

# Do Environmental Certifications Buy Global Market Access? Certification Signaling, Buyer Dependence, and Export Performance of Bangladeshi Suppliers

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## Abstract

**Purpose:** This study investigates whether environmental certifications “buy” global market access and identifies the mechanisms and boundary conditions through which certifications affect export performance.

**Design/methodology/approach:** Using firm-level data from export-oriented suppliers and partial least squares structural equation modeling (PLS-SEM) with bootstrapped inferences, we estimate direct, mediated, and moderated effects of certification portfolios on three outcomes: new buyer acquisition, order continuity, and price premium.

**Findings:** Certifications have strong direct effects on all three outcomes. Indirect effects operate primarily through buyer trust and relational switching costs—mechanisms that convert certification signals into stable orders and defensible margins. Audit burden does not consistently mediate performance, suggesting that certifications create value by reshaping relational conditions rather than reliably lowering procedural frictions. Two contingencies are salient: a higher EU export share amplifies certification returns across outcomes, while buyer concentration improves continuity but compresses price premium, revealing a trade-off between stability and rent appropriation.

**Practical implications:** Managers should align certification portfolios with the credential demands of target markets (notably the EU), embed certification signals into screening and tender processes, and deepen onboarding routines to raise switching costs. Audit operations require dedicated excellence rather than reliance on certification spillovers. Diversified buyer portfolios help preserve pricing power.

**Originality/value:** The study quantifies multi-channel value creation from certifications, distinguishes relational from procedural mechanisms, and identifies market contingencies that explain heterogeneous returns.

**Keywords:** Environmental Certification; Export Performance; Buyer Trust; Switching Costs; Audit Burden; EU Market Exposure; Buyer Concentration; PLS-SEM; Global Value Chains.

## 1. Introduction

In global value chains, environmental certifications are increasingly treated as a prerequisite for participation rather than an optional add-on. Certifications such as the Global Organic Textile Standard (GOTS), ISO 14001, and Leadership in Energy and Environmental Design (LEED) attest that suppliers have adopted verifiable environmental management and sustainability practices. This matters because regulatory stringency and stakeholder expectations around sustainability have intensified in many destination markets. Prior empirical work links certification ownership with improved market performance and competitive advantage, particularly for manufacturers seeking to enter or expand in foreign markets (Xu et al., 2018; Sam and Song, 2022).

Beyond compliance, certifications function as information devices. Buyers typically face information asymmetry: they cannot directly observe a supplier’s environmental practices and management quality before contracting. Signaling theory argues that third-party certifications can mitigate this problem by providing a credible signal of unobservable attributes, thereby reducing uncertainty in purchasing decisions (Spence, 1973). Complementarily, institutional theory emphasizes that certifications confer legitimacy within specific markets and reduce the perceived risk of sourcing from suppliers operating in settings with uneven enforcement (Salim et al., 2018; Saizarbitoria et al., 2019). Taken together, these perspectives suggest that certifications can create value by enabling recognition and acceptance in international markets.

Research also highlights that certifications can reshape buyer–supplier governance through relational and procedural channels. Certifications can strengthen buyer trust by reassuring buyers that suppliers meet environmental and process standards, which may support longer-term collaboration (Ma et al., 2020). Certifications may also interact with auditing. In some cases, third-party assurance can substitute for repeated buyer audits; in other cases, certifications can introduce additional documentation and audit cycles that increase operational burden for suppliers. Finally, certifications can raise switching costs by embedding relationship-specific routines and investments: buyers may hesitate to switch away from certified suppliers if substitution threatens compliance status or reputational standing (Gee et al., 2019; Todaro et al., 2019).

These effects are likely contingent on institutional and market conditions. For example, stricter environmental provisions and disclosure expectations in the European Union can amplify the perceived value of certification signals (Schleifer and Sun, 2020; Marschlich and Hurtado, 2025). At the same time, supplier performance outcomes may vary with buyer concentration. In concentrated portfolios, powerful buyers can stabilize order flows but also constrain suppliers' ability to appropriate rents through price premia (Feng et al., 2019; Lepkowska-White et al., 2022).

Despite a growing literature, evidence remains limited in supplier-country settings—especially in developing economies such as Bangladesh, where export sectors face strong external compliance pressures but operate under local constraints. Bangladesh's textile/apparel and leather industries are particularly suitable for examining the certification–performance nexus because they are export-intensive and frequently targeted by sustainability requirements in global sourcing. Yet relatively few studies have tested how certifications translate into export outcomes through relational mechanisms (trust, switching costs) and procedural mechanisms (audit burden), while simultaneously accounting for institutional exposure (EU export share) and buyer dependence dynamics (buyer concentration) in this context (Sugiura and Oki, 2018).

Accordingly, this study examines whether environmental certifications “buy” global market access for Bangladeshi suppliers and through which pathways. It models three export performance outcomes—new buyer acquisition, order continuity, and price premium—while testing the mediating roles of buyer trust, audit burden, and switching costs, and the moderating roles of EU export exposure and buyer concentration.

### 1.1. Objectives

- Examine the role of environmental certifications in facilitating new buyer acquisition among Bangladeshi exporters.
- Assess how certifications contribute to order continuity and stability of relationships with existing buyers.
- Analyze whether certifications enable firms to secure price premiums in international markets.

## 2. Theoretical Background and Hypotheses Development

### 2.1. The paper should have the following structure

Signaling theory posits that, under information asymmetry, credible third-party signals allow buyers to infer unobservable supplier attributes (Spence, 1973). Environmental certifications such as ISO 14001 and GOTS can therefore operate as standardized signals of environmental stewardship and management quality, particularly where buyers cannot independently verify supplier practices (Berliner and Prakash, 2013; Keller et al., 2013). Based on this logic, we expect a positive association between certification portfolios and export performance outcomes.

H1a: Certification portfolio positively influences new buyer acquisition.

H1b: Certification portfolio positively influences order continuity.

H1c: Certification portfolio positively influences price premium.

### 2.2. Certification and buyer–supplier governance mechanisms

In global supply chains, certifications can influence governance by fostering trust, shaping monitoring arrangements, and altering dependence. Certifications can increase reputational credibility and perceived reliability, which supports trust formation in cross-border exchange (Morgan & Hunt, 1994; Jian & Qin, 2024). Certifications can also affect auditing: they may reduce transaction risks and buyer monitoring intensity but can simultaneously impose documentation and coordination costs on suppliers (Jażdżewska-Gutta et al., 2020). Finally, certifications can create relationship-specific investments and routines that raise switching costs for buyers (Schuster & Maertens, 2015).

H2: Certification portfolio positively influences buyer trust.

H3: Certification portfolio negatively influences audit burden.

H4: Certification portfolio positively influences switching costs.

These governance mechanisms are expected to transmit certification benefits to export outcomes.

H5: Buyer trust, audit burden, and switching costs mediate the relationship between certification portfolio and export performance outcomes (new buyer acquisition, order continuity, and price premium).

### 2.3. Institutional conditions and EU exposure

Institutional theory emphasizes that external regulatory and normative pressures shape the value of certifications. The “California effect” suggests that stringent jurisdictions can diffuse higher standards through trade, incentivizing suppliers to adopt recognized credentials to maintain market access (Vogel, 1995; Bartley, 2011; Makita, 2011). EU markets, characterized by relatively strong environmental regulation and stakeholder scrutiny, should therefore place greater weight on certification signals, strengthening their performance effects (Berliner and Prakash, 2013; Santos and Aguiar, 2019).

H6c: EU export exposure positively moderates the effect of certification portfolio on (a) new buyer acquisition, (b) order continuity, and (c) price premium.

### 2.4. Supply-chain dependence dynamics and buyer concentration

Resource dependence logic implies that concentrated buyer portfolios can create asymmetric bargaining power. Certification may help suppliers stabilize relationships with dominant buyers by meeting compliance thresholds, yet buyer power can limit suppliers' ability to appropriate rents via price premiums. We therefore expect buyer concentration to strengthen continuity while weakening price outcomes.

H6a: Buyer concentration positively moderates the effect of certification portfolio on order continuity.

H6b: Buyer concentration negatively moderates the effect of certification portfolio on price premium.

## 2.5. Conceptual framework

Figure 1 summarizes the conceptual framework, linking certification portfolios to export outcomes through relational (trust, switching costs) and procedural (audit burden) mechanisms, with EU export exposure and buyer concentration as boundary conditions.

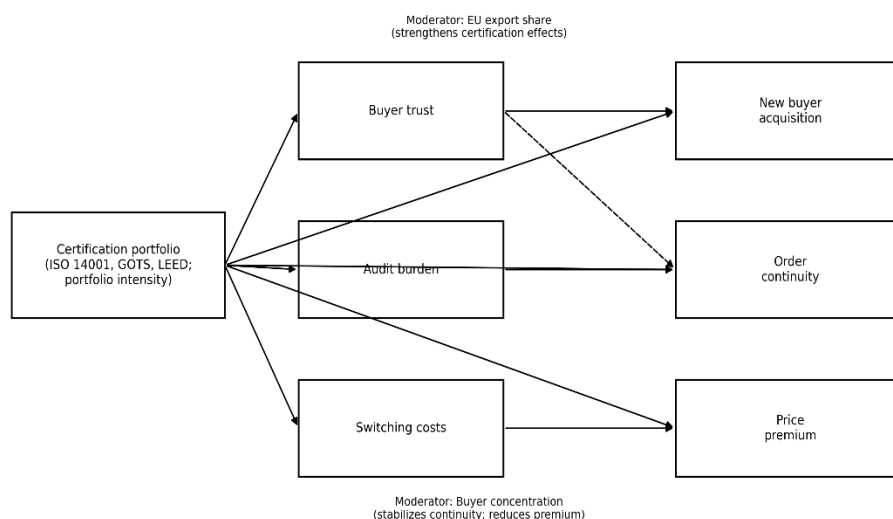


Fig. 1: Conceptual Framework.

## 3. Methodology

### 3.1. Research design

The study adopts a quantitative explanatory design under a positivist paradigm to estimate the effects of environmental certifications on export performance via relational and procedural mechanisms. Partial least squares structural equation modeling (PLS-SEM) is used because the model is prediction-oriented, includes both formative and reflective constructs, and contains multiple mediators and moderators (Hair et al., 2017).

### 3.2. Research context and sampling

The empirical context comprises export-oriented Bangladeshi suppliers in the textile/apparel and leather sectors—industries that face pronounced institutional pressures to demonstrate environmental compliance in global sourcing. Firms were purposively sampled from exporter populations with observable engagement in environmental certification and international buyer relationships. Respondents were senior managers and compliance officers with direct responsibility for certification implementation and buyer coordination.

Given the purposive sampling design and cross-sectional data structure, the findings should be interpreted as explanatory associations rather than causal effects, with generalizability most appropriate to similar export-oriented supplier populations.

### 3.3. Data collection procedures

Data was collected using a structured questionnaire combining objective indicators (e.g., number and type of certifications, export destinations, audit frequency) and perceptual measures (e.g., buyer trust, audit burden, switching costs, and export performance). Perceptual items were measured on five-point Likert scales from “strongly disagree” to “strongly agree.” Measurement items were adapted from established scales to enhance reliability (Morgan & Hunt, 1994; Anderson & Weitz, 1992). The instrument was pretested with industry informants to improve clarity and contextual fit. Participation was voluntary, and informed consent was obtained from all respondents.

### 3.4. Measures and construct operationalization

Certification portfolio was operationalized as a formative index capturing both portfolio intensity and the presence of widely recognized certifications (e.g., ISO 14001, GOTS, LEED). Portfolio intensity reflects the breadth/depth of credentialing across standards, while binary indicators capture market-recognized labels that may have distinct signaling value in buyer screening.

Buyer trust, switching costs, and price premium were modeled as reflective constructs because their indicators are manifestations of a common latent perception (i.e., the items are expected to covary and changes in the construction should be reflected across items). By contrast, certification portfolio and audit burden were modeled formatively because their indicators represent distinct facets that jointly define the construct (e.g., audit frequency, disruption, unannounced audit share). New buyer acquisition and order continuity were also modeled formatively because they aggregate non-interchangeable indicators (e.g., acquisition/attraction/wins; repeat orders/stability/retention) that need not covary, yet together represent the outcome domain.

Control variables included firm size, firm age, export experience, compliance history, and sector classification.

### 3.5. Data analysis

Data analysis was conducted in SmartPLS 4.0 following a two-stage procedure. First, the measurement model was assessed for reliability and validity. Reflective constructs were evaluated using Cronbach’s alpha, composite reliability, and average variance extracted (AVE), alongside discriminant validity via the Heterotrait–Monotrait ratio (HTMT). Formative constructs were evaluated using indicator weights

and multicollinearity diagnostics (VIF). Second, the structural model was estimated to test direct effects, mediation (via bootstrapping with 5,000 resamples), and moderation (via interaction terms).

### 3.6. Ethical considerations

The study adhered to standard research ethics. Respondents were informed about the voluntary nature of participation, confidentiality protection, and the use of aggregated reporting. Institutional clearance was obtained through the authors' internal review procedures appropriate for non-clinical organizational research.

## 4. Results

### 4.1. Measurement model assessment

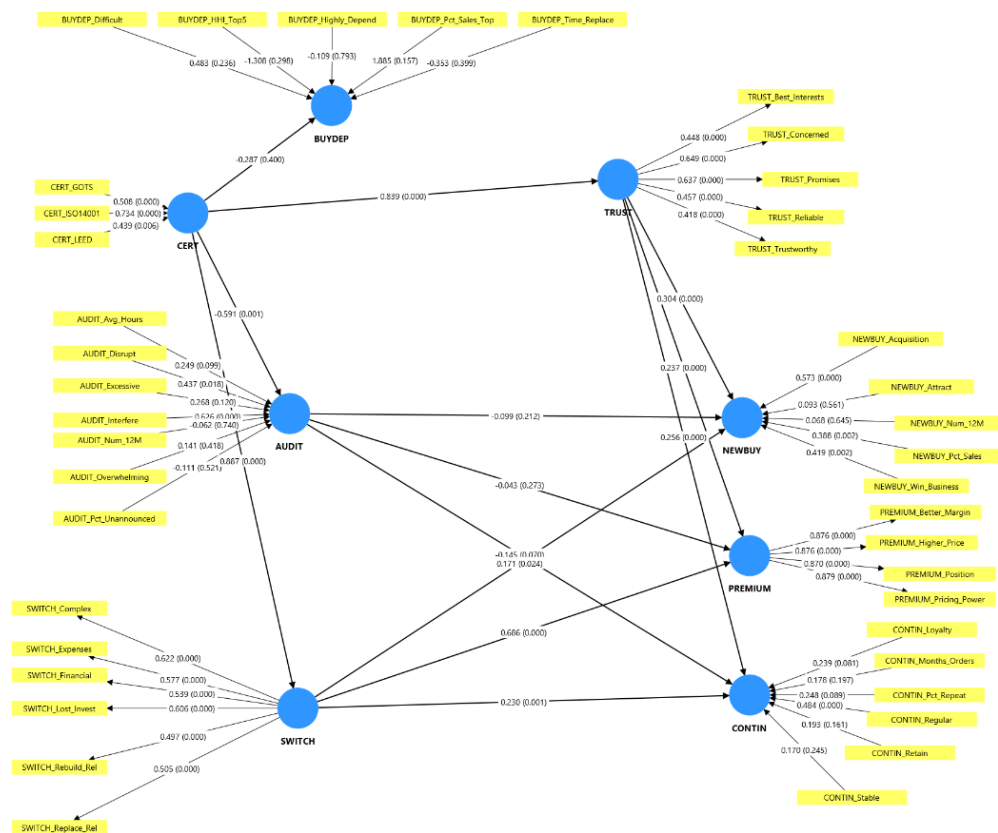
Before estimating the structural relationships, we evaluated the measurement model. Reflective constructs exhibited high internal consistency (Cronbach's alpha > 0.80; composite reliability > 0.85) and convergent validity (AVE > 0.50). Discriminant validity was supported via HTMT values below 0.85 (Table 1). For formative constructs, indicator VIF values were examined; while some exceeded 3.3, this is acceptable in PLS-SEM given the defining nature of formative indicators (Hair et al., 2017).

**Table 1:** Measurement Model Quality Criteria. Note: Certification Portfolio, Audit Burden, New Buyer Acquisition, and Order Continuity Are Modeled as Formative Constructs. for Formative Indicators, VIF Ranged from 1.0 to 11.378

Construct	Cronbach's $\alpha$	Composite Reliability (pc)	AVE	HTMT (Max)
Perceived Buyer Trust	0.848	0.848	0.528	< 0.85
Audit Burden	—	—	—	—
Switching Costs	0.854	0.853	0.456	< 0.85
New Buyer Acquisition	—	—	—	—
Order Continuity	—	—	—	—
Price Premium	0.883	0.883	0.653	< 0.85

### 4.2. Structural model and hypothesis testing

The structural model explains a substantial proportion of variance in export performance outcomes ( $R^2 = 0.561$  for New Buyer Acquisition,  $R^2 = 0.668$  for Order Continuity, and  $R^2 = 0.681$  for Price Premium), indicating strong predictive relevance. Hypotheses were tested using bootstrapping with 5,000 resamples; Table 2 summarizes path coefficients and significant levels.



**Fig. 2:** Structural Equation Model (Standardized Coefficients; P-Values in Parentheses).

H1a–H1c are supported: certification portfolio positively affects new buyer acquisition ( $\beta = 0.466$ ,  $p < 0.001$ ), order continuity ( $\beta = 0.504$ ,  $p < 0.001$ ), and price premium ( $\beta = 0.833$ ,  $p < 0.001$ ).

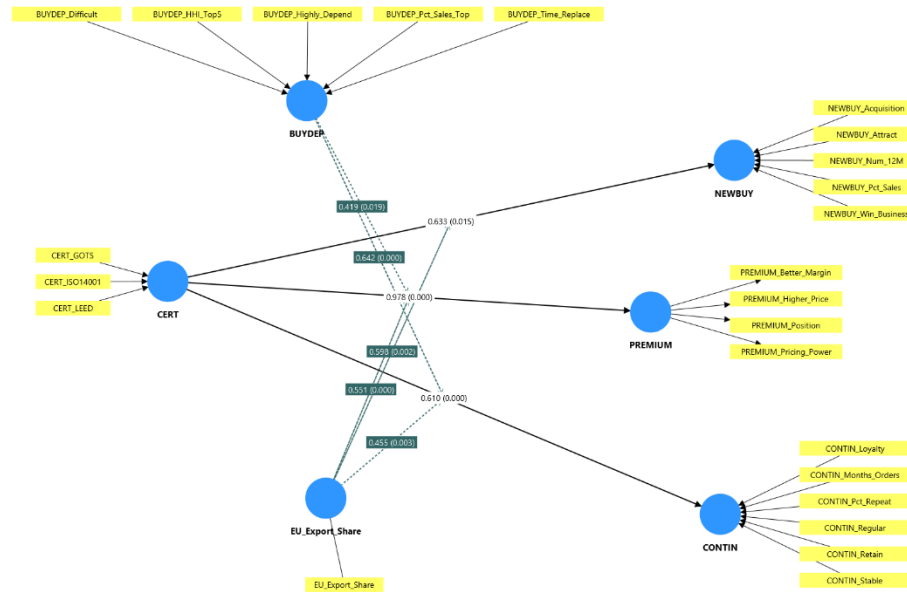
H2–H4 are supported: certification portfolio increases buyer trust ( $\beta = 0.839$ ,  $p < 0.001$ ) and switching costs ( $\beta = 0.887$ ,  $p < 0.001$ ), and reduces audit burden ( $\beta = -0.591$ ,  $p = 0.001$ ).

### 4.3. Mediation and moderation effects

Mediation analysis indicates that buyer trust and switching costs are robust mediators across outcomes. Indirect effects through audit burden are weak and, in most cases, statistically indistinguishable from zero.

Trust mediation is significant for continuity ( $\beta = 0.256$ ,  $p < 0.001$ ), acquisition ( $\beta = 0.304$ ,  $p < 0.001$ ), and price premium ( $\beta = 0.237$ ,  $p < 0.001$ ). Switching-cost mediation is significant for continuity ( $\beta = 0.230$ ,  $p = 0.001$ ), acquisition ( $\beta = 0.171$ ,  $p = 0.024$ ), and price premium ( $\beta = 0.686$ ,  $p < 0.001$ ).

Audit-burden mediation is not consistently supported. The indirect effect on continuity is marginal ( $\beta = -0.145$ ,  $p = 0.070$ ), while indirect effects on acquisition ( $p = 0.212$ ) and price premium ( $p = 0.273$ ) are not significant. Accordingly, audit burden is treated as an unstable mediator.



**Fig. 3:** Moderation Effects of Buyer Concentration and EU Export Share on Certification–Export Performance Relationships. Note: Solid Lines Indicate Direct Paths; Dashed Lines Indicate Interaction Effects.

**Table 2:** Structural Model Path Coefficients and Hypothesis Testing (Bootstrapping with 5,000 Resamples)

Hypothesis	Path	$\beta$	t-value	p-value
H1a	Certification → New Buyer Acquisition	0.466	4.987	<0.001
H1b	Certification → Order Continuity	0.504	5.421	<0.001
H1c	Certification → Price Premium	0.833	6.767	<0.001
H2	Certification → Buyer Trust	0.839	5.971	<0.001
H3	Certification → Audit Burden	-0.591	3.426	0.001
H4	Certification → Switching Costs	0.887	6.155	<0.001
H5a	CERT → TRUST → CONTIN	0.256	3.491	<0.001
H5b	CERT → TRUST → NEWBUY	0.304	3.608	<0.001
H5c	CERT → TRUST → PREMIUM	0.237	6.401	<0.001
H5d	CERT → AUDIT → CONTIN	-0.145	1.809	0.070
H5e	CERT → AUDIT → NEWBUY	-0.099	1.247	0.212
H5f	CERT → AUDIT → PREMIUM	-0.043	1.096	0.273
H5g	CERT → SWITCH → CONTIN	0.230	3.271	0.001
H5h	CERT → SWITCH → NEWBUY	0.171	2.262	0.024
H5i	CERT → SWITCH → PREMIUM	0.686	25.562	<0.001
H6a	BUYDEP × CERT → Order Continuity	0.642	3.585	<0.001
H6b	BUYDEP × CERT → Price Premium	0.419	2.339	0.019
H6c	EU × CERT → Order Continuity	0.455	3.009	0.003
H6c	EU × CERT → New Buyer Acquisition	0.598	3.076	0.002
H6c	EU × CERT → Price Premium	0.551	3.534	<0.001

Moderation results show that buyer concentration strengthens the certification effect on order continuity ( $\beta = 0.642$ ,  $p < 0.001$ ) but weakens price premium ( $\beta = 0.419$ ,  $p = 0.019$ ). EU export exposure strengthens certification effects on order continuity ( $\beta = 0.455$ ,  $p = 0.003$ ), new buyer acquisition ( $\beta = 0.598$ ,  $p = 0.002$ ), and price premium ( $\beta = 0.551$ ,  $p < 0.001$ ).

## 5. Discussion

This study examined whether environmental certifications “buy” global market access for Bangladeshi suppliers and identified the mechanisms and boundary conditions through which certifications translate into export performance. The results show sizeable direct payoffs from certification portfolios for new buyer acquisition, order continuity, and price premium. Interpreted through signaling theory, certifications act as credible third-party signals that travel across borders and mitigate information asymmetries at supplier screening and contracting stages (Spence, 1973). In parallel, institutional theory suggests these signals matter most where environmental expectations are codified and enforced, consistent with the observed amplification under higher EU export exposure (Vogel, 1995; Schleifer and Sun, 2020). Mechanism tests clarify how these payoffs materialize. First, certifications significantly elevate perceived buyer trust, consistent with relationship marketing research that treats trust as a central governance resource in inter-organizational exchange (Morgan & Hunt, 1994). Trust then transmits benefits to all three export outcomes. This pattern supports the view that certifications do more than satisfy compliance:

they reshape buyer beliefs about supplier reliability and integrity, lowering perceived transaction risk and accelerating qualification and onboarding.

Second, switching costs emerge as a powerful conduit—especially for price premia. The strength of this pathway aligns with arguments about relationship-specific investments and co-specialization: once a buyer has qualified a certified supplier and integrated procedures, documentation routines, and tacit coordination, replacement becomes costly and risky. Certifications appear to catalyze this lock-in by standardizing processes and deepening interdependence, enabling suppliers to defend margins and negotiate premium positioning even in competitive export categories.

By contrast, audit burden does not consistently mediate certification benefits. While certifications are associated with lower audit burden directly, the indirect effects through audit burden are weak and largely non-significant. This nuance is theoretically coherent: in some chains, third-party assurance substitutes for buyer monitoring; in others, certifications are layered on top of buyer audits, limiting the extent to which suppliers experience operational relief. Practically, this implies that suppliers should not over-attribute expected gains to “audit relief.” Instead, they should treat audit readiness as an ongoing operating capability and focus on extracting relational value through trust-building and the creation of switching costs.

Boundary conditions reveal a trade-off characteristic of dependence dynamics. EU export exposure consistently amplifies certification returns across acquisition, continuity, and premium outcomes, underscoring the importance of matching certification portfolios to destination-market credential demands. Buyer concentration, however, stabilizes continuity while compressing price premia, reflecting the bargaining power of dominant buyers in concentrated portfolios. For managers, this implies that certification strategy should be paired with portfolio strategy: certifications can help secure anchor accounts and stabilize orders, but diversification remains critical for preserving pricing latitude.

These findings contribute to the literature in three ways. First, they quantify multi-channel value creation from certifications by combining direct effects with mediated effects through trust and switching costs. Second, they distinguish relational mechanisms (trust and lock-in) from procedural frictions (audit burden), showing that the former are the primary drivers of performance benefits. Third, they identify institutional exposure (EU share) and buyer concentration as contingencies that help explain heterogeneous certification returns observed in prior work.

Managerial and policy implications follow. At the firm level, exporters should (i) align certification portfolios with target-market requirements, with particular attention to EU buyers; (ii) integrate certifications into commercial routines (tender documentation, supplier portals, and pre-qualification dossiers) so signals are visible at decision points; and (iii) deepen onboarding routines (shared SOPs, joint corrective-action processes, and integrated documentation hubs) to increase relational switching costs and defend margins. Textile/apparel exporters may prioritize certifications linked to buyer compliance and sustainability reporting, whereas leather exporters—often face heightened scrutiny over chemical management and traceability—may benefit from pairing environmental certification with stronger process documentation and audit scheduling discipline.

At the institutional level, industry bodies and public agencies (e.g., BGMEA, BSCI offices, and the Export Promotion Bureau) can improve certification effectiveness by offering targeted training, subsidized audit preparation support for SMEs, and shared compliance infrastructure (standardized documentation templates, auditor-readiness toolkits). Policy attention to audit harmonization and interoperability across standards could reduce duplicative auditing and deadweight compliance costs without diluting the informational value buyers seek.

## 6. Conclusion

This study investigated whether environmental certifications translate into global market access and export performance for Bangladeshi suppliers, and through which mechanisms these effects operate. Certification portfolios exhibit sizeable direct effects on new buyer acquisition, order continuity, and price premium. Indirect effects operate primarily through buyer trust and switching costs, indicating that certifications create value mainly by reshaping buyer–supplier relational conditions rather than by reliably reducing procedural frictions. Limitations should be noted. The design is cross-sectional and based on a purposive sample of export-oriented firms, which constrains causal inference and broader generalization beyond comparable supplier populations. The analysis also does not isolate the relative contribution of individual certificate attributes (e.g., assurance intensity, scope, and credibility differences across schemes).

Future research could strengthen identification through panel designs around certification adoption events, buyer turnover shocks, or regulatory changes in destination markets. Additional work could also examine how emerging digital traceability and sustainability reporting tools complement or substitute for traditional certifications in shaping trust and switching-cost dynamics.

In sum, environmental certifications can “buy” global market access, but their strongest returns arise through relational mechanisms—making supplier promises credible and embedding routines that are costly to replace—especially when matched to stringent destination markets and managed within buyer portfolios that preserve bargaining power.

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