

Varieties of Capitalism and ESG Disclosure Quality: A Four-Country Panel Analysis of Institutional Pressures and Legitimacy-Seeking

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ABSTRACT

While companies around the world are converging to global standards on ESG reporting like GRI, TCFD and ISSB, we still do not know how different varieties of capitalism (VoC), i.e., Liberal Market Economies (LME), Coordinated Market Economies (CME), and Hybrid economies, respond to external institutional pressures to disclose this information. The study integrates Institutional Theory, VoC Theory, and Legitimacy Theory to examine the quality of ESG disclosures by 200 companies across the USA, UK, Japan, and India from 2020 to 2023. A detailed panel regression analysis revealed that UK firms (LME) achieve the highest disclosure quality (37.44), significantly exceeding India (29.32, $p < 0.001$), while USA (29.05) and Japan (31.98) show intermediate levels. The study also finds that India's BRSR mandate (2022) produced the largest improvement (+7.75 points, $p = 0.0013$), confirming that coercive pressure has the strongest effect in Hybrid economies. However, in LME countries, voluntary standards are more effective. Further, 65% of LME companies make substantive disclosures, compared with 28% of Hybrid companies. In India, 42% of companies exhibit symbolic disclosure patterns. Cross-country convergence is occurring: India showed the largest improvement (+10.4 points, 2020-2023), narrowing but not eliminating the gap with developed economies. The study contributes in three ways: (i) it empirically tests the VoC theory in the context of ESG disclosure, (ii) establishes India as an "emerging hybrid" ESG disclosure type, and (iii) companies' responses across economies vary to pressures to disclose ESG information. The findings suggest that standard-setters should not impose a one-size-fits-all approach; instead, they should develop context-specific enforcement mechanisms, especially for emerging markets.

Keywords: ESG disclosure, Varieties of Capitalism, Institutional Theory, Legitimacy Theory, India, Symbolic disclosure

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1. INTRODUCTION

The global Environmental, Social, and Governance (ESG) disclosure standards, i.e., from the Global Reporting Initiative (GRI) to the Task Force on Climate-related Financial Disclosures (TCFD) and the newly established International Sustainability Standards Board (ISSB), represents a singular institutional force reshaping corporate transparency

worldwide. Despite this standardization effort, empirical evidence reveals conspicuous variation in disclosure quality across countries (Singhania & Saini, 2023). Is this variation merely a function of economic development, or do deeper institutional structures, the varieties of capitalism themselves, fundamentally shape how firms respond to ESG pressures?

Theoretically, scholars have applied Institutional Theory (DiMaggio & Powell, 1983), Varieties of Capitalism (VoC) frameworks (Hall & Soskice, 2001), and Legitimacy Theory (Suchman, 1995) to explain corporate social responsibility (CSR) and ESG phenomena, yet these lenses have rarely been integrated in cross-national empirical research. Prior work comparing Liberal Market Economies (LMEs) like the US and UK with Coordinated Market Economies (CMEs) like Germany and Japan has focused primarily on corporate governance structures (Jackson & Apostolakou, 2010), leaving ESG disclosure quality unexplored. Furthermore, the rise of emerging market economies, which fit neither the LME nor CME archetypes, presents an empirical puzzle that existing frameworks struggle to address.

India, the world's fifth-largest economy, with a unique institutional configuration combining state capitalism, family-controlled conglomerates, and significant foreign institutional investment, represents what we term an "emerging hybrid" variety of capitalism. In 2022, India's Securities and Exchange Board (SEBI) mandated Business Responsibility and Sustainability Reporting (BRSR) for the top 1,000 listed companies, creating a natural experiment in coercive institutional pressure. How do Indian firms respond to this mandate compared to firms in established LME and CME contexts? Do they engage in substantive disclosure backed by data and external assurance, or symbolic disclosure characterized by commitments without evidence, what critics call "greenwashing" (Lyon & Maxwell, 2011)?

Existing literature reveals four critical gaps. First, no visible study has integrated Institutional Theory, Varieties of Capitalism (VoC), and Legitimacy Theory to explain ESG disclosure patterns. Second, India remains underrepresented in cross-national CSR research, appearing mainly in single-country studies that cannot assess comparative institutional effects (Tilt, 2016). Third, most studies employ cross-sectional designs, missing the temporal dynamics as countries adopt mandatory disclosure regimes. Fourth, the symbolic versus substantive disclosure distinction, while theoretically prominent (Marquis & Qian, 2014), has rarely been tested across VoC types.

The current study addresses all four gaps by examining ESG disclosure quality in 200 firms across four countries representing three VoC types: USA and UK (LME), Japan (CME), and India (Hybrid), spanning 2020-2023. Our panel of 817 firm-years captures critical regulatory transitions including India's BRSR mandate (2022) and UK's TCFD mandate (2021), enabling to test how different institutional contexts mediate responses to institutional pressures.

Hence, this study postulates three research questions: (1) How do VoC type (LME, CME, and Hybrid) differ in ESG disclosure quality? (2) Do different forms of institutional

pressure (coercive, normative, mimetic) have varying effects across VoC contexts? (3) Do VoC types predict symbolic versus substantive disclosure patterns?

Our findings suggest that VoC systems interact with regulatory enforcement mechanisms rather than exerting a simple direct hierarchy. While UK LME firms exhibit higher raw mean quality scores (37.44), multivariate analysis controlling for firm-level framework complexity demonstrates that institutional classification alone does not guarantee higher quality. Indeed, US LME firms score lower relative to India's baseline when controlling for complexity ($\beta = -4.57$, $p < 0.001$), highlighting that voluntary institutional settings without mandatory enforcement mechanisms may yield variable disclosure quality. Further, we document that 42% of Indian firms engage in symbolic disclosure (net-zero claims without scope emissions data or external assurance) compared to only 18% of US firms, validating Legitimacy Theory's prediction that weak enforcement enables decoupling. Finally, we show convergence is occurring but remains path-dependent: between-country variance declined from 69.7% to 56.4%, yet each VoC type follows distinct trajectories.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Varieties of Capitalism and Corporate Disclosure

Hall and Soskice's (2001) seminal framework distinguishes Liberal Market Economies (LME) from Coordinated Market Economies (CME) based on how firms solve coordination problems. In LME countries, firms coordinate primarily through hierarchies and competitive markets, with arm's-length relationships between firms, banks, and employees. Dispersed shareholders demand transparency, creating strong disclosure norms. In CME countries, firms coordinate through non-market relationships, relational contracting, and industry associations, with capital from long-term bank relationships and stakeholder-oriented governance.

Jackson and Apostolakou (2010) applied VoC to corporate social responsibility (CSR), demonstrating that LME firms pursue explicit CSR through formal reporting and public commitments, while CME firms engage in implicit CSR embedded in stakeholder relationships. Their European study revealed that institutional context, rather than mere firm characteristics, determines CSR approaches. We extend this logic to ESG disclosure quality: LME firms face investor pressure for substantive, verified disclosure, while CME firms face coordinated industry standards. However, what of emerging markets?

India, unlike LMEs, features a distinctive institutional configuration: dispersed ownership, rather than family-controlled business groups, which account for significant market capitalisation. Similarly, unlike CME's patient capital, India's equity markets are volatile, with substantial foreign institutional investor (FII) participation. Unlike both, India exhibits strong state ownership in the banking and infrastructure sectors. This "emerging hybrid" configuration combines elements of state capitalism (Lin et al., 2021), family capitalism (Steier, 2009), and market capitalism, creating institutional complexity (Luo et al., 2017). Hence, we hypothesize:

H1a: LMEs (US/UK) will demonstrate higher ESG disclosure quality than Hybrid economies (India).

H1b: CMEs (Japan) will demonstrate disclosure quality between LME and Hybrid economies.

2.2 Institutional Pressures and Disclosure Response

DiMaggio and Powell's (1983) institutional isomorphism framework presents three mechanisms through which organizational fields become homogeneous: coercive (regulatory pressure), normative (professional standards), and mimetic (peer imitation under uncertainty). Expanding to ESG disclosure, coercive pressure manifests in mandatory reporting regimes (India's BRSR 2022, UK's TCFD 2021), normative pressure in voluntary standard adoption (GRI, TCFD), and mimetic pressure in peer benchmarking. Typically, the effectiveness of institutional pressure may vary by VoC type. In Hybrid economies with weak enforcement capacity, coercive pressure may necessitate the use of voluntary mechanisms, as firms lack either investor pressure (LME) or coordinated industry norms (CME) to drive disclosure. Singhania and Saini (2023) found that regulatory strength predicts disclosure quality across 20 countries, with India showing high regulatory ambition but low enforcement. Whereas, in the case of LMEs, the investor scrutiny is intense, voluntary standards may suffice or even exceed mandates, signalling firms' quality to capital markets (Mahoney et al., 2013).

The 2020-2024 period offers a natural experiment because India implemented BRSR mandates (April 2022), the UK mandated TCFD-aligned disclosure (January 2021), while the USA maintained largely voluntary frameworks pending SEC climate rules. However, if coercive pressure matters most in Hybrid contexts, India should show the largest pre-post improvement. Similarly, if normative pressure dominates in LME, US firms should respond strongly to voluntary TCFD adoption without mandates. So, we hypothesize:

H2a: Coercive institutional pressure, i.e., mandatory disclosure, will have the strongest effect on disclosure quality in Hybrid economies.

H2b: Normative institutional pressure, the voluntary standard adoption, will have the strongest effect in LME economies.

H2c: Mimetic institutional pressure of peer effects will operate across all VoC types but with varying magnitude.

2.3 Legitimacy Theory: Symbolic versus Substantive Disclosure

Legitimacy, according to Suchman (1995), is "a generalized perception that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms." In other words, firms facing legitimacy threats engage in strategic disclosure to manage stakeholder perceptions. However, the concept of decoupling (Meyer & Rowan, 1977), organizations adopt formal structures (like ESG reports) to gain legitimacy without changing core operations, a phenomenon now termed "greenwashing" (Bothello et al., 2023, Yu et al., 2020, Graafland and Smid, 2016).

As demonstrated empirically in China (Marquis & Qian, 2014), stronger institutional pressure led to more disclosure but not better environmental performance, i.e., symbolic rather than substantive responses. We distinguish these constructs as *symbolic disclosure* features, commitments, targets, and frameworks, each lacking supporting data or external verification. In contrast, *substantive disclosure* includes external assurance, scope 1, 2, and 3 emissions data, and specific, dated targets.

Furthermore, integrating VoC context onto symbolic versus substantive patterns, LMEs investor scrutiny and potential litigation risk incentivize substantive disclosure and symbolic disclosure gets punished by capital markets. Similarly, in Hybrid economies with weak enforcement and limited investor activism, symbolic disclosure offers legitimacy benefits without compliance costs. Whereas, in CMEs, industry coordination may produce moderate substantive disclosure through peer monitoring. Prior research supports this logic, emerging markets consistently find symbolic disclosure exceeds substantive disclosure (Khan et al., 2013; Kuzey & Uyar, 2017), while LME studies document higher assurance rates and data quality (Cho et al., 2015). We hypothesize:

H3a: *LME's firms will demonstrate higher rates of substantive disclosure (assurance + emissions data) than Hybrid firms.*

H3b: *Hybrid economic firms will demonstrate higher rates of symbolic disclosure (commitments without data) than LME firms.*

H3c: *CME firms will demonstrate moderate substantive disclosure rates, positioned between LME and Hybrid economies.*

3. INSTITUTIONAL CONTEXTS: FOUR COUNTRIES COMPARED

Understanding our findings requires appreciating institutional differences across select four countries. Table 1 summarizes key dimensions:

Table 1: Institutional Characteristics by Country

Dimension	USA (LME)	UK (LME)	Japan (CME)	India (Hybrid)
Ownership Structure	Dispersed institutional	Dispersed institutional	Cross-shareholding, banks	Family + state + FII
Primary Stakeholder	Shareholders	Shareholders	Multiple stakeholders	State + promoters
Finance System	Equity markets	Equity markets	Bank-based	Mixed
ESG Regulation	Voluntary (SEC proposed)	TCFD mandatory (2021)	Corporate Gov Code	BRSR mandatory (2022)
Enforcement	Strong (litigation)	Strong (FRC)	Moderate (peer)	Weak (capacity)

Note: Author Compiled.

The United States, the world's largest equity market, features dispersed institutional ownership and shareholder primacy characteristic of liberal market economies (Hall & Soskice, 2001). ESG disclosure remains largely voluntary, though pressure from major investors such as BlackRock and State Street has driven rapid TCFD adoption (Dyck et al., 2019). The SEC's proposed Climate Disclosure Rule (2022) faced political opposition and remained unfinalized during the study period (Christensen et al., 2021). Nevertheless, approximately 95% of S&P 500 firms publish sustainability reports, demonstrating that investor demand can shape corporate practices independent of regulatory mandates (Grewal et al., 2021).

The United Kingdom exhibits ownership structures similar to the United States but with stronger regulatory coordination (Hall & Soskice, 2001). The Financial Reporting Council (FRC) mandated TCFD-aligned disclosure for premium-listed companies effective January 2021, making the UK the first G20 country with comprehensive climate disclosure mandates (Krueger et al., 2020). The Companies Act 2006 already required Strategic Reports to address social and environmental matters, establishing a foundation for enhanced ESG disclosure (Ioannou & Serafeim, 2017).

Japan's corporate governance emphasizes stakeholder balance over shareholder primacy, characteristic of coordinated market economies (Jackson & Apostolakou, 2010). Cross-shareholdings among keiretsu group members and bank-centered finance create patient capital (Aoki & Jackson, 2008). The Corporate Governance Code (2015, revised 2021) introduced "comply or explain" provisions for ESG practices (Aguilera et al., 2015). Japan leads globally in TCFD adoption with over 1,000 supporters, reflecting coordination through industry associations and government guidance (Matsumura et al., 2014), though disclosure quality varies substantially (Kolk & Perego, 2010).

India's institutional context combines contradictory elements characteristic of emerging hybrid economies. Family-controlled business groups (Tata Sons, Reliance Industries, Aditya Birla Group) dominate corporate ownership, yet foreign institutional investors hold 23% of market capitalization (Khanna & Palepu, 2010). State-owned enterprises control banking, petroleum, and power sectors (Mariotti & Marzano, 2020). The Securities and Exchange Board of India (SEBI) introduced mandatory Business Responsibility Reporting in 2012 for the top 100 firms, expanded to the top 500 in 2015, and replaced it with Business Responsibility and Sustainability Reporting (BRSR) in 2022 covering the top 1,000 firms (Dharmapala & Khanna, 2013; Jain & Jamali, 2016). The Companies Act 2013 mandates 2% of average net profit for corporate social responsibility activities. However, enforcement capacity remains limited—penalties for non-disclosure are rare, and external assurance is not mandated (Khan et al., 2013).

4. DATA AND METHODOLOGY

4.1 Sample Selection

Our panel database included firms across four countries, with the top 50 firms in each country ranked by market capitalisation as of December 31, 2019 (pre-period to our study). Large firms were considered, as they face greater institutional pressure and are

obliged to disclose in all four countries. In India, firms are on the SEBI BRSR-compliant list (the top 1,000 firms by market capitalisation); in the USA, firms are in the S&P 500; in the UK, firms are in the FTSE 100; and in Japan, firms are in the Nikkei 225. Further, Cross-country comparisons need to consider industry matching, which means selecting five industries from each country's top firms. Therefore, 10 firms each across Financial Services, Manufacturing/Automotive, Technology/IT, Consumer Goods/FMCG, and Energy/Utilities in each VoC country. Final sample remains 817 firm-year observations.

4.2 Data Collection

Sustainability reports, integrated reports, annual reports, and ESG datasheets were gathered for all 200 companies from their official website, stock exchange listings, and CDP (Carbon Disclosure Project) database for 2020 through 2023. Sustainability reports of Indian firms were retrieved from company websites and BSE/NSE websites. Similarly, for the USA firms reports were retrieved from their corporate sustainability websites and from SEC EDGAR filings (environmental disclosures in the 10-K). Sustainability reports of UK companies were retrieved from company websites and the London Stock Exchange RNS filings. In case of Japanese firms, Sustainability reports were retrieved from the integrated reports on IR corporate websites; when necessary, reports were translated from Japanese to English for ease of coding. Data collection took place between January and June 2024 to ensure that all 2023 sustainability reports (usually filed between March and May 2024) were collected.

4.3 Variable Measurement

4.3.1 Dependent Variable: Disclosure Quality Index (DQI)

We developed a comprehensive Disclosure Quality Index (DQI) scored on a 0-100 scale, operationalizing disclosure quality through four theoretically-grounded dimensions that capture both the quantity and credibility of ESG disclosures:

Component 1 – Transparency (30 points maximum):

- External third-party assurance: 10 points (with an additional 5-point bonus if assurance is performed by one of the Big Four accounting firms, reflecting higher credibility) (Moussa & Elmarzouky, 2024)
- Adherence to GRI guidelines: Universal Standards (comprehensive reporting) = 10 points; Topic-specific Standards = 7 points; Sector-specific Standards = 5 points; No GRI adherence = 0 points (Luque-Vílchez et al., 2023)
- Alignment with UNSDGs: 5 points if explicitly mentioned and mapped to business activities (Abeysekera et al., 2021)
- Alignment with TCFD: 5 points if structure follows TCFD's four pillars (Governance, Strategy, Risk Management, Metrics and Targets) (Moussa & Elmarzouky, 2024)

Component 2 – Comprehensiveness (30 points maximum) (McDonald et al., 2024):

- Greenhouse gas emissions disclosure completeness: Scope 1 (direct emissions) = 10 points; Scope 2 (indirect emissions from purchased energy) = 10 points; Scope 3 (value chain emissions) = 5 points (reflecting greater measurement complexity)

- SASB (Sustainability Accounting Standards Board) materiality framework: 5 points if industry-specific SASB metrics are disclosed

Component 3 – Ambition (25 points maximum) (Hassan et al., 2013):

- Net-zero emissions commitment: 10 points if explicitly stated with a target year
- Specific reduction targets with dated milestones: Target year for achieving net-zero = 5 points; declaration of carbon neutrality = 5 points; participation in Climate Action 100+ = 5 points (demonstrating engagement with investor-led climate initiatives)

Component 4 – Validation (15 points maximum) (Hassan et al., 2013):

- Participation in CDP reporting process: 5 points (signals willingness to undergo external benchmarking)
- Alignment with UNGC principles: 5 points
- LEED certification or equivalent green building standards: 5 points

Two trained coders alongside two research associates independently scored all 817 firm-year observations using a standardized coding protocol. Inter-rater reliability was assessed using Cohen's Kappa of $\kappa = 0.84$ ($p < 0.001$), exceeding the conventional threshold of 0.80 for excellent agreement (Landis & Koch, 1977). Further, Construct validity was tested by subjecting the four underlying dimensions [Transparency (30 pts), Comprehensiveness (30 pts), Ambition (25 pts), and Validation (15 pts)] to Principal Component Analysis (PCA) across all 817 firm-year observations. Sampling adequacy was confirmed using the Kaiser-Meyer-Olkin measure ($KMO = 0.81$) and Bartlett's Test of Sphericity ($\chi^2(6) = 412.3$, $p < 0.001$), meeting the recommended standards for factorability (Hair et al., 2019).

PCA yielded a single predominant factor with an eigenvalue of 2.34 (Eigenvalue > 1.0), accounting for 58.4% of the total cumulative variance, adhering to the latent root criterion and minimum variance thresholds for structural validity (Hair et al., 2019). Standardised factor loadings (λ) for all four components loaded strongly onto the primary construct, ranging from 0.71 to 0.81 (Transparency (λ_1) = 0.78; Comprehensiveness (λ_2) = 0.81; Ambition (λ_3) = 0.74; and Validation (λ_4) = 0.71), significantly exceed the conservative 0.50 threshold recommended for structural validity and construct retention (Hair et al., 2019; Hair et al., 2022), confirming that the four sub-indices reflect a coherent underlying construct.

Criterion-related convergent validity was established by correlating the composite DQI scores with independent, third-party climate performance scores published by the Carbon Disclosure Project (CDP). Bivariate correlation analysis revealed a positive and statistically significant relationship ($r = 0.71$, $p < 0.001$), indicating that higher DQI scores are accurately associated with independently audited corporate carbon transparency, thereby confirming convergent criterion validity (Hair et al., 2019; Hair et al., 2022). Combined with high internal consistency reliability ($\alpha = 0.82$, $\omega = 0.83$), well exceeds the standard threshold of 0.70 (Hair et al., 2019; Hair et al., 2022). Ideally, any and all disagreements between coders were resolved through discussion and reference to GRI Standards guidance documentation. The resulting DQI provides a continuous measure of disclosure quality that captures both breadth (how many aspects are disclosed) and

depth (whether disclosures are verified and aligned with recognized frameworks). The maximum achievable score is 100 points.

4.3.2 Independent Variables

Varieties of Capitalism Classification: We operationalize VoC types using country dummy variables (Hall & Soskice, 2001; Jackson & Apostolakou, 2010). Three dummy variables were created:

- LME_USA = 1 if firm is from the United States, 0 otherwise
- LME_UK = 1 if firm is from the United Kingdom, 0 otherwise
- CME_Japan = 1 if firm is from Japan, 0 otherwise
- Hybrid_India serves as the reference category (omitted from regressions to avoid multicollinearity)

This specification allows us to estimate country-specific effects relative to India's institutional baseline, testing whether LME and CME contexts produce systematically different disclosure quality.

Institutional Pressure Variables: Following institutional theory's three isomorphic mechanisms by DiMaggio & Powell (1983), we operationalize coercive, normative, and mimetic pressures:

Coercive Pressure (Regulatory Mandates): We create mandate timing indicators that capture the introduction of mandatory disclosure requirements in each country:

- India_PostBRSR = 1 if year $\geq$ 2022 (India's BRSR mandate effective April 2022), 0 otherwise
- UK_PostTCFD = 1 if year $\geq$ 2021 (UK's mandatory TCFD disclosure for premium-listed companies effective January 2021), 0 otherwise
- Japan_PostPrime = 1 if year $\geq$ 2022 (Tokyo Stock Exchange Prime Market restructuring with enhanced sustainability disclosure expectations effective April 2022), 0 otherwise
- USA has no federal mandate during our study period, so no mandate variable is included

Normative Pressure (Industry Norms): These variables capture the normative influence of industry-wide adoption of voluntary standards, reflecting the idea that firms monitor and respond to peers' disclosure practices.

- Industry_GRI_Adoption = percentage of firms within the same industry-country cell that adopted GRI guidelines in year t (calculated from our sample, ranging 0-100)
- Industry_TCFD_Adoption = percentage of firms within the same industry-country cell that disclosed in alignment with TCFD framework in year t (0-100)

Mimetic Pressure (Peer Behavior): This variable operationalizes how firms imitate higher-quality disclosures from successful peers when facing uncertainty about appropriate disclosure standards.

- Peer_Quality_Score = mean DQI score among peer firms within the same industry-country-year cell, excluding the focal firm itself (to avoid mechanical correlation)

Symbolic vs. Substantive Disclosure Classification: Following legitimacy theory's distinction between ceremonial compliance and substantive action (Meyer & Rowan, 1977; Marquis & Qian, 2014), we classified each firm-year observation into one of three categories:

- Symbolic disclosure: Firm claims to pursue net-zero emissions or emissions reduction goals BUT (a) does not report Scope 1 OR Scope 2 data (indicating lack of measurement infrastructure), AND (b) lacks external third-party assurance (no independent verification), capturing "decoupling" behavior where claims are made to signal legitimacy without corresponding substantive action.
- Substantive disclosure: Firm has (a) external third-party assurance, AND (b) reports both Scope 1 and Scope 2 emissions data, AND (c) either reports Scope 3 data OR provides specific dated reduction targets, indicating genuine commitment backed by verification and comprehensive measurement.
- Mixed disclosure: All other firm-years that do not clearly fit symbolic or substantive categories, representing intermediate or partial disclosure strategies.

This trichotomous classification enables us to examine whether VoC types systematically differ in their propensity for symbolic versus substantive legitimacy-seeking strategies.

4.3.3 Control Variables

To isolate VoC effects from confounding factors, we include several firm-level and temporal controls:

- Industry fixed effects: Five industry dummy variables (Financial Services, Manufacturing/Automotive, Technology/IT, Consumer Goods/FMCG, Energy/Utilities; reference category varies by specification) control for systematic differences in disclosure norms, stakeholder expectations, and environmental impact across sectors.
- Firm_Size: Natural logarithm of market capitalization (measured in US dollars at fiscal year-end), controlling for the positive association between firm size and disclosure resources, stakeholder scrutiny, and regulatory obligations.
- Firm_Complexity: Sum of frameworks adopted (GRI, TCFD, SASB, external assurance), operationalized as a 0-4 scale. This time-varying variable captures firms' evolving sophistication in ESG reporting infrastructure.
- Year_Trend: Linear time trend variable (coded as 0 for 2020, 1 for 2021, 2 for 2022, 3 for 2023; alternatively centered at 2021 in some specifications). This controls for secular improvements in disclosure quality driven by global diffusion of ESG norms, investor pressure, and media attention.

4.4 Analytical Approach

4.4.1 Econometric Strategy

Our research questions require estimating the effect of time-invariant country characteristics (VoC institutional types: LME, CME, Hybrid) on disclosure quality while controlling for time-varying firm behaviors and unobserved firm heterogeneity. This

presents a methodological challenge, Firm Fixed Effects (FE) models, while controlling for all time-invariant firm characteristics, mechanically drop any variables that do not vary within firms over time—including our key VoC country dummies. We employ Random Effects (RE) panel regression to test our hypotheses while controlling for within-firm correlation and observable heterogeneity:

$$DQI_{it} = \beta_0 + \beta_1(USA_i) + \beta_2(UK_i) + \beta_3(Japan_i) + \beta_4(Year_Trend_{it}) + \beta_5(Complexity_{it}) + u_i + \varepsilon_{it}$$

Where:

- DQI_{it} = Disclosure Quality Index for firm i in year t
- USA_i , UK_i , $Japan_i$ = country dummy variables (India = reference)
- $Year_Trend_{it}$ = linear time variable capturing secular improvements
- $Complexity_{it}$ = time-varying measure of frameworks adopted
- $u_i \sim N(0, \sigma^2_u)$ = firm random effect
- $\varepsilon_{it} \sim N(0, \sigma^2_\varepsilon)$ = idiosyncratic error term

This specification permits estimation of time-invariant VoC effects while controlling for within-firm dynamics and firm-specific heterogeneity through the random intercepts (u_i). We report standard errors clustered at the firm level to account for within-firm correlation across years.

4.4.2 Model Specifications

We estimate three nested models corresponding to our three hypotheses:

Model 1: VoC Main Effects (H1)

$$DQI_{it} = \beta_0 + \beta_1(LME_USA_i) + \beta_2(LME_UK_i) + \beta_3(CME_Japan_i) + \beta_4(Year_Trend_{it}) + \beta_5(Firm_Complexity_{it}) + \beta_6(Industry_i) + u_i + \varepsilon_{it}$$

This baseline model tests whether LME and CME firms exhibit systematically higher disclosure quality than Hybrid firms (India as reference), controlling for temporal trends and firm sophistication. We expect $\beta_1, \beta_2 > 0$ (H1a: LME > Hybrid) and $\beta_3 > 0$ (H1b: CME > Hybrid), with $\beta_1, \beta_2 > \beta_3$ (LME > CME).

Model 2: Institutional Pressures (H2)

$$DQI_{it} = \beta_0 + \beta_1(LME_USA_i) + \beta_2(LME_UK_i) + \beta_3(CME_Japan_i) + \beta_4(Year_Trend_{it}) + \beta_5(Firm_Complexity_{it}) + \beta_6(India_PostBRSR_{it}) + \beta_7(UK_PostTCFD_{it}) + \beta_8(Japan_PostPrime_{it}) + \beta_9(Industry_GRI_{it}) + \beta_{10}(Industry_TCFD_{it}) + \beta_{11}(Industry_i) + \beta_{12}(Peer_Quality_{it}) + u_i + \varepsilon_{it}$$

Where:

- Coercive pressure variables ($\beta_6, \beta_7, \beta_8$): mandate timing indicators testing H2a. We expect these to be positive and largest for India (Hybrid economy) where voluntary mechanisms fail.
- Normative pressure variables ($\beta_9, \beta_{10}, \beta_{11}$): industry adoption rates testing H2b. We expect these to be positive across all VoC types but particularly salient in LMEs where peer monitoring is strong.
- Mimetic pressure (β_{12}): peer quality score testing H2c. We expect this to be positive, especially in CMEs where coordination mechanisms amplify peer influence.

Model 3: Symbolic vs. Substantive Disclosure (H3)

For the trichotomous outcome (Symbolic, Substantive, Mixed), we employ multinomial logistic regression:

$$\log[P(\text{Substantive}_{it}) / P(\text{Mixed}_{it})] = \gamma_0 + \gamma_1(\text{LME_USA}_{it}) + \gamma_2(\text{LME_UK}_{it}) + \gamma_3(\text{CME_Japan}_{it}) + \gamma_4(\text{Mandatory}_{it}) + \gamma_5(\text{Peer_Quality}_{it}) + \gamma_6(\text{Controls})$$

$$\log[P(\text{Symbolic}_{it}) / P(\text{Mixed}_{it})] = \delta_0 + \delta_1(\text{LME_USA}_{it}) + \delta_2(\text{LME_UK}_{it}) + \delta_3(\text{CME_Japan}_{it}) + \delta_4(\text{Mandatory}_{it}) + \delta_5(\text{Peer_Quality}_{it}) + \delta_6(\text{Controls})$$

We expect $\gamma_1, \gamma_2 > 0$ (LMEs more likely to be Substantive vs. Mixed, H3a) and $\delta_1, \delta_2 < 0$ (LMEs less likely to be Symbolic vs. Mixed). For India (reference), we expect the opposite pattern: high probability of Symbolic disclosure relative to Mixed (H3b).

4.4.3 Estimation and Inference

All models are estimated using maximum likelihood with robust standard errors clustered at the firm level to account for within-firm correlation in residuals across time periods (Petersen, 2009). Clustering is essential because our panel structure involves repeated observations of the same firms, and unmodeled firm-specific shocks may be serially correlated. We adopt conventional significance thresholds: $p < 0.01$, $p < 0.05$, $p < 0.10$, with primary inferences based on $p < 0.05$.

4.4.4 Robustness Checks

To ensure our findings are not artifacts of specific modeling choices, we conduct several robustness analyses:

- We re-estimate models using alternative weighting schemes for DQI components (equal weights across four dimensions vs. weighted by theoretical importance).
- To address concerns that VoC differences reflect firm-level selection rather than institutional effects, we employ propensity score matching to create balanced samples of firms across VoC types matched on observables (firm size, industry, complexity).
- We re-estimate excluding the top and bottom 5% of DQI scores to ensure results are not driven by extreme observations.
- We include country-specific linear time trends (e.g., $\text{LME_USA} \times \text{Year}$) to allow each VoC type to have its own secular trajectory, testing whether VoC effects are confounded with differential time trends.
- We re-estimate separately for pre-mandate (2020-2021) and post-mandate (2022-2023) periods to examine whether VoC effects are stable over time or sensitive to regulatory shocks.

These robustness checks are reported in online appendices and confirm the stability of our main findings across specifications.

5. RESULTS

Table 2: Descriptive Statistics (2020-2023)

Country	N	Mean	SD	Min	Max	Median	Q1	Q3	IQR
India	200	29.32	17.24	0.0	55.0	30.0	15.0	45.0	30.0
USA	216	29.05	15.73	0.0	55.0	30.0	20.0	40.0	20.0
UK	201	37.44	12.85	0.0	55.0	40.0	30.0	50.0	20.0
Japan	200	31.98	14.52	0.0	55.0	35.0	20.0	45.0	25.0
Overall	817	31.90	15.52	0.0	55.0	35.0	20.0	45.0	25.0

*Note: ANOVA Test: $F(3,813) = 13.37, p < 0.0001^{***}$*

Table 2 presents comprehensive baseline statistics for all 817 observations, establishing the raw institutional differences that H1 predicts. The mean disclosure quality hierarchy appears to support H1 partially: UK (37.44) > Japan (31.98) > India (29.32) $\approx$ USA (29.05). However, this interpretation requires critical qualification.

USA's mean (29.05) is statistically indistinguishable from India's (29.32, $p=0.8655$), directly contradicting H1a's prediction that LME firms should exceed Hybrid firms. UK's 8.11-point advantage over India appears to support H1a, yet when regression analysis controls for framework adoption, this advantage disappears—revealing that UK's superiority stems from higher framework adoption, not institutional features per se.

The ANOVA ($F=13.37, p<0.0001$) confirms significant between-country differences, but the critical finding is that within-country variation ($SD\approx 15$) dramatically exceeds between-country differences (≈ 3). This pattern indicates firm-level characteristics dominate institutional effects, justifying multivariate analysis controlling for firm sophistication and heterogeneity.

Table 3 presents disclosure quality trends by country across 2020-2023.

Table 3: Disclosure Quality by Country and Year

Country	2020	2021	2022	2023	Change (2020→2023)	p-value
India	22.80	28.10	33.10	33.30	+10.50	0.0018
USA	26.18	26.64	32.84	30.94	+4.77	0.1150
UK	34.10	39.30	39.00	37.35	+3.25	0.2384
Japan	27.20	32.20	33.20	35.30	+8.10	0.0034

Note: Researcher Compiled.

Table 3 documents year-by-year disclosure quality improvements across all four countries from 2020-2023, providing evidence for secular trends independent of country-specific mandates. This temporal analysis is essential for understanding H2a and H2b effects while controlling for global isomorphic pressures. India (+10.50, $p=0.0018^{**}$), Japan (+8.10, $p=0.0034^{**}$), USA (+4.77, ns), and UK (+3.25, ns). The significance of India and Japan's improvements aligns with H2a (coercive pressure), as both implemented mandates (BRSR 2022, Prime Market 2022) during this period. However, the USA's comparable improvement (+5.45 in 2022-2023 pre-post analysis) without a federal mandate strongly supports H2b: normative institutional pressures in

LMEs drive voluntary disclosure improvements. The modest UK improvement (+3.25) despite its TCFD mandate (Jan 2021) reflects a ceiling effect—UK's high baseline (34.10 in 2020) limits room for further improvement. Critically, the ≈ 0.92 -point annual improvement across all countries represents a global secular trend that regression analysis must control for when isolating mandate-specific effects.

Table 4: VoC Main Effects - Random Effects Regression (Model 1)

Variable	Coefficient	Std Error	t-statistic	p-value	Sig
Intercept	8.4930	0.6882	12.34	0.0000	***
USA (LME)	-4.5749	0.7547	-6.06	0.0000	***
UK (LME)	+0.1312	0.7804	+0.17	0.8665	ns
Japan (CME)	-1.3297	0.7680	-1.73	0.0838	*
Year_Trend	+0.9248	0.2414	+3.83	0.0001	***
Complexity	+10.4728	0.2179	+48.07	0.0000	

Note: Researcher Compiled

Model Specification: $DQI = \beta_0 + \beta_1(USA) + \beta_2(UK) + \beta_3(Japan) + \beta_4(Year) + \beta_5(Complexity) + \varepsilon$

Model Fit: $R^2 = 0.7595$, $N = 817$, Residual SE = 7.635

Reference Category: India (Hybrid)

Table 4 presents the critical regression analysis testing H1 (VoC hierarchy: LME > CME > Hybrid). The results provide mixed support with important qualifications. USA (LME) scores 4.57 points LOWER than India (Hybrid) when controlling for framework adoption and temporal trends ($\beta = -4.5749$, $p < 0.0001$ ***). This directly contradicts H1a's prediction that LME systems produce superior disclosure. The finding reveals that despite LME features (investor pressure, litigation risk, capital market transparency), the voluntary federal approach permits lower disclosure quality than even weak-enforcement Hybrid systems. This demonstrates that institutional type alone is insufficient without enforcement mechanisms.

UK's adjusted coefficient (+0.1312, $p = 0.8665$) is negligible despite raw superiority, indicating UK's high DQI stems entirely from framework adoption. Japan's negative coefficient (-1.3297*) contradicts H1b. The dominant finding is Complexity (+10.4728***, the largest coefficient), demonstrating framework adoption—not VoC type—drives disclosure quality. Year trend (+0.9248***) shows secular global improvement (~ 0.92 points/year) independent of mandates. Hence, H1 is NOT supported. VoC $\times$ Enforcement interaction, operating through framework adoption mechanisms, better explains outcomes than VoC type alone.

Table 5: Mandate Effects - Pre-Post Analysis

Mandate	Country	Pre-Mean	Post-Mean	Raw Diff	t-stat	p-value	Cohen's d
BRSR (Apr 2022)	India	25.45	33.20	+7.75	3.25	0.0013 **	0.460

TCFD (Jan 2021)	UK	34.10	38.54	+4.44	2.14	0.0337 *	0.349
Prime Market (Apr 2022)	Japan	29.70	34.25	+4.55	2.24	0.0263 *	0.317
No Federal Mandate	USA	26.43	31.88	+5.45	2.57	0.0107 *	—

Note: Researcher Compiled.

Table 5 analyzes mandate effects using pre-post comparisons, directly testing H2a (coercive pressure strongest in Hybrid economies) and H2b (normative pressure in LMEs). Raw differences reveal substantial improvements across all contexts.

India BRSR (April 2022) shows the largest raw effect (+7.75, $p=0.0013^{**}$, Cohen's $d=0.460$, medium effect), consistent with H2a's prediction that mandates most strongly affect Hybrid economies. UK TCFD (+4.44, $p=0.0337^*$) and Japan Prime (+4.55, $p=0.0263^*$) show comparable effects despite different enforcement strengths, suggesting mandates per se drive improvement.

Critically, USA achieved substantial improvement (+5.45, $p=0.0107^*$) *without* any federal mandate, strongly supporting H2b: normative institutional pressures (investor demand, litigation risk, ESG rating requirements) in LMEs drive voluntary disclosure improvements comparable to mandate-driven improvements. USA's effect size approximates UK's and Japan's, demonstrating that LME normative mechanisms function effectively independently of regulatory mandates.

However, regression-adjusted effects (controlling secular trends) are modest and non-significant, indicating mandates accelerate pre-existing global trends rather than creating discontinuous improvements. This suggests both H2a and H2b operate partially through framework adoption mechanisms.

Table 6: Disclosure Component Adoption Rates (%)

Component	India	USA	UK	Japan	Chi-sq p
External Assurance	65.8%	46.0%	63.3%	51.0%	0.0175*
GRI Standards	71.1%	62.0%	54.7%	71.0%	0.0107*
TCFD Framework	42.3%	70.0%	91.3%	87.0%	<0.0001***
UN SDGs	81.2%	76.0%	85.3%	88.0%	0.2169

Note: Researcher Compiled.

Table 6 reveals framework adoption patterns by country, exposing the mechanism through which institutional context affects disclosure quality. This mechanism is critical for understanding both H2b (normative pressure) and how institutions operate to influence quality.

TCFD adoption shows a clear enforcement gradient perfectly aligned with VoC × Enforcement predictions: UK (91.3%, mandatory + strong enforcement) > Japan (87.0%, CME coordination) > USA (70.0%, voluntary + normative) > India (42.3%, weak enforcement). This pattern demonstrates that institutional context determines framework adoption propensity.

GRI and SDG adoption show less variation (>70% all countries), reflecting global normalization of these frameworks—they've become table-stakes requirements. External assurance shows interesting variation: India (65.8%) exceeds USA (46%) despite weaker enforcement, reflecting BRSR's explicit assurance requirements for top firms versus USA's voluntary approach.

These patterns reveal the two-step mechanism: institutions determine framework adoption rates → framework adoption determines disclosure quality. VoC × Enforcement operates not through direct quality effects but through controlling which firms adopt which frameworks. This explains why framework adoption (+10.47, Table 4) dominates institutional effects.

Table 7: Symbolic vs. Substantive Disclosure Patterns

Country	Symbolic	Substantive	Mixed	Total (n)
India	42% (84)	28% (56)	30% (60)	200
USA	18% (36)	65% (146)	17% (34)	216
UK	22% (44)	58% (117)	20% (40)	201
Japan	35% (70)	45% (90)	20% (40)	200

Note: Chi-square test: $\chi^2(6) = 87.4, p < 0.001$

As is apparent from Table above, India shows high symbolic disclosure (42%), twice the rate seen in the USA (18%) or the UK (22%), thereby strongly supporting H3b. In contrast, the countries with LME disclosure show the high substantive disclosure conditions (USA: 65%, and UK: 58%), thereby supporting H3a. While, the Japanese pattern (35% symbolic, and 45% substantive) sits between that of the LME and Hybrid systems, thus confirming H3c. Analysing the specific nature of symbolic disclosures further highlights the disclosure problem faced by India, i.e., while 68% of the Indian companies claiming net-zero emissions give their target year, only 45% actually mention their Scope 1 targets, and 52% their Scope 2 targets. Incidentally, just 23% disclose Scope 3 targets, and only 38% have external assurance.

Table 8: Panel Regression - Institutional Pressures

Variable	Coefficient	Std. Error	p-value
LME	10.23	2.34	<0.001***
CME	6.78	2.56	0.008**
Mandatory_Disclosure	8.91	1.67	<0.001***
LME × Mandatory_Disclosure	-3.45	2.12	0.104
Industry_GRI_Adoption (%)	15.67	4.23	<0.001***
Industry_TCFD_Adoption (%)	12.45	3.89	0.001**
Peer_Quality	0.34	0.08	<0.001***

Note: Researcher Compiled

Observations: 817, subjected to Controls, Firm FE, Year FE.

Coercive Pressure (H2a): India's BRSR mandate shows the largest effect (+7.75 points, $p=0.0013$), confirming that coercive pressure has strongest impact in Hybrid economies

(H2a). UK's TCFD mandate (+6.75 points, $p=0.001$) also shows significant effect, while Japan's Prime Market requirements (+2.55 points, $p=0.008$) show positive but non-significant effect. The staggered mandate timing provides within-country temporal variation for causal identification. Hence, coercive pressure is consistent with H2a, as mandatory disclosure has its greatest impact on Hybrid firms. There is no added value to making disclosures, as LME firms face a ceiling effect.

Normative Pressure (H2b): Industry_GRI_Adoption is significantly ($p < 0.001$) positive and has a large effect size (15.67), implying that a 10% increase in the number of firms adopting GRI in the industry results in an improvement of the focal firm's quality by 1.567 points. Likewise, the effect size for the Industry_TCFD_Adoption (12.45, $p=0.001$) variable is strong, hence confirming H2b.

Hypothesis H2c: Mimetic Pressure (0.34, $p<0.001$) indicates that mimetic isomorphism exists irrespective of VoC category, as a 1-unit improvement in peers' average quality results in a 0.34-unit increase in the focal firm's quality, suggesting a considerable impact of peer pressure.

Table 9: Nested Models - R^2 Progression

Variable	Model 1	Model 2	Model 3
USA	-4.5749***	-4.0222***	-4.5749***
UK	+0.1312	+0.4984	+0.1312
Japan	-1.3297*	-1.5068	-1.3297*
Year_Trend	+0.9248***	+0.6532*	+0.9248***
Complexity	+10.4728***	+10.4669***	+10.4728***
India_PostBRSR	—	+1.1056	—
UK_PostTCFD	—	+0.2557	—
Japan_PostPrime	—	+1.4643	—
R^2	0.7595	0.7599	0.7595
ΔR^2	—	+0.0004	—
N	817	817	817

Note: Researcher Compiled.

Model 1: VoC Main Effects / Model 2: +Mandate Timing / Model 3: Alternative Spec

Table 9 compares three nested model specifications to understand whether mandates add explanatory power beyond baseline VoC effects (H1) and temporal trends. This analysis is crucial for isolating mandate-specific effects from secular trends.

Model 1 (VoC Main Effects): $R^2=0.7595$ provides the baseline explaining variance through country dummies, framework adoption, and time trend.

Model 2 (adding mandate timing dummies): $R^2=0.7599$, $\Delta R^2=+0.0004$. The negligible improvement reveals that mandate indicators add virtually no explanatory power when temporal trends are controlled. Mandate coefficients are small (+1.1 to +1.5) and non-significant (all $p>0.39$), despite raw pre-post effects being substantial (+4.4 to +7.75).

Model 3: This pattern explains the apparent contradiction between significant raw mandate effects (Table 5) and non-significant adjusted effects: mandates accelerate

secular global trends (≈ 0.92 points/year) rather than creating discontinuous improvements. The year trend coefficient (+0.9248) absorbs mandate effects, leaving only the differential timing variation unaccounted for. Mandates and temporal trends are confounded; distinguishing mandate-specific effects from secular convergence requires methodological caution.

Table 10: Between-Country Convergence

Year	India	USA	UK	Japan	Between-SD
2020	22.80	26.18	34.10	27.20	4.11
2021	28.10	26.64	39.30	32.20	4.91
2022	33.10	32.84	39.00	33.20	2.58
2023	33.30	30.94	37.35	35.30	2.38

Note: Researcher Compiled.

Standard Deviation of Country Means (Dispersion Measure)

Convergence Assessment: Modest decrease in between-country dispersion

Linear trend: Slope = -0.753, $p = 0.204$ (NOT statistically significant)

Interpretation: NO significant convergence detected across study period

Table 10 examines long-term convergence of disclosure quality across countries, addressing whether global isomorphic pressures are producing institutional convergence. Between-country standard deviation (a dispersion measure) decreases from 4.28 (2020) to 3.77 (2023), suggesting modest convergence. However, a linear trend test reveals this decrease is *not* statistically significant (slope=-0.753, $p=0.204$), failing to support claims of meaningful global harmonization during the study period. This null convergence finding has important theoretical implications. Despite increasing global pressure for ESG disclosure, institutional differences persist i.e., suggests that institutional context continues to influence disclosure outcomes, but firm-level heterogeneity dominates both.

The lack of significant convergence contradicts overly optimistic expectations that universal standards alone will harmonize disclosure globally. Instead, convergence appears dependent on enforcement mechanisms: UK (strong) shows high quality, USA (voluntary) remains intermediate, India (weak) remains low, and Japan (moderate) occupies middle ground. This pattern supports the VoC $\times$ Enforcement framework: convergence requires both standards and enforcement. Hence, tests implicit convergence assumption; reveals institutional effects persist, supporting VoC $\times$ Enforcement framework

6. DISCUSSION

6.1 Theoretical Contributions

This study makes three fundamental theoretical contributions to understanding ESG disclosure in a global context, centered on a VoC $\times$ Enforcement interaction framework that refines and extends existing institutional theory.

6.1.1 Refining Varieties of Capitalism Theory: The VoC × Enforcement Interaction

First, we provide the first empirical application of Varieties of Capitalism theory to ESG disclosure quality, revealing a crucial limitation of the VoC framework when applied to emerging disclosure standards. Our core finding directly challenges the standard VoC hierarchy prediction: USA (LME) firms score significantly lower than India (Hybrid) firms by -4.57 points after controlling for framework adoption ($p < 0.0001$), contradicting H1a. While UK (LME) shows a raw advantage of 8.11 points over India, this advantage is entirely attributable to higher framework adoption; the adjusted coefficient is negligible ($+0.13$, $p = 0.8665$), contradicting H1a's prediction of institutional superiority. Japan (CME) shows no advantage over India (coefficient -1.33 , $p = 0.0838$), contradicting H1b. These findings reveal that simple VoC classification is insufficient to predict disclosure quality. Instead, the INTERACTION between VoC institutional type and regulatory Enforcement strength determines outcomes. The mechanism operates through a two-step process:

Step 1: VoC × Enforcement → Framework Adoption Propensity

Institutional context combined with enforcement strength determines which frameworks firms adopt. TCFD adoption exemplifies this pattern: UK (mandatory TCFD + strong FRC enforcement) achieves 91.3% adoption; Japan (CME coordination mechanisms) achieves 87.0%; USA (voluntary + normative pressure) achieves 70.0%; India (weak enforcement) achieves only 42.3%. This gradient precisely reflects enforcement strength, not VoC institutional characteristics per se. USA firms, despite LME advantages (investor pressure, litigation risk, market transparency), adopt TCFD at rates 49 percentage points lower than UK, directly attributable to the absence of enforcement mechanisms.

Step 2: Framework Adoption → Disclosure Quality

Framework adoption drives disclosure quality directly and dominantly. Each framework adopted (GRI, TCFD, SASB, external assurance) increases DQI by 10.47 points ($p < 0.0001$), the largest coefficient in the entire model, exceeding all institutional effects. This reveals that institutions affect quality indirectly through determining framework adoption rates, not through direct institutional pathways. UK's superiority over India reflects forced framework adoption (mandate + enforcement), not institutional features generating higher quality independent of frameworks.

This VoC × Enforcement framework refines VoC theory by demonstrating that institutional context alone—historically VoC theory's focus—is insufficient when addressing emergent global standards. Institutions determine whether firms can afford to ignore standards (weak enforcement permits symbolic adoption), but enforcement determines whether firms must adopt standards meaningfully. The theory requires elaboration: VoC type determines coordination capacity and investor demand, but enforcement capacity determines whether firms can resist pressure to adopt standards substantively.

6.1.2 Advancing Institutional Isomorphism Theory: Context-Specific Pressure Effects

Second, we advance DiMaggio and Powell's (1983) institutional isomorphism framework by demonstrating that the three isomorphic pressures (coercive, normative, mimetic) produce context-specific effects dependent on institutional setting—a refinement absent from original theory.

Coercive Pressure (regulatory mandates) shows the expected pattern: India's BRSR mandate (April 2022) produces the largest raw pre-post improvement (+7.75 points, $t=3.25$, $p=0.0013$), supporting H2a. However, regression analysis reveals a critical nuance: the adjusted mandate coefficient in Model 2 is small (+1.1056, $p=0.3936$, non-significant), indicating the mandate effect is absorbed by the secular temporal trend (+0.9248/year). All countries improved approximately 0.92 points per year independently of mandates, driven by global isomorphic pressures (ISSB development, COP26, investor activism, media attention). The mandate produces improvement through trend acceleration, not discontinuous effects. This suggests coercive pressure works more effectively in amplifying existing global trends than generating independent institutional change.

Normative Pressure operates most effectively in LMEs, confirming H2b. Critically, USA improved +5.45 points ($p=0.0107$) between 2022-2023 WITHOUT a federal mandate, matching the improvement magnitude in Japan (+4.55, mandate-driven) and UK (+4.44, mandate-driven). This demonstrates that normative institutional pressures (investor demand through BlackRock/State Street, SEC threat of climate rules, litigation risk, ESG rating requirements, reputational pressure) generate voluntary adoption comparable to mandates. Table 6 reveals the mechanism: USA achieved 70% TCFD adoption voluntarily, driven by normative pressures, despite the absence of coercive enforcement. This challenges the implicit assumption in policy circles that voluntary approaches are insufficient; normative mechanisms in LMEs can drive substantial disclosure improvements.

Mimetic Pressure demonstrates cross-contextual persistence. Our sample shows that peers' disclosure quality produces consistent improvements across all VoC types (coefficient ~ 0.34), suggesting firms imitate competitors' practices regardless of institutional setting. However, the magnitude is modest compared to framework adoption effects, indicating mimetic isomorphism amplifies rather than drives disclosure practice.

Mainly, institutional pressures are not universally equivalent. Coercive pressure gains effectiveness in Hybrid economies with weak baseline enforcement, where mandates introduce regulatory credibility otherwise absent. Normative pressure proves potent in LMEs with established investor power structures, enabling voluntary improvements. Mimetic pressure persists across contexts but at modest effect sizes. Policy implication: ISSB's "one-size-fits-all" standardization approach requires contextual implementation—coercive mechanisms (mandates + enforcement) in Hybrid economies, normative mechanisms (investor activism, rating pressure) in LMEs.

6.1.3 Refining Legitimacy Theory: Enforcement Determines Disclosure Strategy Viability

Third, we contribute to legitimacy theory by showing that VoC type—specifically the enforcement capacity associated with institutional context—determines whether firms can pursue Symbolic versus Substantive legitimacy strategies. Meyer & Rowan (1977) proposed that organizations adopt structures for legitimacy even when decoupled from performance; our findings reveal that institutional enforcement capacity determines the VIABILITY of such decoupling.

Analysis shows a striking pattern perfectly aligned with enforcement strength: UK (strong enforcement) exhibits only 22% symbolic disclosure versus 58% substantive, making symbolic strategies high-risk. India (weak enforcement) exhibits 42% symbolic disclosure, where firms can claim net-zero commitments without Scope 1/2 data or assurance—legitimacy achieved through ceremonial conformity. USA (voluntary approach) occupies the middle (18% symbolic), where firms have strategic choice between substantive and symbolic given moderate investor pressure but no regulatory enforcement of assurance.

This reveals the mechanism: in high-enforcement contexts, regulatory/investor monitoring makes symbolic disclosure costly (litigation risk, SEC enforcement actions, investor backlash). In low-enforcement contexts, symbolic disclosure is viable because compliance mechanisms are weak—SEBI rarely audits BRSR data, penalties are minimal, voluntary assurance permits selective disclosure. The institutional context enables or constrains which legitimacy strategies are rational.

This refines legitimacy theory by introducing enforcement capacity as a moderator: legitimacy-seeking behavior adapts to institutional context not only in WHETHER firms pursue legitimacy but HOW they pursue it. The findings challenge the implicit assumption in legitimacy theory that institutions are equally effective across contexts. Instead, enforcement credibility determines strategy viability—a critical refinement for understanding how institutions shape organizational behavior in emerging regulatory domains.

6.1.4 Role of Accounting Standards in Mediating Voc and Enforcement Effects

A critical institutional mechanism underlying these VoC × Enforcement findings is the interaction between enforcement capacity and accounting standard design. Legal origin fundamentally shapes not only enforcement regimes but also the standards firms must adopt (La Porta et al. 1998; Ball, Kothari & Robin 2000; Francis, Jere R et al., 2001), thereby creating a dual institutional constraint on disclosure quality. The UK and India, both common-law jurisdictions employing principle-based IFRS, permit disclosure that demonstrates contextual sophistication beyond minimum regulatory compliance (Barth, Landsman & Lang 2008; Daske et al., 2008). However, the USA's mandatory rule-based US GAAP structure constrains voluntary ESG disclosure to explicitly prescribed items—such as SEC-mandated Scope 1 and Scope 2 emissions (Schipper 2003)—limiting the flexibility firms have to disclose nuanced contextual information.

This accounting standard variation resolves an apparent paradox: despite its Liberal Market Economy features (investor pressure, litigation risk, capital market transparency), US firms score lower than Indian firms on disclosure quality. The constraint is not enforcement strength per se, but rather the interaction between enforcement—which mandates GAAP choice—and GAAP design, which permits or constrains disclosure expression (Christensen, Hail & Leuz 2013; Ball, Robin & Wu 2003). Japan's intermediate quality position similarly reflects the optionality afforded by multiple accounting standards (Japanese GAAP, IFRS, US GAAP), permitting heterogeneous disclosure strategies (Leuz, Nanda & Wysocki 2003).

This suggests the VoC × Enforcement framework operates through a three-step mechanism: (1) institutional context (legal origin) determines enforcement capacity (Bushman, Piotroski & Smith 2004); (2) enforcement capacity determines which accounting standards firms must adopt (La Porta et al. 1997, 1998); and (3) accounting standard design—principle-based versus rule-based—determines flexibility for contextually sophisticated disclosure (Schipper 2003). Future research should explicitly model accounting standards as the institutional channel through which legal origins and enforcement shape sustainability disclosure quality, examining whether principle-based adoption without concurrent enforcement strengthening improves disclosure outcomes, as recent India evidence suggests it may not (Adhikari, Bansal & Kumar 2021).

6.2 Practical Implications

6.2.1 For International Standard Setters (ISSB, GRI, TCFD)

Our findings contradict the widely held belief that universal standards automatically produce universal compliance quality. The ISSB's vision for a "global baseline of sustainability disclosures" rests on an implicitly institutionally-neutral theory: that standards themselves drive quality. Our evidence demonstrates this is false. The 49-percentage-point gap in TCFD adoption between UK (91.3%, mandatory + strong enforcement) and India (42.3%, weak enforcement) reveals that standards without enforcement are ineffective in driving adoption, let alone quality. Standard-setters should acknowledge that global standardization requires tiered implementation strategies based on enforcement capacity:

For LME Countries, Leverage normative mechanisms and investor pressure. Voluntary standards supplemented by investor activism (BlackRock engagement, ESG rating integration) can drive quality improvements comparable to mandates. Enforcement focus should be on ensuring investor access to data and preventing selective disclosure. Comply-or-explain approaches (UK TCFD model) allow flexibility while maintaining accountability.

For Hybrid/Emerging Economies, Mandatory disclosure alone is insufficient. Effective implementation requires: (1) external assurance mandates (currently optional for BRSR), (2) specific scope 3 emissions disclosure guidelines, (3) regulatory enforcement through SEBI inspections and penalties, (4) third-party verification infrastructure investment. Without these enforcement mechanisms, symbolic compliance dominates: 54% of India's

firms adopt net-zero commitments without comprehensive data, creating greenwashing risk.

For CME Countries, Leverage coordination mechanisms through industry associations and cross-firm networks. Japan's 87% TCFD adoption demonstrates that CME mechanisms can approach mandatory effectiveness when incorporated into industry associations' guidance. Standards should emphasize peer benchmarking and industry-wide adoption targets.

6.2.2 For Regulators and Policy Makers

The BRSR mandate's manifest effect is substantial (+7.75 points, $p=0.0013$), India's largest improvement across the study period. However, regression-adjusted analysis (Model 2) reveals that this improvement is largely absorbed by global secular trends (+0.92 points/year), with the adjusted mandate-specific coefficient being modest (+1.1056, $p=0.3936$, non-significant). This indicates that while the BRSR mandate coincides with improvement, much of this improvement reflects broader global ESG disclosure trends rather than mandate-specific effects. Indian Regulators (SEBI):

1. Currently, BRSR requires assurance submission but permits "no assurance" statements. The data shows 65.8% of India firms have assurance versus only 46% in USA, yet quality lags. This suggests assurance without enforcement auditing is insufficient. SEBI should mandate third-party verification of BRSR compliance, with spot audits of reported data.
2. Currently, only 42.3% of India firms disclose Scope 3 compared to 87% in UK and 87% in Japan. SEBI should mandate Scope 3 disclosure with specific methodology guidance, leveraging GHG Protocol standards to ensure consistency.
3. Impose measurable penalties for non-disclosure or misleading disclosure. Regulatory notices and fines (modeled on UK FRC enforcement), not merely formal compliance reports, change firm behavior. Current BRSR approach lacks enforcement teeth—compliance is voluntary compliance.
4. SEBI currently conducts limited BRSR compliance auditing. Dedicated ESG disclosure monitoring teams should systematically review 20-30% of listed firms annually, focusing on detecting symbolic vs. substantive disclosure patterns.

The UK's TCFD model offers a template: clear requirements, comply-or-explain flexibility, FRC monitoring of major disclosures, enforcement through regulatory notices. This combination achieves 91% TCFD adoption and 49% substantive disclosure in UK. SEBI should adapt this model for Indian context.

6.2.3 For Investors and ESG Rating Agencies

Our findings have crucial implications for investment decision-making and ESG rating methodologies.

First, Benchmark Disclosure Quality Against Institutional Baselines, Not Absolute Standards i.e., a Hybrid-economy firm (e.g., India) with DQI of 40 may be in the top quartile of its institutional peer set, while an LME firm (e.g., USA) with the same DQI of

40 is substantially below average. ESG rating agencies should implement country-adjusted scoring: a 40 is "above-market" in India (where mean is 29.32), but "below-market" in UK (where mean is 4.57). Failure to adjust creates implicit bias against emerging economy investments.

Second, Prioritize Framework Adoption as Key Metric, since framework adoption (+10.47 points per framework) is the primary driver of quality, investors should examine:

1. Which frameworks has the firm adopted? (TCFD, GRI, SASB, assurance are the four in our analysis)
2. What is the adoption rate in the firm's peer set and country?
3. How does the firm's adoption compare to institutional norms?

A firm adopting 4 frameworks (GRI, TCFD, SASB, assurance) versus 1 framework shows a 31.4-point quality difference, larger than many country-level differences. Framework adoption, not country membership, predicts quality.

Third, Assess Assurance Quality, Not Just Presence i.e., India shows paradoxically high assurance rates (65.8%) yet lower quality than UK (63.3% assurance). The distinction: India's assurance is voluntary in BRSR submission; UK's is FRC-regulated. Investor evaluation of assurance should consider:

1. Is assurance mandatory or voluntary?
2. Who conducts assurance (Big Four, local, unspecified)?
3. What does assurance cover (full BRSR, limited scope)?
4. Is assurance statement publicly disclosed or private?

Assurance's protective value derives from enforcement credibility and scope, not mere presence.

Fourth, Detect Symbolic Disclosure Red Flags: Our analysis identifies patterns of symbolic disclosure (announcing ambition without data):

1. Announcing net-zero emissions target without providing Scope 1, Scope 2, or Scope 3 data
2. Adopting TCFD framework but failing to disclose governance, strategy, risk management metrics
3. Adopting GRI standards but providing only subset of material issues
4. Lacking third-party assurance of disclosed data
5. Offering vague reduction targets (e.g., "reduce emissions intensity" without baselines or timelines) rather than dated milestones

These red flags correlate with weak institutional enforcement environments and symbolic disclosure strategy (54% in India vs. 26% in UK). Investors should flag firms exhibiting >3 red flags for enhanced scrutiny.

6.2.4 For Companies

Organizations must strategically assess their institutional context and competitive position to determine optimal disclosure strategy.

For LME Firms, substantive disclosure is not merely preferable; it is strategically essential. The institutional environment—investor activism, SEC disclosure threats,

litigation risk, ESG rating integration into valuations—makes symbolic disclosure costly. Firms face investor backlash and reputational damage when caught in disclosure misrepresentation (e.g., greenwashing lawsuits). UK data shows 49% of firms pursue substantive strategies where enforcement is strong, reflecting rational institutional response. Hence, the suggestable strategy is to invest in disclosure infrastructure (ESG reporting software, sustainability teams, external assurance), adopt all major frameworks (GRI, TCFD, SASB), and ensure data aligns with disclosed commitments. Investors increasingly integrate ESG ratings into capital allocation, making substantive disclosure a capital-raising necessity.

For Hybrid Economy Firms which face a strategic choice with different payoffs depending on stakeholder composition:

- Substantive Disclosure (High-Cost, Differentiation Strategy): Invest in comprehensive data collection (Scopes 1, 2, 3), external assurance, and all major frameworks. This strategy differentiates firms from competitors pursuing symbolic disclosure and signals quality to foreign investors, MNC parent companies, and responsible investors. As global capital increasingly screens for ESG, substantive disclosure becomes competitive advantage.
- Symbolic Disclosure (Low-Cost, Legitimacy Strategy): Announce net-zero commitment, adopt GRI or TCFD selectively, avoid external assurance scope expansion. This strategy minimizes domestic compliance burden while achieving legitimacy with local regulators. Effective in contexts where enforcement is weak and local investors lack ESG screening capacity.
- The optimal strategy depends on capital structure: firms with high FII (foreign institutional investor) ownership, multinational parent company requirements, or access to ESG-screened capital markets increasingly CANNOT rationally pursue symbolic disclosure due to capital raising costs. Conversely, firms with primarily domestic state-owned ownership, state bank funding, or no multinational parent can sustain symbolic strategies given weak institutional enforcement.

However, two factors shift the balance toward substantive disclosure even for domestic firms:

- Multinational procurement increasingly requires supplier ESG disclosure. Firms with multinational customers must disclose substantively or lose contracts.
- ISSB standards will eventually diffuse to emerging markets through capital market regulators. Early substantive adoption creates competitive moat versus laggard firms forced to implement hastily.

Hence, firms should conduct stakeholder analysis (What % FII vs. domestic ownership? What % MNC customer base? What % institutional investor ownership?) and assess whether capital cost benefits of substantive disclosure exceed disclosure infrastructure costs. For firms with >30% FII or >20% MNC stakeholder exposure, substantive disclosure is cost-justified. For others, monitor ISSB timeline and assess strategic positioning accordingly.

6.3 Limitations and Future Research Directions

This study makes meaningful contributions to understanding ESG disclosure's institutional determinants, yet several limitations warrant acknowledgment and suggest productive research directions.

First, our analysis focuses on large-cap firms (top 50 by market capitalization in each country). Large firms face institutional pressures qualitatively different from SMEs: larger investor bases, greater regulatory scrutiny, higher litigation risk, and greater ESG rating agency coverage. The VoC × Enforcement framework may operate differently for SMEs where institutional pressure is weaker. Future research should examine whether enforcement capacity effects persist at mid-cap and small-cap firm levels, with the hypothesis that VoC institutional effects strengthen as firm size decreases (reduced investor pressure, lower stakeholder scrutiny).

Second, four years of panel data (2020-2023) is insufficient to evaluate long-term institutional convergence or divergence. The study period coincides with ISSB development (finalized June 2023) but precedes global implementation (TCFD replacement, IRS requirements, EU Corporate Sustainability Reporting Directive adoption). Extended analysis through 2030 would clarify whether enforcement capacity or global standardization drives long-term convergence. Between-country dispersion (4.28 → 3.77) is modest and non-significant, but longer panels may reveal whether ISSB implementation accelerates convergence or whether institutional variation persists despite global standards.

Third, Institutional Variation Within Countries analysis implicitly assumes institutional homogeneity within countries, yet significant variation exists. US companies listed on European exchanges face different enforcement (EU Sustainable Finance Disclosure Regulation) than purely US-listed firms. Indian firms with high FII ownership behave more like LME firms than state-owned enterprises. Japanese firms operating globally may face pressure independent of Japan's CME coordination. Multilevel models disaggregating firm-level, industry-level, and country-level effects could disentangle whether observed effects are truly institutional-country effects or compositional artifacts of firm stakeholder structure.

Fourth, this study uses disclosure quality as a proxy for firm ESG commitment, yet disclosure and environmental performance may diverge. Substantive disclosure does not guarantee substantive environmental improvements; conversely, weak disclosure does not preclude genuine emissions reductions. Future research should link disclosure quality to actual environmental outcomes (emissions reduction, GHG intensity improvement, science-based target attainment). If substantive disclosure correlates poorly with performance, the practical implications shift: investors would need performance-based metrics independent of disclosure. Conversely, if substantive disclosure strongly predicts performance, it validates using disclosure as a proxy for firm commitment.

Fifth, while the framework identifies VoC × Enforcement as a key moderator of disclosure quality, alternative mechanisms warrant testing. Does enforcement operate primarily

through regulatory threat (firms disclose to avoid penalties) versus stakeholder pressure (enforcement enables investor monitoring, increasing pressure)? Does institutional context affect disclosure quantity differently from disclosure quality? Do different firm types (financial vs. industrial, domestic vs. multinational) respond heterogeneously to enforcement capacity? Process research combining surveys, interviews, and archival analysis could illuminate decision-making underlying disclosure strategy choices.

Sixth, our classification of symbolic versus substantive disclosure uses simple rules (scope data + assurance). More sophisticated methods, like textual analysis of disclosure documents, comparison of disclosed data across reporting frameworks to detect inconsistencies, comparison of disclosed targets to industry benchmarks, could refine classification. Machine learning approaches could identify greenwashing patterns from large-scale disclosure text.

Despite these limitations, the study establishes VoC × Enforcement as a framework for understanding ESG disclosure heterogeneity, refines institutional theory through demonstrating context-specific institutional pressure effects, and provides actionable guidance for regulators, investors, and firms navigating global ESG disclosure convergence pressures.

7. CONCLUSION

The study seeks to determine whether institutional context, i.e., varieties of capitalism (VoC), influences the quality of ESG disclosures that comply with global standards. Based on panel data from 200 companies in the US, UK, Japan, and India (2020-2023), three findings were reached. First, VoC type interacts with regulatory enforcement to shape disclosure quality. UK (LME + strong enforcement) achieves high quality (37.44), exceeding India (Hybrid + weak enforcement, 29.32) by 13.5 points ($p < 0.001$), while USA and Japan show intermediate levels (≈ 40). This reveals that that of emerging Hybrid countries, despite the growing number of companies adopting global standards. Second, India's BRSR mandate (2022) produced the largest improvement (+7.75 points, $p = 0.0013$), confirming that coercive pressure has strongest impact in Hybrid economies where voluntary approaches fail. In contrast, normative pressure (voluntary practices) works better in LME countries owing to investors' surveillance. Third, VoC determines whether a company engages in substantive or symbolic disclosure, confirming that 42% of Hybrid-economy firms engage in symbolic disclosure, compared to only 18% of LME firms.

The findings have critical implications. Academics should explore the three potent theories, i.e., institutional theory, varieties of capitalism (VoC), and legitimacy theory, which can be analysed independently but can be brought together into one framework, where institutional context influences not only how much there is to disclose (VoC main effect) but also the quality of the response (symbolic or substantive). The paper demonstrates that there exists "an emerging hybrid" VoC type that needs to be addressed by researchers. Similarly, for practitioners, the study highlights that one-size-fits-all standards are not readily applicable and varied institutional contexts require robust,

context-specific regulations, thereby prompting enforcement capacity building adjusting ESG ratings beyond mandate issuance by the ISSB, regulators, and investors.

Given the rapid institutionalisation of ESG reporting thus far, including the adoption of ISSB guidelines, the implementation of the CSRD in the EU, and debates surrounding new SEC requirements, the significance of institutional heterogeneity cannot be understated. As the findings show, there is indeed convergence. However, this process is path-dependent, with LME firms opting substantive ESG reporting under investor pressure, CME firms through industry coordination, and Hybrid firms through state interventions varying in enforcement. There is no universal route to effective global ESG disclosure; however, there may be an institutional route to achieving it. Understanding this fact, rather than institutional neutrality, will better facilitate the objective of corporate transparency in sustainability disclosures.

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