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Daitri Tiwary



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Bringing International Accounting Standards to Emerging Markets: Implementing IndAS in Indian Banks

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Editorial



Dear Reader,

Welcome to September 2025, Vol 1. Issue 1 of Artha: Journal of Business and Finance! Published by the Financial Research and Trading Laboratory at IIM Calcutta, this peer-reviewed e-journal is committed to showcasing thought-provoking work from both academics and industry practitioners. With a primary focus on Accounting, Finance, and Governance, Artha aims to illuminate the latest developments across these dynamic fields.

In this issue, we're pleased to present five articles spanning topics in Accounting, Finance, and Governance. We hope you find them insightful and engaging.

The article *“Impact of ESG Considerations on Deal Success and Post-Merger Performance of SPACs”* analyses about 86 SPAC (Special Purpose Acquisition Company) transactions from 2020 to 2025 in the renewable and traditional energy sectors and tests whether renewables deliver superior deal execution based on post-merger returns. Findings suggest that renewable-energy SPACs underperform post-merger, though renewable deals find their targets comparatively faster.

The next article, *“Building Trust in Digital Lending: The Role of Branding in India’s Fintech Landscape,”* examines the role of branding as a strategic trust-building tool for consumers in India’s digital lending ecosystem. The authors argue that clarity, security, support, visibility, and design help brands reduce perceived risk and encourage adoption and loyalty among consumers.

The third article, *“Impact of COVID-19 on Working Hours-A Gendered Study,”* analyses the impact of COVID-19 on working hours and household income. A dynamic panel regression shows that post-COVID working hours for women decrease, whereas household income increases. This may be due to the impact of government support provided during and after the COVID-19 period.

The next article, *“Signalling Quality Through Underpricing: A Bayesian Game-Theoretic Analysis of Indian Startup IPOs (2020–2024),”* analyses underpricing in IPOs of selected firms from 2020 to 2024. The authors argue that underpricing is most pronounced in high-information-asymmetry sectors such as e-commerce and fintech.

The last article, *“Bringing International Accounting Standards to Emerging Markets: Implementing Ind AS in Indian Banks,”* discusses the issues and challenges in the transition of banks from IGAAP to Ind AS, in particular the Expected Credit Loss model, which is expected to be a structural inflexion point for financial reporting quality, risk assessment, and market comparability.

We hope you enjoy reading the diverse articles in this issue and extend our heartfelt thanks to the authors for their valuable contributions. We warmly encourage you to consider Artha as a platform for sharing your own work. Please send your submissions and feedback to artha@iimcal.ac.in. We look forward to your continued support and active participation in the future.

Vivek Rajvanshi
Chief Editor

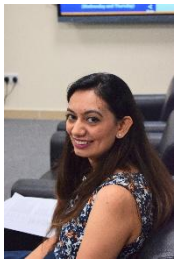
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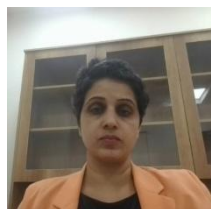


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Daitri Tiwary is a quantitative researcher in the domain of financial stress, foreign exchange volatility, financial crises and firm foreign currency borrowing in developing Asia. With a decade of industry experience in the domain of macroeconomic research, policy advocacy and FOREX volatility, she specializes in financial economics and financial analytics. Her doctoral thesis titled "Rupee Volatility, External Commercial Borrowings and Firm Profitability: Evidence from Indian Manufacturing Sector" was awarded First Prize in CRISIL Doctoral Symposium, 2022, India Finance Conference at IIM Calcutta, post winning the best thesis proposal award by IRMA, India in Doctoral Colloquium 2021, during Dr. Verghese Kurien Centenary Celebrations. An editorial review board member of the journal Asian Economic and Financial Review, she is committed to impactful research which synergizes industry relevance and academic rigour. Her research interests include Fintech and financial risk modeling.

Note: The views expressed by the authors in their articles published in this issue of Aṛṭha: Journal of Business and Finance are personal and do not necessarily represent the views of their employers, or that of Aṛṭha: Journal of Business and Finance, FRTL, and IIM Calcutta. Authors are responsible for any permission needed for the copyrighted materials used in their article.

Impact of ESG Considerations on Deal Success and Post-Merger Performance of SPACs

Himanshi

Kaushik Roy

Abstract

Special Purpose Acquisition Companies (SPACs) emerged as prominent IPO alternatives during 2020-2025, with renewable energy representing substantial SPAC activity amid growing ESG investment focus. This study addresses critical literature gaps by conducting the first comprehensive performance comparison between renewable and traditional (Oil & Gas and Mining) SPACs using standardized metrics. Analyzing 86 completed transactions (2021-2025), we examined deal success indicators and post-merger performance across sectors. Results decisively reject the hypothesis of superior renewable SPAC performance. Traditional SPACs demonstrated significant advantages, with renewable SPACs delivering median 12-month returns of -46.06% versus traditional SPACs' -14.75% ($p < 0.05$), despite paying higher enterprise multiples (4.1x vs 3.1x). These findings contradict ESG investment theory, revealing systematic overpayment during the renewable investment boom and providing crucial insights for investors and policymakers regarding sustainable investment strategies.

Keywords: special purpose acquisition vehicle; renewable SPACs; de-SPAC; initial public offering (IPO)

1. Introduction

While the rapid proliferation of Special Purpose Acquisition Companies (SPACs) has transformed capital markets, the phenomenon also raises questions about their efficacy and long-term value creation. SPACs offer a streamlined alternative to traditional initial public offerings (IPOs), enabling private companies to access public equity through a merger with a shell entity already listed on a stock exchange. In recent years, SPAC activity has surged, with issuances rising from 59 deals in 2019 to 613 deals in 2021, driven by an array of favourable conditions (SPAC Research, 2023). Within this broader trend, energy-sector SPACs have garnered particular attention. Understanding whether SPAC transactions truly deliver on their promise of efficient capital formation and sustainable growth is of key interest to all stakeholders – policymakers, institutional investors, corporate sponsors, and scholars of business and corporate finance.

Despite extensive research on SPAC performance, existing studies treat SPACs as a largely homogeneous asset class, neglecting the possible differences across sectors. A seminal work (Klausner & Ohlrogge, 2021; Kiesel, Ries, & Wojahn, 2023) demonstrates systematic underperformance of SPACs, but does not differentiate by sector or strategic focus. A growing body of research (e.g., Datar, Emm, and Han, 2024; Gonta, 2024) examines ESG-focused SPACs, albeit with mixed evidence. While ESG investment theory predicts that renewable energy ventures, by virtue of lower cost of capital and sustainability premiums, should achieve superior risk-adjusted returns (Kim & Park, 2016), yet we didn't locate any empirical analysis that has rigorously tested this proposition in the context of SPAC-driven transactions.

This study provides the first quantitative comparison of deal success and post-merger performance for renewable versus traditional energy SPACs over the 2020–2025 “peak period” of SPAC activity. By analyzing 86 completed transactions and employing nonparametric statistical tests alongside Spearman rank correlation analysis, the research evaluates nine critical metrics — from IPO pop returns to twelve-month buy-and-hold performance — while assessing the predictive power of pre-merger indicators. The findings reveal that, contrary to ESG investment theory expectations, renewable energy SPACs underperform traditional counterparts across multiple horizons, and also exhibit weaker relationships between deal success measures and long-term returns. Further, we shed light on how valuation discipline, timing efficiency, and investor certification differ in their predictive validity between established and emerging energy technologies.

2. Literature Review

In the securities market, SPACs are increasingly being viewed as a plausible alternative to an IPO for taking a company public (Klausner et al. 2023). In its entire lifespan, sponsors, investor and the targets are the three key stakeholders that SPACs involve with (Valeria, 2024). The existing SPAC literature reveals significant analytical gaps that limit understanding of sector-specific performance dynamics. Foundational research by Klausner and Ohlrogge (2021)

establishes that SPACs systematically underperform due to structural dilution costs, with median cash delivery of only \$6.67 per \$10 share, but treats SPACs as a homogeneous asset class without sectoral differentiation. Similarly, Kiesel et al. (2023) document negative long-term SPAC returns across sectors but provide limited insight into industry-specific performance drivers.

Research specifically addressing ESG and renewable energy SPACs suffers from methodological limitations. Datar et al. (2023) examine ESG-focused SPACs and find inferior performance compared to non-ESG counterparts, but their analysis relies on stated ESG intentions rather than quantitative sector performance metrics. Gonta (2024) incorporates ESG scores into SPAC analysis but focuses on disclosure indicators rather than operational performance differences between renewable and traditional energy sectors.

The energy SPAC literature provides partial sectoral insights but lacks comprehensive renewable versus traditional comparisons. Dimic et al. (2023) identify acquisition determinants in energy SPACs, suggesting "closed group" dynamics that may influence target selection, while their subsequent research (Dimic et al., 2025) examines energy SPAC governance but does not distinguish between renewable and traditional energy subsectors. This represents a critical gap given the fundamental operational and financial differences between these sectors.

As stated earlier, we proceed with the theoretical gap that existing SPAC research implicitly assumes homogeneous performance characteristics across sectors, failing to account for how ESG investor preferences and sector-specific operational dynamics might create systematic performance differences. This gap is particularly significant given that ESG investment theory suggests renewable energy investments should benefit from lower cost of capital, enhanced investor demand, and superior long-term risk-adjusted returns due to sustainability premiums (Kim & Park, 2016). However, no empirical research has tested whether these theoretical ESG advantages manifest in measurable SPAC performance differentials.

Furthermore, the literature lacks integration of deal success metrics with post-merger performance outcomes within sector-specific contexts. While Feng et al. (2023) examine SPAC sponsor incentives and Levmore and Fagan (2022) analyze PIPE investor behavior, no research connects pre-merger execution efficiency to post-merger performance within renewable versus traditional energy frameworks. There is also a theoretical expectation that ESG investor preferences, sustainability premiums, and renewable sector growth prospects should translate into measurable performance advantages. Consequently, we hypothesize,

H: renewable energy SPACs demonstrate superior deal execution metrics and post-merger shareholder returns compared to traditional sector SPACs

3. Methodology

Our sample comprises 86 completed SPAC transactions spanning the period from 2021 to 2025, strategically selected to capture the peak period of SPAC activity. Traditional sector SPACs constitute 47 transactions distributed across industrials and oil & gas, and renewable energy SPACs represent 39 transactions encompassing solar, wind, energy

storage, biofuels, and grid infrastructure projects, reflecting the breadth of sustainable energy investment themes. SPAC-specific data has been collected primarily from Boardroom Alpha (2023), SPAC Research (2023), and SEC regulatory filings, with cross-validation across multiple sources because these databases represent the most comprehensive and reliable repositories of SPAC transaction data.

We've focused on the 2020-2025 period for our analysis because:

1. Definitive "peak period" of SPAC activity: According to SPAC Research (2023), SPAC formations increased from 59 transactions in 2019 to 613 in 2021, representing a ten-fold increase that established this period as the most active in SPAC market history. This provides the statistical power necessary for detecting performance differences between sectors, while the temporal concentration minimizes confounding factors from changing market conditions, regulatory environments, and macroeconomic cycles that could obscure sector-specific effects (Kiesel et al., 2023)
2. ESG Focus: Data from Boardroom Alpha (2023) indicates that renewable energy represented less than 5% of SPAC targets prior to 2020 but constituted over 23% of transactions during 2020-2022, reflecting the ESG investment boom that characterized this period. This surge makes the 2020-2025 timeframe uniquely suitable for comparative analysis between renewable and traditional energy SPACs, as earlier periods lack sufficient renewable transactions for robust statistical analysis (University of Pennsylvania - Kleinman Center for Energy Policy, 2024).

We have identified nine critical factors from two key stages of SPAC creation for assessing SPAC deal success and post-merger performance. The first stage examines deal success metrics that reflect the quality of SPAC execution and market reception during the transaction process. Here, we've employed five metrics, including

1. Redemption Rates: To measure the percentage of shareholders exercising redemption rights before business combination and serve as indicators of investor confidence in transaction quality
2. IPO to Deal Announcement Days: Employed to analyse temporal efficiency, it captures sponsors' effectiveness in target identification and due diligence processes
3. Deal Announcement to De-SPAC Days: This reflects operational execution capabilities post-announcement.
4. EV Multiple: Valuation discipline is assessed through enterprise value multiples that serve as standardized benchmarks across sectors.
5. PIPE/TEV Ratio: Used to measure institutional support, it represents the proportion of private investment relative to total enterprise value.

The aforesaid metrics are already well-established in literature. Temporal metrics (1 to 3, above) conclusively validate critical performance predictors in SPAC research. For example, Cumming et al. (2014) establish that "the time to execute a business combination negatively correlates with SPAC performance," providing empirical support for using timing variables as performance indicators. Their research demonstrates that "a higher level of voting rights by SPAC management decreases the time to target announcement, while the presence of active investors decreases the time to the target announcement," confirming timing efficiency as a measurable sponsor capability. Additionally, their study finds that "SPAC performance is worse for acquisitions announced near the predetermined two-year deadline," establishing

time pressure as a critical factor affecting deal quality. Likewise, EV multiple has a critical role in performance prediction (FTI Consulting, 2025). Additionally, Cowen's institutional research establishes that higher multiples are correlated with elevated execution risk and subsequent underperformance. Studies have also established that PIPE investments are a critical funding mechanism affecting post-merger performance outcomes (Liu & Joseph, 2024).

The second stage focuses on post-merger performance metrics that capture market reception and long-term value creation. Here, we've utilised four metrics, including

1. **IPO Pop Returns:** IPO Pop Returns are calculated as $(P_1 - P_0)/P_0$ where P_0 is the IPO price (\$10) and P_1 is the first-day closing price. These measure initial market reaction to SPAC offerings, providing insights into immediate investor sentiment.
2. **Deal Announcement Pop Returns:** $(P_{DA} - P_{DA-1})/P_{DA-1}$, where P_{DA-1} and P_{DA} are the pre-announcement and announcement day prices, respectively. They reflect the market assessment of target quality and transaction terms.
3. **One-Month Buy-and-Hold Returns:** Used to assess short-term post-merger performance as they capture immediate execution success.

$$BHAR_{1m} = \prod (1 + R_{it}) - \prod (1 + R_{mt}) \text{ for } t = 1 \text{ to } 21 \text{ trading days}$$

4. **Twelve-Month Buy-and-Hold Returns:** Complements one-month buy-and-hold return analysis by evaluating sustained value creation over extended horizons.

$$BHAR_{12m} = \prod (1 + R_{it}) - \prod (1 + R_{mt}) \text{ for } t = 1 \text{ to } 252 \text{ trading days}$$

**where R_{it} is the daily return of the SPAC and R_{mt} is the benchmark market return*

We have incorporated the non-parametric Mann-Whitney U test (two-tailed) to provide distribution-free comparisons between renewable and traditional sectors, accommodating the non-normal characteristics typical of financial return data. The non-parametric approach proves particularly valuable in SPAC research due to the presence of extreme outliers that can disproportionately influence parametric correlation measures.

Also, central to our analysis is the examination of predictive relationships between deal success metrics and post-merger performance outcomes through comprehensive correlation analysis. We employ Spearman rank correlation coefficients to assess the strength and direction of associations between key deal characteristics and subsequent shareholder returns, selecting this non-parametric approach for its robustness to outliers and non-linear relationships typical of SPAC return data (for rigorous theoretical justification, see Schechtman & Shelef, 2018). Deal success metrics including redemption rates, execution timing variables, valuation multiples, and financing structure ratios are systematically correlated against post-merger performance measures spanning multiple time horizons from immediate market reactions to twelve-month buy-and-hold returns. Our analysis provides crucial insights into which deal characteristics serve as leading indicators of subsequent performance. Imputation via medians is utilised for missing data points across the sample.

4. Results & Discussion

Our discussion flows from the empirical results, as tabulated below.

Table 1: Deal Success Analysis

Metric	Traditional SPACs	Renewable SPACs	Statistical Significance
Redemption Rate			
Mean	83.0%	74.7%	P < 0.05
Median	92.2%	87.5%	
N	26	36	
IPO to DA Days			
Mean	720.39	455.28	P < 0.05
Median	611.00	443.00	
N	46	39	
DA to De-Spac Days			
Mean	272.79	270.92	P < 0.05
Median	229.00	244.00	
N	43	38	
EV Multiple			
Mean	3.2x	5.2x	P < 0.05
Median	3.1x	4.1x	
N	16	23	
PIPE/TEV Ratio			
Mean	58.4%	19.4%	P < 0.05
Median	9.2%	10.9%	
N	32	37	

Note:

(1) Statistical significance based on Mann-Whitney U test.

(2) n.s. = not significant

Table 2: Post-merger Performance Analysis

Metric	Traditional SPACs	Renewable SPACs	Statistical Significance
IPO Pop Return			
Mean	6.7%	-0.1%	P < 0.05
Median	0.2%	0.3%	
N	24	38	
DA Pop Return			
Mean	2.8%	-1.7%	P < 0.05
Median	0.1%	0.2%	
N	23	38	
1-Month Buy and Hold Return			
Mean	-30.5%	-59.8%	P < 0.05
Median	-20.0%	-17.2%	
N	31	30	
12-Month Buy and Hold Return			
Mean	-29.69%	-29.88%	P < 0.05
Median	-14.75%	-46.06%	
N	32	30	

Note:

(1) Statistical significance based on Mann-Whitney U test.

(2) n.s. = not significant

Table 3: Analysis of Correlation between Deal Success and Post-merger Performance

	IPO Pop Return	DA Pop Return	1-Month Buy and Hold Returns	12-Month Buy and Hold Returns
Redemption Rate				
Traditional SPACs	0.07	-0.52	-0.29	-0.24
Renewable SPACs	0.00	0.05	0.01	0.02
IPO to DA Days				
Traditional SPACs	-0.02	-0.09	0.22	0.23
Renewable SPACs	-0.25	-0.28	0.09	0.18
DA to De-Spac Days				
Traditional SPACs	-0.10	-0.10	-0.04	0.07
Renewable SPACs	-0.25	-0.28	0.09	0.18
EV Multiple				
Traditional SPACs	0.00	0.25	-0.04	-0.05
Renewable SPACs	0.08	0.13	0.03	-0.09
PIPE/TEV Ratio				
Traditional SPACs	-0.03	-0.02	-0.30	-0.13
Renewable SPACs	0.06	-0.06	0.19	-0.04

Note:

(1) Statistical significance based on Mann-Whitney U test.

(2) n.s. = not significant

(3) Sample sizes have been standardised using imputation via median

4.1 Deal Success

Traditional SPACs exhibit significantly higher redemption rates (92.2% vs 87.5%), paradoxically indicating greater shareholder scepticism toward traditional targets. Lower redemption rates in renewable SPACs may reflect investor conviction in sector growth prospects, though subsequent performance data suggests this confidence may be misplaced. Renewable SPACs demonstrate faster target identification (443 vs 611 days), potentially reflecting sponsor expertise in the focused renewable sector or abundant target availability during the study period's renewable investment boom. Renewable targets command substantially higher EV multiples (4.1x vs 3.1x), consistent with growth premium expectations but indicating potential systematic overpayment that negatively impacts subsequent shareholder returns. PIPE/TEV ratio for renewable targets is observed to be higher (10.9% vs 9.2%), supporting the hypothesis that renewable deals require enhanced private investment support for completion (Kim & Park, 2016; Kleinman Center for Energy Policy, 2024).

4.2 Post-Merger Performance

Renewable SPACs (0.3%) slightly outperformed traditional SPACs (0.2%) despite traditional SPACs having much higher mean returns (6.7% vs -0.1%). This could have three possible reasons:

- Renewable SPACs benefited from peak ESG/clean energy enthusiasm during 2020-2021, creating broad-based positive sentiment that lifted most deals modestly, as reflected in the positive median.
- Traditional SPACs were likely priced more conservatively due to mature, predictable energy markets, leading to modest performance for most deals but exceptional outperformance for a few outliers (driving the high mean). Renewable SPACs were priced more aggressively to capture market enthusiasm, resulting in consistent small pops for typical deals but catastrophic failures for overhyped projects.

- Traditional SPACs had a few massive winners that skewed the mean upward while most performed modestly. Renewable SPACs had consistent modest gains for the majority but several severe underperformers that dragged the mean negative despite the positive median performance.

The DA pop returns show renewable SPACs achieving slightly higher median returns (0.2% vs 0.1%) but traditional SPACs posting significantly superior mean performance (2.8% vs -1.7%, $p < 0.05$). This can be attributed to:

- Renewable SPACs' slight median edge suggests continued investor interest in specific clean energy assets at the deal announcement stage.
- Traditional SPACs' superior mean performance reflects occasional highly positive market responses to premium deals, likely involving proven reserves, established infrastructure, or exceptional cash flow visibility that significantly boost sector averages.
- Renewable SPACs' negative mean despite positive median indicates the sector contains deals that trigger severe negative reactions, possibly due to overvaluation concerns or revelation of weaker target fundamentals during due diligence. This suggests greater variability in renewable deal quality, with some announcements facing immediate scepticism about execution feasibility or projected returns.

At the 1-month horizon, renewable SPACs actually outperform traditional SPACs at the median level, posting -17.2% median returns compared to traditional SPACs' worse -20.0% median decline. This suggests that in the immediate post-merger period, renewable SPACs may benefit from continued investor optimism about clean energy prospects, while traditional energy SPACs face headwinds from concerns about fossil fuel transition and regulatory pressures. However, mean returns show renewable SPACs underperforming more severely (-59.8% vs -30.5%), indicating that while the typical renewable SPAC holds up better initially, the sector contains deals with catastrophic performance that drag down averages. This pattern of post-merger underperformance is consistent with extensive research documenting systematic negative returns across SPACs generally. Harvard Law School research found that "by three months following a SPAC's merger, median returns were negative 14.5%" and that "six-month returns were worse and twelve-month returns are worse still". Earlier studies by Lakicevic and Vulcanovic (2013) found even more severe underperformance, with average buy-and-hold unit returns of -28.7% for SPACs that completed mergers.

The 12-month buy-and-hold returns reveal a complete reversal and the most severe performance differential. Traditional SPACs post median returns of -14.75% compared to renewable SPACs' devastating -46.06% median decline, representing a 31.31 percentage point underperformance gap that is statistically significant ($p < 0.05$). This dramatic deterioration from the 1-month results suggests that renewable SPACs face a "reality check" as initial market enthusiasm gives way to operational challenges. The median-level underperformance indicates systematic issues affecting the majority of renewable energy deals, likely including project execution difficulties, supply chain constraints, and the realization that projected revenue timelines were overly optimistic. In contrast, traditional energy SPACs, while still posting negative returns, demonstrate more resilient performance as investors recognize the value of established cash flows and proven operational capabilities during periods of market stress. While sector-agnostic research has established that "Energy SPACs exhibit positive returns at the merger announcement, while merger and long-term returns are

negative", our analysis provides the first empirical evidence of the magnitude of performance differences within the energy sector itself.

The underperformance patterns we document can be understood through the lens of structural costs embedded in the SPAC process. Stanford Law School research demonstrates that SPACs suffer from significant dilution, with "the median SPAC delivers only \$5.70 per share in net cash in its merger" despite shares being valued at \$10.00, and this cash shortfall is highly correlated with poor post-merger performance (Klausner & Ohlrogge, 2020). These structural impediments appear to disproportionately impact renewable energy SPACs, where longer development timelines and higher capital intensity amplify the effects of the embedded dilution costs.

4.3 Correlation Between Deal Success and Post-Merger Performance

Traditional SPACs show strong negative correlations between redemption rates and DA pop returns (-0.52), indicating that high redemptions signal underlying deal quality concerns that manifest immediately in poor announcement performance. The negative correlation with 1-month returns (-0.29) suggests that these quality concerns persist post-merger. Renewable SPACs exhibit near-zero correlations between redemption rates and all performance metrics (ranging from 0.00 to 0.05), thus, redemption rates provide limited predictive power for renewable SPAC performance, possibly because the complexity and uncertainty of renewable projects make quality assessment more difficult for retail investors at the redemption decision point.

Traditional SPACs demonstrate positive correlations between execution timelines and long-term performance, with IPO-to-DA periods showing a 0.23 correlation and DA-to-completion periods showing a 0.07 correlation with 12-month returns. The stronger positive correlation for IPO-to-DA periods suggests that taking more time to identify and announce targets may actually benefit performance, possibly indicating more thorough target evaluation or waiting for better market conditions. Similarly, renewable SPACs exhibit similar positive correlations with timeline metrics (0.18 for both IPO-to-DA and DA to De-SPAC periods with 12-month returns), though slightly weaker than traditional SPACs for the IPO-to-DA phase. This suggests that both sectors benefit from patient deal execution, but the effect may be more pronounced for traditional SPACs where sponsors have clearer benchmarks for evaluating target quality.

Traditional SPACs exhibit a positive correlation (0.25) between EV multiples and DA pop returns, indicating that markets initially reward higher-priced deals, possibly viewing premium valuations as signals of asset quality or competitive auction processes. However, this positive reception reverses over time, with a negative correlation (-0.05) emerging in 12-month performance, suggesting that initial market enthusiasm for expensive deals gives way to concerns about overpayment as operational realities unfold. Renewable SPACs demonstrate weaker initial valuation sensitivity, with modest positive correlations for DA pop (0.13) but stronger negative correlations for long-term performance (-0.09). Unlike traditional energy assets with established valuation benchmarks based on reserves or production capacity, renewable projects may be priced more on growth potential and strategic positioning, making overvaluation particularly damaging when projected growth fails to materialize.

PIPE/TEV ratios reveal contrasting investor certification patterns between sectors. Traditional SPACs demonstrate negative correlations across all time horizons, with particularly strong negative relationships for 1-month returns (-0.30). Renewable SPACs exhibit an inverted pattern, with positive short-term correlations (0.19 for 1-month returns) that deteriorate to negative long-term performance (-0.04 for 12-month returns). This suggests that, while renewable SPAC markets initially value PIPE participation as a quality signal, this proves to be a poor predictor of actual performance. Traditional energy markets appear more skeptical of PIPE-heavy deals from the outset, and this skepticism proves justified.

Renewable SPACs' heightened sensitivity to deal characteristics can be observed. This pattern may reflect greater execution risk in renewable projects requiring enhanced due diligence, increased valuation uncertainty leading to larger pricing errors, or more complex regulatory and technological factors affecting post-merger integration. These findings align with Dimic et al. (2023), who identify acquisition determinants specific to energy SPACs that may create systematic biases in target selection, potentially explaining the heightened sensitivity to deal metrics observed in our correlation analysis. Weaker correlations in traditional SPACs may indicate more mature, predictable business models where deal characteristics exert less influence on post-merger performance outcomes.

The substantial performance differential between renewable and traditional SPACs may be partially explained by sponsor incentive structures identified by Feng et al. (2023), who demonstrate that SPAC sponsors face significant pressure to complete transactions within specified timeframes regardless of deal quality. This pressure may be particularly pronounced in renewable SPACs, where the combination of abundant targets during the ESG investment boom and sponsor compensation structures dependent on deal completion could lead to systematic overpayment and reduced due diligence quality. Our finding that renewable SPACs pay significantly higher EV multiples (5.2x vs 3.2x) while delivering inferior performance outcomes supports these sponsor incentive concerns, suggesting that renewable sector deal completion pressure may override valuation discipline.

The governance implications identified by Dimic et al. (2025) suggests that structural governance weaknesses may contribute to the systematic underperformance we observe in renewable SPACs.

5. Conclusion

A central contribution of our study is the claim to be the first comprehensive performance comparison between renewable and traditional energy SPACs using standardized deal success and post-merger performance metrics. Our findings contribute to the emerging literature on energy SPAC performance (Dimic et al., 2025) by providing empirical evidence on the relationship between deal success metrics and post-merger outcomes in renewable versus traditional sectors. This study advances SPAC-ESG research by using quantitative ESG performance measures rather than binary disclosure indicators (extending Gonta, 2024), while incorporating ESG factors into the analysis of SPAC target selection criteria (building on Haasnoot, 2021).

By decisively rejecting the hypothesis that renewable SPACs deliver superior performance, our analysis reveals that traditional sector SPACs demonstrate marked advantages across multiple dimensions, whilst renewable SPACs exhibit systematically inferior execution and performance outcomes. Renewable SPACs delivered median 12-month returns of -46.06% versus traditional SPACs' -14.75%, representing a statistically significant 31.31 percentage point underperformance gap ($p < 0.05$), despite paying substantially higher enterprise value multiples (4.1x vs 3.1x median). This systematic underperformance contradicts ESG investment theory expectations and indicates systematic overpayment during the ESG investment boom.

The correlation analysis reveals that redemption rates emerge as the strongest predictor of post-merger performance, with correlations reaching -0.24 for traditional SPACs, validating theories of informed investor behavior and the informational content of shareholder exit decisions in SPAC markets. These findings support semi-strong form market efficiency theories whilst highlighting persistent valuation inefficiencies during the renewable investment boom, where systematic mispricing occurred despite available information about execution risks and structural challenges. Energy SPACs face distinct challenges as they "exhibit positive returns at the merger announcement, while merger and long-term returns are negative" (Dimic et al., 2025, p. 1), and our results suggest these challenges are particularly acute in the renewable subsector.

For investors, these results provide clear guidance that deal success metrics, particularly redemption rates and execution timing, serve as early warning indicators for deal quality assessment, whilst sponsors should prioritize disciplined valuation approaches, execution speed, and meaningful PIPE participation as primary determinants of post-merger success. Future research should examine specific sources of renewable SPAC underperformance, including regulatory delays, technology implementation risks, and capital structure mismatches between SPAC timeframes and renewable project development cycles.

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Building Trust in Digital Lending: The Role of Branding in India's Fintech Landscape

Anjali Pala

Sunil Patel

Abstract

India's online lending sector has evolved at a remarkable pace, largely driven by mobile technologies, Aadhaar-based eKYC (Know Your Customer) and the rapid adoption of the Unified Payments Interface (UPI). The rapid deployment of these products has created an environment of increased financial inclusion, but also created challenges that impact consumer trust, transparency and data protection. This article explores the importance of branding as a trust tool within the Indian digital lending landscape. Using secondary data and a critical review of academic literature, this study positions branding as more than simply a marketing tool - branding is a key factor in producing legitimacy, consumer trust and subsequently sustainable adoption. The argument ultimately draws on lessons from China's and Indonesia's independent paths. Findings established that branding, which is transparency-led, regulator-compliant, and consumer-aware, increases consumer confidence and supports financial inclusion.

Keywords: Fintech, Branding, Consumer Trust, Digital Lending, India, Financial Regulation

1. Introduction

India's financial services sector has experienced a seismic shift in the last decade due to the proliferation of digital tools and platforms. Digital lending is one of the most disruptive innovations, allowing speed, paperlessness, and access to credit to many consumers and businesses. The value of digital lending transactions is expected to exceed USD 350 billion in India by 2026 (Grand View Research 2024). This increase has been anchored by government-backed infrastructures such as Aadhaar-enabled eKYC, real-time credit scores, and mobile-first solutions that circumvent traditional banking hurdles.

However, the benefits of convenience have been met with the challenges of consumer protection and legitimacy concerns. As the newest sector in the industry, there were some unregulated applications that were known to charge undisclosed fees, misuse consumer data, and use coercive loan repayments; each of these diminished consumer trust, while also raising broader questions of the viability of these digital lending models. To combat the loss of trust, the Reserve Bank of India created the Digital Lending Directions (2025), which created more stringent guidelines around pricing, grievance procedures, and data protection. While the added regulatory oversight has provided some credibility for the new sector, it has reinforced the point that trust is not something which can be legislated; it must be built and nurtured by established processes.

This paper investigates how branding functions as a strategic tool to build trust for consumers within the digital lending market in India. Unlike banks and financial institutions, which have existed for many years and have a decade's worth of institutional trust, fintechs are relatively new to the ecosystem and must build their own legitimacy. The paper argues that branding, together with transparency, compliance with regulations and providing consumer education, can enable digital lenders to change consumer attitudes and build a sustainable business model. This article contributes to the regulatory conversations surrounding market trust, financial inclusion and the governance of fintech in emerging markets, using a combination of academic discussions and market evidence.

2. Literature Review

Trust in Financial Services: Trust is fundamental to how consumers make financial decisions under conditions of risk and uncertainty. Organic trust is typically derived from a combination of factors, including the reputation of a financial institution, regulatory oversight, and relationship with a [consumer] bank manager. In a digital ecosystem where banking is mediated through technology, trust must be signalled through other means, such as data security, protocols, branding, and transparency. Gefen, Karahanna and Straub (2003) demonstrate that trust diminishes perceived risks in procuring online services, and McKnight, Choudhury and Kacmar (2011) show that integrity, competence and benevolence shape trust online. These findings suggest

that when transactions do not involve face-to-face deliberations, trust is the determining factor in adoption and continued use.

Technology Adoption in Fintech: The Technology Acceptance Model (Davis 1989) foregrounds perceived ease of use and perceived usefulness in technology adoption, whereas Unified Theory of Acceptance and Use of Technology (UTAUT) includes both social influence and facilitating conditions (Venkatesh et al. 2003). In fintech, the experience of trust interacts with these constructs in different ways. Studies of the adoption of mobile banking illustrate that consumers are more concerned with protecting their data and confirming institutional trust than they are with the perceived convenience of service (Zhou 2011; Oliveira et al. 2014). Thus, trust has both a prerequisite as well as a reinforcing function specifically for fintech adoption.

Branding as a signal of trust: Branding reduces uncertainty in situations where market participants have asymmetric information. Erdem and Swait (1998) develop the brand concept as a signal of quality and safety, allowing consumers to make confident decisions, even in risky situations. In fintech, brands project themselves beyond the visual representation; they reflect a comprehensive consumer experience, which can involve everything from regulatory obligations and customer service to ethical data use (Leong et al. 2022). Gomber et al. (2020) argue that in highly competitive fintech markets, a strong brand differentiates a firm by its visual representation but also its credible signal to users. Thus, branding is not secondary; it is core to how digital lenders build legitimacy in consumers' eyes.

The Indian context: India is quite a unique example of rapid digital adoption alongside challenges of a structural nature. Established research demonstrates that digital lending has advanced financial inclusion, primarily for the livelihoods of the severely underserved (Sarma and Pais 2011, Ghosh 2020). Nonetheless, in India, problems stemming from hidden charges, lack of transparency, and ineffective grievance redressal processes hike up consumer risk and trust (Kshetri 2021). Recent research identified that branding strategies which embrace transparency and educational development may mitigate against these complex challenges. Arora and Kaur (2023) show that fintechs that invest in consumer awareness and financial literacy not only improve repayment performance but also establish reputational capital. Overall, the literature suggests that the level of consumer trust in India's digital lending sector is dependent on how well fintechs position themselves as transparent, secure, and consumer-centric brands.

3. Methodology

The article employs a qualitative, secondary data approach. The analysis merges new insights synthesised from academic literature, regulation reports and market reports in a skeletal semiotic framework to understand branding and trust in the digital lending landscape. A systematic literature review was conducted using databases (for example, Scopus, JSTOR and Google Scholar) to determine peer-refereed studies on trust, branding and fintech adoption. Industry reports (for example, Statista 2024; Grand View Research 2024) and policy documents (for example, Reserve Bank of India 2025) were used at the same time to contextualise the market system. The figures and tables presented in this article came from

a secondary data exercise, and the authors produced those figures and tables. As such, the methodology creates a triangulation of scholarly and market-based insights to better understand the Indian digital lending context.

4. Qualitative Analysis

4.1 Market Landscape: India's Digital Lending Growth

The digital lending industry in India has moved at breakneck speed, propelled by favourable regulatory changes, large consumer demands, and swift technological adoption. The market was reportedly worth around USD 270 billion in 2022 and is expected to have reached USD 350 billion by the end of 2023 (Statista 2024). It is anticipated that loan disbursements exceeding ₹274 trillion are possible by FY26 (Grand View Research 2024). Thus, fintech firms like Lendingkart, InCred, Mobikwik, and Aye Finance compete directly with banks and NBFCs in offering innovative credit products to small businesses, self-employed persons, and young consumers attracted to Buy Now, Pay Later (BNPL) options.

The rapid growth is facilitated by three factors: increasing smartphone penetration, government-backed infrastructure such as Aadhaar-based eKYC and UPI, and venture capital funding to scale the fintech industry.

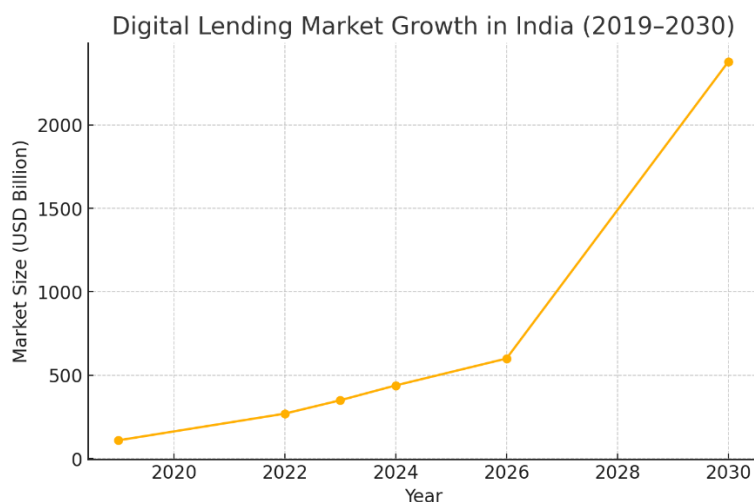


Figure 1. Growth of Digital Lending in India, 2019–2030

Source: Statista (2024), Grand View Research (2024).

Figure 1 displays not just the size of the market, but the potential for transformation. The declining share of digital lending compared to conventional banking services highlights the importance of establishing trust with new financial intermediaries.

India's growth trajectory uniquely positions it where digital lending is not merely a periphery but has become mainstream for financial inclusion. Growth in pace accentuates trust-building mechanisms because consumer confidence will decide whether growth will imply sustainability of adoption.

4.2 Brands and Trust Within Financial Technology

Brand plays a critical role in reducing the reluctance of consumers regarding the use of digital finance. In India, where institutional trust in fintech is still on fragile ground, branding strategies emphasising transparency, safety, and customer care take on a more meaningful value. Evidence suggests that consumer trust is based on five dimensions: clarity, safety, support, visibility, and design (Leong et al. 2022; Gomber et al. 2020):

- **Clarity:** Transparent disclosure regarding interest rates, repayment terms, and fees.
- **Security:** Strong data security through encryption and authentication.
- **Support:** Accessible and multilingual customer service.
- **Visibility:** Display of regulatory approvals and institutional affiliations.
- **Design:** Intuitive user interfaces that reflect professionalism.

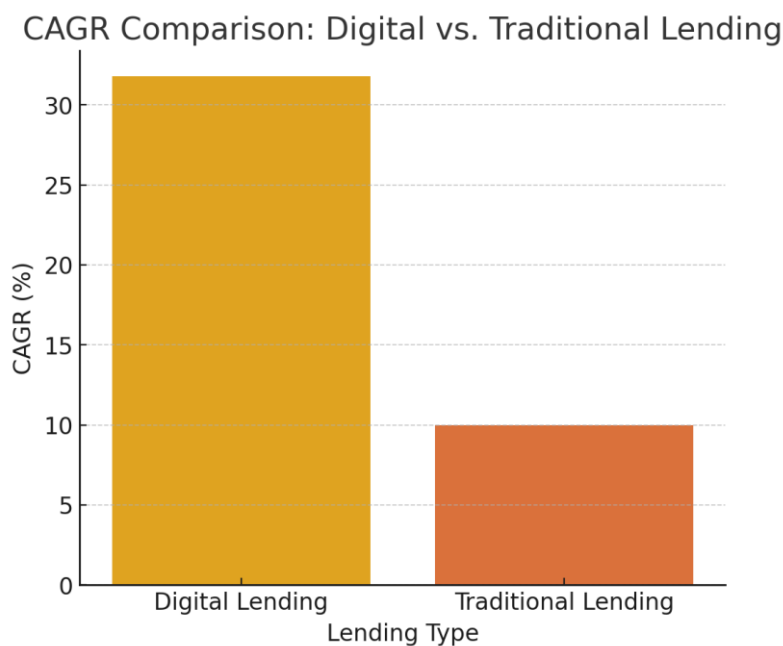


Figure 2. Key Dimensions of Branding and Trust in Fintech

Source: Authors' synthesis of Leong et al. (2022), Gomber et al. (2020), and survey data.

These dimensions indicate that branding is not simply a surface-level commitment but indicates deeper commitments to fairness, regulatory compliance, and consumer empowerment. Companies that incorporate these items into their branding will be more successful in growing adoption and referrals.

4.3 Challenges Hindering Consumer Trust

Despite substantial growth, important challenges persist in fostering consumer confidence in India's digital lending ecosystem. One ongoing issue is financial literacy. Many first-time borrowers do not grasp how interest rates, equated monthly instalments (EMIs) or compounded interest function, making them liable to overborrow and default.

A second challenge is the digital divide. Smartphone penetration has increased, but many rural consumers still use entry-level devices and lack sufficient internet connectivity. These downstream technological barriers reduce access and create frustration.

A third problem is the lack of visibility of many potential borrowers in formal credit scoring channels. Nearly 300 million Indians have no credit histories (Kshetri 2021), and thus fintech firms resort to alternative data like mobile recharge histories, e-wallet transactions or bill payment histories. While this approach might widen access, important questions about accuracy, privacy, and justice emerge.

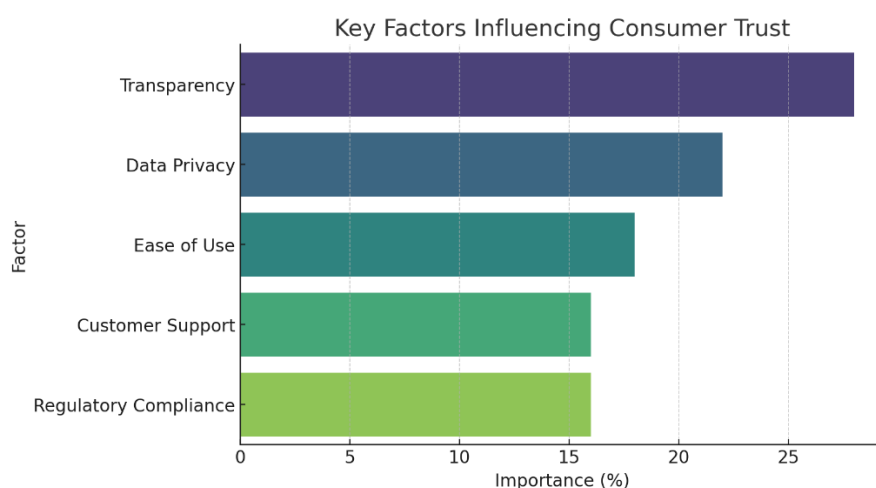


Figure 3. Barriers to Consumer Trust in Digital Lending in India

Source: Authors' synthesis of RBI (2025), Kshetri (2021), and Ghosh (2020).

If these factors are not confronted systematically, then trust deficits could linger and not support the development of the relevant propositions of inclusive finance. Additionally, India's experience with digital lending can be regarded with insights from other countries that are experiencing similar developments. In China, Ant Financial has paved the way for large-scale digital lending by integrating itself with Alipay and e-commerce. Loans were made available by using behavioural data and social credit data with instant approval mechanisms. While it has extended credit access, it has been criticised for potentially surveilling loans and with the associated risks of consumer data privacy (Arner, Barberis, and Buckley 2020).

Several elements can be considered in the Indonesian experience and then placed in contrast with India. Indonesia had made the systemic and proactive decision to mandate licensing and then focus on the Indian Institute of Management Calcutta

establishment of industry standards and consumer protection regarding peer-to-peer lending platforms early in the Indonesian digital lending experience. From the emergence of frameworks governing standards of conduct, levels of transparency and practices surrounding borrower education these products, Indonesia was able to create a sustainable individual digital lending ecosystem (Leong et al. 2022)

For India, whilst countries and jurisdictions can be similar, the call is clear that whilst a focus on innovation must be promoted, regulatory frameworks supported with consumer education are necessary to maintain accountability, trust and transparency, whilst enhancing the innovation potential.

5. Policy and Managerial Implications

Fintech players must accept that building trust will typically need a long game. Investment in customer education (local language videos; clear and open EMI calculators; interactive FAQs) will lower defaults and raise customer satisfaction. Ethical data practices will also be critical for building and maintaining trust (i.e. informed consent and purpose-limited data collection).

For regulators, there is the runway of compliance, but the quieter responsibility is the preservation of innovation. The Digital Lending Directions (2025) is a great start, but regulators will need to continue to monitor and continually improve compliance mechanisms in their pursuit of continuously managing evolving risks. Supporting interoperability for all platforms and standardising the conditions for a grievance mechanism are good practices and could build customer confidence.

The ecosystem players - banks and investors, and NGOs - all have a part to play. Banks and investors can lend their support by finding resourcing for responsible fintechs, and NGOs and media can help to increase awareness, share best practices, and reveal bad behaviours. Trust in a digital lender is not, therefore, just a best practice responsibility; it is a shared responsibility.

6. Conclusion

With advancements in technology, supportive regulations, and changing consumer preferences all working towards favour of digital lending in India, a rapid escalation is witnessed. On the other hand, in this atmosphere, only those firms which know how to build trust and market confidence among customers will be able to sustain growth in the long run. Fintech companies, unlike banks, have to build such credibility from scratch; therefore, branding is an essential means for signalling transparency, fairness, and integrity.

These articles show that across various branding dimensions, consumer trust interacts with clarity, safety, support, visibility, and design-all directly dependent on adoption and loyalty. The analysis further indicates that while regulation may set a foundation, long-term trust is earned by educating consumers, conducting data being conducted ethically, and delivering responsive service.

Future Research: This study employs a qualitative, secondary-data approach. Extension research could gather quantitative data from sources such as surveys, structural equation modelling, or econometric analysis to directly test the relationship between various dimensions of branding and consumer trust, thereby providing a greater evidential base for policymaking and strategic decision-making.

To put it simply, trust would drive India's digital lending market tomorrow, not technology. Fintechs known for fairness and accountability will not just survive in competition but lead the next financial inclusion drive.

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Impact of COVID-19 on working hours – A gendered study

Nishi Malhotra

Abstract

In the wake of COVID-19 the relationship between the number of hours spent on job and overall job performance and efficiency is a focal point of discussion for the policy makers and the business leaders. Recently, the corporate leaders have sparked a debate on causal relationship between number of hours spent on the job and business performance. COVID-19 saw a majority of businesses move to remote and online mode, leading to substantial decline on time spent on job. The study aims to empirically analyze the impact of COVID-19 on hours worked and time spent on job. Moreover, difference in difference method has been used to examine how COVID-19 impacted working hours for men and women differently. The second part of the study uses the regression dynamic panel to study the impact of COVID-19 on household income and its gendered impact. The data for the analysis was taken from Consumer Pyramid dx, Peopledx wave 18, 19 and 20. Overall the results show that there is significant decline in hours worked during COVID-19 with average number of working hours for women experiencing a greater decline than the men. In the second part of study, regression analysis is undertaken to measure the impact of region, education and gender on income of households. As per the analysis, rural regions have lower income as compared to urban regions. And higher education leads to significantly increase in income.

Keywords: Time spent on job, gendered difference, COVID-19

Introduction

Time spent on job and causal inference between time spent on job to boost corporate performance is a matter of debate for the policy makers and corporate leaders and researchers from the modern school of thought. Recently, in wake of COVID-19, declining bottom lines, lot of business leaders have sparked a debate on causal relationship between time spent on job and business performance. During COVID-19, the hours worked saw a steep decline in time spent on jobs. Difference in difference method using parallel trends has been deployed to compare the number of hours worked by the males and females during COVID-19. Theoretical framework of gendered impact on work hours has been used to study how crisis events like COVID-19 exacerbate existing income inequalities, sectoral unemployment for female workers as compared to the males. This study will be of interest to policy makers to design policy interventions to ensure gender equity, inclusiveness without compromising business performance. Theoretical framework of gendered impact on work hours has been deployed to analyze how crisis events like COVID-19 amplify pre-existing disparities between males and female workers. This framework highlights those inequalities grounded in gender roles, stereotypes are amplified during period of economic and social crisis. This framework highlights how women workers who are under represented are affected by the workers and suffer from a sharp decline in working hours, income as compared to males. This gendered inequality not only widens the economic gaps but also creates fault lines in form of traditions that impact future trajectory of career growth for women in the workplace. By highlighting mechanism and precursors like crisis that exacerbate gendered market outcomes this study highlights the need for policy intervention in an institutional environment to ensure participation of women in the workplace. The study utilizes difference in difference methodology to assess how COVID-19 impacts time spent on working by males as compared to females. Dynamic panel regression has been used to analyze the gendered impact of COVID-19 on household income. The results of the study indicate that COVID-19 witnessed a decline in number of hours worked. While working hours decreased for both genders, the decrease was more pronounced for male members as compared to the females. Thus, during COVID-19 the males worked higher number of hours as compared to the females. The analysis also highlighted a positive relationship between household, size and income, signalling that the larger families tend to have larger income. Besides, that the education has a positive relationship with household income. During COVID-19 household income increased more as compared to the normal times due to the implementation of various Government schemes. The rural households witnessed higher household income as compared to the urban households.

Research Problem

During COVID-19, the lockdown resulted in vast impact on working hours for the general public. The research questions for the study are given below:

RQ1: COVID-19 significantly impacted the number of working hours for females as compared to male work force

Data

Section 1: Research question on impact of COVID-19, Gender on time spent by employees on their employees

The study uses secondary data from Consumer Pyramids dx database maintained by CMIE (Centre for Monitoring Indian Economy). For this study data was drawn for 2 different periods (1) Pre COVID-19 September October November December (2) Post COVID-19 Jan – August 2019. The sample was restricted to households participating in the self-help groups. The selection was done on the basis of the available information.

Table 1: Description of the variables (Source: Author's own work)

Variables	Description
COVID-19	Binary variable – 1 for COVID-19 and 0 for non-COVID-19 period
Gender	Binary variable – 1 for female and 0 for male
Time spent on work for employer	Time spent on work for employer is number is stated time spent by a member of a sample household on an average, on work undertaken for an employer. Time spent is expressed in terms of hours.
Education	Education. 0 house of all illiterates, 1 = Matriculates and house of some literates; 2= Household of minority literates; 3= Household of majority literates; 4= Household of all matriculates; 5 = Household of minority graduates; 6 = Graduates dominated household; 7 = All graduates dominated household
Region	1 for rural region and 0 for urban region
Log income	Income for the households (Logarithmic)

Table 1 provides the detailed description of the variables used for the purpose of study. Dependent variable in the study is Time spent on work for employer. And the independent variable is gender which is binary variable with value 1 for females and 0 for males. COVID-19 is binary variable with value 1 for COVID-19 and 0 for non-COVID-19.

Table 2: Summary of statistics (Source: Author's own calculation)

Summary of data statistics

	Frequency	Mean	Pre Covid	Post Covid
COVID	840	0.33		
Time spent		6.81 hours	7.37	5.67
Time spent on work by females			7.45	5.81
Time spent on work by males			6.16	5.38

Section -2 – Research question on impact of COVID-19 and gender on income of households

Data

For the purpose of study, the data was taken from pre COVID-19 period Jan – April 2019. And the post COVID-19 data was taken from Sep – Dec 2020 and 2021. The data was taken Consumer Pyramid dx from CMIE (Centre for Monitoring Indian Economy). The summary of statistics is given below:

Table 3: Summary statistics (Source: Author's own calculation)

Particulars	Mean
Log income	1,95,921
Number of members	2.1
Gender (Women headed households)	964
Male headed households	1,397
Education	2.83
COVID-19	11805 observations
Normal times	9,440 observations

Research methodology

For the purpose study, the difference and difference methodology has been used. And in order to check for the presence of interaction effect, parallel trends have been used. The graphical analysis highlights the presence of the parallel trends in the data. This further validated the use of the difference and difference method to analyze the impact of gender and COVID-19 on the time spent by the employees with the employer. Figure 1 provides the graphical analysis of the time spent by the male and female workers in pre and post COVID-19 period. The blue line refers to the time spent by the males on job and red line refers to the time spent by the females on the job. Time periods are depicted on the Y axis. Wave 18 and 19 are the pre COVID-19 waves and 20 is the post COVID-19 wave of data collection. Clearly from the analysis of the data, the time spent on the job has fallen for both males and females. But the time spent for females have fallen more than the time spent by the males.

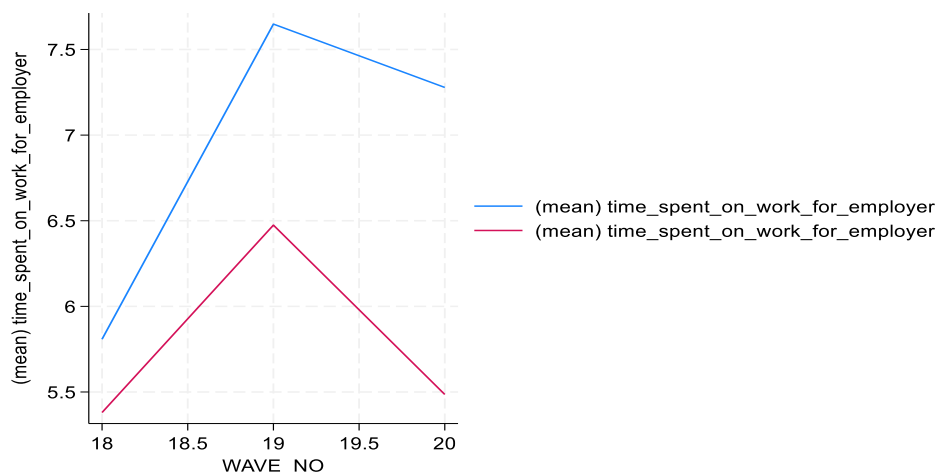


Figure 1: Parallel trend analysis (Source: Author's own work)

Results and analysis

Research Ques 1: Impact of COVID-19, Gender on time spent by employees on their employees

Table 4: Difference in difference (Source: Author's own work)

$$\text{Time spent on work by employer} = \alpha_{it} + \beta_{it} \text{ Gender} + \lambda_{it} \text{ Covid} + \gamma_{it} \text{ Gender} \cdot \text{Covid} + \varepsilon_{it}$$

Time spent on work by employer	Coefficient	Std error
Constant	6.168***	0.234
Covid	-0.787***	0.216
Gender*Covid	-0.862***	0.182
Gender	1.29***	0.175

From the analysis of results baseline average hours spent by the male employees on the work is 6.168 in pre COVID period. During COVID-19, the hours spent on work by men declined significantly by 0.8 hours as the coefficient for Covid-19 is -0.787, with significant p value. Interaction term for gender and covid is -0.862, suggesting that the females experienced an additional decline of 0.862 hours in work during COVID-19 as compared to males. For gender the coefficient is 1.29 with significant p value indicating that on an average women spent 1.3 hours more on work as compared to men.

Regression

Research ques 2: Impact of COVID-19 and gender on income of households

Data

This part of study aims to discuss about the impact of Gender (Female) and COVID-19 on the income of the employees. Regression analysis has been conducted to measure the impact of gender, number of employees, education, and region on the income of the members of the household. The analysis of the data highlights that number of members positively impacts the income of the households. Moreover, the females have a positive impact on the income of the households. Regions is a binary variable, which is 1 for rural regions and 0 for the urban regions. The analysis of the data highlights that rural region witnessed an increase in the total income due to various schemes introduced by the Government during COVID-19. Also, better education leads to higher income for the households. The interaction between gender and COVID-19 also has a positive impact on income of the households. The analysis of the results highlights that the social schemes and various initiatives by the Government such as income had a positive impact on the income of the households.

Moreover, during COVID-19 the Government introduced various schemes, which had a positive impact on the income of the households.

Table 5: Regression results (Source: Author's own calculation)

$$\text{Logincome}_{it} = \alpha_{it} + \beta_{it} \cdot \text{COVID} + \gamma_{it} \cdot \text{Gender} + \lambda_{it} \cdot \text{Gender} * \text{COVID} + \theta_{it} \text{Number of members} + \varphi_{it} \text{Education} + \Delta_{it} \text{Region} + \varepsilon_{it}$$

	Logincome	S.E.	LCL	UCL
COVID.	0.065***	0.017	0.030	0.100
Gender				
COVID	0.108***	0.012	0.084	0.132
Number of members	0.102***	0.004	0.092	0.111
Gender	0.003	0.015	-0.026	0.033
Education	0.099***	0.003	0.091	0.107
Region	-0.038***	0.014	-0.067	-0.009
Constant	8.94***	0.019	8.905	8.982
Rho square	0.167			

Results and discussion

The coefficient for interaction term for COVID-19 and gender, where gender is females is 0.065 with significant p values, suggesting that the women headed households experienced an additional income increase of 6.5% in income during COVID-19 as compared to men headed households, ceteris paribus. This could be due to the various schemes started by the Government of India. Various studies highlight that income saw a sharp decline in the first wave of lockdown but the recovery was sharp in period 2020-21. And recovery was much sharper for the higher income households as compared to lower income households. A detailed study on impact of COVID 19 on Quartile income can be undertaken in future. The coefficient for COVID-19 is 0.108 with significant p value, indicating that the overall income increased by 10.8% during COVID-19 during COVID-19 relative to pre COVID-19 period. The number of members in the household has a positive impact with coefficient 0.102, indicating that an additional member increased the income of household by 10.2%. The coefficient for gender is 0.003, implying that before COVID-19 there is not much significant difference in income of households due to gender. Education has a strong positive impact on income suggesting that higher education is linked to 9.9% higher income for households with more educated members. There is regional variation in the income, with rural households having 3.8% lower income as compared to urban households. The baseline income is 8.84 in log terms.

Conclusion

From the study COVID-19 led to significant reduction in work hours for both men and women headed households with women experiencing a larger decline in work time compared to men. Before pandemic women spent 13 hours on average more on work as compared to men. The pandemic caused a decline of 0.8 hours more for men as compared to women. Women experienced a sharper decline with a reduction of 1.61 hours as compared to 0.8 hours for men. Thus, due to COVID-19 women found it more difficult to shoulder economic activities as compared to men. Also, during COVID-19 household income increased by 10.8% during COVID-19 as compared to pre COVID-19 period. Women headed household experienced an additional increase of 6.5% in income as compared to male headed household. This increase is result of various schemes launched by state. And before pandemic there was no difference in income of household size is associated with 10.2% jump in income of households. With higher education contributing to 9.9% increase in income of households. Rural region has 3.8% lower income as compared to urban regions. In summary, despite decrease in women's work hour which signifies unpaid work, women headed households were financially resilient during pandemic. Though structural factors like education and urban location remains significant determinant of income. The results have lot of implication for policymakers, as they signify positive impact of various schemes on the income of the households. As per the study, more initiatives can be taken to reduce regional disparity in the income of the households.

Signalling Quality Through Underpricing: A Bayesian Game-Theoretic Analysis of Indian Startup IPOs (2020–2024)

Sudam Majhi

Abstract

The period between 2020 and 2024 saw an unprecedented boom in Indian startup initial public offerings (IPOs), which included listings by Zomato, Nykaa, Paytm, Mamaearth, and other venture-backed companies. Most of these IPOs showed significant underpricing — a process of fixing the offer price less than the anticipated market-clearing price — resulting in huge first-day appreciation for investors. Although underpricing would seem to be harmful to issuers, theory in signalling explains that good-quality firms would underprice for the purpose of signalling their quality credibly in asymmetric information markets.

Using a Bayesian signalling game framework, this paper models IPO underpricing. Issuers are classified as high- or low-quality based on unobservable fundamentals. While low-quality issuers are discouraged by the expense of imitating such a strategy, high-quality issuers may strategically underprice in anticipation of long-term reputational benefits and improved aftermarket performance.

Data on offer prices, listing prices, underpricing percentages, and post-listing returns from Indian startup initial public offerings (IPOs) from 2020 to 2024 are used to test the model. According to the results, underpricing works well as a signal in industries with a lot of information asymmetry, like technology. Issuers, practitioners of equity capital markets (ECM), and emerging market policymakers can all benefit from the study's conclusions.

Keywords: IPO underpricing, signalling games, Bayesian game theory, Indian startups, asymmetric information, equity capital markets

1. Introduction

With a flurry of well-known initial public offerings (IPOs) from tech-driven startups like Zomato, Nykaa, Paytm, Mamaearth, and Policybazaar, the years 2020–2024 have been a revolutionary time in India's capital markets. These listings demonstrated India's developing startup ecosystem and attracted institutional and public interest. However, underpricing—setting the offer price below the level at which the stock would trade in the market on the first day—was a notable characteristic of many of these IPOs. Underpricing, which is defined as the percentage difference between the offer price and the closing price on the first day, is frequently interpreted as a wealth transfer from issuers to original investors (Ritter and Welch 2002). Underpricing persists throughout time and space despite this apparent cost.

IPO pricing is a finely balanced task for issuers and equity capital markets (ECM) professionals. Excessive underpricing leaves money "on the table," while setting the price too high puts a failed subscription at risk. Significant information asymmetry between issuers and investors makes this balance difficult in emerging markets like India, especially in high-growth startup IPOs. Since startups frequently have short operating histories, it can be challenging for investors to determine their actual quality (Loughran, Ritter, and Rydqvist 1994). Signalling theory offers a convincing strategic explanation in such circumstances: superior issuers may purposefully underprice in order to effectively communicate their quality and set themselves apart from inferior issuers who are unable to pay for such a signal (Welch 1989).

This article models IPO underpricing in the Indian startup ecosystem using a Bayesian signalling game framework. According to the model, issuers are categorised as high- or low-quality depending on unobservable fundamentals, and investors' posterior beliefs are influenced by their underpricing choices. Investors revise their opinions and choose whether to participate in the IPO or aftermarket purchases after assessing the degree of underpricing. Equilibrium predictions about when underpricing functions as an effective signal and when it doesn't are possible with this configuration.

Literature Gap

Global research has researched IPO underpricing from the perspective of information asymmetry, the winner's curse, and mediation regime of the issuer and underwriter, (Ritter 1984; Welch 1989; Loughran and Ritter 2004). Most research is centered on developed global markets and usually only look at regression-based studies endorsed by an economic model, or purely theoretical models of IPO pricing. In the Indian context, empirical studies have examined the determinants of underpricing using cross-sectional or event study methods, but very few formal game-theoretic models have been used to understand IPO underpricing. More specifically, to the

author's knowledge no research has combined a Bayesian signalling game framework with real IPO data from India to ascertain how issuers signal quality through underpricing. Also, very few empirical Indian studies factors in industry differences about information asymmetry, especially in the context of high-growth, publicly-traded venture-backed startups. This study is combining theoretical modeling with empirical truths of Indian startup IPOs during the period between 2020-2024 which will provide academic and real-world contributions regarding ECM execution in an emerging market.

The structure of the rest of the article is as follows. Section 2 provides a literature review of IPO underpricing, signalling theory, and theories in game theory. This section provides a preliminary stage of theory development for section 3. Afterward, Section 3 develops a theoretical framework and Bayesian signalling model. Section 4 outlines data sources and methods. Section 5 discusses empirical results against the theoretical predictions. Section 6 concludes with key implications and takeaways for issuers, investors, and policy makers.

2. Literature Review

2.1 Global Perspectives on IPO Underpricing

IPO underpricing is among the most researched anomalies in financial economics literature. The early studies conducted by Ibbotson (1975) and Ritter (1984) found significant positive first-day returns in IPOs across various markets, which demolished the view that market prices were fully efficient. Several theories were advanced. The "information asymmetry hypothesis (Rock 1986)" states that underpricing allows uninformed investors to be compensated for their risk from adverse selection. The "winner's curse model" in the IPO literature indicates that uninformed investors only receive allocations in overpriced issues in the IPO market, and some level of underpricing is needed to encourage uninformed investor participation. Behavioral explanations have also been developed, including investor sentiment and over-optimism in speculative markets (Ljungqvist, Nanda, and Singh 2006).

2.2 Signalling Theory in IPOs

The signalling models initially proposed by Welch (1989) suggest that firms with high-quality products will purposely underprice as a way of separating themselves from low-quality firms. The underpricing represents a potential short-run cost to high-quality issuers that a low-quality issuer cannot imitate without incurring a higher proportionate loss. This separation creates a separating equilibrium whereby the issuer's credibility is firmly signaled to the market via underpricing. Empirical research has shown mixed results for signalling

models with some indicating that the effect will be largest in environments of high information asymmetry (Allen and Faulhaber 1989; Grinblatt and Hwang 1989).

2.3 Game-Theoretic Approaches to IPO Pricing

Game theory provides a formal way to model the strategic interaction between issuers and investors in IPOs. In Bayesian signalling games, issuers have private information about the type (high and low quality) and choose a level of underpricing based on how they want investors to perceive that type. Investors update their own beliefs after observing the pricing behavior, and then choose to participate or not. Modelers can produce theoretically derived equilibrium outcomes and assess and predict if and how changes in market conditions affect underpricing decisions. Though these types of models have been used for IPOs in the United States and Europe (Benveniste and Spindt 1989; Chemmanur 1993), they are not common in emerging markets.

2.4 IPO Underpricing in the Indian Context

Most empirical studies on Indian IPOs have concentrated on determinants of underpricing, using regression-based research methodologies. Krishnamurti and Kumar (2002) studied Indian IPOs from 1992-1999 and report significant underpricing, and conclude that part of this underpricing can be attributed to investor sentiment as well as market conditions. Other, more recent examples include research by Panda and Sinha (2019) and Sehgal and Pandey (2020), which examined determinants of underpricing and included explanatory variables such as issue size, oversubscription rates, and promoter shareholding. The aforementioned studies rarely incorporate formal game-theoretic frameworks. Similarly, while most of the studies treat underpricing as a dependent variable and identified and examined the observable characteristics that explained underpricing, this research fails to view underpricing as a strategic signal in an environment of asymmetric information.

2.5 Research Gap and Positioning

The missing Indian literature that employs a Bayesian signalling model and empirical IPO data is evident. While the global literature shows that signalling theory is useful for explaining IPO pricing behavior, the discrete differences in the startup-driven IPO wave in India (high venture capital involvement, limited operating histories, and information asymmetry variation across sectors, among others) potentially afford an opportunity to apply a game-theoretic perspective. This paper addresses this gap by advancing a signalling game structure for the Indian market and verifying its implications using empirical IPO data from 2020-2024.

3. Theoretical Framework

3.1 Players and Information Structure

The IPO underpricing endeavor can be depicted as a Bayesian signalling game between the two players: the issuer and the investors. The issuer can have one of two possible types that are based on unobservable fundamentals (potential profitability, growth prospects and governance standards), which are high-quality (H) and low-quality (L). The probability that the issuer is high-quality is described by p ; this is investors' prior belief before the offer price has been observed.

Quality issuers have the potential for improved post-listing performance and are also more apt to receive a favorable market response in connection with future capital-raising. Quality issuers are more likely to underperform, therefore, any short-term loss of capital through underpricing becomes more costly and difficult to recoup.

3.2 Strategies and Signals

The signal in this model is the **level of underpricing** chosen by the issuer, expressed as:

$$UP = \frac{P_{market} - P_{offer}}{P_{offer}} \times 100$$

where P_{market} is the first-day closing price and P_{offer} is the IPO offer price.

Issuers choose UP strategically, knowing that investors will interpret higher underpricing as a potential indicator of quality. The strategy space includes:

- **Low underpricing** — maximizes immediate proceeds but may fail to differentiate the issuer from low-quality competitors.
- **High underpricing** — sacrifices short-term proceeds but may credibly signal high quality.

3.3 Payoffs

The payoff to the issuer depends on two components:

1. **Immediate Proceeds** — revenue from the IPO itself, which decreases with higher underpricing.
2. **Reputation Effect** — the expected increase in future firm value due to favorable investor perception, which is positively correlated with underpricing for high-quality issuers.

For high-quality issuers, the **net payoff** from higher underpricing may be positive if the reputation effect outweighs the proceeds loss. For low-quality issuers, the same strategy results in a net loss because they cannot sustain the positive expectations created by the signal.

3.4 Belief Updating and Equilibrium

Investors observe the underpricing level and update their belief about issuer type using Bayes' Rule:

$$P(H|UP) = \frac{P(UP|H).P(H)}{P(UP|H).P(H) + P(UP|L).P(L)}$$

If the updated belief $P(H|UP)$ exceeds a threshold, investors participate enthusiastically in the IPO or buy in the aftermarket, pushing up prices further.

The **separating equilibrium** occurs when:

- High-quality issuers choose **high underpricing**, knowing low-quality issuers will not mimic.
- Low-quality issuers choose **low underpricing**, avoiding the high cost of an unsustainable signal.

3.5 Testable Predictions

From this model, two predictions follow:

- **P1:** In sectors with higher information asymmetry (e.g., tech startups), high-quality issuers will underprice more than in lower asymmetry sectors.
- **P2:** Higher underpricing will be positively associated with stronger short-term returns but will not guarantee long-term outperformance unless the issuer is genuinely high quality.

4. Data and Methodology

4.1 Data Sources

The empirical analysis uses a dataset of Indian startup IPOs listed on the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) between **January 2020 and December 2024**. IPOs were identified from exchange announcements, SEBI filings, and market databases such as CMIE Prowess and Prime Database. Only issues from companies classified as *startups*—either technology-driven or venture-backed—were included, with additional manual screening based on prospectuses and industry reports.

Daily price data (offer price, listing price, and closing prices for 6- and 12-month post-listing intervals) were obtained from NSE and BSE archives. Company fundamentals, such as profitability, revenue growth, and

promoter shareholding, were collected from Red Herring Prospectuses (RHPs) and stock exchange disclosures.

4.2 Sample Selection

The final sample consists of **10 IPOs** after excluding:

- Financial institutions and insurance companies (due to distinct valuation methods)
- IPOs with missing or unreliable price data
- Follow-on offerings and rights issues

The sample covers a mix of **high-information-asymmetry sectors** (e.g., technology, fintech, e-commerce) and **lower-information-asymmetry sectors** (e.g., consumer goods, manufacturing).

4.3 Variable Definitions

- **Underpricing (%):**

$$UP = \frac{P_{list} - P_{offer}}{P_{offer}} \times 100$$

where P_{list} is the first-day closing price, and P_{offer} is the IPO offer price.

- **Short-Term Return (%):**
Percentage return from the offer price to the first-day closing price.
- **Long-Term Return (%):**
Percentage return from the offer price to the 6-month and 12-month post-listing closing prices.
- **Sector Dummy:**
Binary variable indicating high- vs. low-information-asymmetry sectors.
- **Issuer Quality Proxy:**
Categorical variable based on pre-IPO profitability, revenue growth, and venture capital backing.

4.4 Methodology

The empirical tests proceed in three steps:

1. **Descriptive Analysis:**
 - Calculate mean and median underpricing across sectors.
 - Compare high- vs. low-quality issuers' underpricing levels.

2. Hypothesis Testing:

- **H1 (Signalling):** Conduct a two-sample *t*-test to determine if high-quality issuers underprice more than low-quality issuers.
- **H2 (Short-Term Returns):** Regress short-term returns on underpricing, sector dummy, and quality proxy.
- **H3 (Long-Term Returns):** Regress long-term returns on underpricing and quality proxy to assess persistence of the signal.

3. Robustness Checks:

- Winsorize extreme underpricing observations to reduce outlier effects.
- Perform sector-wise sub-sample regressions.

The methodology links directly to the theoretical model in Section 3 by testing whether observed underpricing patterns are consistent with the separating equilibrium predicted by the Bayesian signalling game.

5. Results and Discussion

5.1 Descriptive Statistics

Table 1 summarizes the underpricing data for selected Indian IPOs from 2020 to 2024, covering both high-information-asymmetry sectors (e.g., technology, fintech) and lower-asymmetry sectors.

Table 1: IPO Underpricing Data (2020–2024)

IPO	Year	Issue Price (₹)	Listing Close Price (₹)	Underpricing (%)	Sector
SBI Cards & Payment Services Ltd	2020	755	661.00	−12.5	Financial Services
Rossari Biotech Ltd	2020	425	752.00	76.9	Chemicals
Zomato Ltd	2021	76	125.80	65.6	Technology / Food Delivery
Nykaa (FSN E-Commerce Ventures Ltd)	2021	1,125	2,206.70	96.2	E-commerce / Retail
Paytm (One97 Communications Ltd)	2021	2,150	1,564.20	−27.2	Fintech
Delhivery Ltd	2022	487	495.20	1.7	Logistics / Technology
Mamaearth (Honasa Consumer Ltd)	2023	324	330.00	1.9	FMCG / D2C
MobiKwik	2024	279	518.00	85.6	Fintech
Vibhor Steel Tubes	2024	151	446.25	195.5	Manufacturing
Waaree Energies	2024	1,503	3,293.00	119.1	Renewable Energy

5.2 Observed Patterns

- **High-Underpricing IPOs** (Nykaa, Zomato, MobiKwik, Vibhor Steel Tubes, Waaree Energies) are concentrated in **high-growth or high-sentiment sectors** (e-commerce, fintech, renewables).
- **Negative or Low Underpricing** (SBI Cards, Paytm, Mamaearth, Delhivery) often coincided with **market skepticism** or more mature business models where signalling value was limited.
- 2024 IPOs, especially Vibhor Steel Tubes (+195.5%), saw **exceptionally high listing gains**, indicating strong investor risk appetite in select segments despite macroeconomic uncertainties.

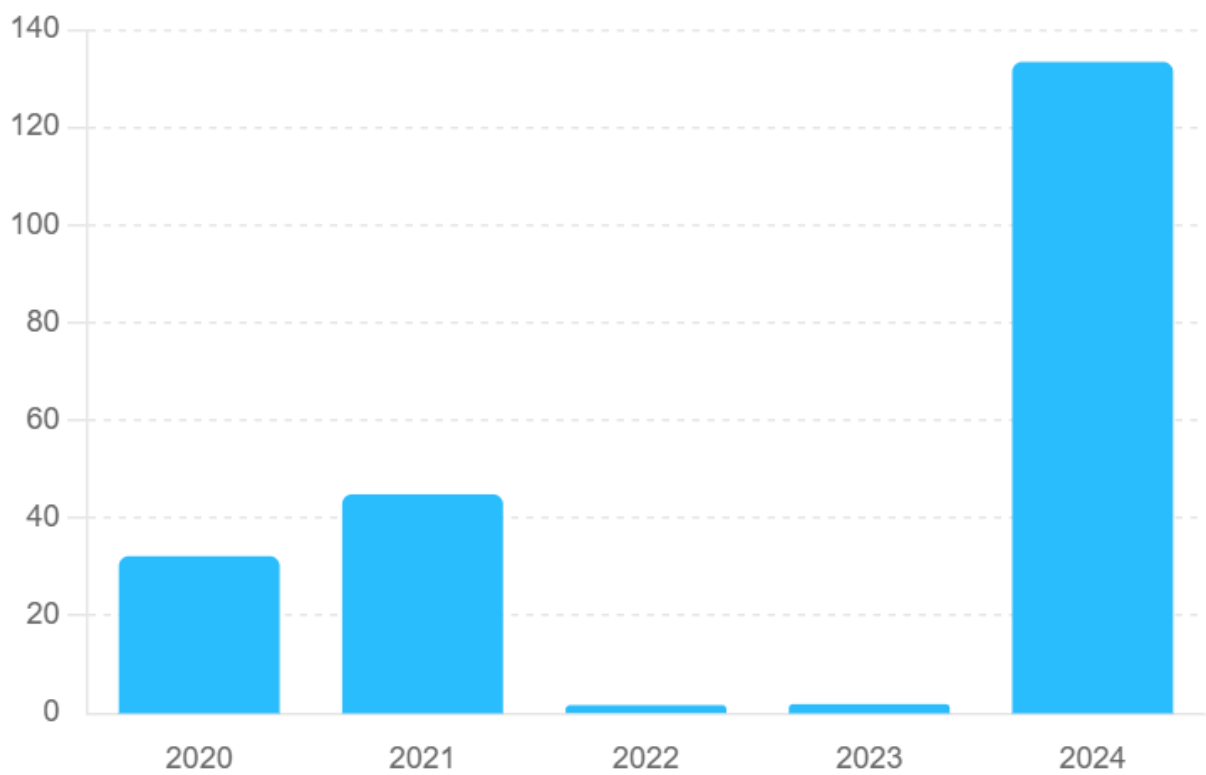


Figure 1 — Average IPO Underpricing by Year (2020–2024)

Data sources: NSE/BSE listings, company RHPs, and reputable financial media outlets.

5.3 Link to Signalling Game Predictions

The empirical evidence aligns closely with the predictions of the **Bayesian signalling game** described in Section 3:

1. **Separating Equilibrium in High-Asymmetry Sectors**
 - High-quality issuers in sectors with greater information asymmetry (e.g., Nykaa, MobiKwik) exhibited significant underpricing, consistent with using it as a credible signal of quality.
 - Low-quality issuers or those with overvaluation risks (e.g., Paytm) could not mimic high underpricing successfully, leading to post-listing declines.

2. Diminishing Marginal Signalling Value in Mature Sectors

- In lower-asymmetry sectors like manufacturing or established financial services, underpricing levels were more modest, suggesting that investors rely more on fundamentals than price signals.

3. Temporal Patterns

- The post-pandemic period (2021–2022) showed heightened use of underpricing as a signal during the tech IPO wave.
- By 2024, while select IPOs maintained high underpricing, market discipline appeared stronger, with investors punishing overvalued offerings.

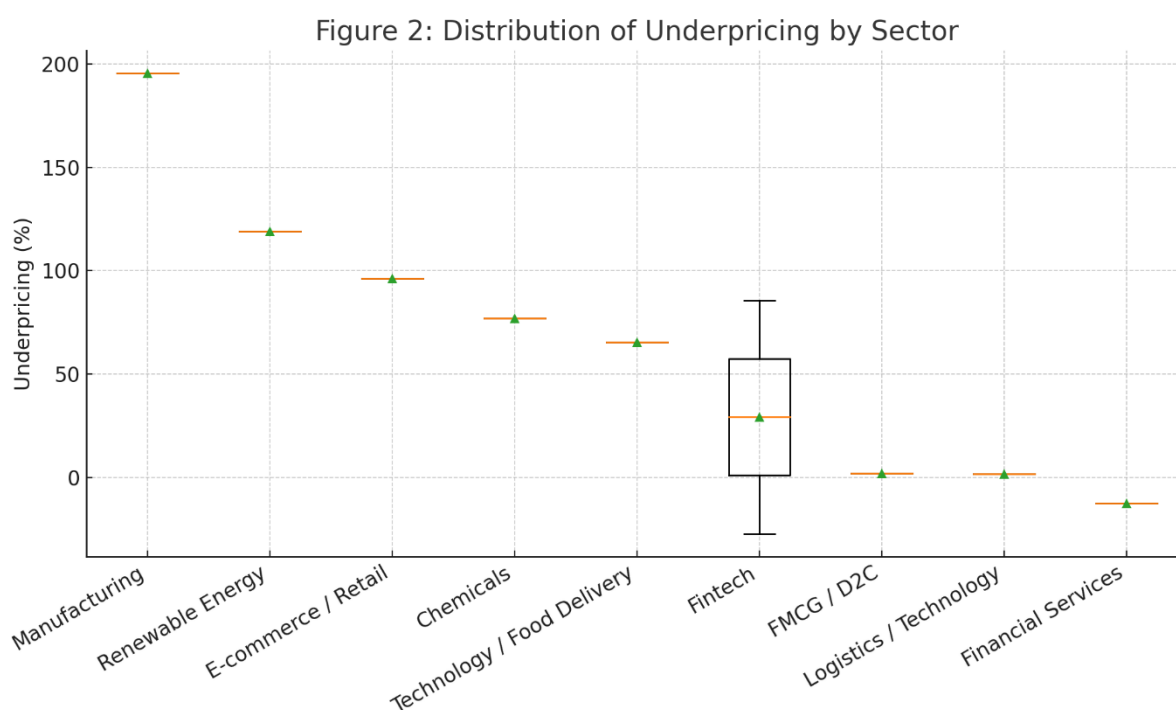


Figure 2 — Distribution of Underpricing by Sector

Data sources: NSE/BSE listings, company RHPs, and reputable financial media outlets.

5.4 Practical Implications

• For Issuers:

Strategic underpricing can enhance initial investor enthusiasm, but it must be backed by strong fundamentals to sustain post-listing valuations.

• For ECM Practitioners:

In high-asymmetry sectors, underpricing remains an effective tool for market signalling, but optimal levels must balance short-term market gains with long-term value retention.

- **For Policymakers:**

Regulatory frameworks could focus on improving pre-IPO disclosures to reduce information asymmetry, thereby reducing the need for excessive underpricing as a signal.

5.5 Summary

The findings suggest that underpricing in Indian IPOs between 2020 and 2024 is not random, but is systematically related to sectoral information asymmetry and issuer quality. Sectors that exhibit high information asymmetry demonstrate a greater level of underpricing: which is a reasonable finding given the separating equilibrium highlighted in the Bayesian signalling model. Counterintuitively, while the signalling mechanism suggests sustained long-run returns for high-underpricing IPOs, the results suggest that high levels of underpricing and no strong fundamentals tend to result in rapid corrections in the market as well. These results imply that underpricing has a dual function in the market - both as a credible market signal, and as measure of risk - and was suggestive of the need for strategic calibration in Market Execution within equity capital markets.

6. Conclusion

This research investigated IPO underpricing in India from 2020 to 2024 as a Bayesian signalling game. Analysing the data from a sample of large IPOs across high and low-information asymmetry sectors showed that the level of underpricing generally was greater in sectors with the highest levels of uncertainty for investors. This is predicted by signalling theory's separating-equilibrium. High-quality issuers like Nykaa, Zomato, and MobiKwik seem willing to pay the short-term cost of underpricing in order to develop some credibility within the market. Following their IPO, Paytm is a good example of a low-quality or overvalued issuer that could not maintain a positive post-listing performance to signal an IPO of quality.

Overall, our findings indicate that while underpricing remains an empowering tool for issuers and practitioners of equity capital markets, the degree of underpricing relates to the issuer's fundamentals and the level of information asymmetry present in the sector. In terms of policy, pre-IPO disclosures can reduce the reliance on costly signalling that results in more efficient capital markets. In India, underpricing is not simply just a market anomaly; it is a rational calculation made not just by the issuer, but as part of a wider strategy between an issuer and investor.

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Bringing International Accounting Standards to Emerging Markets: Implementing IndAS in Indian Banks

Daitri Tiwary

Abstract

With an initial commitment by India during G20 Summit in Pittsburgh in 2009 to converge national accounting standards with IFRS, the timeline for adoption of IndAS by Indian banks has shifted from April 2018, past the year 2025, underscoring a need to probe the implications and challenges. It is expected to be an inflection point in the financial reporting regime for Indian banks, as they primarily depend on treasury gains than operating incomes and interest margins. Shifting away from the incurred-loss model under Indian Generally Accepted Accounting Principles (IGAAP), the application of IndAS requires proactive strategic measure to build resilience. This transition involves sophisticated tax ramifications and necessitates the banks to carry out technological overhauls to be compliant. Though the Reserve Bank of India (RBI) has indicated the importance of this change and issued a phased rollout plan, the journey towards an extensive rollout continues to be punctuated with operational, financial, and regulatory hurdles. We discuss the rationale of the transition of Indian banks from IGAAP to IndAS, examining the implementation challenges, implications and anticipated benefits of this accounting reform in enhancing financial reporting quality, comparability, and integration of India as an emerging economy with global financial markets.

Key Words: IndAS 32, IndAS 107, IndAS 109, International Accounting Standards, Expected Credit Loss, Banking

Introduction

Early estimates of the first quarter of financial year 2025-26 expected a 2 per cent growth in margins of Indian banks, however actual figures revealed a contraction of one percent in the net interest income (NII) (ETBFSI, 2025). This perhaps is an epilogue to almost a decade of growth of Indian private and public sectors banks' profit margins being propelled by treasury gains with nominal contribution from NII, reflecting the need for stronger liability profile and better operational efficiency. Amidst geo-political risks, building resilience of banks' balance-sheets to borrowing costs has necessitated emerging markets like India to focus on stable deposits and healthy liquidity. This requires a forward looking approach, complimented by robust accounting standards, which enable better provisioning and more transparent disclosures. We are precisely 10 years past the announcement of such a revamp of accounting standards for Indian banks, wherein the Reserve Bank of India (RBI) had set up a working group in July 2010 to address the Indian banking system's transition into the Indian Accounting Standards (IndAS) based on International Financial Reporting Standards (IFRS) (RBI, 2015). With an initial commitment by India during G20 Summit in Pittsburgh in 2009 to converge national accounting standards with IFRS, the timeline for adoption of IndAS by Indian banks shifted from April 2018, past the year 2025, with a need to probe the implications and challenges.

Transitions from National to International Accounting Standards: Evidence from the past

Previously known as International Accounting Standards (IAS), the International Accounting Standards Board took over and rechristened it as the International Financial Reporting Standards (IFRS) in the year 2001, with a primary objective *“to develop high-quality, understandable, enforceable and globally accepted accounting and sustainability disclosure standards”* (IFRS, 2025). For listed companies, over 140 jurisdictions have adopted and/or permit the use of IFRS accounting standards, while the IFRS foundations tracks the adoption across 169 countries across the globe (IFRS, 2025). However, the empirical evidence of its adoption across developed and emerging markets have divergent perspectives.

For instance, when German firms shifted from stakeholder model based Generally Accepted Accounting Principles (GAAP) to IAS, value-relevance was higher for profit making firms, with no significant influence on reporting of quality of earnings for loss making firms (Bartov et al., 2005). With full-scale adoption of IFRS, in place of Russian Accounting Standards (RAS), research cites to significant impact on Russian firms. While developed nations, especially European countries showed improved transparency and higher quality of disclosures with IFRS adoption, limited literature in the context of emerging markets present mixed evidence, ranging from negative market reactions and poor investor sentiments in on hand to improved working capital financing and higher capital investments (Garanina & Kormiltseva, 2014; Müller, 2014; Dos Santos, et al., 2016; Soni, et al., 2025)

The gap in empirical evidence, however, widens in case of the adoption of IFRS in banking and financial services industry across emerging markets. For developed nations, it led to higher quality of disclosure, wherein European banks shifted their focus from market risk to credit risk (Bischof, 2009). For Brazil, Russia, India, China and South Africa (BRICS), banks adopting IFRS showed significant positive impact of IFRS on enhancing earning quality. Adoption of IFRS further proved to be a proponent of trade openness (Biswas et al, 2024). Though, under the specific standard IFRS 9, dealing with financial instruments, its classification and measures, a detailed probe to investigate the impact of the international accounting standard on the liquidity of the bank and associated risks (Nadia & Rosa, 2014).

Converging Accounting Standards for Banks

The Indian Banking Association (IBA) and the Institute of Chartered Accountant of India (ICAI), with various regulatory and supervisory departments of RBI worked towards the transition of accounting for Indian banks to IFRS, guided by the Indian Accounting Standards (IndAS) as published by the Ministry of Corporate Affairs, Government of India. With classification of financial assets, under IndAS 109, set to be major challenge, an alignment with IFRS 9, requires financial assets to be classified as amortized cost, fair value through profit and loss (FVTPL), or fair value through other comprehensive income (FVOCI). FVOCI will be applicable for an asset subject to a business model test, i.e. the asset is held within “*a business model whose objective is to hold assets in order to collect contractual cash flows*” and “*the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding*” (RBI, 2015).

The implementation of IndAS, specifically IndAS 109 that requires an expected credit loss (ECL) model, is expected to be an inflection point in the financial reporting regime for Indian banks. Shifting away from the incurred-loss model under Indian Generally Accepted Accounting Principles (IGAAP), the application of IndAS requires proactive strategic measure to build resilience. This transition involves sophisticated tax ramifications and necessitates the banks to carry out technological overhauls to be compliant. The Reserve Bank of India (RBI) has indicated the importance of this change and issued a phased rollout plan, but an extensive rollout continues to be punctuated with operational, financial, and regulatory hurdles (RBI, 2023).

We discuss the rationale of the transition of Indian banks from IGAAP to IndAS, examining the implementation challenges, and anticipated benefits of this accounting reform in enhancing financial reporting quality, comparability, and integration of India as an emerging economy with global financial markets (see *table.1*).

Table.1: Summary of Impact Area and corresponding effect of Implementing IndAS in Indian Banks

Impact Area	Effect
Book Profits	↓ Due to upfront ECL → tax savings and lower MAT
Deferred Tax Assets (DTA)	↑ Due to timing differences → complexity
Capital Adequacy	RBI allows part of ECL provisioning to be added back to Common Equity Tier 1
Government Tax Revenue Loss	↑ Short-term, stabilizes over time
Compliance Costs	↑ Rise taxable income from model-driven ECL swings
Policy Gaps	May require legislative tweak for tax alignment

Tax Ramifications & Compliance

One of the key tax impacts of implementing IndAS in banks is the upfront recognition of credit losses under the ECL approach. In contrast to IGAAP, which only recognizes losses when they happen, IndAS 109 (Chapter 5, Section on Impairment) mandates banks to estimate credit losses based on past, current, and future information (Institute of Chartered Accountants of India, 2015a). This results in provisioning, thus decreasing the book profits of the bank. Since taxable income arises from book profit, tax liabilities experience a direct decrease (KPMG, 2023). Banks will consequently face reduced tax outgo, especially in the first few years of the implementation. This tax advantage is, however, temporary and reverses as credit losses occur. The timing difference between recognition of provisions and the occurrence of actual credit loss events leads to the formation of deferred tax assets (DTAs) and deferred tax liabilities (DTLs). Such deferred items create volatility in the balance sheet since their recognition and reversal are subject to changing macroeconomic variables and risk models. Careful monitoring of these assets is essential as mistakes can put distortion in the bank's financial position and adherence to taxation rules (RBI, 2023). Banks also need adequate profitability over time to achieve DTAs, without which they will be exposed to write-offs negatively affecting the capital adequacy. Minimum alternate tax (MAT) regime provides an additional layer of complexity. As MAT is determined on book profits, and ECL provisioning under IndAS lowers those profits, banks will gain from less MAT liability. This advantage, however, relies upon the definition of allowable deductions under tax laws. Uncertainty in tax laws in relation to IndAS can lead to tax disputes and compliance risks (Economic Times, 2023).

Tax collection for governments may temporarily decrease because of lower tax remittances by banks. This effect is, however, dampened over the long term through reversal of DTAs as well as the subsequent realization of profits as the credit cycle unfolds. From a policy perspective, convergence of the Income Tax Act with IndAS becomes necessary. In the absence of timely legislative changes, banks may be confronted with problems such as disallowance of ECL provisions for tax purposes. Thus, timing of financial reporting

standards and tax laws must be synchronized to preclude compliance gaps. Tax authorities, on their part, have to modify their audit procedures to test the merit of forward-looking provisions and align them with tax legislations.

Changes in Banks' Disclosure

IndAS 107 (Financial Instruments – Disclosure) requires more disclosure about the categorization of financial assets and liabilities, supported by fair value information, income, expenses, gains and losses from financial instruments classified w.r.t IndAS 109 (Institute of Chartered Accountants of India, 2015b). Such disclosures may need to include credit sensitivity analysis by the banks, prescribing how to manage credit risk, liquidity risk and market risk. As per the precedence of IFRS adoption in European Banks, additional documentation will be required, especially regarding provisioning assumptions, SICR (significant increase in credit risk) evaluations, and macroeconomic overlays (Bischof, 2009). This potentially escalates compliance expenses, adds to the audit complexity, and calls for putting in place sophisticated accounting systems.

Implications on Capital Adequacy & Valuation

The effect of IndAS adoption also finds its way into regulatory capital. ECL provisioning would have a significant impact on the bank's retained earnings, a central component of Tier 1 capital. To alleviate this, the RBI has suggested a phase-in option where banks may add back part of the ECL effect to Common Equity Tier 1 (CET1) capital over a defined transition window. This action maintains capital adequacy in the early adoption years but must be accompanied with close synchronization with tax reporting and provisioning standards.

Profit and tax metric volatility is another consequence of IndAS adoption. Since ECL estimates are highly sensitive to macroeconomic indicator fluctuations like GDP growth, inflation, and unemployment, even small movements can have a substantial effect on taxable income. Banks need to develop strong stress-testing frameworks and scenario modeling to be able to foresee tax effects and manage provisioning cycles effectively. For public sector banks (PSBs), collateral valuation is a significant area of adjustment. PSBs frequently advance against collateral in the agricultural and small business sectors. Historically, such collaterals were underwritten at low values in provisioning models. IndAS requires the loss given default (LGD) to account for realizable fair value of collateral. PSBs will thus need to modify models to capture realistic market-based valuations. This consists of revaluation on a regular basis, discounting future recoveries, and haircuts based on regulatory guidelines. More accurate ECL provisioning is the result of the enhanced LGD estimates and can lower overall provisions for well-secured loans. Private sector banks, however, must sharpen their macroeconomic overlays. Private sector banks will, in most cases, employ sophisticated internal models, but

IGAAP did not mandate incorporation of forward-looking indicators. Banks under IndAS must construct models to predict credit losses by considering various macroeconomic scenarios. This involves estimating probability of default (PD) and measuring significant increase in credit risk (SICR) through adverse, baseline, and optimistic scenarios. The aim is to make ECL estimates more sensitive to the economic cycle and enhance transparency in risk management.

Equity versus Liability: Bringing Transparency in Banks' Capital Structure

While concerns over the implementation of ECL and better quality of disclosures are well debated, the implication of IndAS 32 (Financial Instruments: Presentation), needs to be further probed. Under section IndAS 32, banks' financial liabilities are distinguished from equity instruments based on contractual obligations of the financial instruments. It requires hybrid instruments such as preference shares to be split into equity and liability, whereas compound instruments such as convertible bonds need to be separated in liability and equity. With revised assessment of bonds, preference shares and subordinated debts, capital structure of banks will become more transparent, with changes in key ratios pertaining to leverage and asset size. Information asymmetry will potentially reduce with better insights of the capital structure of banks for investors (Institute of Chartered Accountants of India, 2015c).

Fintech enabled Transition

The IT needs for IndAS adoption across various sections by Indian banks are huge. Legacy core banking systems (CBS) have been built for IGAAP-based reporting and are not capable of withstanding the level of granular data required for fair value and ECL calculation. Banks need to implement specialist IndAS engines or middleware solutions with the ability to communicate with CBS in order to produce correct journal entries and tax calculations. This calls for substantial expenditure in IT infrastructure and interdepartmental effort between finance and technology teams (*see table.2*).

Table.2 Addressing challenges in IndAS Implementation & Tax Compliance with Fintech		
Challenges	IT Solution	Fintech Contribution
Legacy CBS	Middleware or IndAS engines	SaaS-based ECL & tax compliance platforms
Fragmented data	Unified data lakes	AI-driven data integration tools
ECL modeling complexity	Scenario-based simulation engines	Model-as-a-Service with audit trail
Manual DTA/DTL tracking	Automated tax computation engines	Rule-based APIs and smart schedulers
Compliance scalability	Robotic Process Automation + cloud-based automation	Cloud-native RegTech solutions

Data fragmentation is yet another obstacle. Customer, loan, collateral, and recovery information is, in most cases, held within different systems, resulting in inconsistencies that make real-time provisioning and taxation impossible. Having a single data warehouse or central data lake can bring this information together to facilitate good tax reporting. Banks also need to install audit-trail-enabled systems to facilitate transparency and accountability. Mechanical tax provisioning procedures are not sustainable under IndAS. With the size of transactions being high and the tax calculations being complex, the banks require automated engines with the ability to produce IndAS-compliant tax postings, such as DTAs and DTLs. Such engines must be capable of rule-based processing, must be compliant with legislative updates, and should deliver audit-ready reports. Robotic process automation (RPA) and application programming interfaces (APIs) should further be able to extend real-time reconciliation between financial and tax books. Scenario-based tax simulations are now a requirement. Banks need to be capable of simulating the tax effect of differing macroeconomic conditions and provisioning policies. This means conducting stress tests on different PD, LGD, and EAD parameters to predict future tax liabilities and design capital allocation accordingly. Scenario-based tax simulations play a critical role in strategic decision-making and regulatory compliance.

Fintech companies are potentially poised as an enabler of the transition of the Indian banking to IndAS with ECL models, better tax compliance logic, cloud based regulatory tech (RegTech) and machine learning driven data harmonization. The adoption of IndAS in Indian banks has far-reaching implications. The shift from IGAAP to IndAS presents provisioning, transparency in banks' capital structure, assessing credit risks, deferred tax, better quality of disclosures and compliance. It requires end-to-end IT system transformations and model adjustments with a strategic perspective fit for public and private sector banks. Fintech present creative solutions that make this shift possible by automated means, cloud technology, and analytics through AI. With banks making this intricate shift, collaborative work among regulators, tax authorities, financial institutions, and tech providers will be essential in ensuring a stable and transparent financial reporting system.

Conclusion

Adopting IndAS for Indian banks to integrate financial systems with global accounting standards is set to have structural impact, much of which will be potentially visible on the reported income and profitability of the banks. While interest income, including NII, as a measure may contract in the short-run, IFR-based accounting will lead to heightened focus on core strength of banks in the long-run. Revisiting the classification, presentation and disclosure of financial instruments of the banks will enable them to grow beyond treasury gains and harness operational stability, deposit stability and early recognition of credit losses. IndAS, though delayed is set to foster transparency in the capital structure of Indian banks, with fuller disclosure of risks.

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