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Pricing Mechanism Evolution and Capital-Raising Efficiency in Emerging SME Equity Markets: Evidence from India's Book-Building Transition.

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Abstract

Between 2021 and 2025, 441 small and medium-sized enterprises (SME) initial public offerings (IPOs) were listed on India's BSE SME and NSE Emerge platforms, and the book-building share rose from 46.1% to 81.9%. This study documents the structural shift and its association with subscription demand and listing-day initial returns. Five hypothesis from the proposed Temporal Efficiency Convergence (TEC) framework are tested on the population of eligibility IPOs (fixed price = 197; book-building = 244) using chai-square analysis, rank based (Mann-Whitney) comparisons, one-way analysis of variance (ANOVA). Pricing mechanism is significantly associated with listing year (χ^2 (4) = 53.50, $p < .001$, $V = 0.348$). Book-built IPOs exhibit higher subscription demand (U = 20,470, $p = .007$, $r = 0.148$), a small rank-based effect. Listing-day initial returns do not differ detectably ($p = .437$; $BF_{01} = 8.841$ favouring the null). Subscription demand varies significantly across years (F (4, 436) = 5.220, $p < .001$, $\eta^2 = 0.046$; $BF_{10} = 28.58$). Issue size does not moderate the mechanism–subscription association ($p = .073$). The evidence pattern is consistent with Stage 2 of the TEC framework: adoption has shifted structurally, while listing-return convergence has not yet emerged.

1. Introduction

1.1 The Indian SME IPO Landscape

Small and medium-sized enterprises contributing around 30 per cent of gross domestic product, employ over 110 million people, and account for nearly 48 per cent of its exports (Ministry of Micro, Small and Medium Enterprises [MSME], 2023), yet they have faced barriers to formal equity financing arising from asymmetric information, limited collateral, and investor risk aversion (Rock, 1986). To narrow this financing gap, the Securities and Exchange Board of India (SEBI) established dedicated SME equity platforms, BSE SME and NSE Emerge, a structured route for smaller businesses to public equity through the initial public offering (IPO). Similar small-company elsewhere have shown mixed listing and post-listing performance (Vismara et al., 2012). India’s are the latest such institutions.

Between January 2021 and December 2025, 441 SME IPOs were listed on these platforms. The window brought not only quantitative expansion in listings but also a qualitative change in how SME IPOs are priced, and this pricing-mechanism transition is the core empirical focus of this study.

1.2 IPO Pricing Mechanisms and the Outcomes Studied

The pricing mechanism is one of the most consequential institutional design decisions in capital-raising. Two mechanisms are there, under the fixed-price (FP) mechanism, the issuer and lead manager set the offer price before the subscription opens; no price discovery occurs during the offering window, and pricing rests on ex ante valuation judgements. Under the book-building (BB) mechanism, the issuer specifies a price band, investors submit quantity–price bids, and the final offer price is set endogenously through demand aggregation at the close of bidding.

Two outcomes are examined. Subscription demand is operationalised as the subscription ratio (SR), shares applied for relative to shares offered; higher subscription ratios indicate stronger demand. The listing-day initial return is operationalised as underpricing (UP), the percentage difference between listing and the offer price (Ritter, 1991), one of the most extensively documented phenomena in empirical finance (Ritter & Welch, 2002). Both measures are observable market outcomes of the offering; neither completely measures economic efficiency, and construct validity is discussed in Section 2.8.

1.3 The Observed Structural Shift and the Research Questions

Descriptively, the 441 listings display a pronounced change in the distribution of pricing mechanisms. Fixed-price issues accounted for 53.9% of listings in 2021, and 62.5% in 2022. From 2023 onwards the pattern reversed: book-building accounted for 54.4% of listings in 2023, 76.9% in 2024, and 81.9% in 2025. Within five years, the market moved from a fixed-price-majority to a book-building-dominant configuration.

This shift raises three questions the existing literature does not answer. First, is the association between listing year and pricing mechanism statistically discernible, and when did book-building achieve majority adoption? Second, do the two mechanisms differ in subscription demand and listing-day initial returns? Third, does issue size moderate the mechanism–subscription association during the transition? These questions matter to SME issuers, to SEBI as regulator, and to the retail investors who dominate these platforms.

To the best of our knowledge, no empirical longitudinal study of pricing-mechanism evolution in the Indian SME IPO market exists. Existing comparative studies are cross-sectional (Mehmood et al., 2020a), restricted to book-built issues without a fixed-price comparison group (Suresha B et al., 2023), or conducted in non-Indian settings (Chemmanur et al., 2025). This study addresses that gap.

1.4 Significance, Objectives, and Contributions

The significance of the study is threefold. Theoretically, it proposes the Temporal Efficiency Convergence (TEC) framework, a three-stage evolutionary model that integrating information asymmetry theory (Akerlof, 1970; Rock, 1986), signalling theory (Spence, 1973), market microstructure theory (O'Hara, 1995), and institutional theory (DiMaggio & Powell, 1983). Empirically, it provides the first five-year longitudinal account of mechanism evolution in this market. Methodologically, it combines frequentist and Bayesian analyses so that both rejection and acceptance of null hypotheses are quantified.

Three objectives follow. Objective 1 is to quantify the year-by-year shift in pricing-mechanism adoption across BSE SME and NSE Emerge between 2021 and 2025, identifying the year of book-building majority adoption. Objective 2 is to compare the two mechanisms on subscription demand and listing-day initial returns. Objective 3 is to examine whether issue size moderates the mechanism and subscription association.

The study makes four contributions. First, the TEC framework adds a temporal dimension to predominantly static models of IPO mechanism choice (Chemmanur et al., 2025; DiMaggio & Powell, 1983; Rock, 1986; Spence, 1973) and offers a replicable architecture for longitudinal, cross-market study of mechanism evolution. Second, it documents the adoption trajectory, including the 2023 majority-adoption crossover, on the most comprehensive longitudinal dataset assembled to date for this market (N = 441). Third, it quantifies outcome differentials with both frequentist and Bayesian statistics and a robustness program distinguishes which conclusions survive alternative sample restrictions. Fourth, it offers evidence that may inform regulatory evaluation of SME platform design, subject to the associational nature of the design.

1.5 Structure of the Paper

Section 2 to 7present the literature, data and methodology, results, discussion, conclusion, and limitations and future research.

2. Literature Review and Theoretical Framework

2.1 Information Asymmetry and IPO Pricing Mechanisms

Information asymmetry between issuers and investors provides the foundational rationale for why different IPO pricing mechanisms may generate systematically different offering outcomes. Akerlof (1970) established the general economics of quality uncertainty in markets with asymmetric information. Within the IPO setting specifically, (Rock, 1986) formalised the winner's curse: uninformed investors who cannot distinguish high- from low-quality offerings receive disproportionately large allocations in overpriced issues, and rational participation therefore requires compensatory underpricing. Benveniste and Spindt (1989) formalised the information-extraction advantage of book-building, showing that iterative bidding allows underwriters to learn from the dispersed private information of institutional investors and to use that information in setting the final offer price, which is expected to improve price formation relative to fixed-price offerings.

These models predict stronger informed demand and better price formation for book-building offerings. Related theory holds that sequential subscriptions can generate information cascades (Welch, 1992), and the repeated underwriters and investors through book-building supports pricing accuracy (Sherman, 2000). The empirical evidence is partial: Mehmood et al. (2020) find a significant relationship between the pricing process and oversubscription on the Pakistan stock exchange Chemmanur et al. (2025) extend the information-extraction framework with institutional bid data from hybrid auctions. In SME segments, where institutional participation is limited, underpricing differentials even where information asymmetry differs across mechanisms (Ichev, 2023). In Indonesian, where the mechanism was effectively imposed by regulation, Hanafi (2021), finds book-building accompanied by more underpricing and owning to agency problems in the book. This literature influence H2 (subscription demand) and H3 (listing-day initial returns).

2.2 Signalling Theory and Mechanism Choice

Signalling theory describes how uninformed investors infer issuer quality from observable issuer actions (Spence, 1973). Mechanism choice is one such action: by subjecting its valuation to a market-determined bid-aggregation process, a book-building issuer exposes itself to a form of scrutiny that a fixed-price offering avoids. Allen and Faulhaber (1989) extended this logic to IPOs, treating underpricing itself as a complementary signal of firm quality. The credibility of mechanism choice as a signal requires that the action be differentially costly across issuer quality; establishing the magnitude of that cost differential is beyond the scope of the present data, and the signalling interpretation is therefore advanced as a theoretically grounded possibility rather than a directly tested mechanism.

Signalling logic motivates H5: if the book-building signal is more informative for larger, more complex issuances, the mechanism–subscription association should be stronger for larger issues. The theory also informs the interpretation of any underpricing differences between mechanisms, to the extent that underpricing functions as a signal in its own right (Allen & Faulhaber, 1989).

2.3 Market Microstructure Theory and Price Formation

Market microstructure theory examines how the structure of trading and price-formation mechanisms affects outcomes (O'Hara, 1995). The two IPO mechanisms differ precisely here: a fixed price is set ex ante and cannot respond to demand realized during the offering, whereas book-building aggregates bids within a price band and lets the final offer price respond to demand: the theoretical literature characterise when such bid aggregation is optimal relative to uniform fixed price (Biais et al., 2002). In principle, this endogenous price formation should reduce the gap between the offer price and the market's first valuation of the issue. Whether the advantage is observable depends on the depth and composition of participation in the book; in retail-dominated SME segments, bid aggregation may contain too little institutional information for the advantage to materialise (Chemmanur et al., 2025; Ichev, 2023). This literature influences the price-formation interpretation of H3 and the temporal expectations of the TEC framework.

2.4 Institutional Theory and Isomorphic Adoption

Institutional theory explains organisational convergence through three isomorphic pressures: coercive (regulation), mimetic (pressure imitation under uncertainty), and normative (professional networks) (DiMaggio & Powell, 1983); the diffusion of such institutional forms over time is well documented (Tolbert & Zucker, 1983). All three plausibly bear on the Indian SME IPO market: SEBI's stance towards offering mechanisms, imitation of heavily subscribed early adopters, and merchant-banking norms on credible issuance practice (Arya et al., 2025). These pressures are not directly measured here. Institutional theory therefore serves as an interpretive lens: the adoption trajectory is described as consistent with isomorphic convergence, not as a test of the isomorphic mechanisms themselves.

2.5 Prior Empirical Evidence

The effectiveness of fixed price and book-building has been studied across market environments. Sherman (2000) documents the worldwide shift towards book-building and its informational basis; survey evidence indicates that mechanisms differ in selection, informational production, and allocation across markets (Ritter & Welch, 2002; Ljungqvist, 2007). In France, Derrien and Womack (2003) find auctions correlated with lower underpricing in hot markets. In Japan, Kutsuna and Smith (2004) document the displacement of auctions by book-building despite its higher cost for small issuers. Mehmood et al. (2020) study 85 IPOs (2000–2017) in Pakistan and find a significant mechanism–oversubscription association. Hanafi (2021) exploits Indonesia's regime shift as exogenous and finds book-building related to higher underpricing and volatility. In India, Marisetty and Subrahmanyam (2010) analyse 2,713 IPOs (1990–2004) and find that oversubscription explains a significant share of underpricing; Bubna and Prabhala (2011) find that book-built underpricing depended on underwriter allocation discretion, a regulation since withdrawn; and Suresha et al. (2023) study 180 book-built IPOs (2011–2020) without a fixed-price comparison group. Arya et al. (2025) examine underwriting reputation and structure effects on SME IPO initial returns. Chemmanur et al. (2025) advance the information-extraction framework with hybrid auction bid data, and Ichev (2023) ties emerging-market underpricing to institutional participation. Rising underpricing over time and often poor post-listing performance on lightly regulated small-company segments motivate the aftermarket extensions in Section 7. These studies, and the gaps addressed here, are summarised in Table 1.

Table 1
Summary of Prior Empirical Studies on IPO Pricing Mechanisms

Author(s) and Year	Context	Sample	Key Finding	Limitation Addressed by the Present Study
Mehmood et al. (2020)	Pakistan	85 IPOs (2000–2017)	Pricing mechanism is significantly associated with IPO oversubscription	Cross-sectional; non-Indian; no temporal dimension
Hanafi (2021)	Indonesia	663 IPOs, exogenous regime shift	Book building associated with larger underpricing and volatility than fixed price	Non-Indian; regime period, not issuer choice
Suresha et al. (2023)	India	180 book-built IPOs (2011–2020)	Book-built IPOs are underpriced on average, consistent with the winner's curse	No fixed-price comparison group; cross-sectional
Arya et al. (2025)	India (SME)	SME IPOs	Underwriter reputation and issue structure are associated with SME IPO initial returns	No mechanism-comparison design; no longitudinal dimension
Marisetty and Subrahmanyam, (2010)	India	2,713 IPOs (1990–2004)	Oversubscription explains a substantial part of underpricing; group-affiliated IPOs more underpriced	No SME-segment focus; pre-dates the study's platform era
Bubna and Prabhala (2011)	India	124 IPOs around 2005 reform	Book-built underpricing depended on underwriter allocation discretion	Mainboard focus; no fixed-price comparison; no temporal design
Chemmanur et al. (2025)	China (hybrid auctions)	Institutional bid data	Underwriters extract and use institutional information in IPO pricing	Theoretical and cross-sectional; no SME or temporal application
Ichev (2023)	Emerging markets	Emerging-market data	Underpricing relates to information asymmetry and institutional participation	Cross-sectional; not India-specific

Note. The final column states the limitation of each prior study that the present longitudinal, mechanism-comparison design of the Indian SME market addresses.

2.6 Research Gaps

Three gaps define the space occupied by this study. First, no prior study follows pricing-mechanism transition in the Indian SME IPO market over a multi-year window, so the size, timing, and significance of

the structural change are unquantified. Second, existing mechanism comparisons examine neither India nor do the SME segment, and none combines a fixed-price comparison group with a longitudinal design in this market. Third, no model explains mechanism adoption in SME equity markets as an evolutionary process with stage-contingent outcome differentials. The TEC framework addresses the third gap and structures the tests of the first two.

2.7 The Temporal Efficiency Convergence (TEC) Framework

The TEC framework proposes that IPO mechanism adoption in an emerging SME market evolves through three stages, with mechanism-level outcome differentials that are stage-contingent. The framework integrates the four theoretical pillars reviewed above: information asymmetry theory supplies the mechanism-level rationale for demand and price-formation differences (Benveniste & Spindt, 1989; Rock, 1986); signalling theory supplies the issuer-choice logic (Allen & Faulhaber, 1989; Spence, 1973); market microstructure theory supplies the price-formation mechanics (O'Hara, 1995); and institutional theory supplies the adoption-dynamics logic (DiMaggio & Powell, 1983). Each pillar contributes a distinct mechanism, and no single pillar is sufficient: information and microstructure theories explain why book-building *can* outperform; while institutional theory explains why adoption *diffuses* before outcome convergence is complete.

Stage 1 (Mechanism Diversity). Fixed-price and book-building coexist with comparable adoption shares, isomorphic pressures are weak, and outcome differentials are empirically modest. The relevant inputs are the book-building adoption share and the mechanism-level subscription and return gaps.

Stage 2 (Structural Shift). Isomorphic pressures, in the interpretation advanced above, accompany a marked shift of adoption shares towards book-building. The subscription-demand differential becomes observable, while the listing-return differential has not yet converged, because the depth of informed participation required for price-formation advantages has not accumulated.

Stage 3 (Efficiency Convergence) is a prediction, not an observed state in this study's window. The framework specifies ex ante the criteria for its onset: book-building adoption exceeding a near-saturation threshold, combined with a statistically significant narrowing of the mechanism-level subscription gap for at least two consecutive years.

Stage boundaries. The stage boundaries are classification conventions proposed by this study, not parameters derived from prior theory. The 50% boundary for Stage 2 marks majority adoption, a standard majority marker. The 85% near-saturation threshold for Stage 3 is a heuristic proposed here: at that adoption level, residual fixed-price activity is more plausibly structural (issuer-specific constraints) than transitional. Both thresholds are fixed before classification (Section 4), and the sensitivity of classifications to alternative thresholds is acknowledged in Section 7.

Falsifiability. The framework is falsifiable in three ways: (i) if book-building adoption surpasses the near-saturation threshold without a subsequent narrowing of the subscription differential, the convergence prediction fails; (ii) if listing-return convergence emerges before majority adoption, the staging of the differentials is falsified; and (iii) if the subscription differential disappears while adoption remains minority-level, the Stage 2 premise of a demand differential accompanying the shift fails.

Table 2
TEC Framework Relative to Existing Theoretical Models

Existing Model	TEC Extension	Contribution
Rock (1986): static winner's curse; underpricing as a one-time equilibrium outcome	Stage 1 describes pre-shift diversity where asymmetry is high and differentials modest	Extends a static pricing equilibrium to a dynamic, stage-based adoption process
Spence (1973) / Allen and Faulhaber (1989): mechanism choice and underpricing as one-time signals	Signalling strength is modelled as stage-contingent, varying with institutional adoption depth	Reframes signalling as a temporal phenomenon rather than a constant issuer decision
DiMaggio and Powell (1983): isomorphism in general organisational fields	Isomorphic pressures are linked to the specific regulatory, peer, and intermediary dynamics of SME platforms	Connects adoption convergence to outcome differentials in an IPO market
Chemmanur et al. (2025): information extraction in hybrid auctions, cross-sectional	Extraction efficiency is predicted to improve as book-building participation deepens across stages	Provides a temporal, SME-specific extension of the extraction framework

Note. TEC = Temporal Efficiency Convergence. The framework does not replace the underlying theories; it adds a temporal dimension to each.

2.8 Hypothesis Development

Five hypotheses are derived from the framework and the literature. H1 tests the structural-shift premise of Stage 2. Because the chi-square test evaluates association between mechanism and year rather than a monotonic trend, H1 is stated as an association hypothesis, and the descriptive adoption trajectory is reported alongside it:

H1

The distribution of pricing mechanisms (fixed-price versus book-building) is significantly associated with the year of listing in the Indian SME IPO market over 2021–2025.

H2

Book-building IPOs exhibit significantly higher subscription ratios than fixed-price IPOs in the Indian SME market.

H3

Book-building IPOs exhibit significantly lower listing-day initial returns than fixed-price IPOs in the Indian SME market.

H3 requires a construct note. Following convention, underpricing is measured as the listing-day initial return, UP = [(listing price − offer price) / offer price] × 100 (Ritter, 1991). The listing-day return is an observable market outcome, but it is not a pure measure of price-discovery quality: it can also reflect investor sentiment, demand conditions, allocation mechanics, and issuer characteristics (Rock, 1986; O'Hara, 1995). The results are therefore reported in terms of listing-day initial returns, and implications for price discovery are drawn with this limitation in view.

H4

Mean subscription ratios differ significantly across listing years (2021–2025) in the Indian SME IPO market.

H4 is stated to match the one-way ANOVA that tests it: the test compares mean subscription ratios across the five annual listing cohorts. It does not compare the book-building minus fixed-price gap across years; a mechanism-by-year interaction would be required for that stronger claim, and it is flagged as a priority extension in Section 7.

H5

Issue size positively moderates the association between pricing mechanism and subscription ratio, such that the book-building subscription advantage is larger for larger issues.

An earlier formulation of this research programme included a sixth hypothesis in which underpricing mediated the mechanism–subscription relationship. That hypothesis was removed at the review stage because its causal ordering is temporally unsupported: subscription is determined during the offering window, whereas the listing-day return is observed only after listing, so the proposed mediator is realised after the outcome it is meant to explain. The mediation design was accordingly withdrawn, and the two outcome variables are analysed as parallel consequences of mechanism choice rather than in a causal chain.

Table 3 maps each TEC proposition to its observable variable, statistical test, and result, so that the correspondence between framework and evidence is explicit.

Table 3
TEC Proposition Map: Framework Claims, Tests, and Results

TEC Proposition	Observable Variable	Test	Result
Stage 2 entry: book-building achieves majority adoption	Book-building share by year	Descriptive adoption shares; χ^2 association (H1)	Supported (majority from 2023; $\chi^2(4) = 53.50$, $p < .001$)
Book-building attracts higher subscription demand	Subscription ratio	Mann–Whitney U (H2); post-shift subsample (RC2)	Supported, small effect ($r = 0.148$; post-shift $p = .022$)
Subscription demand varies across the transition	Subscription ratio by year	One-way ANOVA (H4); Bayesian model comparison	Supported ($F(4, 436) = 5.220$; $BF_{10} = 28.58$)
Listing-return convergence has not yet emerged	Listing-day initial return	Mann–Whitney U (H3); Bayesian null evidence; pre-shift subsample (RC3)	No detectable difference ($BF_{01} = 8.841$; pre-shift $p = .638$)
Size-conditioned amplification not yet active	Mechanism × issue-size interaction	Moderation regression (H5)	No significant moderation ($p = .073$)

Note. TEC = Temporal Efficiency Convergence; RC = robustness check. The map is completed with results in Section 4 and is reproduced in condensed form in Table 21.

3. Data and Methodology

3.1 Research Design

The study employs a quantitative, deductive design: propositions from the four pillars reviewed in Section 2 are translated into five testable hypotheses and evaluated against secondary exchange records (Bryman, 2016). The design is longitudinal in the sense of repeated cross-sections: the unit of analysis is the individual IPO, observed once, pooled across five consecutive years (January 2021 to December 2025). This permits mechanism-level outcome comparisons and cohorts trend comparisons, in contrast to the cross-sectional designs of prior mechanism-comparison studies (Mehmood et al., 2020; Suresha et al., 2023). The window captures the observed structural shift in adoption shares; no claim is made that the transition completed by 2025.

3.2 Sample and Data

The initial population comprised all SME IPOs listed on BSE SME and NSE Emerge between January 2021 and December 2025. Systematic inclusion and exclusion criteria, applied in sequence, produced the final analytic sample documented in Table 4. Records were sourced from the exchange platforms and the Chittorgarh financial database, and each retained observation was cross-checked between the two sources on company name and listing date to guard against duplication and misclassification.

Two features of the selection procedure require acknowledgement. First, the outcome variables are defined only for completed offerings, so withdrawn or suspended issues are excluded. Second completed all five study variables were required, so offerings with missing data were excluded; if data availability is correlated with issuer characteristics, the sample may not be fully representative of attempted offerings. The direction of such selection cannot be assessed here and is acknowledged in (Section 7).

Table 4
Sample Selection Criteria and Rationale

Decision	Criterion	Rationale	Result
Include	Listed on BSE SME or NSE Emerge, Jan 2021–Dec 2025	Defines the population for the study window	Covers the observed structural-shift period
Include	Complete data on all five study variables	Prevents missing-data distortions in the regression analyses	Analytical completeness across all hypotheses
Include	Fixed-price or book-building mechanism only	Excludes hybrid or unlabelled mechanisms not comparable under the study framework	Clean mechanism classification
Exclude	Missing subscription or listing-day return data	Outcome variables undefined without them	Prevents measurement error in H2–H5
Exclude	Withdrawn or suspended offerings	Outcomes are defined only for completed offerings	Sample restricted to measurable cases
Exclude	Rights issues and pure offer-for-sale transactions	Different pricing logic; not fresh primary-market IPOs	Mechanism comparability and sample homogeneity
Retain	Extreme subscription observations (SR > 500×)	Retained in all primary analyses; their concentration by mechanism is examined descriptively in RC1 (Section 4.6)	17 observations, all book-built
Final sample	N = 441 (fixed-price = 197; book-building = 244)	Exceeds comparable prior studies (Mehmood et al., 2020, N = 85; Suresha et al., 2023, N = 180)	Analytic sample

Note. SR = subscription ratio; RC1 = robustness check 1. Issue size refers to the total fresh issue amount in crores of rupees as disclosed in the offer documents; pure offer-for-sale transactions, which raise no new capital, are excluded.

The sample size is a census of eligible listings, not a power-determined size. As supporting information, an a priori sensitivity calculation for the most group-demanding test (the five-group one-way ANOVA for H4), assuming a medium effect (f = 0.25; Cohen, 1988), α = .05, and power = .80, requires approximately 200 observations (Faul et al., 2007); with N = 441, achieved power for the primary group-comparison

exceeds .99 under these assumptions. This is an assumption-based check on precision, not a design-based justification, and it does not address the moderation analysis.

3.3 Variables

Five variables are operationalised, all measured from secondary records with no subjective scoring component (Table 5). The use of exchange-verified secondary data enhances transparency and reproducibility. Consistent with the withdrawal of the mediation hypothesis (Section 2.8), underpricing enters the analysis solely as an outcome variable for H3.

Table 5
Variable Operationalisation

Role	Variable	Measurement	Source	Scale	Hypotheses
Independent	Pricing mechanism	Dummy: 1 = book-building; 0 = fixed-price	Exchange issue-type disclosures	Nominal	H1, H2, H3, H5
Independent	Year of listing	2021–2025, from listing date	Exchange listing records	Ordinal	H1, H4
Dependent	Subscription ratio (SR)	Total shares applied / total shares offered (×)	Exchange subscription data	Ratio	H2, H4, H5
Dependent	Underpricing (UP, %)	[(Listing price − offer price) / offer price] × 100	Listing data and offer documents	Ratio	H3
Moderator	Issue size (Rs. Cr)	Fresh issue amount in crores; mean-centred for moderation (IssueSize_C = IssueSize − 143.26)	Prospectus and database records	Ratio	H5

Note. The centring constant 143.26 Cr is the sample mean of issue size across all 441 observations; centring follows Aiken and West (1991) and is used only for the construction of the H5 interaction term.

3.4 Statistical Analysis Plan

All analyses were performed in JASP (Version 0.18.3; JASP Team, 2024). The plan comprised seven steps: (1) descriptive statistics and Shapiro–Wilk normality tests; (2) a Pearson chi-square test with Cramér's *V* for H1; (3) Mann–Whitney *U* tests for H2 and H3; (4) a one-way ANOVA with Games–Howell pairwise comparisons for H4; (5) a moderation regression with a mean-centred interaction term for H5; (6) Bayesian sensitivity analyses for H2, H3, and H4; and (7) a robustness programme of two chronological subsample restrictions and one descriptive extreme-observation analysis. The significance level was fixed at $\alpha = .05$ for all tests (Lakens et al., 2018).

Three methodological decisions warrant explanation. First, the Shapiro–Wilk tests indicated marked departures from normality for both outcomes in both mechanism groups (all $W < 0.65$, $p < .001$; Table 7),

which, with the distribution-comparison research question and the ratio-scale outcomes, informed the choice of the distribution-free Mann–Whitney *U* procedure for H2 and H3 (Razali & Wah, 2011; Lakens et al., 2018). The procedure compares rank distributions, with the rank-biserial correlation of effect size; because the means of the skewed variables are dominated by extreme observations, results are interpreted as rank-distribution differences, and the Table 6 are descriptive only.

Second, the Bayesian analyses quantify the evidence for the null in H3, where a non-significant frequentist result is otherwise uninformative about equivalence; and test the sensitivity of the H2 and H4 conclusions to an alternative inferential framework. Bayes factors were computed with the standard Cauchy prior of scale $r = 0.707$ (Rouder et al., 2009), JASP's default medium prior, so the report values are comparable with the published literature; they are interpreted as anecdotal (1–3), moderate (3–10), strong (10–30), or decisive (> 100) evidence following Jeffreys (1961).

Third, for H4 the homogeneity-of-variance assumption is violated (Levene $F(4, 436) = 5.758$, $p < .001$), so all pairwise comparisons use the Games–Howell procedure, which does not assume equal variances. Subscription ratios are markedly skewed, so the ANOVA results are reported alongside this caveat, and a robust re-estimation (Welch ANOVA or a log-transformed outcome) is acknowledged as an unexecuted robustness item in Section 7.

3.5 Descriptive Statistics and Distributional Properties

Table 6 reports descriptive statistics for the three continuous variables by mechanism group; Table 7 reports the Shapiro–Wilk tests. The distributions of all three variables are strongly right-skewed in both groups (subscription-ratio skewness 4.20 and 3.96; underpricing skewness 10.37 and 6.50; issue-size skewness 0.72 and 7.65), with heavy tails (subscription-ratio kurtosis 24.16 and 23.77) and extreme maxima (subscription ratio up to 2,210×; issue size up to Rs. 8,000 Cr). These properties motivate the rank-based testing strategy and qualify all mean-based interpretations.

Table 6
Descriptive Statistics for Continuous Variables by Pricing Mechanism

Statistic	SR: Fixed-Price	SR: Book-Building	UP (%): Fixed-Price	UP (%): Book-Building	Issue Size: Fixed-Price	Issue Size: Book-Building
N (valid)	197	244	197	244	197	244
Missing	0	0	0	0	0	0
Mean	129.6	179	38.96	38.66	46.13	221.1
SD	210.9	259.7	159.6	131	35.16	730.5
Skewness (*SE*)	4.20 (0.173)	3.955 (0.156)	10.37 (0.173)	6.495 (0.156)	0.716 (0.173)	7.65 (0.156)
Kurtosis (*SE*)	24.16 (0.345)	23.77 (0.310)	126.7 (0.345)	49.98 (0.310)	−0.208 (0.345)	69.69 (0.310)
Minimum	1.07	0.7	−76.65	−80.41	1.6	6.71
Maximum	1714	2210	2036	1256	148.9	8000

Note. SR = subscription ratio (×); UP = underpricing; issue size in crores of rupees (Rs. Cr); *SD* = standard deviation; *SE* = standard error. Skewness and kurtosis substantially exceeding zero indicate departure from normality.

Table 7
Shapiro–Wilk Normality Tests

Variable	Group	W	p	Decision
Subscription ratio	Fixed-price (*n* = 197)	0.583	< .001	Non-normal
Subscription ratio	Book-building (*n* = 244)	0.634	< .001	Non-normal
Underpricing (%)	Fixed-price (*n* = 197)	0.283	< .001	Non-normal
Underpricing (%)	Book-building (*n* = 244)	0.394	< .001	Non-normal

Note. The Shapiro–Wilk test was selected for its superior power in samples below 2,000 observations (Razali & Wah, 2011). All tests reject normality, informing the rank-based testing strategy for H2 and H3.

4. Results

4.1 H1: Association between Pricing Mechanism and Listing Year

Table 8 presents the contingency distribution of mechanisms across the five listing years, and Table 9 the chi-square statistics. The Pearson chi-square evaluates associated, not monotonic trend.

Table 8
Pricing Mechanism by Year of Listing

Year	Fixed-Price	Book-Building	Total
2021	48 (53.9%)	41 (46.1%)	89
2022	85 (62.5%)	51 (37.5%)	136
2023	36 (45.6%)	43 (54.4%)	79
2024	15 (23.1%)	50 (76.9%)	65
2025	13 (18.1%)	59 (81.9%)	72
Total	197 (44.7%)	244 (55.3%)	441

Note. Row percentages in parentheses.

Table 9
Chi-Square Statistics

Statistic	Value	df	p
χ^2	53.5	4	< .001
Cramér's *V*	0.348	–	–
Contingency coefficient	0.329	–	–
N	441	–	–

Note. Cramér's *V* benchmarks: .10 = small, .30 = medium, .50 = large.

The connection between listing year and pricing mechanism is statistically significant with a medium effect size (χ^2 (4) = 53.50, $p < .001$, $V = 0.348$). H1 is supported as an association hypothesis. Descriptively, book-building adoption declined from 46.1% (2021) to 37.5% (2022), then rose through 54.4% (2023), 76.9% (2024), and 81.9% (2025), a delayed-then-sustained increase rather than a monotonic one. Majority adoption was achieved in 2023, marking Stage 1–to–Stage 2 boundaries under the pre-specified criteria. The pattern is consistent with isomorphic-convergence (DiMaggio & Powell, 1983), with the Section 2.4 caveat that the isomorphic mechanisms are not directly measured.

4.2 H2 and H3: Subscription Demand and Listing-Day Initial Returns

Table 10 reports the Mann–Whitney comparisons. For H2, book-built issues exhibit higher subscription demand in the rank comparison (U = 20,470, p = .007, rank-biserial r = 0.148, mean ranks of 235.6 versus 202.9). H2 is supported, with the qualification that the effect is small under conventional benchmarks (r = .10–.29), indicating a detectable but modest shift in the subscription-rank distribution rather than a uniformly large demand advantage.

For H3, no significant difference in listing-day initial returns is detectable (U = 23,000, p = .437, r = 0.043; mean ranks 225.2 versus 215.7), and the group means are nearly identical (38.96% versus 38.66%; Table 6). H3 is not supported. A non-significant frequentist result is not itself evidence of equivalence; the Bayesian analysis in Section 4.5 quantifies the null evidence and is the more informative statistic for this hypothesis.

Table 10
Mann–Whitney *U* Tests by Pricing Mechanism

Variable	Group	N	Mean	SD	Mean Rank	U	p	r	Decision
Subscription ratio	Fixed-price (0)	197	129.6	210.9	202.9	20470	0.007	0.148	H2 supported (small effect)
Subscription ratio	Book-building (1)	244	179	259.7	235.6	–	–	–	–
Underpricing (%)	Fixed-price (0)	197	38.96	159.6	215.7	23000	0.437	0.043	H3 not supported
Underpricing (%)	Book-building (1)	244	38.66	131	225.2	–	–	–	–

Note. U = Mann–Whitney statistic; r = rank-biserial correlation. The test compares rank distributions; given the skewness of the variables (Table 6), means are shown for description only and are not the quantity tested.

4.3 H4: Differences in Subscription Demand across Years

Table 11 reports the one-way ANOVA of subscription ratio on listing year, Table 12 the annual descriptive statistics, and Table 13 the Games–Howell pairwise comparisons. Mean subscription demand differs significantly across years (F (4, 436) = 5.220, p < .001, η^2 = 0.046, a small-to-medium effect). H4 is supported as stated: the test compares annual cohort means and does not evaluate trends in the mechanism-level gap.

Table 11
One-Way ANOVA: Subscription Ratio by Year

Source	Sum of Squares	df	Mean Square	F	p	η^2
Year	1.159×10^6	4	2.899×10^5	5.22	< .001	0.046
Residuals	2.421×10^7	436	5.553×10^4	–	–	–

Note. η^2 = eta-squared (.01 = small, .06 = medium, .14 = large). Sum-of-squares magnitudes follow the analysis output; the skewness caveat of Section 3.4 applies.

Table 12
Subscription Ratio by Year: Descriptive Statistics

Year	N	Mean SR (×)	SD	SE	CV
2021	89	141.9	262.3	27.8	1.848
2022	136	146.3	212.3	18.21	1.451
2023	79	207.4	175.3	19.72	0.845
2024	65	233.9	356.5	44.21	1.524
2025	72	70.55	147.3	17.36	2.087

Note. CV = coefficient of variation (*SD*/mean).

Table 13
Games–Howell Pairwise Comparisons: Subscription Ratio by Year

Year (*i*)	Year (*j*)	Mean Difference (*i* − *j*)	SE	t	df	p
2021	2022	−4.356	33.23	−0.131	160.4	1
2021	2023	−65.47	34.09	−1.921	154.6	0.311
2021	2024	−92.02	52.23	−1.762	111.9	0.401
2021	2025	71.38	32.78	2.178	143	0.194
2022	2023	−61.11	26.84	−2.277	188.5	0.157
2022	2024	−87.66	47.82	−1.833	86.37	0.361
2022	2025	75.73	25.15	3.011	191.4	.024*
2023	2024	−26.55	48.41	−0.548	89.1	0.982
2023	2025	136.8	26.27	5.209	148.1	< .001*
2024	2025	163.4	47.5	3.44	83.46	.008**

Note. p < .05; *p* < .01; p < .001. Games–Howell correction (Games & Howell, 1976) used because of heterogeneity of variance (Levene F (4, 436) = 5.758, p < .001). DF* = Welch–Satterthwaite degrees of freedom.

The annual pattern is non-linear: cohort means rise modestly from 141.9× (2021) to 146.3× (2022), increase to 207.4× (2023) and a peak of 233.9× (2024), and then fall sharply to 70.55× in 2025. All three significant Games–Howell contrasts involve 2025 (2022 versus 2025, $p = .024$; 2023 versus 2025, $p < .001$; 2024 versus 2025, $p = .008$). The 2025 decline is consistent with an equilibration reading within Stage 2, but the cohort data cannot establish equilibration: year-to-year changes in issue composition, sentiment, retail participation, or regulatory condition are alternative explanations the design cannot separate. By the pre-specified criteria, the 2025 fall does not mark Stage 3 onset: book-building adoption

(81.9%) remains below the 85% near-saturation threshold, and no two consecutive years of significant subscription-gap narrowing are observed.

4.4 H5: Issue-Size Moderation

Table 14 summarises the moderation regression, Table 15 its coefficients, and Table 16 the collinearity diagnostics. The model regresses subscription ratio on mechanism (IssueType), mean-centred issue size (IssueSize_C), and their interaction. The overall model is significant (F (3, 437) = 4.177, p = .006) but explains little variance (R^2 = .028), consistent with the coarse bivariate structure of subscription demand.

Table 14
Moderation Regression: Model Summary

Model	R	R^2	Adjusted R^2	RMSE	R^2 Change	F Change	df1	df2	p
M0 (null)	0	0	0	240.1	0	–	0	440	–
M1 (full)	0.167	0.028	0.021	237.6	0.028	4.177	3	437	0.006

Note. M1 includes IssueType, IssueSize_C, and the interaction term (IssueType × IssueSize_C).

Table 15
Moderation Regression: Coefficients

Predictor	b	SE	β	t	p	95% CI [lower]	95% CI [upper]
(Intercept)	122.6	17.11	–	7.168	< .001	89	156.3
IssueType (b_1)	58.91	23.06	0.122	2.554	0.011	13.58	104.2
IssueSize_C (b_2)	−0.055	0.022	−0.126	−2.542	0.011	−0.097	−0.013
Interaction (b_3)	0.039	0.022	0.087	1.794	0.073	−0.004	0.081

Note. IssueType: 0 = fixed-price, 1 = book-building. IssueSize_C = mean-centred issue size. b_3 is the moderation estimate for H5.

The mechanism main effect is positive and significant conditional on issue size (b_1 = 58.91, SE = 23.06, t = 2.554, p = .011). The issue-size main effect is negative (b_2 = −0.055, p = .011): larger offerings are connected with lower subscription ratios on conditional on mechanism. The interaction term is positive but statistically indistinguishable from zero at the pre-specified 5% level (b_3 = 0.039, p = .073, 95% CI [−0.004, 0.081]); the interval includes economically small values on both sides of zero. H5 is therefore not supported. The interaction is not described as marginally significant; it is an inconclusive positive estimate whose sign is however consistent with the Stage 3 extension proposal, to be re-examined as adoption matures.

A natural concern is selection into mechanism: issuers are not randomly assigned, and the mechanisms differ systematically in issue size (Table 6: mean Rs. 221.1 Cr versus Rs. 46.1 Cr). The analysis offers partial evidence rather than a resolution. Issue size enters the regression as a covariate, and it's negative coefficient means the size gradient runs against the book-building subscription advantage: because book-built issues are systematically larger, an unadjusted comparison would, if anything, understate the mechanism's rank advantage per unit of size. The H2 and H3 group comparisons are nonetheless unadjusted for issuer covariates beyond issue size, so residual selection remains possible; all mechanism–outcome relationships are therefore interpreted as conditional associations, not causal effects, and covariate-adjusted and matched-sample designs are the priority extension in Section 7. Collinearity diagnostics indicate no problematic multicollinearity (maximum condition index = 2.683; all VIFs below 2.0; Hair, et al., 2019), which addresses estimator stability only, not selection or endogeneity.

Table 16
Collinearity Diagnostics

Dimension	Eigenvalue	Condition Index	(Intercept)	IssueType	IssueSize_C	Interaction
1	1.773	1	0.115	0.117	0.012	0.016
2	1.231	1.2	0.014	0.006	0.358	0.345
3	0.749	1.539	0.003	0.006	0.578	0.626
4	0.246	2.683	0.868	0.87	0.052	0.013

Note. Variance proportions in the final four columns. Condition indices below 30 indicate no problematic multicollinearity (Hair et al., 2019).

4.5 Bayesian Sensitivity Analyses

Table 17 reports the Bayesian Mann–Whitney analyses and Table 18 the Bayesian ANOVA model comparison with its analysis of effects. Figures 1–3 display the prior and posterior distributions and the group descriptive plots.

For H2, BF_{10} = 2.123: the frequentist test rejects the null (p = .007), whereas the Bayesian analysis provides only anecdotal-to-weak evidence for the alternative. This discrepancy calibration the strength of the H2 evidence: with a small rank-biserial effect (r = 0.148), the data support the alternative less decisively than the p-value alone suggest, and the finding is reported with that qualification. For H3, BF_{10} = 0.113, that is, BF_{01} = 8.841: moderate evidence in favour of the null which, combined with the non-significant frequentist result and the near-identical group means, is the strongest available evidence that listing-day returns do not differ detectably between mechanisms in this market and window. For H4, BF_{10} = 28.58 (P (incl | data) = .9662): strong evidence that the annual cohorts differ, corroborating the ANOVA.

Convergence was confirmed for all Bayesian models (all Rhat < 1.05, range 1.007–1.011; 5,000 iterations, 5 chains). A note on group coding: the Bayesian routines entered the groups as book-building (Group 0) and fixed-price (Group 1), so negative δ values indicate higher outcomes for book-building; this

is the reverse of the regression dummy coding used (fixed-price = 0, book-building = 1), and both coding's yield the same substantive conclusions.

Table 17
Bayesian Mann–Whitney Analyses

Variable	BF_{10}	BF_{01}	W	Rhat	Median δ	95% CI
Subscription ratio	2.123	0.471	20470	1.007	−0.233	[− 0.419, − 0.046]
Underpricing	0.113	8.841	22990	1.011	−0.032	[− 0.218, 0.153]

Note. BF_{10} = P(data | H_1)/P(data | H_0); BF_{01} = 1/BF_{10}. Cauchy prior, scale *r* = 0.707 (Rouder et al., 2009). Median δ with 95% credible interval. Group order in the Bayesian routine: Group 0 = book-building, Group 1 = fixed-price; negative δ indicates higher outcomes for book-building (see text).

Table 18
Bayesian ANOVA: Model Comparison and Analysis of Effects (Subscription Ratio by Year)

Model	P(M)	P(M | data)	BF	BF_{10}	Error %
Null model	0.5	0.033	0.034	1	–
Year	0.5	0.966	28.58	28.58	0.056

Note. BF_{10} computed against the null model. Analysis of effects: for the Year factor, *P*(incl) = *P*(excl) = 0.5; *P*(incl | data) = 0.9662; *P*(excl | data) = 0.0338; BF_r = inclusion Bayes factor = 28.58.

4.6 Robustness Checks

The robustness programme comprises two chronological subsample restrictions and one descriptive extreme-observation analysis. Each check is reported with an exact statement of what it tested, so that the coverage of each hypothesis is transparent.

Robustness check 1 (RC1): extreme subscription observations (descriptive). Seventeen of the 441 observations (3.9%) record subscription ratios above 500 × and all seventeen are book-built issues: extreme demand events in this market occur exclusively under book-building, directionally consistent with H2. Because deleting extreme by group mechanically alters the rank structure in ways that cannot be signed ex ante, and a trimmed re-estimation was not undertaken, the full sample is retained for all tests, and H2 is interpreted with the explicit qualification that the book-building rank advantage partly reflects upper-tail demand. Trimmed, winsorised and log-transformed re-estimation are identified as future robustness extensions.

Robustness check 2 (RC2): post-shift subsample, 2023–2025. Restricting the sample to the book-building-dominant period (January 2023–December 2025; *N* = 216; fixed-price = 64, book-building = 152), the subscription comparison remains significant (*U* = 3,902, *p* = .022, *r* = 0.198), with mean ranks of 114.8 versus 93.47. The H2 direction is thus also present when the analysis is confined to the period in which

book-building dominants, indicating the full-sample result is not an artefact of the fixed-price-heavy pre-2023 composition.

Robustness check 3 (RC3): pre-shift subsample, 2021–2022. Restricting the sample to the fixed-price-dominant period (January 2021–December 2022; *N* = 225; fixed-price = 133, book-building = 92), the listing-day return comparison remains non-significant (*U* = 6,344, *p* = .638, *r* = − 0.037; fixed-price mean = 31.67%, *SD* = 119.1; book-building mean = 25.94%, *SD* = 47.95), consistent with the H3 null. The issue-size comparison is significant (*U* = 3,907, *p* < .001, *r* = 0.361), with book-building issues (mean = Rs. 286.8 Cr, *SD* = 728.9) substantially larger than fixed-price issues (mean = Rs. 45.13 Cr, *SD* = 31.94): the size separation predates the structural tipping point, indicating that issuers selecting book-building were already distinct before majority adoption. Tables 19 and 20 report RC2 and RC3.

Table 19
Robustness Check 2: Post-Shift Subsample (2023–2025), Subscription Ratio

Group	N	Mean Rank	U	p	r	Decision
Fixed-price	64	93.47	3902	0.022	0.198	H2 direction supported in book-building-dominant period
Book-building	152	114.8	–	–	–	–

Note. Sample restricted to listings from January 2023 to December 2025 (book-building share above 50% in each year). *r* = rank-biserial correlation.

Table 20
Robustness Check 3: Pre-Shift Subsample (2021–2022), Listing-Day Returns and Issue Size

Outcome	Group	N	Mean	SD	U	p	r
Underpricing (%)	Fixed-price	133	31.67	119.1	6344	0.638	−0.037
Underpricing (%)	Book-building	92	25.94	47.95	–	–	–
Issue size (Rs. Cr)	Fixed-price	133	45.13	31.94	3907	< .001	0.361
Issue size (Rs. Cr)	Book-building	92	286.8	728.9	–	–	–

Note. Sample restricted to listings from January 2021 to December 2022 (fixed-price share above 50% in both years). The non-significant underpricing result is consistent with H3; the significant issue-size difference documents the pre-existing separation of issuer types.

In summary, H2 is supported in the main model and the post-shift subsample (RC2), and the H3's null holds in the main model and the pre-shift subsample (RC3); the other two subsample comparisons were not part of the robustness programme, and RC1 is descriptive. No claim is made that any hypothesis was confirmed in a check that did not test it.

4.7 Summary of Hypothesis Tests

Table 21 summarises the five hypotheses, the statistical evidence for each, and the conclusions drawn, with the wording of each conclusion matched to what the corresponding test can establish.

Table 21
Summary of Hypothesis Test Results

Hypothesis	Statement	Evidence	Conclusion
H1	Mechanism distribution is associated with listing year	$\chi^2(4) = 53.50$, $p < .001$, $V = 0.348$	Supported: significant year–mechanism association; descriptive adoption path is a delayed-then-sustained increase with majority crossover in 2023
H2	Higher subscription ratios for book-building	$U = 20{,}470$, $p = .007$, $r = 0.148$; RC2 $p = .022$	Supported as a small rank-based difference, partly reflected in upper-tail demand concentration (all 17 extreme observations are book-built)
H3	Lower listing-day returns for book-building	$U = 23{,}000$, $p = .437$, $r = 0.043$; $BF_{01} = 8.841$; RC3 $p = .638$	Not supported: no detectable difference; Bayesian evidence favours the null
H4	Subscription ratios differ across years	$F(4, 436) = 5.220$, $p < .001$, $\eta^2 = 0.046$; $BF_{10} = 28.58$	Supported: annual cohort means differ; pattern is non-linear with a sharp 2025 decline
H5	Issue size moderates the mechanism–subscription association	$b_3 = 0.039$, $p = .073$, 95% CI [−0.004, 0.081]	Not supported at the 5% level: positive but statistically inconclusive

Note. Each conclusion is formulated to match the evidential capacity of its test

5. Discussion

5.1 Principal Findings

Five hypotheses were tested against the population of eligible SME IPOs listed on India's two SME platforms between 2021 and 2025. Three were supported and two were not. Pricing mechanism is significantly associated with listing year (H1), with a medium effect: the book-building share fell from 46.1% to 37.5% between 2021 and 2022 and then rose to 81.9% by 2025, crossing majority adoption in 2023. Book-built issues exhibit higher subscription demand (H2), though the effect is small ($r = 0.148$) and partly reflected in the concentration of extreme demand events (all seventeen subscription ratios above 500× are book-built). Mean subscription demand varies across years (H4), non-linearly, peaking in 2024 and fallen in 2025. No difference in listing-day initial returns is detectable (H3), with moderate

Bayesian evidence in favour of the null. Issue size does not significantly moderate the mechanism–subscription association (H5); the interaction estimate is positive but statistically inconclusive.

5.2 Theoretical Interpretation

The evidence pattern matches the Stage 2 profile specified ex ante in Section 2.7: majority adoption achieved (from 2023), a detectable subscription-demand differential, and no listing-return convergence. The pattern is consistent with the institutional-theory reading that adoption converges under isomorphic pressures while outcome convergence lags, and with the information-based reading that book-building demand's advantage materialises before its price advantage: the former requires only that investors respond to the offering process, the latter requires accumulated informed participation in the book (Benveniste & Spindt, 1989; Chemmanur et al., 2025; Rock, 1986). Two cautions apply. First, the isomorphic mechanisms are not directly measured. Second, Stage 3 remains a prediction for future data. The non-supported hypotheses are accordingly read as absence of evidence within the study window, not evidence of permanent absence.

5.3 Relation to Prior Evidence

The H2 finding extends Mehmood et al. (2020) for Pakistan and the broader evidence favouring book-building in retail-dominated markets (Hanafı, 2021a; Sherman, 2000) to a longitudinal Indian SME setting, with the qualification that the present effect is small and the Bayesian evidence weak. The H3 null is consistent with Suresha et al. (2023), who document SME IPO underpricing without a mechanism comparison, and with the reading that underpricing here reflects factors common to both mechanisms rather than mechanism-specific information extraction (Ichev, 2023). The near-identical mean returns of 38.96% and 38.66% suggest that this window's substantial underpricing is a segment-level phenomenon. The H5 result contrasts with the size-contingent predictions of signalling theory (Allen & Faulhaber, 1989; Spence, 1973) and the RC3 size separation (book-building issues roughly six times larger on average even before the shift) supports the reading that selection into mechanisms is driven by issuer characteristics the present covariate do not fully capture.

5.4 Interpreting the Non-Supported Hypotheses

The H3 null deserves attention because non-significance is often misread. Three statistics jointly support the absence-of-difference reading: the non-significant frequentist result ($p = .437$), the near-zero rank-biserial correlation ($r = 0.043$) with near-identical group means, and $BF_{01} = 8.841$ favoring the null. Even so, a Bayes factor of this magnitude is moderate, not decisive; the correct conclusion is no detectable listing-return difference exists in this market and window, which the TEC framework reads as an unfulfilled for Stage 3. The H5 interaction is an inconclusive estimate rather than a precisely estimated null, so it should be re-examined, not archived, as the market matures.

5.5 Practical Implications

Three practical implications follow, stated with the associational design in view. For issuers and merchant bankers, book-built offerings are connected with stronger subscription demand in this window,

particularly for visibility-seeking issuers; the small effect size and its upper tail counsel against expecting uniformly heavy demand from mechanism choice alone. For SEBI and the exchanges, the absences of a listing-day returns difference suggests that investor-protection concerns attached to either regulatory merits rather than assumed from pricing-method labels, through the adoption trajectory may inform platform-design evaluation. For investors, the results are descriptive market averages, not investment advice; they neither establish that mechanism choice signals value nor warrant differential participation.

6. Conclusion

This study documented the structural shift in pricing-mechanism adoption on India's BSE SME and NSE Emerge platforms between 2021 and 2025 and examined its association with subscription demand and listing-day initial returns using the population of 441 eligible IPOs, frequentist and Bayesian, a moderation regression, and a three-part robustness programme. The book-building share rose from 46.1% to 81.9%, crossing majority adoption in 2023, and mechanism choice is significantly associated with listing year ($\chi^2(4) = 53.50$, $p < .001$, $V = 0.348$). Book-built issues show higher subscription demand in rank terms ($U = 20{,}470$, $p = .007$, $r = 0.148$), a difference that persists in the post-shift subsample and is partly concentrated in extreme demand events. Listing-day returns do not differ detectably ($p = .437$; $BF_{01} = 8.841$); mean subscription demand varies significantly and non-linearly across years (F (4, 436) = 5.220, $p < .001$, $\eta^2 = 0.046$), and issue size does not significantly moderate the mechanism–subscription association ($b_3 = 0.039$, $p = .073$).

Theoretically, the evidence matches the Stage 2 profile specified ex ante by the proposed Temporal Efficiency Convergence framework: adoption has shifted structurally while outcome convergence has not yet emerged. The Stage 3 predictions, thresholds and isomorphic interpretation are adoption as falsifiable propositions for future longitudinal work, not settled conclusions. In a young market were mechanism choice moved from contested to dominant within five years, the findings quantify both what has changed, how SME IPOs are priced, and what has not yet changed: the returns investors realise on the listing day.

7. Limitations and Future Research

Eight limitations bound the conclusions. First, the comparisons are unadjusted for issuer characteristics beyond issue size; mechanism choice is endogenous to issuer quality and visibility and covariate-adjusted, matched-sample, or instrumental-variable designs are the priority extension. Second, underpricing is a single listing-day raw return; market-adjusted and multi-day constructions were not computed, and the measure is not a pure indicator of price-discovery quality. Third, the extreme-observation analysis (RC1) is descriptive: trimmed, winsorised, and log-transformed re-estimations were not undertaken, so H2's sensitivity to extreme demand is quantified but not quantified. Fourth, the H4 for ANOVA was not re-estimated under Welch correction or with a transformed outcome; the Games–Howell pairwise procedure mitigates but does not eliminate the variance-heterogeneity concern. Fifth, a mechanism-by-year interaction, which would directly test the TEC proposition that outcome differentials

evolve across stages, was not estimable here. Sixth, the stage thresholds are proposed conventions, and stage three lies outside the observation window. Seventh, the isomorphic mechanisms interpreting the adoption trajectory are not directly measured. Eighth, the study examines one market over five years; generalisation to other SME platform markets should be established empirically, and comparative longitudinal studies in markets such as Pakistan, Indonesia, Bangladesh, and Vietnam would test the framework's external validity.

Future research should also extend the outcome set to aftermarket performance, examine the role of underwriter reputation and anchor-investor participation in the SME segment (Arya et al., 2025), and re-estimate the moderation and stage dynamics as the market approaches saturation, when the Stage 3 predictions of the TEC framework become testable.

Declarations

Author Contribution

(Praveen R) conceptualised and designed the study, compiled the data, performed the statistical analysis, and wrote the main manuscript text. [K Sakthi Srinivasan] supervised the research, reviewed and validated the analysis, and critically revised the final manuscript. Both authors read and approved the final manuscript.

Data Availability

The data supporting the findings of this study were compiled from publicly available records of the BSE, NSE, and SEBI platforms and are available from the corresponding author on reasonable request.

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Figures

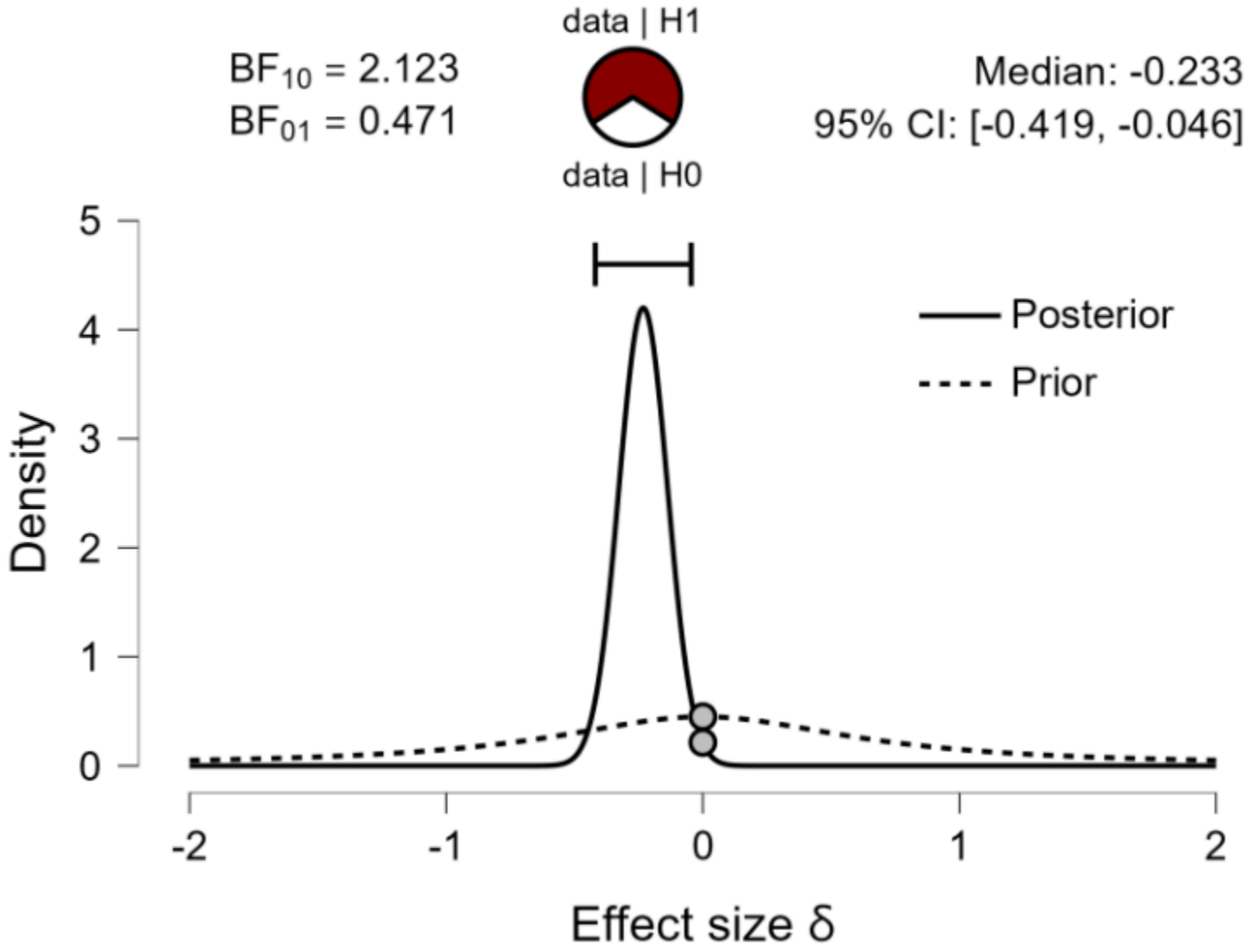


Figure 1

Prior (dashed) and posterior (solid) distributions from the Bayesian Mann–Whitney analysis of subscription ratio by pricing mechanism. BF_{10} = 2.123; median δ = −0.233, 95% CI [−0.419, −0.046]. Under the Bayesian routine's group order (book-building = Group 0), the negative δ indicates higher subscription for book-built issues.

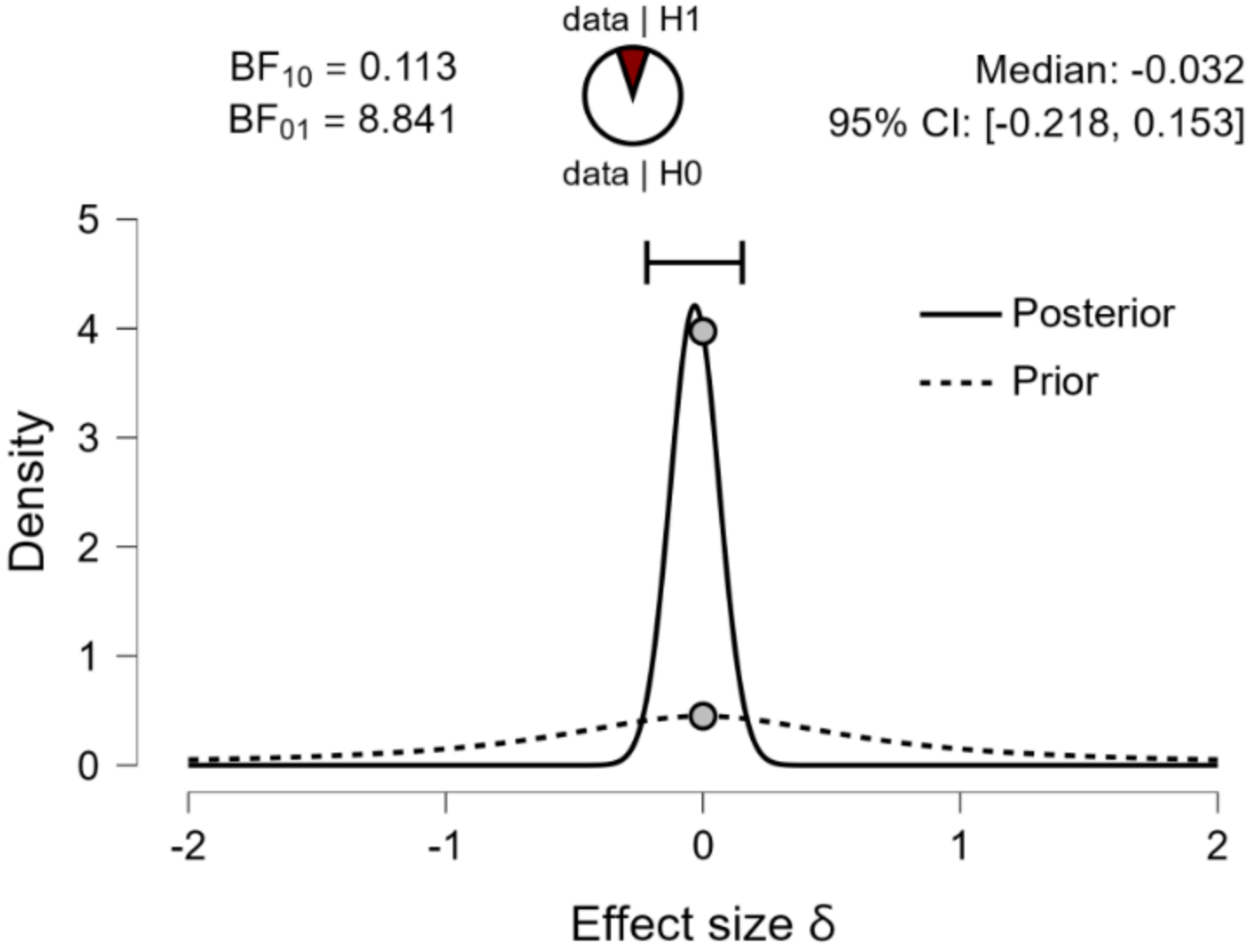


Figure 2

Prior (dashed) and posterior (solid) distributions from the Bayesian Mann–Whitney analysis of underpricing by pricing mechanism. BF_{10} = 0.113 (BF_{01} = 8.841), moderate evidence in favour of the null for H3; median δ = −0.032, 95% CI [−0.218, 0.153].

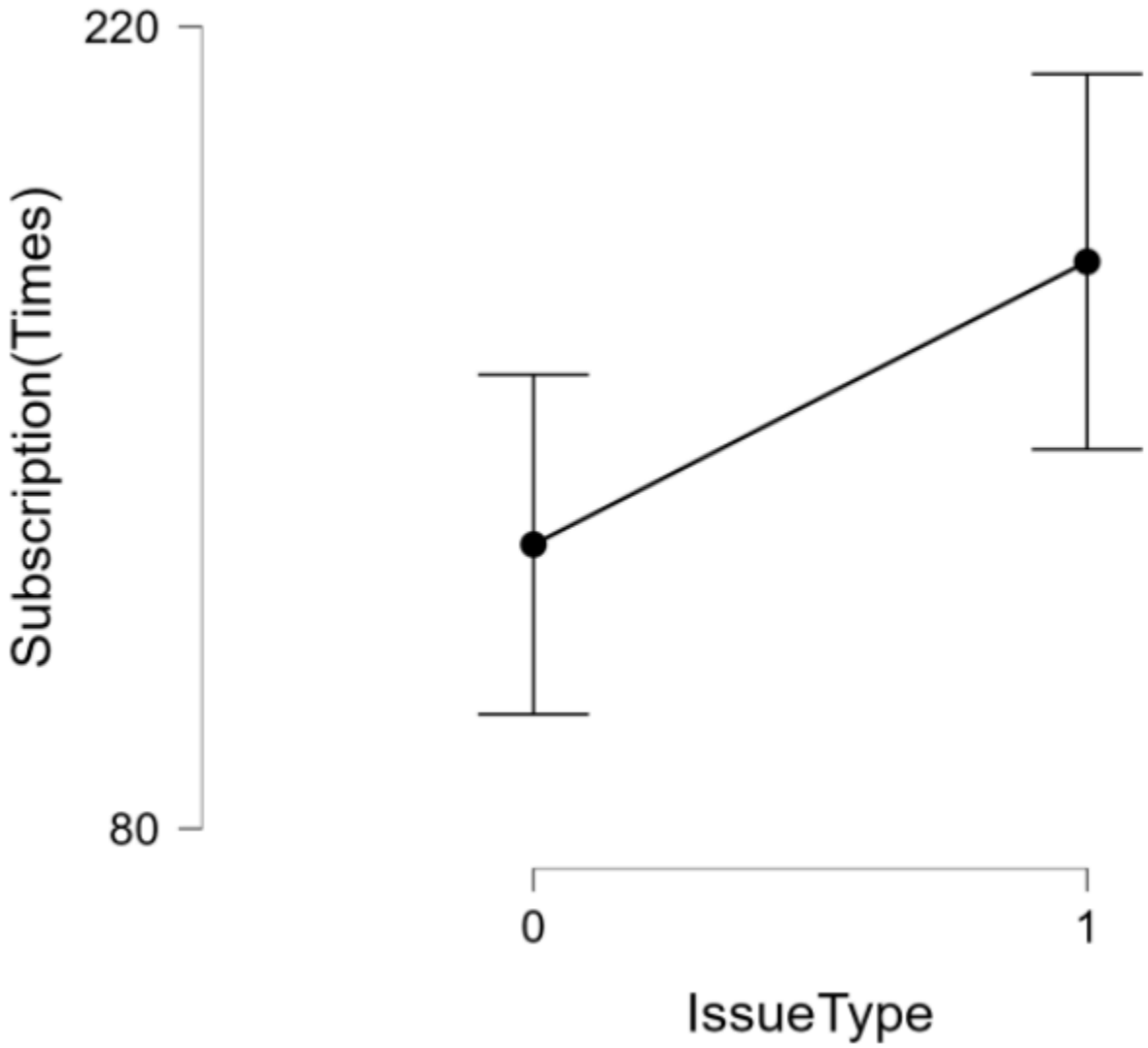


Figure 3

Group descriptive plots for subscription ratio (left panel) and underpricing (right panel) by pricing mechanism (0 = fixed-price; 1 = book-building). Error bars are 95% confidence intervals. The upward slope in subscription ratio is consistent with the H2 direction; the near-horizontal slope in underpricing is consistent with the H3 null finding.