full-text eligibility assessment, and data extraction were all performed by the same reviewer; no second-coder verification or inter-rater reliability check was conducted at any stage.

Declaration of generative AI and AI-assisted technologies: During the preparation of this manuscript, the author used Claude (Anthropic) and other AI-based writing tools to assist with sentence-level language refinement and editing. All AI-assisted text was reviewed, verified, and edited by the author, who takes full responsibility for the content, accuracy, and scholarly integrity of the published work. AI tools were not used to generate, analyze, or interpret research data, findings, or conclusions.

References

1. Abdelfattah, T., Aribi, Z. A., Nazir, S., & Elmahgoub, M. (2026). Female executives and circular economy reporting: International evidence from the food industry. *Journal of International Accounting, Auditing and Taxation*. Advance online publication.
2. Adams, D., Donovan, J., & Topple, C. (2021). Achieving sustainability in food manufacturing operations and their supply chains: Key insights from a systematic literature review. *Sustainable Production and Consumption*, 28, 1491–1499. <https://doi.org/10.1016/j.spc.2021.08.019>
3. Adams, D., Donovan, J., & Topple, C. (2023). Sustainability in large food and beverage companies and their supply chains: An investigation into key drivers and barriers affecting sustainability strategies. *Business Strategy and the Environment*, 32(4), 1451–1463. <https://doi.org/10.1002/bse.3198>

4. Adnan, N., & Akbar, N. S. (2026). Sustainability strategies and capital costs: A study of non-financial disclosure in the GCC agri-food industry. *Sustainable Futures*. Advance online publication.
5. Arru, B., Delrio, F., Furesi, R., Pulina, P., & Madau, F. A. (2025). Role of environmental, social and governance disclosure in business profitability and cost of debt: An analysis of small Southern Italian agri-food businesses. *Agribusiness*, 41(3), 856–895. <https://doi.org/10.1002/agr.21933>
6. Atz, U., Van Holt, T., Liu, Z. Z., & Bruno, C. C. (2023). Does sustainability generate better financial performance? Review, meta-analysis, and propositions. *Journal of Sustainable Finance & Investment*, 13(1), 802–825. <https://doi.org/10.1080/20430795.2022.2106934>
7. Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>
8. Berg, F., Kölbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, 26(6), 1315–1344. <https://doi.org/10.1093/rof/rfac033>
9. Bernardo, A., Vescovo, D., Censi, R., Ruggieri, R., Restuccia, D., & Campana, P. (2026). Innovation-led sustainability in the agri-food sector: Evidence from the global food and beverage industry. *Business Strategy and the Environment*. Advance online publication. <https://doi.org/10.1002/bse.70736>
10. Boiral, O., Brotherton, M. C., Talbot, D., & Guillaumie, L. (2024). Assessing and managing environmental, social, and governance risks in agri-food companies. *Corporate Social Responsibility and Environmental Management*, 31(6), 5690–5708. <https://doi.org/10.1002/csr.2884>
11. Bottani, E., Tebaldi, L., Casella, G., & Mora, C. (2025). Key performance indicators for food supply chain: A bibliometric and systematic literature review. *Applied Sciences*, 15(7), 3841. <https://doi.org/10.3390/app15073841>
12. Camelo, G., & Nogueira, M. (2024). The ESG menu: Integrating sustainable practices in the Portuguese agri-food sector. *Sustainability*, 16(11), Article 4377. <https://doi.org/10.3390/su16114377>
13. Camilleri, M. A. (2025). Sustainability accounting and disclosures of responsible restaurant practices in environmental, social and governance (ESG) reports. *International Journal of Hospitality Management*. Advance online publication.
14. Chen, S.-H., Hsu, H.-C., & Lin, S.-T. (2025). The joint effects of firm's globalization and ESG rating on financial performance: Evidence from food industry in Taiwan. *Sustainability*, 17(6), 2580.
15. Chiu, S.-Y., Lu, L.-C., & Chen, C.-C. (2026). Evaluating ESG integration through multi-stage efficiency: A dynamic network DEA study of consumer industries in the Taiwan Region. *Journal of Cleaner Production*, 571, 148861. <https://doi.org/10.1016/j.jclepro.2026.148861>
16. Conca, L., Manta, F., Morrone, D., & Toma, P. (2021). The impact of direct environmental, social, and governance reporting: Empirical evidence in European-listed companies in the agri-food sector. *Business Strategy and the Environment*, 30(2), 1080–1093. <https://doi.org/10.1002/bse.2672>
17. Cristea, M., Drăcea, R. M., Nimerenco, I., & Trică, C. L. (2026). Sustainability and financial performance among SDG-reporting fishing and farming firms: Evidence from quantile and Bayesian analysis. *Oeconomia Copernicana*, 17(2), 569–614. <https://doi.org/10.24136/oc.4258>
18. Cupertino, S., Vitale, G., & Riccaboni, A. (2021). Sustainability and short-term profitability in the agri-food sector: A cross-sectional time-series investigation on global corporations. *British Food Journal*, 123(13), 317–334. <https://doi.org/10.1108/BFJ-02-2021-0154>

19. De Micco, P., Cupertino, S., Parissi, N., & Riccaboni, A. (2026). Assessing agricultural SMEs' sustainability performance: A new scoring methodology. *Measuring Business Excellence*, 30(3), 359–375.
<https://doi.org/10.1108/MBE-11-2025-0258>
20. Dewi, R. Y., Iryana, W., & Selvina, M. (2026). Effect of ESG risk rating, profitability on firm value with Sharia compliance as a moderation variable (Study on F&B companies listed on ISSI in 2021–2024). *OPTIMAL: Jurnal Ekonomi dan Manajemen*.
21. DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147–160.
22. Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management Science*, 60(11), 2835–2857.
<https://doi.org/10.1287/mnsc.2014.1984>
23. Ed-Dafali, S., Adardour, Z., Derj, A., Bami, A., & Hussainey, K. (2025). A PRISMA-based systematic review on Economic, Social, and Governance practices: Insights and research agenda. *Business Strategy and the Environment*, 34(2), 1896–1916. <https://doi.org/10.1002/bse.4069>
24. Elkington, J. (1997). *Cannibals with forks: The triple bottom line of 21st century business*. Capstone Publishing.
25. Engida, T. G., Oude Lansink, A. G. J. M., & Rao, X. (2022). A dynamic by-production framework for measuring productivity change in the presence of socially responsible and undesirable outputs: Evidence from European food processors. *Agribusiness*. <https://doi.org/10.1002/agr.21731>
26. Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman Publishing.
27. Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210–233.
<https://doi.org/10.1080/20430795.2015.1118917>
28. Garcia, A. S., Mendes-Da-Silva, W., & Orsato, R. J. (2017). Sensitive industries produce better ESG performance: Evidence from emerging markets. *Journal of Cleaner Production*, 150, 135–147.
<https://doi.org/10.1016/j.jclepro.2017.02.180>
29. Geddam, S. M., Karri, V., Anthony, C., & Subbarayan, A. (2026). ESG trends in India's FMCG sector: A quadrant analysis of sustainability leaders and laggards. *Services Marketing Quarterly*.
<https://doi.org/10.1080/15332969.2026.2701870>
30. Gega, M., Höhler, J., Bijman, J., & Oude Lansink, A. (2025). Firm ownership and ESG performance in European agri-food companies: The mediating effect of risk-taking and time horizon. *Corporate Social Responsibility and Environmental Management*, 32(1), 1161–1181. <https://doi.org/10.1002/csr.3008>
31. Ghasemzadeh, P., Rezayat Sorkhabadi, S. M., Kebriaeezadeh, A., Nazari, J. A., Farzaneh, M., & Mehralian, G. (2021). How does organizational learning contribute to corporate social responsibility and innovation performance? The dynamic capability view. *Journal of Knowledge Management*, 26(10), 2579–2601.
<https://doi.org/10.1108/JKM-01-2021-0069>
32. Gonzales, J. C., Renomeron, C. J., Perono, I., & Jimenez, P. K. (2025). Employee engagement and corporate sustainable practices: Insights from selected F&B manufacturing industry employees. *Journal of Social Entrepreneurship Theory and Practice*.

33. Grinberga-Zalite, G., & Zvirbule, A. (2022). ESG investing issues in food industry enterprises: Focusing on on-the-job training in waste management. *Social Sciences*, 11(9), Article 424.
<https://doi.org/10.3390/socsci11090424>
34. Gusenbauer, M. (2024). Beyond Google Scholar, Scopus, and Web of Science: An evaluation of the backward and forward citation coverage of 59 databases' citation indices. *Research Synthesis Methods*, 15(5), 802–817. <https://doi.org/10.1002/jrsm.1729>
35. Gusenbauer, M., & Gauster, S. P. (2025). How to search for literature in systematic reviews and meta-analyses: A comprehensive step-by-step guide. *Technological Forecasting and Social Change*, 212, 123833. <https://doi.org/10.1016/j.techfore.2024.123833>
36. Hart, S. L. (1995). A natural-resource-based view of the firm. *Academy of Management Review*, 20(4), 986–1014.
37. Hayat, N., Mustafa, G., Nayak, R. K., & Alhafi Alotaib, B. (2025). Linking voluntary food safety certifications to environmental, economic, and social performance: A triple bottom line analysis. *Sustainability*.
38. Helhel, Y., & Mengüç, E. (2026). Predicting corporate financial performance in the FMCG industry through machine learning: Comparing mandatory and voluntary ESG disclosures. Manuscript submitted for publication.
39. Herzog, C., Hook, D., & Konkiel, S. (2020). Dimensions: Bringing down barriers between scientometricians and data. *Quantitative Science Studies*, 1(1), 387–395. https://doi.org/10.1162/qss_a_00020
40. Kallisia, M. P., Mukhibad, H., & Ali, W. B. (2025). Determinants of ESG disclosure in ASEAN-5 countries: A legitimacy and institutional theory approach. *Keunis*, 13(2), 146–160.
<https://doi.org/10.32497/keunis.v13i2.6392>
41. Kamgang, S. E., & Boiral, O. (2025). Responsible sourcing in the agri-food companies: Advancing sustainability through inter-organizational collaboration. *Corporate Social Responsibility and Environmental Management*, 32(5), 6984–7005. <https://doi.org/10.1002/csr.70072>
42. Khaw, T. Y., Amran, A., & Teoh, A. P. (2024). Factors influencing ESG performance: A bibliometric analysis, systematic literature review, and future research directions. *Journal of Cleaner Production*, 448, 141430. <https://doi.org/10.1016/j.jclepro.2024.141430>
43. Liang, Y., Lee, M., & Jung, J. S. (2022). Dynamic capabilities and an ESG strategy for sustainable management performance. *Frontiers in Psychology*, 13, Article 887776.
<https://doi.org/10.3389/fpsyg.2022.887776>
44. Lu, W.-M., Chou, C.-H., Ting, I. W. K., & Cheng, K.-C. (2026). Dynamic performance evaluation of Taiwan's food industry: ESG insights and strategic implications. *Omega*, 138, Article 103376.
<https://doi.org/10.1016/j.omega.2025.103376>
45. Lu, W.-M., Ting, I. W. K., & Li, X.-F. (2026). From ESG to efficiency: How business strategy shapes sustainability and market outcomes in the food industry. *Corporate Social Responsibility and Environmental Management*. Advance online publication. <https://doi.org/10.1002/csr.70686>
46. Luque-Vílchez, M., Gómez-Limón, J. A., Guerrero-Baena, M. D., & Rodríguez-Gutiérrez, P. (2023). Deconstructing corporate environmental, social, and governance performance: Heterogeneous stakeholder preferences in the food industry. *Sustainable Development*, 31(3), 1845–1860.
<https://doi.org/10.1002/sd.2488>

47. Lámfalusi, I., Hámori, J., Rózsa, A., Hegyi, J., Kacz, K., Miklósné Varga, A., Troján, S., & Gombkötő, N. (2024). Evaluation of sustainability reporting of the food industry in Hungary from an EU taxonomy perspective. *Quality & Quantity*, 58, 4479–4504. <https://doi.org/10.1007/s11135-024-01873-2>
48. López-Cabarcos, M. Á., Piñeiro-Chousa, J., Quiñoá-Piñeiro, L., & López-Pérez, M. L. (2024). Water and waste management strategies as drivers of the financial performance of food companies. *Technological Forecasting & Social Change*, 200, 123138.
49. Marczewska, M., Hegerty, S. W., Panwar, R., & Kostrzewski, M. (2026). Digital transformation, ESG, and companies' performance: An exploratory study of the European food sector. *Journal of Technology Transfer*, 51(3), 1798–1819. <https://doi.org/10.1007/s10961-025-10247-1>
50. Martiny, A., Tagliatalata, J., Testa, F., & Iraldo, F. (2024). Determinants of environmental social and governance (ESG) performance: A systematic literature review. *Journal of Cleaner Production*, 456, Article 142213. <https://doi.org/10.1016/j.jclepro.2024.142213>
51. Mirón Sanguino, Á. S., Pache Durán, M., Arias Abelaira, T., & Corchuelo Martínez-Azua, M. B. (2026). CSR disclosure and operating performance in the agri-food manufacturing industry: Evidence from Southern Europe. *Corporate Social Responsibility and Environmental Management*. Advance online publication. <https://doi.org/10.1002/csr.70626>
52. Page, M. J., McKenzie, J. E., Bossuyt, P. M., et al. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71. <https://doi.org/10.1136/bmj.n71>
53. Partalidou, X., Zafeiriou, E., Giannarakis, G., & Sariannidis, N. (2020). The effect of corporate social responsibility performance on financial performance: The case of food industry. *Benchmarking: An International Journal*, 27(10), 2701–2720.
54. Paul, J., & Criado, A. R. (2020). The art of writing literature review: What do we know and what do we need to know? *International Business Review*, 29(4), Article 101717. <https://doi.org/10.1016/j.ibusrev.2020.101717>
55. Paul, J., & Menzies, J. (2023). Developing classic systematic literature reviews to advance knowledge: Dos and don'ts. *European Management Journal*, 41(6), 815–820.
56. Petcu, A. M., & Theodorescu, A. (2025). Performance drivers in a sustainability-oriented economy. *Proceedings of the 19th International Conference on Business Excellence (PICBE)*.
57. Pinedo-López, J., Baena-Navarro, R., Carriazo-Regino, Y., Urrea-Ortiz, A., & Reyes-Guevara, D. (2024). Sustainability strategies: A proposal for food sector SMEs, based on the integration of life cycle assessment and ESG strategies. *Journal of Infrastructure, Policy and Development*. Advance online publication.
58. Raimo, N., de Nuccio, E., Giakoumelou, A., Petruzzella, F., & Vitolla, F. (2020). Non-financial information and cost of equity capital: An empirical analysis in the food and beverage industry. *British Food Journal*, 123(1), 49–65. <https://doi.org/10.1108/BFJ-03-2020-0278>
59. Ribeiro Trigo, A. F., Marta-Costa, A. A., & de Sousa Fragoso, R. M. (2025). Sustainable Wine Assessment Tool (SWAT): A hierarchical framework to measure sustainability performance. *Journal of Wine Research*. Advance online publication.
60. Ritchie, H., Rosado, P., & Roser, M. (2022). Environmental impacts of food production. *Our World in Data*. <https://ourworldindata.org/environmental-impacts-of-food> (retrieved July 2026).

61. Sandberg, H., Alnoor, A., & Tiberius, V. (2023). Environmental, social, and governance ratings and financial performance: Evidence from the European food industry. *Business Strategy and the Environment*, 32(4), 2471–2489. <https://doi.org/10.1002/bse.3259>
62. Sanguanwongs, C., & Kritjaroen, T. (2023). The influence of transformational leadership on organization performance. *International Journal of Professional Business Review*, 8(7).
63. Scott, W. R. (2001). *Institutions and organizations* (2nd ed.). Sage Publications.
64. Scrimgeour, F., Corbet, S., & Akyildirim, E. (2024). Understanding the impact of environmental, social, and governance incidents on food producing corporations. *Journal of Environmental Management*, 371, 123072. <https://doi.org/10.1016/j.jenvman.2024.123072>
65. Seow, J. (2025). Connecting the dots in ESG review research: Insights from systematic literature review and bibliometric analysis. *Journal of Economic Surveys*. <https://doi.org/10.1111/joes.70045>
66. Sichigea, M., Vasilescu, L., Mihai, L., & Sitnikov, C. (2025). Modeling ESG relationships with the employability-operational growth-profitability trilogy in the European food system. *Amfiteatru Economic*, 27(69), 329. <https://doi.org/10.24818/EA/2025/69/329>
67. Singh, V. K., Singh, P., Karmakar, M., Leta, J., & Mayr, P. (2021). The journal coverage of Web of Science, Scopus and Dimensions: A comparative analysis. *Scientometrics*, 126(6), 5113–5142. <https://doi.org/10.1007/s11192-021-03948-5>
68. Sukmani, K., & Uwansri, K. (2024). The impacts of ESG scores on firm's performance in food and beverage industry. *European Journal of Economic and Financial Research*, 8(5). <https://doi.org/10.46827/ejefr.v8i5.1815>
69. Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533.
70. Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14(3), 207–222.
71. United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. United Nations Department of Economic and Social Affairs.
72. Wang, Y., & Shimokawa, S. (2026). Does ESG matter for unlisted companies in the agri-food industry? Evidence from Japan's unlisted agri-food companies. *Agribusiness*. <https://doi.org/10.1002/agr.22067>
73. Weber, O., & Saunders-Hogberg, G. (2018). Water management and corporate social performance in the food and beverage industry. *Journal of Cleaner Production*, 195, 963–977. <https://doi.org/10.1016/j.jclepro.2018.05.269>
74. Wei, P., Liu, H., & Wang, J. (2025). Towards sustainable agri-food systems: The role of environment, society, and governance in upgrading export quality. *Agribusiness*.
75. Yan, H., Mishra, A. K., & Zhou, X. (2026). Do all food and beverage firms benefit from voluntary ESG reporting? Evidence from China's listed companies. *Agribusiness*, 42(2), 623–640. <https://doi.org/10.1002/agr.70004>
76. Yucel, M. (2025). Strategic decoupling through legitimacy: The sustainability-innovation gap in the food processing sector and its health implications. *Globalization and Health*, 21, Article 1166. <https://doi.org/10.1186/s12992-025-01166-9>

77. Zeng, L., Li, H., Lin, L., Hu, D. J. J., & Liu, H. (2024). ESG standards in China: Bibliometric analysis, development status research, and future research directions. *Sustainability*, 16(16), 7134. <https://doi.org/10.3390/su16167134>
78. Zhang, Y., & Xiong, T. (2026a). ESG decoupling and innovation: Are China's agri-food companies walking the walk? *Agribusiness*, 42(2), 473–485. <https://doi.org/10.1002/agr.22059>
79. Zhang, Y., & Xiong, T. (2026b). More ESG practices, higher financial performance? The U-shaped pattern in China's agricultural and food firms. *Agribusiness*, 42(2), 641–652. <https://doi.org/10.1002/agr.21989>

Appendix A

Appendix Table A1

Bibliographic profile of all 49 reviewed studies: method, geographic context, and primary contribution to the review.

ID	Authors (Year)	Journal	Country	Method	Key Finding / Contribution
P01	Marczewska et al. (2026)	J. Technology Transfer (Q1)	Eastern Europe	Survey + PCA	ESG reporters outperform non-reporters; digital capabilities amplify performance in food SMEs
P03	Lu, Chou, et al. (2026)	Omega (A*)	Taiwan	Network DEA	Operational performance strongest; water compliance hurts efficiency; governance effects weakest
P04	Dewi et al. (2026)	OPTIMAL J.	Indonesia	MRA panel	ESG risk rating and ROA individually null on firm value; Sharia compliance non-moderating
P05	Chiu et al. (2026)	J. Cleaner Prod. (Q1)	Taiwan	3-stage DEA	Translation-stage failure identified: ESG governance does not automatically convert to market value
P06	Lámfalusi et al. (2024)	Quality & Quantity	Hungary	Content analysis	Foreign-owned and large food firms report in far greater depth under EU Taxonomy than SMEs
P07	Bernardo et al. (2026)	Bus. Strat. Env. (A)	EU/US/China	Panel OLS	Real environmental innovation → higher ESG scores + market cap; symbolic green revenue does not
P08	Petcu & Theodorescu (2025)	PICBE (Conference)	Global	Panel RE	Composite ESG negatively associated with ROE; supplementary evidence (conference paper)
P09	Cristea et al. (2026)	Oeconomia Copernicana (Q1)	Global	Quantile + Bayesian	ESG–performance link is quantile-dependent; low-performing firms respond differently from high performers
P10	Sukmani & Uwansri (2024)	Eur. J. Econ. Fin. Res.	Global	Regression	ESG positive on ROE, null on ROA, negative on Tobin's Q; three

ID	Authors (Year)	Journal	Country	Method	Key Finding / Contribution
					measures, three divergent answers
P11	Partalidou et al. (2020)	Benchmarking (B, Emerald)	Global listed	EGLS panel	Environmental performance and standalone sustainability reporting consistently positive on operating income
P12	De Micco et al. (2026)	Measuring Bus. Exc. (B)	Italy (SME)	Mixed methods	Wine SME sustainability scores modest and regionally variable; governance pillar least developed
P13	Boiral et al. (2024)	Corp. Soc. Resp. Env. Mgmt. (A)	Global	Qualitative	ESG risks qualitative and partner-dependent; firms rarely link them to formal quantitative rating systems
P14	Luque-Vílchez et al. (2023)	Sustainable Development (A)	Europe	BWM + mixed	Stakeholders weight ESG dimensions differently; generic ESG scores do not reflect stakeholder priorities
P15	Wang & Shimokawa (2026)	Agribusiness (A)	Japan	TWFE panel	ESG null on sales; negative on net profit in wholesale; only study of unlisted non-European agri-food firms
P16	Zhang & Xiong (2026a)	Agribusiness (A)	China	Panel FE	ESG decoupling (disclosure > practice) damages innovation; independent directors partially buffer harm
P17	Grinberga-Zalite & Zvirbule (2022)	Social Sciences (MDPI)	Europe	Mixed methods	Employee sustainability competency framework; no performance outcome; included for contextual evidence only

ID	Authors (Year)	Journal	Country	Method	Key Finding / Contribution
P18	Garcia et al. (2017)	J. Cleaner Prod. (A*)	BRICS (Brazil, Russia, India, China, South Africa)	Panel regression (OLS/RE/FE)	Sector effect on ESG performance is fragile: sensitive-industry membership loses significance once firm size and country controls are added; firm size is the most robust predictor across all ESG dimensions
P19	Sandberg et al. (2023)	Bus. Strat. Env. (A)	Europe	OLS panel	Composite ESG positive on ROA and ROE; social pillar stronger driver than governance
P20	Abdelfattah et al. (2026)	J. Int. Accounting (B)	Global F&B	Panel GMM	Female executives → more circular economy reporting; effect strongest where ESG performance is weakest
P21	Gega et al. (2025)	Corp. Soc. Resp. Env. Mgmt. (A)	Europe	SEM/recursive	Investor-owned firms outperform family firms and cooperatives on ESG; ownership type is a structural determinant
P22	Sichigea et al. (2025)	Amfiteatru Economic	Europe	CFA + GGM network	E, S, G all negative on operational growth short-term; positive on profitability and employability long-term
P23	Zhang & Xiong (2026b)	Agribusiness (A)	China	TWFE panel	U-shaped ESG–performance relationship in Chinese agri-food firms; threshold $\approx$ 0.53 ESG score
P24	Raimo et al. (2020)	British Food J. (B, Emerald)	Global developed	FE panel	ESG disclosure lowers cost of equity capital; only study examining this financing channel in F&B
P25	Arru et al. (2025)	Agribusiness (A)	Italy (SME)	MRA	ESG disclosure limited in small agri-food SMEs; product responsibility

ID	Authors (Year)	Journal	Country	Method	Key Finding / Contribution
					investment modestly improves profitability
P26	Yucel (2025)	Globalization & Health	Global	Mixed methods	Sustainability disclosure has no significant relationship with actual R&D investment; symbolic decoupling
P27	Camilleri (2025)	Int. J. Hospitality Mgmt.	N/A	Conceptual	ESG accounting framework for hospitality/restaurant operations; excluded from quantitative synthesis
P28	Scrimgeour et al. (2024)	J. Environ. Mgmt. (A)	Global (agri-food)	EGARCH event study	ESG reputational disasters produce significant negative abnormal stock returns for food-producing corporations; small firms suffer larger, more persistent losses than large firms
P29	Adnan & Akbar (2026)	Sustainable Futures	GCC	Panel OLS	ESG disclosure shows weak, mixed effects on financing costs in GCC agri-food context
P30	Sanguanwongs & Kritjaroen (2023)	Int. J. Prof. Bus. Review	Thailand	SEM	CEO transformational leadership → ESG practices → organizational performance (ESG as mediator)
P31	Camelo & Nogueira (2024)	Sustainability (MDPI)	Portugal	Qualitative	SMEs reactive to sustainability; larger firms proactive; culture integration more important than compliance
P32	Chen et al. (2025)	Sustainability (MDPI)	Taiwan	Panel FE	Internationalization amplifies ESG's financial benefit; globalized firms capture more ESG-performance value

ID	Authors (Year)	Journal	Country	Method	Key Finding / Contribution
P33	Mirón Sanguino et al. (2026)	Corp. Soc. Resp. Env. Mgmt. (A)	Spain (Extremadura)	Content analysis + regression	CSR disclosure is very low (7.26% average index) among agri-food SMEs and has a marginally negative effect on short-term EBITDA
P34	Conca et al. (2021)	Bus. Strat. Env. (A)	Europe	Panel regression	ESG disclosure positively linked to ROA and Tobin's Q in EU28 agri-food listed firms
P35	Wei et al. (2025)	Agribusiness (A)	China	Matched panel + 2SLS	ESG improves export quality via green technology innovation and brand reputation (mediation confirmed)
P36	López-Cabarcos et al. (2024)	Tech. Forecasting (A)	Global	fsQCA	Multiple water/waste practice configurations produce firm overvaluation; equifinality principle confirmed
P37	Weber & Saunders-Hogberg (2018)	J. Cleaner Prod. (Q1)	Global	Factor + regression	Good water risk management positively correlated with broad CSR performance
P38	Geddiam et al. (2026)	Services Marketing Q.	India	Trajectory + 2SLS	ESG trajectory classification reveals hidden dynamics: some high-scorers are declining; some low-scorers improving
P39	Helhel & Mengüç (2026)*	Eur. J. Finance (preprint)	W.Europe/N.Am.	ML (PCA + RF+GB)	Mandatory ESG disclosure stronger predictor of financial performance than voluntary; low confidence (preprint)
P40	Ribeiro Trigo et al. (2025)	J. Wine Research	Portugal	Framework dev.	SWAT sustainability assessment tool for wine sector; framework contribution, no empirical performance test

ID	Authors (Year)	Journal	Country	Method	Key Finding / Contribution
P41	Pinedo-López et al. (2024)	J. Infrastructure Policy	Colombia	PRISMA SLR + conceptual	LCA + ESG integration framework for food-sector SMEs in developing countries; conceptual contribution
P42	Hayat et al. (2025)	Sustainability (MDPI)	Pakistan	Panel FE	Food safety certifications improve TBL performance pillar-specifically; ISO 22000 → resource efficiency
P43	Cupertino et al. (2021)	Brit. Food J. (A)	Global (agri-food & beverage)	Panel regression (OLS)	Best-sustainability-performing AF&B firms show improved future profitability; worst performers benefit specifically from responsible products, eco-innovation, and governance commitment
P44	Engida et al. (2022)	Agribusiness (A)	Europe	Dynamic frontier	CSR adoption linked to small average productivity decline; profitable firms manage undesirable outputs better
P45	Gonzales et al. (2025)	J. Soc. Entrepreneurship	Philippines	Descriptive + Spearman	Sustainability practices moderately positively correlated with employee engagement in F&B manufacturing
P46	Friede et al. (2015)	J. Sust. Fin. & Inv. (B)	Global	Second-order meta-analysis	Aggregates roughly 2,200 primary studies; about 90% report a non-negative ESG–financial performance relation, with the positive effect stable over time. Cross-sector rather than food-specific; serves as an external benchmark
P47	Adams et al. (2023)	Bus. Strat. Env. (A)	Australia	Qualitative (21 interviews)	Top-management commitment is the strongest internal driver of

ID	Authors (Year)	Journal	Country	Method	Key Finding / Contribution
					sustainability adoption; absence of a government regulatory framework is the dominant external barrier
P48	Kamgang & Boiral (2025)	Corp. Soc. Resp. Env. Mgmt. (A)	Global (130 firms)	Content analysis	Knowledge-sharing routines and governance mechanisms enable responsible-sourcing collaboration; limited complementary resources constrain long-run sustainability synergies
P49	Lu, Ting, & Li (2026)	Corp. Soc. Resp. Env. Mgmt. (A)	Global (44 MNC)	Network DEA + truncated regression	Governance pillar consistently raises sustainability and market efficiency; environmental and social pillars reduce efficiency unless paired with a proactive business strategy

Figures

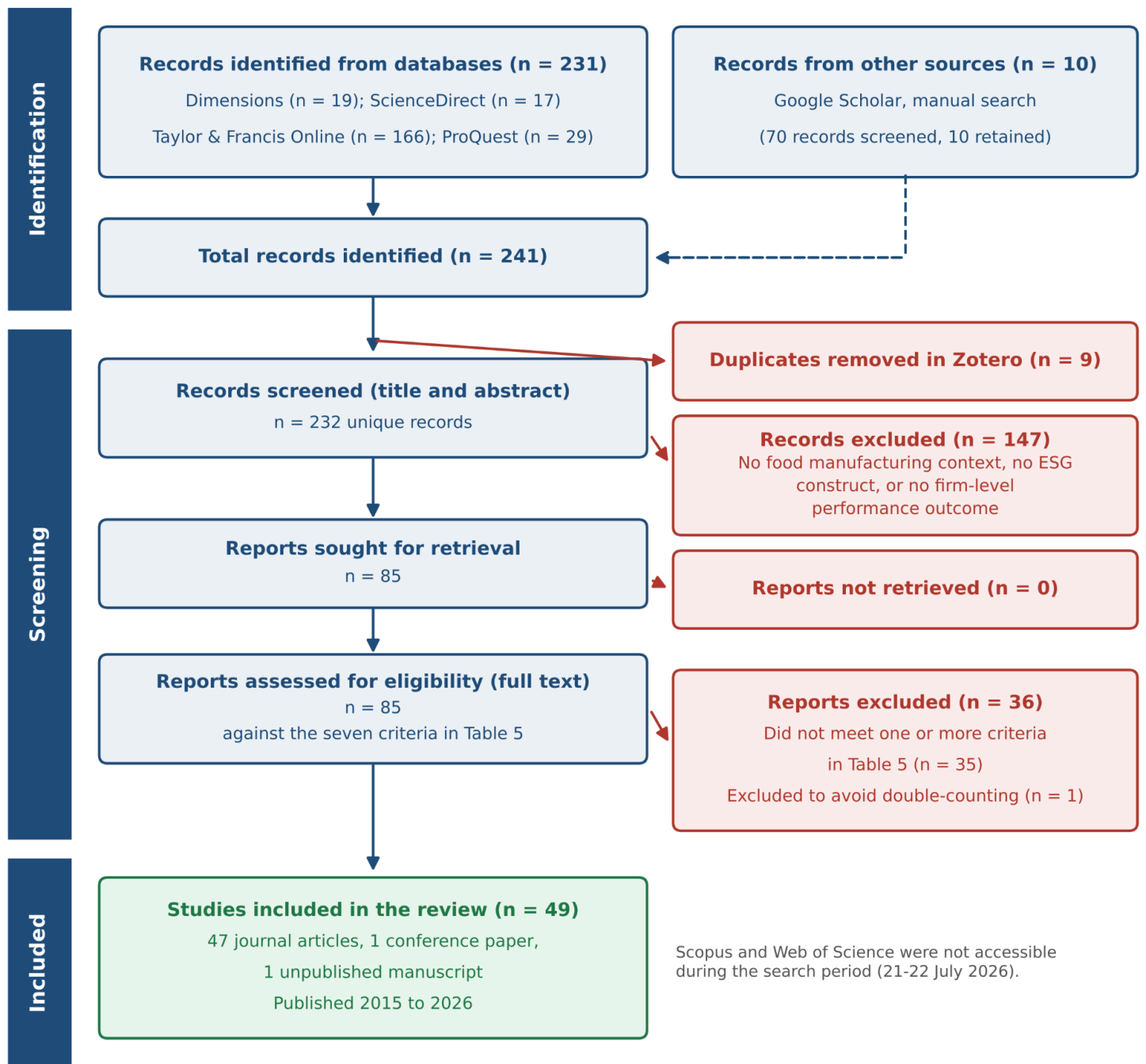


Figure 1

PRISMA 2020 flow diagram for the systematic literature review (Page et al., 2021).

Annual Distribution of Reviewed Studies (n = 49)

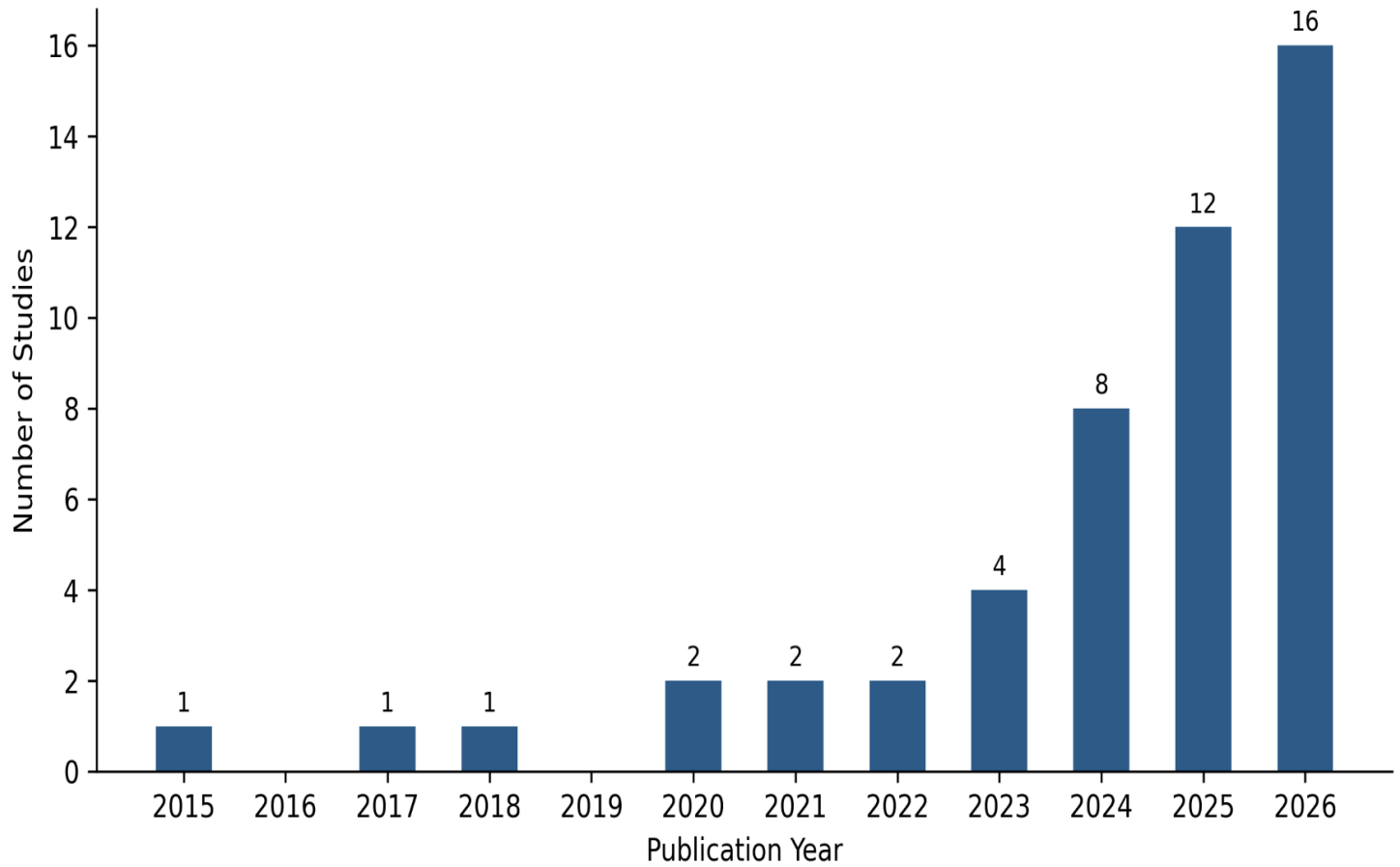


Figure 2

Annual distribution of publications on ESG practices and sustainable performance in food manufacturing firms (n = 49).

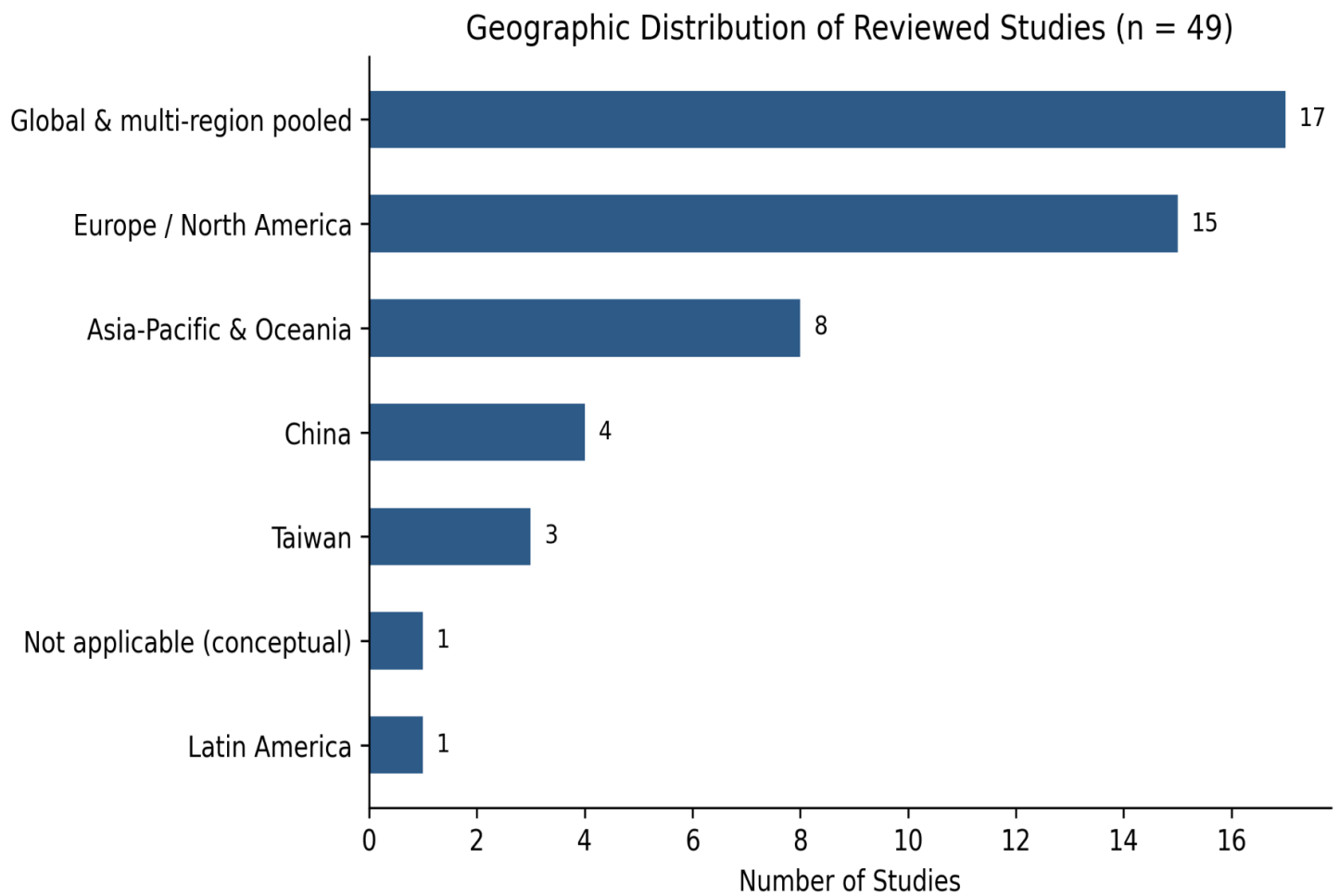


Figure 3

Geographic distribution of reviewed studies by regional cluster (n = 49). Studies spanning more than one region are counted under their primary analytical focus.

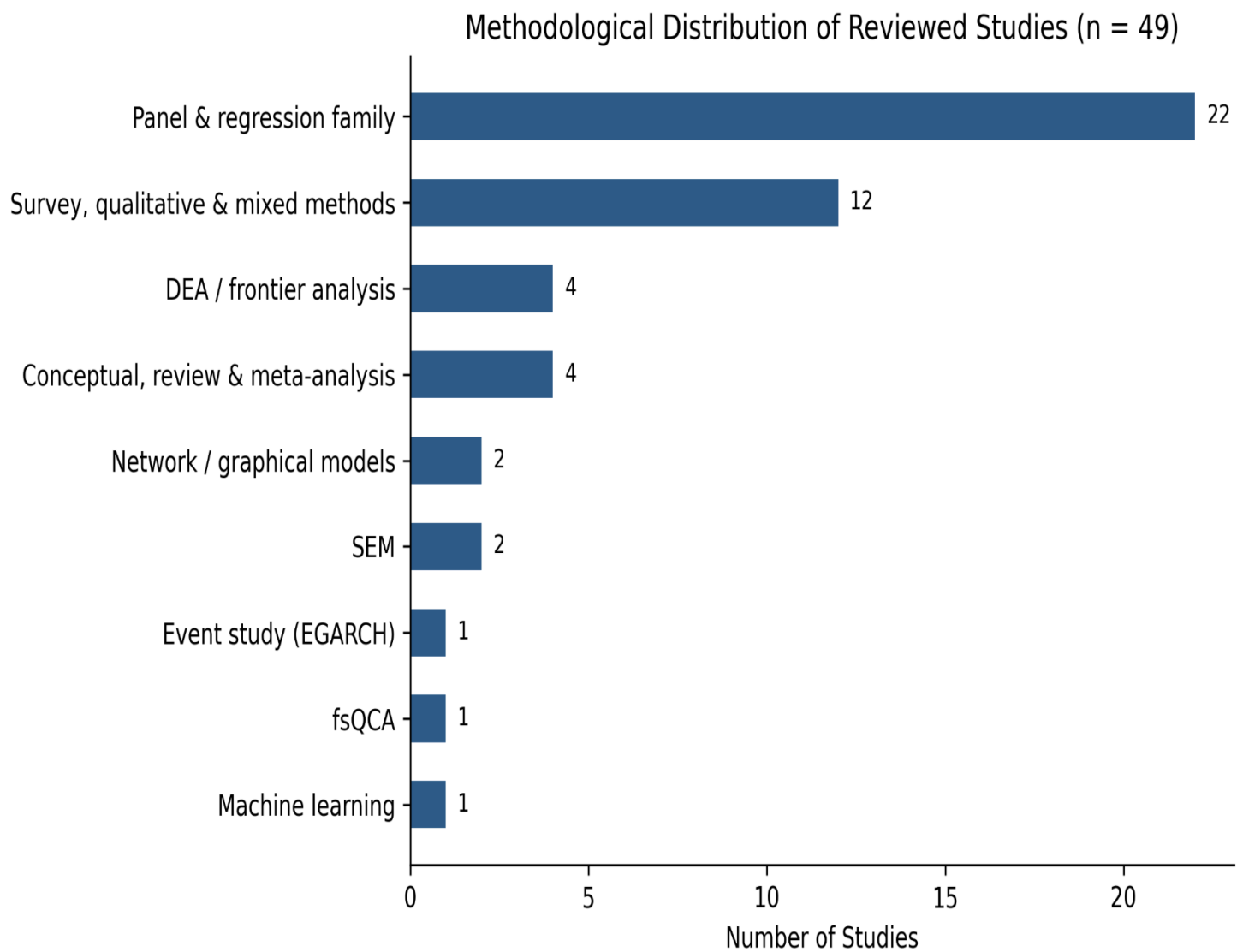


Figure 4

Methodological distribution of reviewed studies by analytical approach (n = 49).

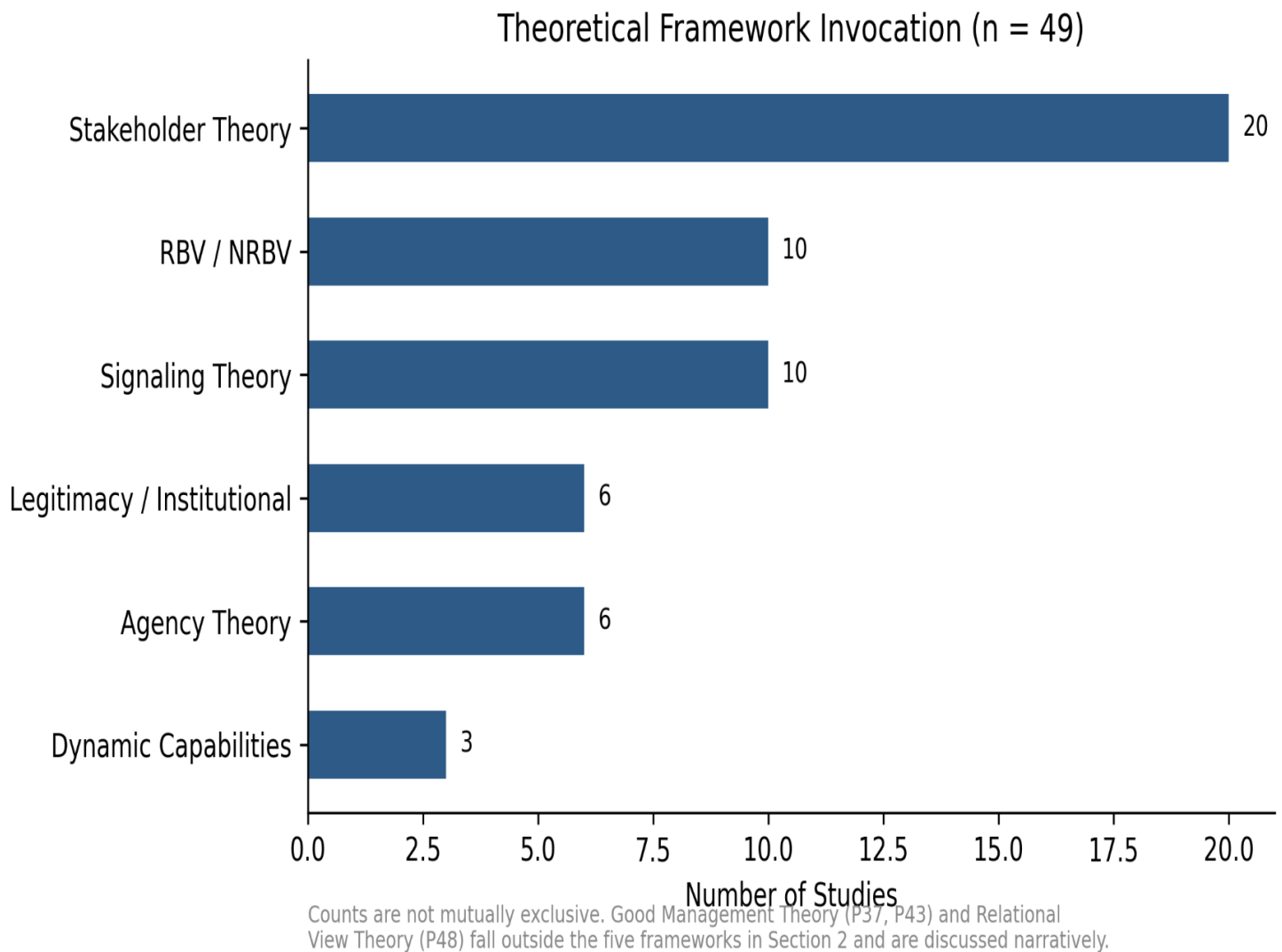


Figure 5

Frequency of theoretical framework invocation across reviewed studies (n = 49). Counts are not mutually exclusive, as studies frequently invoke more than one framework. Good Management Theory and Relational View Theory fall outside the five frameworks evaluated in Section 2 and are discussed narratively rather than charted.

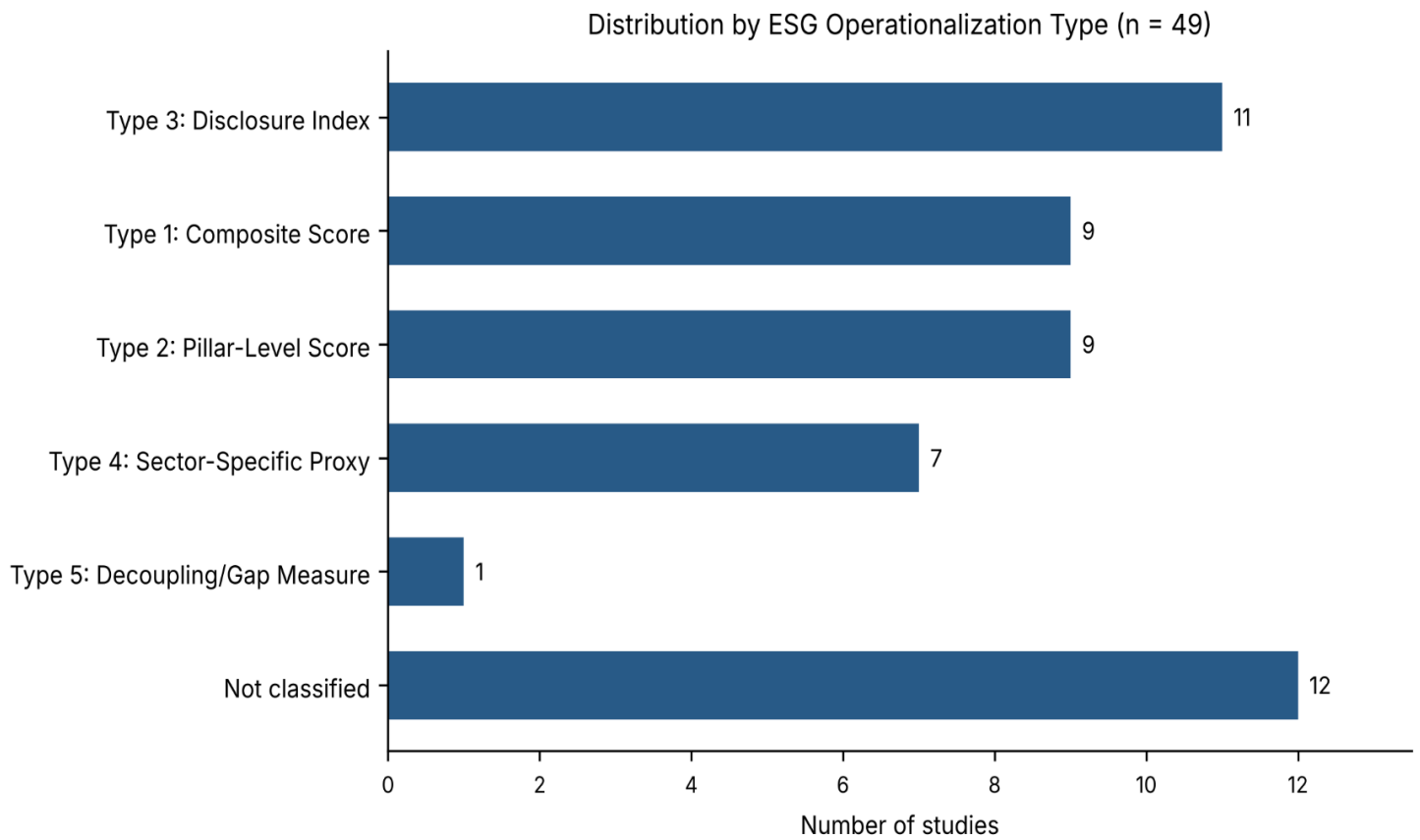


Figure 6

Distribution of reviewed studies by ESG Operationalization Type (n = 49). Twelve studies are not classified: conceptual, review, and meta-analytic papers, studies modeling ESG solely as a mediator, and studies using no formal ESG measure as an independent variable.

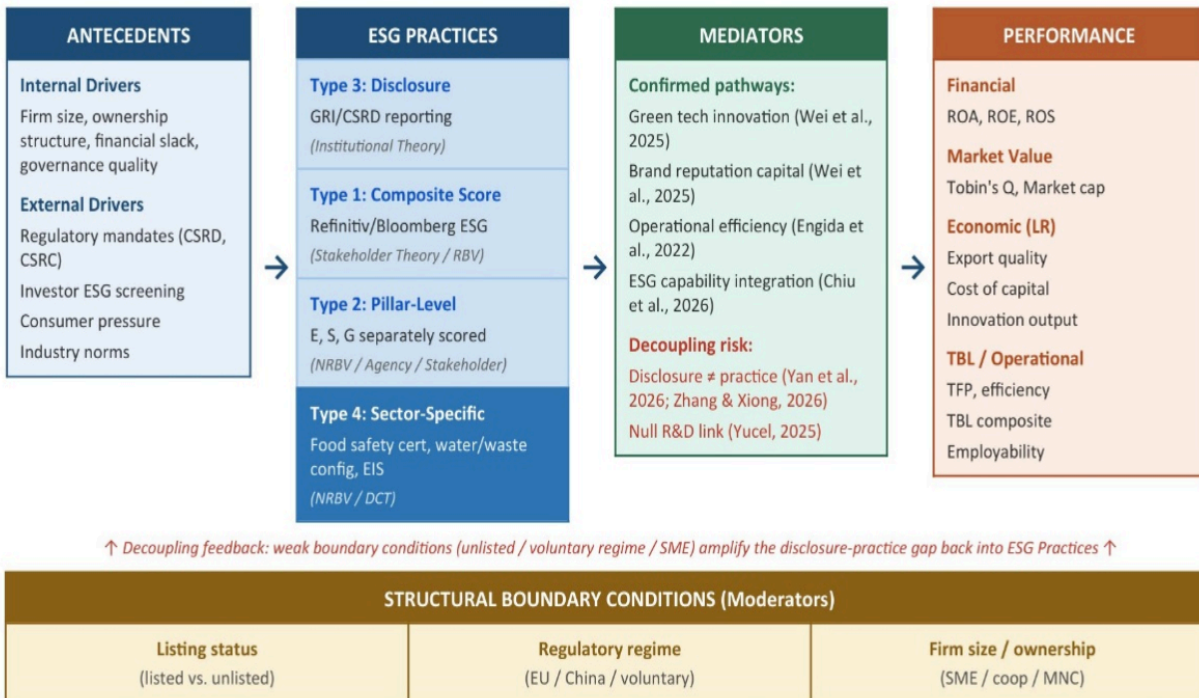


Figure 7

Conceptual framework of structural relationships among antecedents, ESG practices, mediating mechanisms, sustainable performance outcomes, and boundary conditions in food manufacturing firms. Solid arrows represent confirmed causal pathways; dashed red arrows indicate the decoupling risk documented across multiple studies in the corpus. Theoretical labels indicate which framework principally explains each component.