Regulatory Architecture and Economic Stability: A Quantitative Analysis

A comparative study of rules-based and principles-based systems in mature and frontier markets

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Summary

We evaluate how regulatory system design – rules-based, principles- (interpretation-) based[1] , and hybrids – shapes macro-financial performance. Using a Python-driven model, this study assigns weighted values to GDP growth, CPI inflation, FDI-to-GDP, Ease of Doing Business (EOB), and the Regulatory Quality Index (RQI).

The headline finding is that rules clarity anchors expectations and dampens volatility, but that carefully bounded discretion can deliver comparable benefits where supervisory capacity and transparency are high. This research offers policymakers, supervisors, and risk practitioners a quantitative and practical lens on how choices regarding regulatory architecture affect growth, price stability, capital formation, and institutional quality.

About the Author

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[1] This study uses *principles-based* in the same sense that regulatory literature also uses *interpretation-based*: a framework that grants supervisors latitude to interpret broad standards rather than applying detailed prescriptive rules.

1.0   Introduction

Within existing literature, "regulations" are binding rules and norms generally issued by a regulatory entity in fulfilment of said entity's functions"[2]. Regulatory systems are designed to govern behaviour and ensure compliance with established norms. The primary purpose of a regulatory system is to achieve legislative congruence by ensuring that industry actors follow their statutory requirements while serving the legislative purposes[3]. In financial markets, these include prudential rules impacting conditions relating to market access and regulating the risk associated with financial activities[4]. In banking regulation, its primary objectives include: to protect consumers, ensure the stability of the financial system, and prevent financial crime[5]. Such regulations aim to facilitate safe and sound banking practices by ensuring there is adequate capital to cover the risks associated with banks, help to prevent unfair or deceptive practices, and ensure consumers are well aware of their rights and options[6]. Since the regulatory landscape has shifted significantly in response to recent global financial crises, jurisdictions have oscillated between codifying detailed rulebooks to reduce ambiguity and relying on supervisory judgement to keep pace with innovation.

Transparent and predictable regulatory frameworks have been established by literature as fundamental drivers of investment confidence. With this, they directly influence economic performance and development outcomes. **Rules-based systems** have gained traction for these very reasons due to their ability to standardise regulatory outcomes, minimising ambiguity and simplifying compliance. Rules-based systems use clear, prescriptive rules to govern behaviour, based on known and predicted risks resulting from financial products, services, and activities[7]. The regulatory structure provides certainty and predictability for regulated entities, reduces the likelihood of subjective interpretation, and seeks to achieve the most desirable predictable outcome[8]. Conversely, **principles-based systems** use broadly stated rules and principles to set standards by which regulated entities must conduct business. In such systems, firms are permitted to exercise a certain amount of discretion with respect to the way principles and rules are to be implemented[9]. This regulation system type is designed with the aim of providing flexibility, but often risks inconsistent enforcement, particularly in volatile economic climates. In stable periods, interpretations often converge; in periods of stress, however, discretion can diverge, making enforcement appear uneven. With this, clear triggers, documented rationales, and post-event reviews are supplemental to the 'loose' rules in place to preserve consistency while retaining flexibility. To keep discretion predictable and comparable, supervisors often set clear activation triggers, require written rationales, and conduct post event reviews – guardrails that preserve consistency while retaining flexibility.

This study asks the practical question: ***how do different configurations of a regulatory system affect macro-financial outcomes across different stages of market development?*** To separate architecture from circumstance, the sample deliberately couples four **resource-oriented frontier** or upper-middle-income markets (Mongolia, Indonesia, Peru, Papua New Guinea) with four **mature financial centers** (United States, Hong Kong, United Kingdom, Australia). Frontier commodity exporter countries offer a test of whether rule clarity can compensate for still-developing institutional depth. Mature hubs reveal how discretion performs once supervisory capacity, disclosure norms, and market infrastructure are already strong. Using a common indicator set across both groups allows us to focus on the incremental contribution of regulatory system design, not on factor endowments.

These regulatory systems treat corporations generally as private participants governed by corporate law. However, beyond formal regulations, banks operate within emergent network structures driven by preferential attachment – a different type of system with a degree sequence distribution that follows a power law. It follows topological network behavior and is not apparent by examination of pure regulatory systems only.

Unlike regulatory systems, these networks establish how communities, customers, and stakeholders perceive a bank's role in the economy. These networks can attract more connections with high degree nodes, new nodes prefer to connect to existing hubs, growth follows existing advantages and this network's centrality strengthens long term stability. A

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[2] https://documents1.worldbank.org/curated/zh/739411468153873981/pdf/359190PAPER0Le1s01OFFICAL0USE0ONLY1.pdf, Pg 5

[3] Vincent Di Lorenzo, Principles-Based Regulation and Legislative Congruence, 15 N.Y.U. J. LEGIS. & PUB. POL'y 45 (Winter 2012), Pg 47

[4] https://documents1.worldbank.org/curated/zh/739411468153873981/pdf/359190PAPER0Le1s01OFFICAL0USE0ONLY1.pdf, Pg 5

[5] https://www.idnow.io/glossary/bank-regulation/

[6] https://www.idnow.io/glossary/bank-regulation/

[7] Saule Omarova & Adam Feibelman, Risks, Rules, and Institutions: A Process for Reforming Financial Regulation, 39 U. MEM. L. REV. 881 (Summer 2009), Pg 907

[8] Saule Omarova & Adam Feibelman, Risks, Rules, and Institutions: A Process for Reforming Financial Regulation, 39 U. MEM. L. REV. 881 (Summer 2009), Pg 907

[9] Pascal Frantz & Norvald Instefjord, *Rules vs. Principles Based Financial Regulation*, London School of Economics; Essex Business School, University of Essex (Nov. 25, 2024)

bank's social license to operate, informal but powerful, functions similarly to regulation, and should not be underestimated.

Alongside formal rulebooks lie an informal governance layer that markets pay close attention to **social licence**. Social licence refers to the extra-statutory confidence that investors, customers, and supervisors collectively extend to institutions that demonstrate credible, transparent risk management. Social licence is not regulation – only law and rules are – but it operates adjacent to statute in a way that can reinforce or undermine formal outcomes. In modern financial systems, counterparties tend to cluster around institutions viewed as reliable "hubs." In network terms, connections accumulate to already-connected nodes (a **preferential-attachment** pattern), creating high-centrality institutions whose behavior carries outsized system impact. When supervisors use discretion in a predictable, well-signalled way, for example, by publishing time-stamped waiver logs, decision rationales, and model-approval statistics, market participants can anticipate supervisory responses. That predictability strengthens a regulatory institution's social licence, lowers funding spreads, and helps sustain steady FDI intensity, while also aligning with higher EOB/RQI readings. Where transparency is thinner, discretion may be perceived as idiosyncratic, weakening those effects. Social-licence dynamics are not scored in the model; but rather only noted as a plausible channel through which clarity and accountability translate into the measured outcomes, and as an avenue for future empirical work.

The interplay between regulatory structures and economic performance has long been a subject of interest for financial institutions, regulators, and economists alike. The contrasting approaches between rules- and principles-based systems pose distinct implications for economic predictability, investment stability, and risk exposure. The problem of this study is not rules vs discretion, but how different configurations of regulation influence economic outcomes across the development stages of countries. Grounded in both theory and supervisory practice, the study tests three expectations using a robust data-driven model that empirically assesses these systems' impacts on economic outcomes:

1. In **frontier, commodity-exposed markets**, clear, non-negotiable rules should deliver the largest early gains by anchoring expectations and dampening volatility.
2. In **mature hubs**, calibrated discretion – when tied to transparent triggers and audit trails – should add second-order benefits without eroding clarity.
3. **Across both groups**, implementation rigor (decision logs, sunsets, peer review) should matter more for outcomes than the label on the rulebook.

Alongside statutes and guidance, markets respond to credibility signals — how transparent supervision is, how predictable waivers are, and how quickly information is published. These signals create **preferential-attachment dynamics**: capital and counterparties cluster around institutions and jurisdictions that demonstrate reliability. Later sections show that well-signalled discretion can replicate much of the confidence premium associated with codified rules.

2.0   Methodology

This study uses a Python-based scoring framework to examine how regulatory mode (rules-based vs principles-based) and market type (frontier/commodity-oriented vs mature financial hub) correlate with macro-financial outcomes. Five indicators, using data from 2010–2020, are evaluated on a common scale across eight jurisdictions: real GDP growth, CPI inflation, FDI-to-GDP, Ease of Doing Business (EOB), and the Regulatory Quality Index (RQI).

For each jurisdiction–indicator pair, five descriptive statistics are computed across the sample window (mean, median, standard deviation, minimum, maximum) and standardized across the cross-section using z-scores to place all inputs on a common, unitless scale. Indicator scores are then constructed as weighted sums of these standardized descriptors with positive weights on stable central tendencies and negative weights on volatility/extremes. A jurisdiction's Composite Score equals the sum of its five standardized indicator scores; while the High-Score Count (HSC) records how many indicators exceed the cross-sample median ($z>0$), signaling a scale-free breadth of performance measure.

2.1 Jurisdiction Classification

Each jurisdiction carries two independent tags for the period 2010–2020 used for group comparisons and narrative structure (they do not alter the underlying scoring):

1) **Regulatory system** — rules-based vs principles-based (synonymous with "interpretation-based" in this paper).
2) **Market type** — frontier/commodity-oriented vs mature financial hub.

Regulatory system assignment for each jurisdiction was assigned to a rules- or principles-based cohort using a three-lever screen applied to public sources for 2010–2020. Signals were assessed holistically; mixed signals were documented as hybrids, while the predominant mode was retained for comparability.

1) **Statute density** – Review of binding prudential provisions (capital, liquidity, large exposures, governance) in primary and secondary instruments published in national gazettes or regulatory registers in each jurisdiction (with IMF/World Bank repositories used where available).
    - High counts of explicit thresholds, detailed eligibility tests, and prescriptive processes: rules-based tilt.
    - Sparse or high-level provisions that defer to supervisory judgement: principles-based tilt.
2) **Supervisory-override powers** – Presence, scope, and use (where publicly referenced) of clauses allowing discretionary variation of prudential minima (e.g., capital or liquidity relief outside extraordinary-crisis statutes).
    - Broad, regularly invoked, time-flexible overrides: principles-based tilt.
    - Narrow, emergency-only overrides or explicit waiver-proof "red lines": rules-based tilt.
3) **Basel Core Principles (BCP) emphasis** –The latest publicly available assessment narrative read for:
    - Broad, regularly invoked, time-flexible overrides: principles-based tilt. Outcomes-focused, supervisory judgement, and proportional implementation: principles-based.

Jurisdictions scoring high on:(a) and lacking broad overrides in (b), corroborated by a rule-detail emphasis in (c), are tagged rules-based Those with low density or explicit/active override powers, and whose BCP narrative praised supervisory discretion, were tagged 'principles-based'. Where signals were mixed (e.g., strong codification with targeted, metric-bound waivers), the hybrid character was noted, but the predominant tag retained to preserve cross-sectional comparability.

Market type, on the other hand, situates the regulatory discussion in economic structure and stage of development. It is assigned using a simple, transparent screen based on widely available snapshots (World Bank, UN trade statistics, BIS/IMF market-depth indicators) for 2010–2020:

a) **Mature financial hub**. Deep, diversified financial intermediation; large services share; established cross-border linkages (international listings/trading, clearing/settlement infrastructures, reserve-currency connections).
b) **Frontier/commodity-oriented**. Export baskets dominated by minerals/energy/agriculture; shallower domestic capital markets; higher exposure to terms-of-trade shocks and data/reporting gaps.

The tag reflects the dominant profile over the sample window and is used to compute group means/dispersion and to frame volatility and investment-intensity results.

For transparency, the two tags are shown jointly below.

Table 1: Jurisdiction Classification by Regulatory System and Market Type

		Regulatory System Classification	
		Rules-Based	Principles-Based
Market Type	Mature financial hub	United States	United Kingdom
		Hong Kong	Australia
	Frontier/commodity-oriented	Indonesia	Peru
		Mongolia	Papua New Guinea

2.2 Data Source and Scope

Table 2: Set of Economic Performance Indicators Evaluated, Source of Data

Indicator	Description	Data Source
GDP Growth	Measures economic expansion through growth rates; annual real growth (%)	World Bank
Consumer Price Inflation	Measures price stability as an indicator of consumer confidence; annual average inflation (%)	IMF
FDI Inflows	Measures foreign investments as an indicator of economic growth prospects; net inflows as % of GDP (captures intensity rather than size)	World Bank
Ease of Doing Business	Assesses regulatory efficiency in business setup; business-environment score	World Bank
Regulatory Quality Index	Evaluates governance effectiveness and structure; perception-based governance indicator	World Bank

The panel ends in 2020 as several series were retired or materially disrupted thereafter; truncating the series preserves comparability and statistical integrity.

2.3 Standardisation

All descriptor values are standardised across jurisdictions using z-scores:

$$z = \frac{value - mean}{SD}$$

Standardisation ensures that differences in raw scales cannot mechanically dominate indicator or composite scores.

2.4 Indicator Scoring

Descriptor values (mean, median, standard deviation, minimum, maximum) are first standardised across jurisdictions using z-scores; indicator scores are the weighted sum of these z-scores. Because inputs are z-scores, a one-standard-deviation change in any descriptor contributes exactly its weight to the indicator score, eliminating raw-scale bias.

Table 3: Custom Weights Assigned to Statistical Descriptors for Each Indicator of Economic Performance

Indicator	Mean	Median	Std Dev	Min	Max
GDP Growth	0.30	0.20	-0.20	-0.15	-0.15
Inflation Rate	-0.20	-0.15	-0.10	-0.20	-0.15
FDI Inflows	0.30	0.25	-0.10	-0.20	0.05
Ease of Doing Business	0.25	0.30	-0.15	-0.25	0.05
Regulatory Quality Index	0.30	0.25	-0.10	-0.20	0.05

The weighting scheme rewards typical performance while penalising volatility and adverse tails, with small positive credit for upper-tail peaks only where higher values are unambiguously desirable. This design aligns the scoring with policy goals of strength, consistency, and risk control. Because all inputs are z-scores, the weighting system also ensures comparability across indicators with very different raw magnitudes.

For GDP growth, mean and median receive positive weights to emphasize sustained expansion, whereas standard deviation and both tails are penalized to discourage boom-bust profiles and dependence on episodic extremes. This balances growth with macro-stability. *For inflation*, higher levels are intrinsically undesirable, hence the negative weights on mean and median. Additional penalties on volatility and extremes reflect the premium markets place on well-anchored inflation expectations and the costs of spikes. *For FDI-to-GDP*, mean and median dominate to capture typical investment intensity, while volatility and very weak episodes (minimum) are penalized to reflect the dangers of sudden stops. A small positive weight on the maximum acknowledges peak attractiveness without letting one-off surges drive the score. *For Ease of Doing Business*, the structure favors consistently supportive operating conditions (positive mean/median) and penalizes instability and weak episodes that raise transaction costs. A light positive weight on the maximum recognizes peak capability while keeping the focus on the everyday experience of firms. Lastly, *for Regulatory Quality*, the rationale mirrors EOB. Higher typical governance quality is rewarded; variability and poor readings are penalized, with only a small nod to best-case peaks. This prioritizes durable institutional performance over occasional highs.

2.5   Composite Score and Breadth Metric

A jurisdiction's Composite Score equals the sum of its five standardised indicator scores. Meanwhile, the High-Score Count (HSC) equals the number of indicators with positive standardised scores ($z > 0$), providing a parsimonious measure of breadth. Analytic inferences draw on both depth (Composite) and breadth (HSC) and are reported by regulatory mode and by market type.

3.0   Results and Discussion

Read across all five indicators, the data traces a developmental arc. In frontier, commodity-oriented markets (Mongolia, Indonesia, Peru, Papua New Guinea), rules-based regulatory systems deliver the largest early wins — lower macro volatility and clearer investment signals. In mature financial hubs (United States, Hong Kong, United Kingdom, Australia), once enforcement resources and disclosure standards are established, calibrated discretion can add value without unsettling expectations.

The first part of this section describes cross-jurisdiction patterns from the descriptive charts (Figures 1–5), which show each economy's min/mean/max over 2010–2020 for each of the five indicators. Next, it interprets the results indicator-by-indicator, with comparative analyses that contrast rules-based vs principles-based cohorts and frontier vs hub market types (Figure 6-10). Lastly, it reports the model outcomes (Table 4), which translate the descriptive profiles into standardized indicator scores and a Composite Score with a breadth check (High-Score Count, HSC).

3.1   Descriptive Profiles

Figures 1–5 provide a descriptive baseline by showing, for each indicator and jurisdiction over 2010–2020, the observed minimum and maximum and the implied range width. These level-and-dispersion bands contextualise the standardised scoring that follows by making clear where volatility is intrinsically higher and where institutional baselines are stronger.
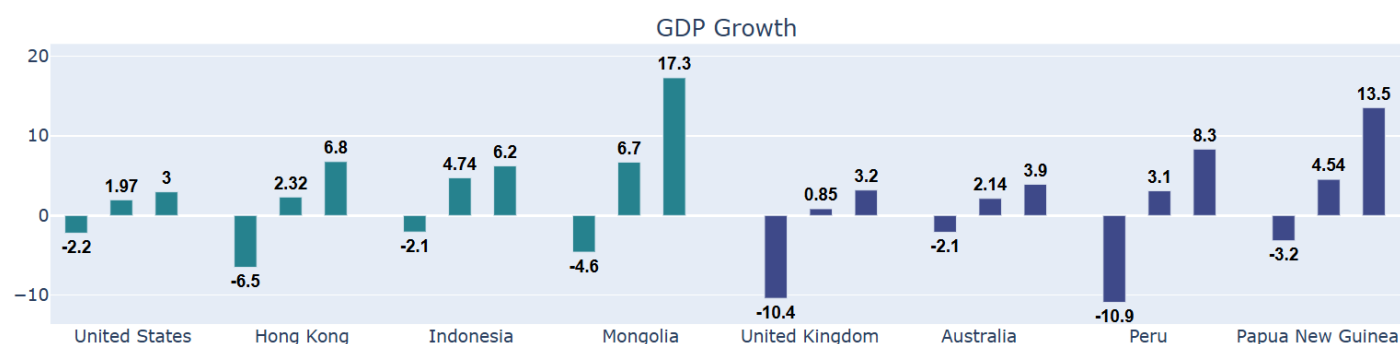

Figure 1: GDP Growth in Each Jurisdiction across 2010-2020 (Minimum, Mean, Maximum)

For GDP growth (Figure 1), frontier economies exhibit wider output swings. Mongolia spans −4.6% to 17.3% (range 21.9 percentage points), Peru -10.9% to 8.3% (19.2 pp), Papua New Guinea −3.2% to 13.5% (16.7 pp), and Indonesia −2.1% to 6.2% (8.3 pp). Mature hubs are tighter: the United States ranges from −2.2% to 3.0% (5.2 pp) and Australia from −2.1% to 3.9% (6.0 pp). Hong Kong (−6.5% to 6.8%; 13.3 pp) and the United Kingdom (−10.4% to 3.2%; 13.6 pp) show broader bands largely due to the 2020 shock but still sit below the most volatile frontier profiles.
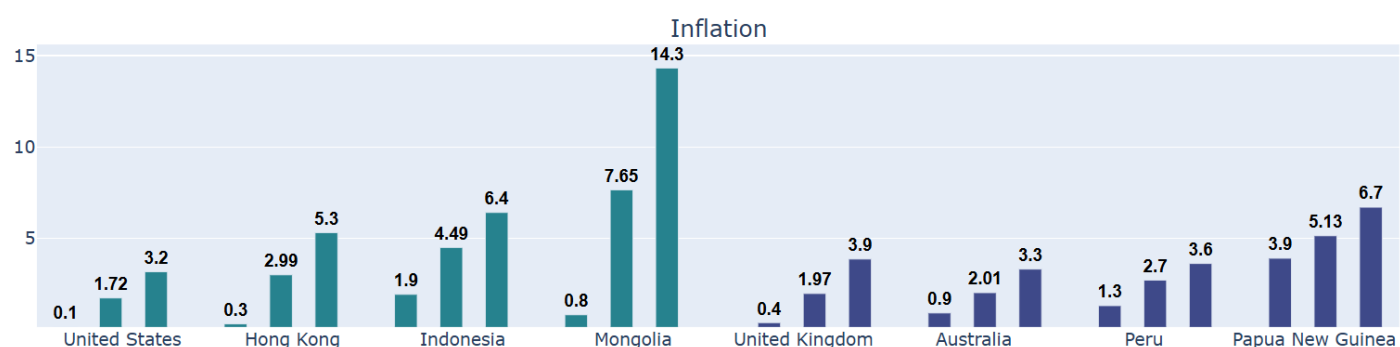

Figure 2: Inflation in Each Jurisdiction across 2010-2020 (Minimum, Mean, Maximum)

For inflation (Figure 2), anchors in mature hubs correspond to lower and steadier bands. Australia ranges from 0.9% to 3.3% (2.4 pp), the United States from 0.1% to 3.2% (3.1 pp), the United Kingdom from 0.4% to 3.9% (3.5 pp), and Hong Kong roughly 0.4% to 4.0% (~3.6 pp). Frontier dispersion is generally broader, led by Mongolia at 0.8% to 14.3% (13.5 pp), with Indonesia at 1.9% to 6.4% (4.5 pp), Papua New Guinea at 3.9% to 6.7% (2.8 pp), and Peru at 1.3% to 3.6% (2.3 pp).
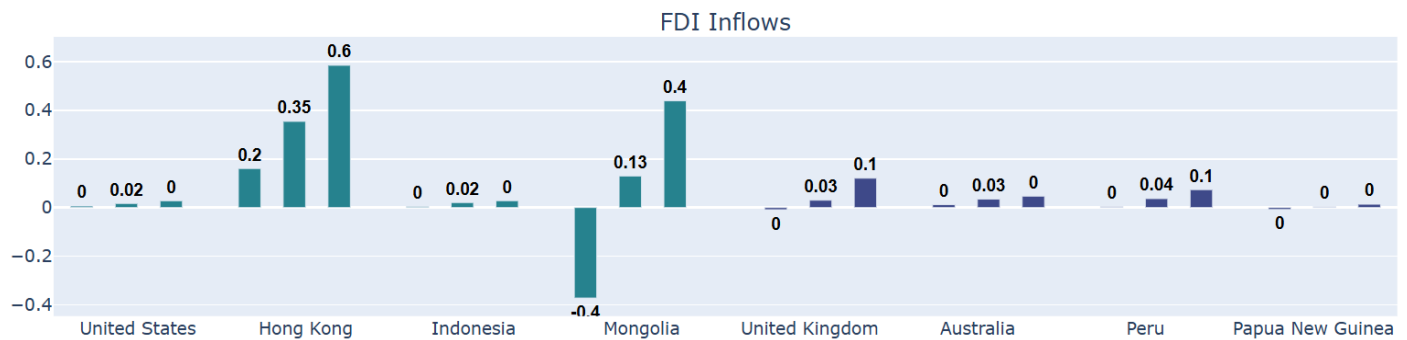
Figure 3: FDI Inflows in Each Jurisdiction across 2010-2020 (Minimum, Mean, Maximum)

For FDI-to-GDP (Figure 3), the ratio captures intensity rather than scale. Hong Kong is the standout hub at 0.20 to 0.60. Mongolia spans −0.40 to 0.40, reflecting surge years and concentration risk. Mid-pack readings cluster for the United Kingdom, Peru, and Australia at 0.00 to 0.10 (~0.10 points). Papua New Guinea sits near 0.00; as does the United States – for the case of the latter, most probably diluted by its large GDP denominator.
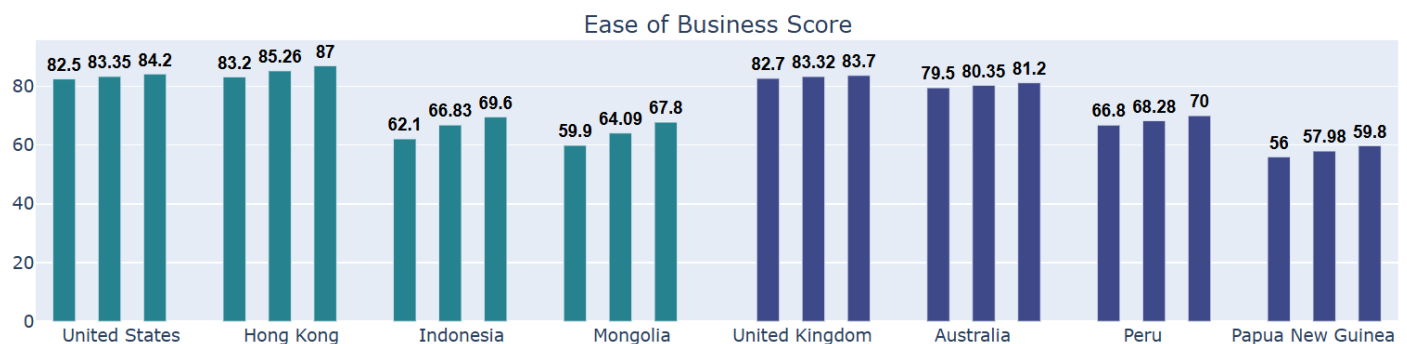

Figure 4: Ease of Doing Business Score in Each Jurisdiction across 2010-2020 (Minimum, Mean, Maximum)

For Ease of Doing Business (Figure 4), hubs combine higher levels with tighter bands (index points): Hong Kong 83.2–87.0 (3.8), United States 82.5–84.2 (1.7), United Kingdom 82.7–83.7 (1.0), and Australia 79.5–81.2 (1.7). Frontier jurisdictions show lower levels and often wider dispersion: Indonesia 62.1–69.6 (7.5), Mongolia 59.9–67.8 (7.9), Peru 66.8–70.0 (3.2), and Papua New Guinea 56.0–59.8 (3.8).
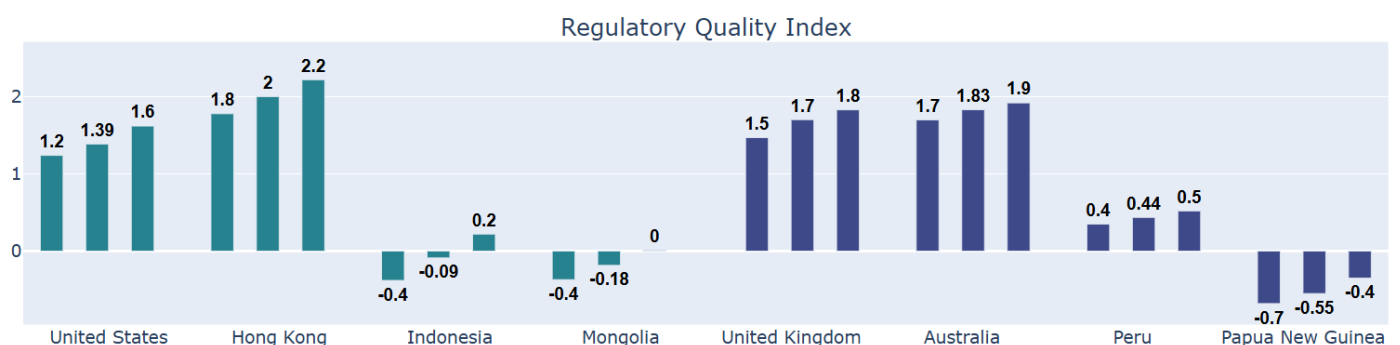

Figure 5: Regulatory Quality Index in Each Jurisdiction across 2010-2020 (Minimum, Mean, Maximum)

For the Regulatory Quality Index (Figure 5), governance signals remain persistently positive in hubs (index units): Hong Kong 1.8–2.2 (0.4), Australia 1.7–1.9 (0.2), United Kingdom 1.5–1.8 (0.3), and United States 1.2–1.6 (0.4). Frontier markets sit lower and are more mixed: Peru 0.4–0.5 (0.1), Indonesia −0.4–0.2 (0.6), Mongolia −0.4–0.0 (0.4), and Papua New Guinea −0.7–−0.4 (0.3).

Taken together, the descriptive bands show a consistent pattern: frontier economies pair higher ceilings (e.g., episodic GDP and FDI peaks) with wider dispersion, while mature hubs exhibit tighter bands alongside stronger institutional baselines (EOB and RQI).

3.2   Indicator-level Interpretation with Group Comparatives

This section interprets group trends by market type, using annual group means with ±1 standard-deviation (SD) bands for 2010–2020. The shaded bands summarise within-group dispersion; narrower bands indicate steadier outcomes.
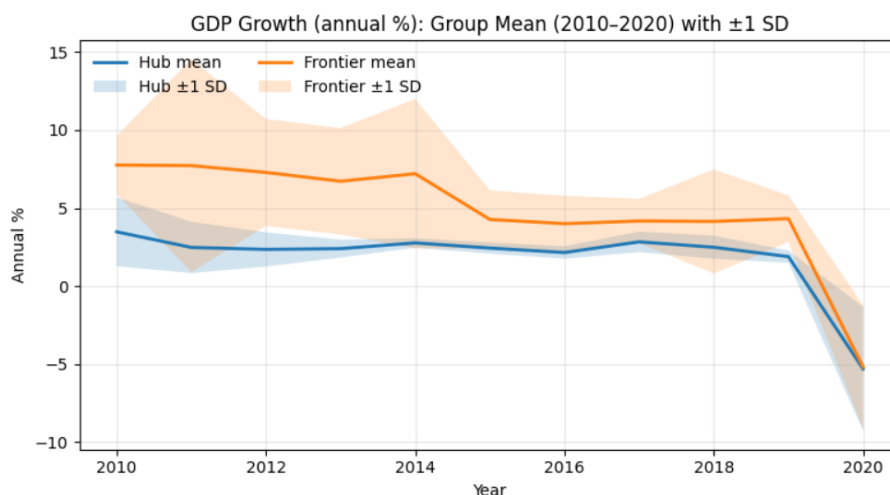

Figure 6: GDP Growth: Group Mean (2010–2020) with ±1 SD — Hubs vs Frontier

For GDP growth, frontier markets exhibit higher central growth but materially wider dispersion. The frontier mean fluctuates in the mid-single digits across the decade, while the ±1 SD band is broad—consistent with commodity-linked booms and contractions. Hubs cluster around lower, steadier growth; their ±1 SD band is markedly tighter, indicating fewer and smaller output swings. This pattern foreshadows the composite penalties frontier economies incur for volatility even when headline growth is strong.
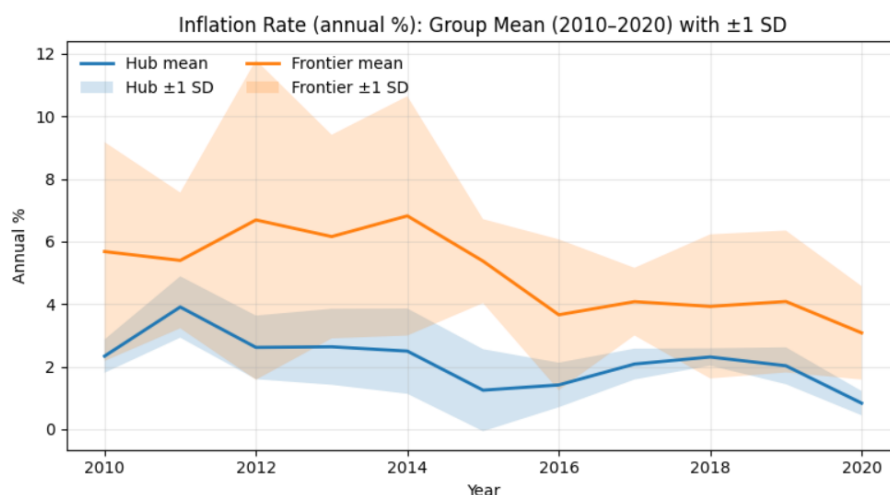

Figure 7: CPI Inflation: Group Mean (2010–2020) with ±1 SD — Hubs vs Frontier

For CPI Inflation, hubs maintain lower inflation means with thin ±1 SD bands, reflecting better-anchored expectations and policy credibility. Frontier markets record higher means with substantially wider dispersion, mirroring intermittent price shocks and weaker nominal anchors. The separation of the bands helps explain why inflation contributes negatively to several frontier composites despite occasionally low readings.
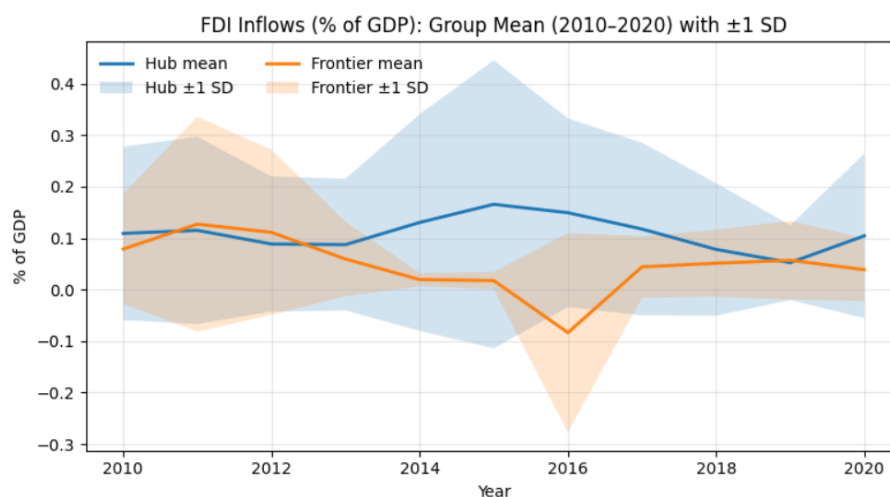
Figure 8: FDI Intensity (FDI/GDP): Group Mean (2010–2020) with ±1 SD — Hubs vs Frontier

For FDI-to-GDP, hub means outpace frontier means. Frontier bands, on the other hand, are wide – capturing episodic surges (e.g., mining-led inflows) alongside years near zero or negative net inflows. The comparative picture is of depth versus bursts: hubs attract durable, rules-clear capital; frontier inflows are more concentrated and timing-sensitive.
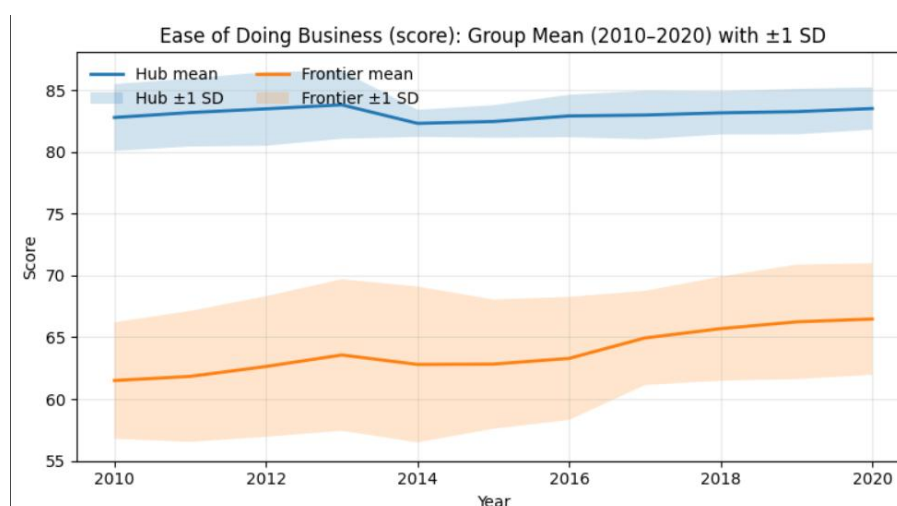

Figure 9. Ease of Doing Business: Group Mean (2010–2020) with ±1 SD — Hubs vs Frontier

For Ease of Doing Business, hubs start high and stay high. The hub mean rises modestly from ~82–83 in 2010 to ~84 in 2020, with a narrow ±1 SD band (~±1–2 points) throughout—evidence of stable administrative conditions. Frontier means improve from ~61–62 to ~66–67 across the period, but the ±1 SD band remains much wider (~±4–6 points) despite some narrowing after 2016. The figure therefore captures both convergence (frontier improvements) and the still-material gap in process reliability and predictability.
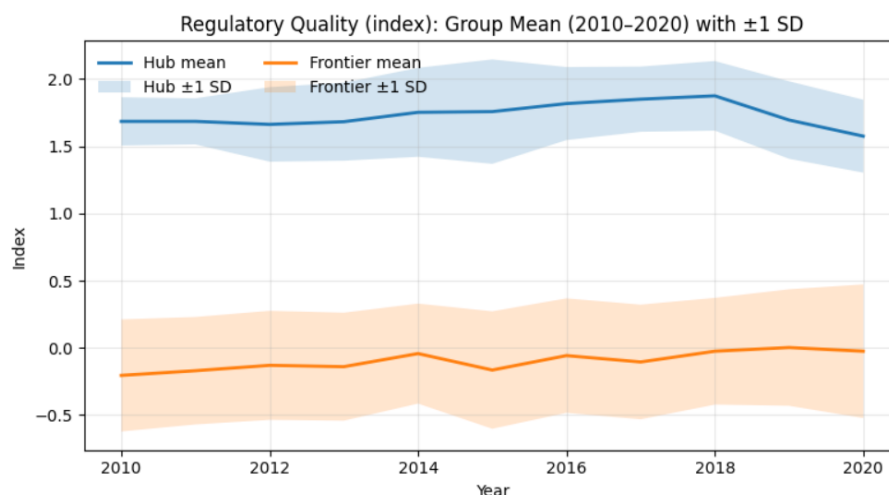
Figure 10. Regulatory Quality Index: Group Mean (2010–2020) with ±1 SD — Hubs vs Frontier

For regulatory quality, hubs sustain positive means (roughly the 1.5–1.9 range over the period) with tight bands, while frontier means sit near zero or slightly negative with wider dispersion. Incremental improvements are visible in some frontier years, but the persistent band separation points to institutional depth as a slow-moving constraint.

Across indicators, hubs combine higher institutional baselines (EOB, RQI) with tighter dispersion (GDP, inflation); frontier economies show higher ceilings in growth and occasional FDI spurts but wider bands. These comparative profiles align with the standardized model results: the scoring framework rewards predictability and governance quality. With this, rule clarity and accountable discretion in mature hubs translate into higher composites, while frontier markets realize gains fastest where codified minima and administrative streamlining narrow the volatility bands over time.

3.3   Model Outcomes

Table 4 below reports standardised indicator scores (z-scores), the Composite Score (sum of the five standardised indicators), the cross-sample rank (1=highest), and the High-Score Count (HSC; number of indicators with z>0). As all inputs are standardised, positive values denote above-sample performance for 2010–2020; while negative values denote below-sample performance. The composites therefore reward breadth and stability rather than raw magnitude.

Table 4: Economic Performance Scores in Each Jurisdiction

Jurisdiction	Market Type	GDP	Inflation	FDI	EOB	RQI	Composite Score	Rank	High Score Count
Rules-based Systems									
Hong Kong	Hub	-0.20	0.33	1.29	0.49	0.67	2.58	1	**4**
United States	Hub	-0.21	0.63	-0.17	0.41	0.34	1.00	3	**3**
Mongolia	Frontier	1.10	-0.77	1.05	-0.29	-0.47	0.62	5	**2**
Indonesia	Frontier	0.68	-0.28	-0.17	-0.22	-0.38	-0.36	7	**1**
Interpretation-based Systems									
Australia	Hub	-0.21	0.50	-0.10	0.31	0.57	1.07	2	**3**
United Kingdom	Hub	-0.69	0.57	-0.02	0.40	0.50	0.76	4	**4**
Peru	Frontier	0.08	0.32	-0.07	-0.17	-0.16	-0.00	6	**2**
Papua New Guinea	Frontier	0.66	-0.50	-0.21	-0.60	-0.63	-1.27	8	**1**

Among mature financial centers with rules-based systems, Hong Kong (Composite 2.58, Rank 1, HSC 4) leads decisively. Its position is driven by very strong FDI-to-GDP (1.29) together with high EOB (0.49) and RQI (0.67). United States (Composite 1.00, Rank 3, HSC 3) combines strong inflation control (0.63) and solid institutional scores (EOB 0.41, RQI 0.34), offsetting weaker FDI (−0.17) and slightly below-mean GDP (−0.21). On the principles-based side, Australia (Composite 1.07, Rank 2, HSC 3) and United Kingdom (Composite 0.76, Rank 4, HSC 4) show that calibrated

discretion can deliver hub-level outcomes when governance is strong (EOB 0.31/0.40; RQI 0.57/0.50) and inflation variability is contained (0.50/0.57), even with modest GDP (−0.21/−0.69) and muted FDI (−0.10/−0.02).

For frontier markets, results are more heterogeneous. Mongolia (Composite 0.62, Rank 5, HSC 2) posts above-sample GDP (1.10) and FDI (1.05) but is held back by weaker institutions (EOB −0.29, RQI −0.47) and inflation variability (−0.77). Indonesia (Composite −0.36, Rank 7, HSC 1) shows a similar trade-off—above-mean GDP (0.68) offset by negative governance (EOB −0.22; RQI −0.38) and softer inflation (−0.28). For principles-based frontiers, Peru sits near the sample mean (Composite ≈0.00, Rank 6, HSC 2) with modest positives in GDP (0.08) and inflation (0.32) offset by weaker EOB (−0.60) and RQI (−0.16). Papua New Guinea records the lowest composite (−1.27, Rank 8, HSC 1), reflecting early-stage institutions (EOB −0.60; RQI −0.63) and negative FDI (−0.21) despite above-mean GDP (0.66).

Additionally for cross-cutting patterns, two regularities emerge:

a) **Breadth matters**. Jurisdictions with higher composites also tend to score positive on more indicators (HSC): Hong Kong (4), United Kingdom (4), Australia (3), United States (3). Conversely, frontier economies with one or two strengths but multiple negatives (e.g., high GDP coupled with weak EOB/RQI) rank lower.

b) **System–context interaction**. In mature hubs, where institutional baselines are strong, a principles-based mode can match rule-dense peers provided discretion is bounded and transparent (UK, Australia). In frontier settings, rules-based clarity helps, but outcomes hinge on whether governance and inflation penalties overwhelm growth/FDI strengths (Mongolia vs. Indonesia; Peru vs. PNG).

Overall, Table 4 corroborates the descriptive profiles: mature hubs, regardless of formal label, score well when governance quality and inflation anchoring are strong; frontier markets perform best when rule clarity is paired with incremental improvements in institutional capacity and disclosure, which broaden the set of indicators on which they score above the sample mean.

3.4   Indicator-Specific Comparative Review

Figures 6–10 summarize group-level dynamics (Hubs vs Frontier) and connect them to the jurisdictional results in Table 4 and the descriptive bands in Figures 1–5. Regularities stand out and explain most of the composite differences as expounded below.

Volatility vs. level effects. Across GDP growth (Figure 6) and CPI inflation (Figure 7), frontier economies exhibit higher group means alongside materially wider SD bands. In practice, this means episodic growth surges and sharper slowdowns, plus more variable inflation paths. Hubs, by contrast, post tighter envelopes even when their average growth is more modest. Because the scoring framework rewards stable central tendencies and penalizes dispersion, these volatility features directly map into Table 4: frontier jurisdictions incur larger negative contributions on GDP/Inflation z-scores, while hubs avoid those deductions.

Capital formation and institutional baselines. On FDI-to-GDP (Figure 8), hubs display a higher and more persistent group mean with narrower dispersion, whereas frontiers show thinner means with occasional spikes. This aligns with Table 4, where Hong Kong and (episodically) Mongolia register positive standardized FDI contributions, while most others cluster near or below zero. The pattern is reinforced by Ease of Doing Business (Figure 9) and the Regulatory Quality Index (Figure 10): hub means sit well above frontier means with comparatively tight bands and limited overlap, mirroring the positive EOB/RQI z-scores for the United States, Hong Kong, the United Kingdom, and Australia in Table 4, versus negative contributions for several frontier peers. These governance channels—higher institutional baselines and smaller swings—explain why hubs systematically add points to the composite.

Label vs. execution. Read together, Figures 6–10 illuminate why the rules-based cohort posts higher composite depth on average (Table 4) while principles-based hubs can still match or exceed that performance when discretion is bounded and transparent. Within-label dispersion is meaningful: the United Kingdom and Australia (principles-based) achieve strong composites because their volatility bands are narrow and their EOB/RQI baselines are high; conversely, rules-based frontiers can underperform when macro volatility remains wide and governance scores lag. Thus, the market-type profiles (hubs vs frontier) in Figures 6–10 and the regime labels in Table 4 point to the same inference: predictability and institutional quality, not the label alone, drive outcomes.

Implications. For frontier, resource-exposed markets, the group bands argue for codifying non-negotiable prudential floors and publishing supervisory metrics to compress dispersion and lift institutional baselines—actions that convert

the wide bands in Figures 6–7 and the low baselines in Figures 9–10 into composite gains. For mature hubs, Figures 6–10 support calibrated, auditable discretion layered on top of those floors: where triggers are pre-announced and reviews are visible, principles-based practice preserves the tight bands and high baselines that the model rewards.

4.0   Conclusion

This study quantifies how regulatory design shapes macro-financial outcomes using a five-indicator panel normalised by z-scores. The analysis suggests that rules-based regulatory systems are generally associated with lower volatility, stronger investor confidence, and more durable performance, with such result consistent with the role of clear, non-waivable thresholds in anchoring expectations and reducing dispersion in growth and inflation. Meanwhile, principles-based approaches can achieve comparable results in performance when discretion is bounded by pre-announced triggers, documented rationales, and routine post-event reviews. The maturity gradient also matters. Frontier, commodity-oriented markets gain credibility fastest from clear statutory floors, and can create additional value by layering calibrated discretion on top of those floors. Across both settings, the evidence points that implementation quality —rather than the label — drives outcomes, so the framework should scale to supervisory capacity and public-data quality rather than prescribe a single model.

Transparent supervision builds a social license that attracts counterparties to credible institutions. When waiver decisions and model approvals are visible and explained, discretion becomes predictable, information flows faster, and funding spreads narrow. This "preferential-attachment" effect strengthens trusted hubs in mature centers and gives earlier-stage markets a practical path to deepen confidence over time.

Where discretion is necessary, three soft-law tools convert judgement into an auditable process: time-stamped decision logs, metric-bound sunset clauses, and independent peer-review loops[10],[11],[12],[13]. In high-capacity settings these safeguards let principles-based frameworks match the stability of rule-dense regimes. In capacity-building settings they provide a scalable roadmap that improves predictability without over-stretching resources.

This configuration blends clarity with agility. Policymakers should keep statutory capital, liquidity, and conduct floors as non-waivable anchors, only activate principled waivers when pre-published metrics are met, and publish simple performance dashboards that report macro results and key supervisory process times. For frontier regulators, this sequence locks in credibility first and adds flexibility as data and analytics mature. For advanced hubs it preserves the stability dividend while supporting innovation and calibrated crisis response. Taken together, these steps treat regulatory architecture as strategic. Codified thresholds create space for long-term planning and cross-border capital, and disciplined discretion allows for trust to be maintained as markets evolve.

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[10] https://www.bankingsupervision.europa.eu/activities/srep/2023/html/ssm.srep202312_aggregatedresults2023.en.html?
[11] https://www.apra.gov.au/sites/default/files/2023-11/APRA%202022-23%20Annual%20Report.pdf?, p.24
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