IPO Pricing

by Adarsh Gupta

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Project Dissertation Report on

BEHAVIORAL ASPECTS OF IPO PRICING

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CERTIFICATE

This is to certify that the Project Dissertation Report titled "BEHAVIORAL ASPECTS OF IPO PRICING" has been prepared by Adarsh Gupta, under my guidance and supervision. The work forms part of the requirements for the Master of Business Administration degree from Delhi School of Management, Delhi Technological University.

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DECLARATION

I hereby declare that the Project Work with the title "Behavioral aspects of IPO"is submitted by me for the partial fulfilment of degree of Masters of Business Administration. I also declare that no chapter of this manuscript in whole or in part has been incorporated in this report from any earlier work done by others or by me. However, extracts of any literature which has been used for this report has been duly acknowledged providing details of such literature in the references. I declare that:

- This report has not been submitted elsewhere, in whole or in part, for any academic award.
- All sources and references have been duly cited and acknowledged.
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This work is not a solo endeavor but rather the amalgative consequence of contributions from various people and sources. Therefore, it would be insolent to present it without acknowledging their valuable assistance.

I wish to express my gratitude and appreciation to all those concerned with the realization of this distinctive work. It is deep sense of gratitude that I wish to place on record my sincerest thanks to my supervisor Dr. Apoorva Jain (Assistant Professor. Delhi School of Management, D.T.U. Delhi) who is more than a supervisor for me. Her expert guidance, untiring efforts, moral courage, inspiration, motivation and patience have always been a source of great strength for me. I shall always cherish the memories of my association with her.

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EXECUTIVE SUMMARY

This report examines one of the more puzzling phenomena in capital markets — why IPOs are so consistently mispriced, and what role investor psychology plays in that process. The focus is on India, though the behavioral mechanisms at work here are hardly unique to Indian markets.

The study looks at 312 mainboard IPOs listed on NSE and BSE between January 2010 and December 2023. That's a reasonably long window — long enough to capture multiple market cycles, including the spectacular bull run of 2021 and the sharp correction that followed. The core questions are: What drives first-day returns? Why do IPO stocks tend to underperform over the longer run? And how much of this can be explained by the way people actually think and behave, as opposed to how rational economic models say they should?

The short answers: first-day returns in the sample averaged 22.4 percent — well above what pure information-asymmetry theories would predict. Long-run performance was a different story entirely; the average 3-year buy-and-hold abnormal return came in at -19.8 percent relative to Nifty 50. That gap between listing-day euphoria and long-run reality is really what this report is about.

Methodologically, the study uses OLS regression to identify the behavioral determinants of underpricing, BHAR analysis for long-run performance, and a herding analysis to examine how retail investors follow institutional subscription cues. The regression model — which includes investor sentiment, subscription ratios, grey market premiums, price revision, and controls — explains roughly 48.7 percent of the variation in initial returns. That's a respectable fit for cross-sectional IPO data.

The main findings point squarely at behavioral factors: sentiment is the single largest predictor of underpricing; grey market premiums anchor investor expectations; subscription herding is demonstrably real (the QIB-to-RII correlation is 0.62); and the partial adjustment phenomenon — where underwriters don't fully revise prices in

response to demand signals — is confirmed. The 2021 new-economy IPO boom is examined as a case study in what happens when all these biases fire simultaneously.

The report closes with recommendations for SEBI, issuers, underwriters, and retail investors, along with an honest assessment of what this study can and cannot tell us.

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CHAPTER 1: INTRODUCTION

1.1 Background

The Initial Public Offering (IPO) refers to the process where a private company opens up itself to the open market and becomes listed on a stock exchange for the first time. Through the IPO, the firm raises new money, investors in the business get an opportunity to exit the investment, while ordinary citizens get the chance to purchase a piece of the private company. In theory, this seems simple, but determining the opening price of an IPO has always proved contentious, interesting, and after many years of existence, much value has still not been fully harnessed.

From the standard financial model, prices are believed to contain all the relevant information, according to Eugene Fama's efficient markets hypothesis (EMH) in 1970. In the event, those investors subscribing at the issue price would have little to gain since prices would be reflective of the business's true value. However, empirical evidence reveals the opposite, as returns on the first day are around 15 percent to 20 percent globally. Even more interesting, returns of the IPOs in India are even higher. These are not just coincidences but a systemic issue that requires a systemic analysis.

It is important to note that behavioral finance helps to bridge the gaps created by purely rational models. As opposed to rational financial models, which assume the investor is a perfect calculating machine aiming to maximize his utilities, behavioral finance acknowledges a basic human element in people. Investors are also emotional and influenced by societal pressures, can anchor on irrelevant numbers and display greater loss aversion that their gains. Prominent behavioral researchers such as Kahneman, Tversky, Thaler, and Shiller have gathered a wealth of evidence in this regard. In essence, the observed behaviors can be explained by these inherent human attributes.

One of the most insightful examples for studying this trend comes from the Indian market. Over the course of two to three decades, the IPO market in India has grown

significantly—from being a limited government-controlled market in the early 1990s to becoming one of the most active IPO markets in the world in 2021. Retail investor participation was high enough that the number of demat accounts doubled in 2021 due to excitement around a spate of new economy companies listing. IPO application through platforms like Zerodha, Groww, and Upstox via smartphone became easier. There were numerous groups on social media discussing "IPO Analysis" as well as many YouTube channels focusing on the same topic. Such an environment provided ideal conditions for observing and measuring behavioral effects like herding, fear of missing out (FOMO) and anchoring to grey-market premiums.

There has been considerable progress made by SEBI in recent years through book building, UPI-based ASBA, use of anchor investors, among other changes, to improve price discovery in IPOs and protect retail investors. However, as discussed above, regulations have changed how the market functions without changing the psychology of market participants.

1.2 Problem Statement

Exactly what is the problem which this research intends to solve? In simple terms, any rational models explaining IPO pricing fall short, and the gaps in these models are neither arbitrary nor unpredictable.

To explain further, if underpricing were purely a result of information asymmetries—as was suggested by Rock (1986)—then one would expect it to remain fairly constant over time and show a relationship with the level of uncertainty as opposed to stock market sentiment. However, studies in India show considerable volatility during different market cycles. For instance, IPOs in the frothy year of 2021 resulted in 50-100% returns on listing day. On the contrary, the following year saw companies list with discounts, despite the companies being of similar stature. Such trends would indicate that there was no change in the level of information asymmetry but merely in sentiment.

There are several specific anomalies that this report attempts to grapple with:

- To identify and categorize the main behavioral biases that show up in IPO subscription and pricing decisions, with illustrative examples from Indian market history.
- To empirically test the relationship between behavioral variables (sentiment, subscription momentum, GMP, price revision) and IPO first-day returns.
- To examine the long-run performance of IPOs in the sample and assess whether behavioral overoptimism at listing predicts subsequent underperformance.
- To draw out practical implications for SEBI, for companies going public, for bankers, and for retail investors — people who could actually use these findings.

1.4 Scope of Study

The study covers mainboard IPOs listed on NSE and/or BSE from January 2010 through December 2023. That's a fourteen-year window, deliberately chosen to capture the full cycle from the cautious post-GFC period through the extraordinary bull run of 2021 and the sobering correction of 2022-23. Only IPOs with an issue size of at least Rs. 100 crores are included — this keeps the focus on issues where meaningful institutional participation and reliable data are available. SME IPOs are discussed in passing but aren't part of the main quantitative analysis.

The starting universe of roughly 380 issues gets trimmed to 312 after removing cases with incomplete subscription records, missing financial data, or known anomalies in the allotment process. PSU disinvestment IPOs are kept in — their pricing dynamics are often politically influenced in interesting ways that are themselves worth examining through a behavioral lens.

A few things are explicitly outside the scope: primary surveys of investor sentiment or cognition; post-IPO corporate governance analysis; and a detailed comparison with international markets (though international evidence is referenced throughout to provide context). The study relies entirely on secondary data from SEBI, NSE, BSE, PRIME Database, and published academic research.

• The relationship between market sentiment and underpricing in IPOs is more pronounced than that postulated in rational theories. Investor sentiment, which does not figure in intrinsic value determinations, turns out to be one of the key factors affecting the outcome of IPOs.

• Subscription herding is observable and measurable. As QIBs demonstrate high subscription during the first day or two of their subscription period, retail investors follow them not based on any new information but simply because of herding effect. The instantaneous availability of subscription figures via NSE and BSE makes herding even more conspicuous.

• GMPs, while being non-formalized and having no legal standing, seem to predict listing-day success. Far worse, investors' perceptions of issue worthiness appear to be grounded on GMP figures, making such perception self-referential and therefore self-fulfilling.

• Long-run underperformance, known as the “new issues puzzle,” indicates that strong listing-day performance resulting from investors' exuberance is unlikely to be maintained in the face of hard numbers provided in quarterly financial reports two to three years down the road.

The questions outlined above are those that will be addressed in this report using a sample of 312 mainboard Indian IPOs issued from 2010 to 2023.

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1.3 Objectives of the Study

The objectives underlying this study are as follows:
• To shed light on the application of behavioral finance theory to the case of IPO pricing, specifically in the Indian setting.
• To overview the existing research literature on IPO underpricing, long-run performance, and investor behavior, emphasizing Indian evidence where appropriate.
• To outline the anatomy of the Indian IPO market (the categories of issues offered, players in the market, and regulation) in view of the necessity to understand the institutional setting before discussing behavioral aspects.

CHAPTER 2: LITERATURE REVIEW

2.1 Origins of IPO Pricing Models in the Early Literature

A great deal of academic research focused on IPO pricing has emerged in the 1970s. Among the first scholars to point out the existence of a remarkable abnormality, where new US equity offerings delivered high returns during the first few trading days in comparison with the broad market return, were Reilly and Hatfield (1969). Although the discovery could be considered rather marginal at that time, it has sparked off one of the major streams in finance.

Specifically, using empirical data, Ibbotson (1975) demonstrated that underpricing, or the gap between the price of the offer and the first day price, was not only significant but also systematic. Later, Ibbotson and Jaffe (1975) introduced the concept of "hot issue" markets, when the concentration of IPOs and the increase in listing returns took place. This kind of phenomenon may be easily detected by someone who follows the Indian market in 2021.

Information asymmetry became the main rationale for early theories. For example, Rock (1986) suggested what is generally considered as an elegant model – the "winner's curse". The key element of the model is that informed investors understand which IPOs are profitable, while uninformed do not. In competitive terms, the latter group will be allocated unattractive offers, while the former will obtain good ones, thus preventing the former from receiving them. However, in order to preserve their participation, firms have to underprice significantly. Although this theory explains the true dynamics, it does not account for the significant changes of underpricing over different cycles.

As an alternative explanation based on agency theory, Baron (1982) argued that underwriters know more about demand in the market and therefore have an incentive to underprice IPOs, making it easier for themselves and maintaining good

relationshipsIn interactions with institutional clients. A more recent attempt to resolve the problem can be attributed to Benveniste and Spindt (1989), who argued that underwriters, being involved in bookbuilding, need to pay for information provided by institutions, and underpricing serves as part of such payment. This last theory, obviously, bears direct relevance to the partial-adjustment problem, the consideration of which will follow shortly.

2.2 Long-run performance

Though the existing rational models of underpricing provide some explanation, albeit incomplete, it does not hold for the long-run performance results. Thus, according to Ritter (1991), IPO companies in the US underperform their matches over a three-year period after the listing. Subsequently, Loughran and Ritter (1995) established the fact of five-year underperformance for new issuers, and called it "the new issue puzzle".

What makes this puzzle interesting is that if there is underpricing in the initial offer price, and the firm continues underperforming over time, then the price on the first listing day should also be considered too high. Therefore, investors buying in the secondary market on day one pay above the true price. It contradicts the idea of efficient markets. On the other hand, it is easier to relate to the concept of investors' excessive enthusiasm on the first day reflected in listing-day price.

Ritter and Welch (2002), looking through forty years of IPO performance in the US, found that both asymmetric information and behavioral models, especially concerning investors' sentiment, help to explain the phenomena observed. In the Indian context, Sahoo and Rajib (2010) discovered the presence of the "new issue puzzle" over three-year period for 2002-2006 period IPOs.

2.3 Sentiment, hot markets, and timing

Baker and Wurgler (2006) provided a truly useful contribution to the topic by developing a comprehensive sentiment measure based on observable variables – IPO volume, first-day return.

Sentiment proxies (initial return on IPO day, equity issuance, closed-end fund discounts, dividend premium) were then used to predict future stock returns. Sentiment was strongly associated with future low returns for small, young, volatile stocks — just the type of stocks that characterize IPO markets. That result alone should make one think, because it suggests that investors subscribing to IPOs at times of high market sentiment are consistently paying too much.

A theory was constructed by Ljungqvist, Nanda, and Singh (2006), explaining how sentiment affects IPOs. These authors modeled "sentiment investors," whose overestimation of IPO firm value in hot markets allowed rational issuers to take advantage and set IPO prices in excess of their fundamental value. Rational issuers do not underprice here because of the constraints imposed on them by the underwriters, who are worried about market instability and their own reputations. Thus, IPO price is close to its fundamental value in the models; however, sentiment investors bid this price even higher on listing day, resulting in the listing pop. A nice theoretical solution to what looks contradictory otherwise!

The empirical work done by Lowry (2003) confirmed that aggregate IPO activity correlated with various sentiment proxies. Issuers choose to list

The situation is especially pronounced in India, thanks to the disclosure rules stipulated by the regulatory body. For the entire subscription process, the NSE and BSE provide live updates and end-of-day updates of subscription numbers for all kinds of investors. This means that retail investors know precisely how much QIBs and HNIs have subscribed before they make their decisions. In other words, it’s similar to putting exam results up on the wall while others are still writing their exams. Herding follows as an inevitable result.

The results of empirical studies conducted by Loughran and McDonald (2013), who used a sample of IPOs issued in the United States via book-building process, showed that there is a partial adjustment effect. In other words, the offer price partially adjusted for changes in demand through book building, resulting in predictable underpricing. Anchor pricing to the price range even in the face of high demand seems to be the most prominent behavioral bias observed in IPO literature.

2.5 Prospect Theory and its Implications for IPO Pricing

The Prospect Theory, proposed by Kahneman and Tversky in 1979, is viewed as one of the greatest contributions ever made in the field of Behavioral Economics. The main features of prospect theory are: evaluation of gains and losses in relation to a reference point, not in terms of

Heaton (2002) modelled managerial optimism more formally, showing that optimistic managers consistently overestimate the probability of favorable cash flow outcomes. For an IPO firm, this means the valuation embedded in the offer price may include a behavioral premium — a premium grounded not in fundamental cash flow prospects but in the management team's unrealistically positive view of the future. That premium, almost by definition, will tend to correct over time, contributing to long-run underperformance.

2.7 Insights into the Indian Literature

Literature pertaining to the Indian IPO market has increased in volume in recent times. However, it still remains much less developed compared to the literature available for US and European markets. An early analysis of Indian IPOs and their performance came from Krishnamurti and Kumar (2002), who found underpricing similar to what has been reported internationally. Probably the most comprehensive work on Indian IPOs and their performance to date is that of Sahoo and Rajib (2010). They report underperformance relative to benchmark indices for IPOs issued in the 2002-2006 period and find the amount of underperformance to be positively correlated with the level of oversubscription – in agreement with the sentiment effect.

A newer line of inquiry in this domain involves studying the role played by the grey market in Indian IPO pricing. The grey market premium (GMP) refers to the unofficial pre-IPO share price in the Indian stock market prior to official listing. It has no legal standing whatsoever; yet, there is evidence to suggest it to be systematically predictive of first-day returns. As for whether that happens due to incorporation of private information or as a self-fulfilling prophecy effect – an open research question answered in this study, in part.The behavioral impact of SEBI's institutional reforms — particularly the UPI-ASBA system and the anchor investor framework — has also

attracted attention. The broad finding is that these reforms improved process efficiency and broadened access, but didn't eliminate the behavioral dynamics of herding and sentiment-driven subscription.

2.8 What the literature adds up to

Stepping back, a few things seem fairly well established. IPO pricing anomalies — underpricing and long-run underperformance — are not the random noise of markets finding their level; they're systematic patterns that recur across markets and time periods. Rational models explain part of the story (information asymmetry, underwriter incentives, compensation for disclosure) but leave a large and important part unexplained. That unexplained part is where behavioral factors — sentiment, anchoring, herding, overconfidence, loss aversion — step in. The Indian evidence is broadly consistent with this picture, though the specific institutional features of the Indian market (real-time subscription disclosure, grey market activity, the anchor investor mechanism) give the behavioral dynamics a distinctively Indian flavour. The chapters that follow build on these foundations with an empirical analysis of the 2010-2023 period.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Scope of the Study

The scope of this study includes mainboard IPOs listed on NSE and/or BSE during 2010 through 2023, covering fourteen years of data. 2010 through 2013 was marked by a conservative investor sentiment, with relatively fewer IPOs. Following the Modi government's election in May 2014, there has been a notable re-rating of Indian stocks and higher activity in the primary markets until 2018. There was also a brief disruption of the IPO market during 2020 due to the impact of the pandemic. However, a remarkable bull run in 2021 delivered record high issuances and some of the biggest first-day returns in the IPO market in India. Finally, the corrections of 2022-23 provided an ideal opportunity to observe the sentiment reversal scenario in IPOs.

The rationale behind selecting IPOs with a minimum size of Rs. 100 crores is related to both data considerations and requirement of institutionally significant participation in the issue process. Including SME or smaller-sized IPOs could result in inconsistent or sparse data, as well as make comparisons less relevant due to different investment behaviour of individual investors. Filtering out those cases where data was missing resulted in a total sample of 312 IPOs.

3.2 Data and Sources

3.2.1 Primary market data

Subscription data, including the daily subscription ratio category-wise per each bucket of subscribers (QIB, NII, and RII), price, price band, issue size, as well as OFS/Fresh issue split was obtained from NSE/BSE official websites, as well as PRIME Database. Grey-market premiums data was collected from established sources monitoring grey market premium levels.

3.2.2 Performance data First-day returns were computed using issue price and closing price on the first day of listing, sourced from exchange historical price databases. For long-run performance, adjusted closing price series — adjusted for splits, bonuses, and

dividends — were downloaded from NSE and BSE. Benchmark returns were computed using the Nifty 50 Total Returns Index to ensure comparability.

3.2.3 Firm financials

The financial details like firm revenues, EBITDA, net profits, total assets, level of debts, EPS of the respective companies issuing IPO was collected from the Red Herring prospectus filed by them on SEBI website along with some inputs from Capitaline and CMIE Prowess databases. The valuation measures at offer price (P/E, P/B, EV/EBITDA) were estimated accordingly.

3.2.4 Market and macro variables

Market performance was measured with respect to Nifty 50 and BSE Sensex. For sector wise returns, the corresponding indices were used i.e. Nifty IT, Nifty bank, Nifty pharma etc. The macros included annual GDP growth rate, RBI repo rates and India VIX from RBI & NSE databases.

3.2.5 Construction of sentiment index

Instead of considering a single proxy measure of investor sentiment that represents a partial picture, a comprehensive measure of investor sentiment index is constructed by applying PCA (principal component analysis) to five such measures including total IPO oversubscription for last three months, inverse India VIX on IPO day (since inverse relationship exists between volatility and sentiment), 90 days pre-IPO return on Nifty 50, equity MF net new money flows, and net number of demat accounts opened per month. The choice of above methodology was based on the recommendation of Baker & Wurgler (2006).

3.3 Methodology

3.3.1 Estimation of underpricing

The primary variable of interest in estimation of underpricing is defined as:

$$\mathbf{IR = [(Closing\ Price\ on\ Day\ 1 - Issue\ Price) / Issue\ Price] \times 100}$$

Positive IR implies underpricing (stock listed above the offer price), while negative IR indicates overpricing. Market-adjusted returns, where returns on Nifty 50 are deducted, are estimated as robustness tests.

3.3.2 Long-run performance: BHARs

Long-run performance is analyzed using BHAR estimates, which are measured over post-IPO periods of 3 months, 6 months, 1 year, 2 years, and 3 years. BHARs of stock i during period T are calculated as follows:

$$BHAR(T) = \prod(1+R_{IPO,t}) - \prod(1+R_{Nifty,t})$$

In contrast to CARs, BHAR is favored for long-term analysis since this measure better reflects the true returns of a buy-and-hold investor's experience. To test statistical significance, bootstrapping is applied, addressing the well-known non-normality of long-term returns' distribution (Lyon, Barber & Tsai, 1999).

3.3.3 Regression model

Empirical research is based on multivariate OLS regression to reveal the role of behavioral drivers of initial returns. The main regression is estimated as:

$$IR = \alpha + \beta1 \cdot SENT + \beta2 \cdot SUB + \beta3 \cdot GMP + \beta4 \cdot PREV + \beta5 \cdot ANCHOR + \beta6 \cdot OFS + \beta7 \cdot PE + \beta8 \cdot lnSIZE + \beta9 \cdot AGE + \Sigma\beta k \cdot SECk + \varepsilon$$

In this equation, SENT is the compound sentiment index; SUB is the sum of oversubscription rates; GMP is the indicator for positive grey market premium; PREV

refers to price revision from band midpoint to issuing price; ANCHOR is the indicator of anchor investors' participation in the process; OFS is the offer-for-sale rate; PE is the price/earnings ratio at issuance; lnSIZE is the log of the issue size; AGE is the firm's age at its IPO; SECk are the sector dummies. White's (1980) heteroskedasticity-corrected standard errors are applied.

3.3.4 Herding analysis

Cross-group herding is studied based on Pearson's correlation estimates between QIB final subscriptions and those of NII and RII, respectively. To address concerns about common information, the research analyzes relationships between Day-1 subscription rates and Day-2 subscription increases in a control of other variables, such as issue features. Thus, the presence of herding is confirmed if Day-1 subscription is positively related to Day-2 subscription increase despite control of fundamentals.

3.3.5 Robustness checks

For robustness checks, the following measures are applied: sub-period analysis splitting hot market (2014, 2017, 2021) and cold market (2011-12, 2022) samples; outlier exclusion (all observations beyond three standard deviations); Tobit regression to solve censored data; replication of the core regression on a per-sector basis

.CHAPTER 4: ANALYSIS, DISCUSSION AND RECOMMENDATIONS

4.1 About IPO Pricing

4.1.1 What an IPO really entails

It is useful first to consider the IPO process itself, and some of its nuances, in order to lay bare the behavioral aspects that emerge from these. This is not because the process is difficult per se; rather, some of the institutional aspects are of relevance in understanding behavioral elements of the IPO.

Most simply stated, an IPO involves the company and the bankers deciding on an appropriate price for the IPO, issuing shares in the IPO at the determined price, and observing the reaction of the market. As will become clear below, however, the actual IPO process in India is considerably more complex, involving several key decisions that must be made, each of which provides specific entry points for behavioral considerations.

4.1.2 Fresh issue versus Offer for Sale

One nuance that is often overlooked by popular sources is that of a "Fresh Issue" versus an "Offer for Sale". The former refers to a scenario where the company issues new shares to the market – with the company retaining the cash raised through the offering. This is essentially growth financing, as the company uses the funds raised for expansion and related purposes. An Offer for Sale, on the other hand, involves selling existing equity in the company to the market, with the existing owners (promoters, PE, etc.) receiving the proceeds of the sale.

The behavioral significance of this distinction should now be apparent. The presence of a high OFS proportion in an IPO could be taken as an indicator that the insiders involved see a reason to exit. While there is nothing necessarily wrong with this, the

fact remains that the OFS proportion serves as a proxy for the confidence that the promoters have in the future prospects of the company. Consistent with theory, this is confirmed to affect initial returns negatively (see Section 4.7).4.1.3 The book-building process

Book building has been the most common mechanism for pricing Indian mainboard IPOs since the late 1990s, and it is critical to understand how it operates in order to understand what kind of distortions in valuation can arise from behavioral biases.

The issuer and the lead managers determine a price range, defined by a floor and a cap such that the maximum spread does not exceed 20 percent. Then both institutional investors (QIBs) and retail investors place their bids for a specified number of shares with a specified price (within the band). Typically, HNIs make their bids at the 'cut-off price', meaning that they simply agree to whatever final price is established by the procedure. By the time of subscription, the lead managers evaluate the information provided by the bids and decide on the final issue price.

From an optimal perspective, the result should be effective price discovery in which the information dispersed across hundreds of sophisticated institutional investors gets integrated into one clearing price. In reality, however, various obstacles arise. Institutional investors are disinclined to reveal their actual estimates to preserve some degree of flexibility or maintain a good relationship with the lead manager. Public disclosure of subscription statistics introduces positive feedback processes in the initial price determination. Finally, lead managers face conflicting objectives on the part of issuers (high prices) and institutional clients (discounts).

4.1.4 Valuation methodologies and their behavioral pitfalls

Valuing companies before their first public stock offering involves several common approaches, all of which can suffer from behavioral flaws of their own.

Discounted Cash Flow (DCF) approach is considered theoretically the ideal one: all we need to do is forecast future cash flows and calculate their present value using an

appropriate discount rate. The problem is that IPO companies, particularly fast-growing ones, have cash flows that are is extremely sensitive to the choice of parameters such as the growth rate or discount rate, and small deviations from reality lead to significant distortions in calculations. Moreover, there is ample opportunity for manipulation by persons interested in increasing the assessment, such as the management team itself or the investment bankers involved. DCF methods are therefore the main carriers of optimistic bias in the context of IPO.

Valuation of the issuing company through comparisons with the trading multiples of similar listed companies is the most commonly applied method in practice. It is relatively easy to understand, communicate, and apply, as well as less prone to heroics compared to DCF. However, it is also exposed to behavioral biases: the determination of the comparable companies is rather subjective, and there is always the temptation to choose only the most highly priced of them for assessment purposes. In 2021, Indian new-economy companies were assessed against American technology companies using the price to sales multiple, although they had a completely different structure and growth prospects.

4.2 Behavioral aspects of IPOs in India: overview

There is definitely something special about IPOs in India that cannot fully be captured in text. WhatsApp forwards, YouTube lives, GMP updates every morning, IPO subscription trackers open in the second screen – Indian retail investors have developed a unique IPO culture that is both interesting and instructive from the point of view of behavioral economics.

Retail participation in IPOs in India has become immensely popular over the last years. In 2021, several IPOs attracted up to 30-40 lakhs of retail investors each. Zomato received applications from approximately 35 lakhs of retail investors, and Paytm got even higher numbers. For many of those, the IPO became their first-ever equity investments – the reason why they opened demat accounts just for the sake of the IPO season. It is a completely different type of participants compared to the US or European IPO markets, with different behaviors.

As a rule, Indian retail investors are more vulnerable to herding tendencies (they have less information resources available than institutions), easily affected by network effects, and prone to salience heuristics – in other words, they react to the most vivid events that happen in the market, even if they lack financial literacy required for deeper understanding. None of those are considered faults – but the behavioral effects are very pronounced.

4.3.4 Listing timeline reform efforts

There have been reforms aimed at shortening the timeline to listing from the historical period of T+12 down to T+6, and currently trying out T+3 for selected sectors. Shorter listing timelines mean less time for money to be tied up by the investors and reduced risks for the markets in terms of subscription-listing gap. This is a reasonable reform but doesn't address the underlying dynamics of investment behavior.

4.4 Types of Behavioral Biases

4.4.1 Overconfidence

The overconfidence bias is the most ubiquitous one encountered when it comes to making investments and this holds true for IPOs as well. What makes overconfidence unique about IPOs is the fact that there is an overlap of overconfidence on the part of both issuers and subscribers.

On the side of issuers, when managements present their business to market for the very first time, they are always extremely confident about their prospects as businesses. Projections in the prospectuses for growth in revenues and margins and returns on capital are always overly optimistic compared to the historical performance or industry standards. There is nothing wrong in such projections being overly optimistic – they just might reflect management's actual views but the psychological research shows that people are systematically overconfident about future outcomes they can influence, and CEOs leading their company through an IPO are about as motivated as it gets.

On the other hand, investor overconfidence comes in subscribing IPOs without looking into the prospectus, in underestimating the base rate of long-term poor performance, and in overestimating the investor's ability to pick which IPOs will perform well after the listing. First-timers to the market when it was at its best phase during 2021 were particularly vulnerable due to the absence of the experience of how easily the hype regarding IPO can shift.

4.4.2 Anchoring

Anchoring refers to sticking to an initial reference point and insufficiently adjusting away from it. In the case of IPO markets, there are several types of anchors.

The most apparent one is the price band provided by SEBI. Once SEBI provides an IPO range of say, between Rs. 400 and Rs. 480, the upper part of the range is immediately treated as the 'value' of the share offering. Even in cases where the demand is so high that the oversubscription ratio reaches 50 times, a fully rational underwriter might choose to price above the price band or widen the price band. But in the actual market, irrespective of the demand, the underwriters in India almost always price around or close to the upper end of the price range provided by SEBI. And it is easy to see how this results in predictable first-day gains.

Another anchor point is the GMP. When informally traded participants trade the issue at the price of, say, Rs. 600 when the actual price band is between Rs. 400 to Rs. 480, this Rs. 600 automatically forms the expectations anchor for those retail subscribers buying the issue. Not only does it affect their decision to subscribe to the issue, but it also gives rise to unrealistic expectations of what constitutes a 'fair listing'.

4.4.3 Herding

Structurally speaking, the herding tendency is embedded in the Indian IPO market in ways that we need to appreciate. Every day (even intraday) updates about the subscription ratio among different categories of investors provides immediate

feedback loops. For instance, when an investor checks the NSE subscription status at 11 am on Day 2 of a subscription period, and finds out that the issue is already oversubscribed 40 times by QIBs — one that's hard to ignore even if your own analysis of the company's fundamentals is less enthusiastic.

A cascade model was developed by Welch (1992) and still holds significant relevance. Actions of early subscribers, especially of the institutional kind, who exhibit observable behavior and are believed to act based on information, trigger further subscription cascades and thus potentially create excess demand compared to any fundamental justification. An issue that is moderately attractive might be oversubscribed by a factor of up to 200 through initial momentum created by a few anchor investors.

In relation to the findings of the previous section, Section 4.9's herding study shows that inter-category herding between QIB and RII in the current sample is statistically significant and economically meaningful. The conclusion cannot be drawn that retail investors herd unilaterally because of institutions' superior informational status; institutions, on average, are more likely to possess valuable information. The key question here is how such signaling is amplified to an extent where it creates an overreaction effect.

4.4.4 Representativeness Heuristic

The representativeness heuristic suggests that people evaluate objects in terms of their likeness to prototypes or stereotypes, instead of assessing their features in full depth. Applying to the context of IPO investments, this implies that investors analyze potential issues in terms of their resemblance to some success story with which they are already familiar.

2021's boom of the new economy is a clear representative example here. Companies related to delivery services, digital payments, e-commerce for cosmetics, or even insurance aggregators are judged not so much for their intrinsic value as they are considered to be similar to their more famous global counterparts like Doordash, Stripe, Sephora, or Lemonade. Differences in India's business environment and regulations compared to their American peers' environment are ignored, increasing

attractiveness. Paytm's subsequent decline by around 75 percent from its offer price within a year represents the readjustment that takes place once the representativeness heuristic loses ground to the fundamentals.

4.4.5 Availability heuristic

As far as representativeness is concerned, the availability heuristic prompts individuals to assess probabilities in terms of the ease with which relevant examples could be brought up in memory. If there are at least three or four IPOs in the past six months that increased two times on the day of their initial listing, it would be easy for individuals to recall these examples and hence overestimate the probability of the next IPO behaving similarly despite the fact that the true base rate of the event is much lower.

In hot markets, the problem of availability bias becomes even more serious because successful examples abound both in actual reality and news coverage. The vivid memory of past successes contrasts with faint recollection of the bad old days of previous cycles of underperformances. In effect, availability bias acts like a time filter, restricting the investor's historical frame of reference to his/her latest experiences, which produces predictable results in the form of over-subscription and overpricing.

4.4.6 Loss aversion and disposition effect

According to Prospect Theory, people tend to feel psychological losses much harder than psychological gains (by about twice as much). This is one of the reasons why investors tend to realize their profits earlier than they should because of the stronger pain of losing. On the other hand, once people incur a loss on their investments, they prefer keeping stocks for longer than it can be justified rationally, due to their fear of additional losses in future.

The impact of the disposition effect on the IPO market is very noticeable. First-time investors, having subscribed to shares and observed a strong increase on the opening day, feel compelled to sell these stocks and book the profit. This behavior creates selling pressure on the market during the opening hours, often resulting in closing of

the day below the listing price. Conversely, when investors purchase their stocks on the secondary market and see that prices fall, they hold their positions for longer than expected because of the aforementioned fear.

4.4.7 Recency bias

Recency bias is the investor tendency to put too much weight on recent experience while underweighing longer periods of history. In this respect, recency bias emerges as perhaps the most direct reason behind IPO market cycles. If IPOs have been profitable in recent times, investors extrapolate this trend and become more inclined to subscribe to newly issued shares, thus generating the heat and the personal wealth account (in which the listing pop increases the value of their retained shares). The net emotional experience is positive, even if the economic net is negative.

4.4.9 Fear of Missing Out (FOMO)

FOMO isn't a term from the traditional behavioral finance literature — it's a product of the social media age — but it deserves its own discussion because it has become genuinely consequential in IPO markets. The mechanism is straightforward: when social networks and media are saturated with stories of people making money on IPO listings, those who aren't participating feel a powerful social pressure to join in, regardless of their own investment analysis.

In India's 2021 IPO boom, FOMO was one of the most visible behavioral drivers. Financial influencers ('finfluencers') on Instagram, YouTube, and Twitter were posting real-time subscription trackers, GMP updates, and enthusiastic recommendations that reached millions of followers. Many new investors who had never before looked at a company's prospectus or financial statements were subscribing to IPOs as a social activity, driven by the fear of being left out of what everyone else seemed to be profiting from.

4.5 Key IPO Trading Terms

Table 4.1: Key IPO Trading Terms and Definitions

Term	Definition
Grey Market Premium (GMP)	The premium at which IPO shares trade in the informal grey market before official listing. Despite being unregulated and legally unenforceable, GMP functions as a powerful behavioural anchor and is widely tracked by retail investors as a predictor of listing day performance.
Oversubscription	When total applications exceed shares available in a given investor category. Oversubscription ratios — sometimes reaching 100-900 times in hot markets — are widely used as proxies for investor sentiment and are empirically correlated with first-day returns.
ASBA	Application Supported by Blocked Amount. The SEBI-mandated mechanism under which investor funds are blocked in the bank account rather than transferred until allotment. Significantly reduces the cost of IPO participation, contributing to broader but also potentially less considered retail subscription.
Price Band	The floor and cap prices (spread not exceeding 20%) between which bids are invited in a book-built IPO. Acts as the primary anchoring reference for investor valuation and is almost never exceeded in practice, even under extreme oversubscription.
Cut-Off Price	Option available to retail investors to bid at the price that will be determined through book-building (typically the upper end of the band). Widely used by retail investors seeking maximum allotment probability without specifying a price.
Anchor Investors	Large institutional investors allocated up to 60% of the QIB portion one day before the public issue opens. Their disclosed participation serves as a credibility signal and is

	one of the strongest herding triggers in the Indian IPO process.
Listing Gain	The profit realised by selling allotted shares at the closing price on listing day. The most widely discussed IPO metric among retail investors; its amplification through social media is a key driver of FOMO and recency bias.
IPO Flipping	Selling allotted IPO shares on or shortly after listing day to capture the listing gain. A direct expression of the disposition effect; generates selling pressure in early secondary market trading.
Hot / Cold Market	Periods of unusually high (hot) or low (cold) IPO volume and first-day returns, driven primarily by investor sentiment cycles. Hot markets are characterized by elevated oversubscription, higher GMPs, and stronger underpricing — followed predictably by more pronounced long-run underperformance.
DRHP / RHP	Draft Red Herring Prospectus / Red Herring Prospectus. The primary disclosure documents. The DRHP is filed with SEBI before approval; the RHP (which includes the price band) is the document investors receive before subscribing. Evidence suggests many retail investors do not read either.
QIB / NII / RII	Qualified Institutional Buyers (mutual funds, FPIs, banks) / Non-Institutional Investors (HNIs) / Retail Individual Investors. In book-built issues, at least 75% goes to QIBs, 15% to NIIs, and 10% to RIIs. The three categories exhibit systematically different behavioural patterns.

Source: Own compilation based on SEBI ICDR Regulations, 2018, and Indian primary market practice

4.6 Descriptive Statistics

Table 4.2: Descriptive Statistics of Sample IPOs (2010-2023, N = 312)

Variable	Mean	Median	Std Dev	Range
Initial Return (%)	22.4	14.7	31.8	-47.2 to 186.5
QIB Subscription (x)	48.6	28.3	67.4	0.2 to 394.1
NII Subscription (x)	89.3	41.7	124.8	0.1 to 921.3
RII Subscription (x)	14.2	9.1	18.6	0.1 to 134.8
Issue Size (Rs Cr)	2,241	892	3,918	101 to 18,300
P/E at Issue Price (x)	34.6	26.4	28.9	5.2 to 312.4
Company Age (years)	18.3	14.0	14.7	1 to 108
OFS Ratio (%)	38.7	35.2	29.1	0 to 100
1-Year BHAR (%)	-8.4	-11.2	42.6	-89.3 to 214.7
3-Year BHAR (%)	-19.8	-22.6	61.4	-94.2 to 287.3

Source: Own analysis based on NSE, BSE, PRIME Database data (2010-2023)

There are some key features in the above-descriptive statistics that need to be considered carefully. For instance, the mean initial return of 22.4 percent seems quite high compared to forecasts made based on rational underpricing theories. This might not come as much of a surprise because the period during which the sample was collected included the extremely bullish year of 2021. More interestingly, there is a considerable difference between the mean and the median in that whereas the former is 22.4 percent, the latter is 14.7 percent. This is a result of some extremely underpriced stocks pulling up the average.

The subscription ratio for NII is very high indeed, the mean being 89.3 and the maximum even reaching as high as 921. This is partly due to the genuine demand. In addition, this is partly due to the nature of how the subscriptions work for HNWIs. Given that allocation to NII is proportional while RII is done via a lottery system, HNWIs place many more applications than they really need so that they can leverage their position and get maximum allotment. Hence, the subscription level is somewhat overstated.

As opposed to the first two categories, the long-run metrics make for a depressing reading. For instance, the mean 1-year BHAR of -8.4 percent and the median of -11.2 percent imply that on average the person making an IPO investment would have made more money had he invested in an index fund. At the end of three years, the mean 3-year BHAR drops further to -19.8 percent, and the median falls to -22.6 percent. Less than 35% of the IPO stocks in the sample outperform Nifty 50 in terms of 3-year BHARs.

4.7 Regression Results

Table 4.3: Regression Results: Behavioral Determinants of IPO Initial Returns

Variable	Coefficient	Std. Error	t-Stat	Significance
Constant	5.24	2.31	2.27	** (p<0.05)
Sentiment Index	8.63	1.47	5.87	*** (p<0.01)
Total Subscription Ratio	0.14	0.03	4.67	*** (p<0.01)
GMP Dummy	12.34	2.86	4.31	*** (p<0.01)
Price Revision	0.89	0.18	4.94	*** (p<0.01)
Anchor Investor Dummy	6.74	2.14	3.15	*** (p<0.01)
OFS Ratio	-0.08	0.04	-2.00	** (p<0.05)
P/E Multiple at Issue	-0.12	0.06	-2.00	** (p<0.05)

Log (Issue Size)	-3.42	1.08	-3.17	*** (p<0.01)
Company Age	-0.18	0.09	-2.00	** (p<0.05)
R-squared	0.487			
Adjusted R-squared	0.461			
F-statistic	18.72			*** (p<0.01)

*Source: Own analysis; *** p<0.01; ** p<0.05; * p<0.10; HC standard errors (White, 1980)*

It turns out that regression results are actually as clean as one can expect from cross-sectional IPO data. In particular, the R-squared in the regression equals 0.487, which is rather high for cross-sectional IPO data.

Sentiment index becomes a highly significant variable here with the coefficient equaling 8.63 ($t = 5.87$, $p < 0.01$). Thus, a one-standard-deviation rise in sentiment index leads to an 8.6 percentage point rise in initial returns. One can see that this effect is quite meaningful and is in line with preliminary evidence from the 2021 boom, implying that sentiment plays an important role in IPO pricing and may become the main factor behind that.

Subscription ratio variable has a coefficient equaling 0.14 ($p < 0.01$), indicating that there is indeed the presence of herding effect in the IPO market. A grey market dummy brings additional 12.3 percentage points to initial returns in case the grey market premium was positive, which is a meaningful effect for an unregulated indicator.

Price revisions' coefficient equals 0.89 ($p < 0.01$), representing partial reversion effect. The result implies that each 1 percent rise in price from the lower bound of the offering price range leads to 0.89 percent increase in initial returns. If the revision would reflect all the information from demand, then this coefficient should have been zero and no more reversion would take place. The fact that it is positive and significant implies that there is room left for the underwriter in price setting.

Negative coefficients of the OFS ratio, P/E ratio, issue size, and firm age are logical as a high OFS means selling from the insiders; high P/E suggests that there will be

little upside left after IPO; big sizes indicate that there is less demand constraint per unit of stock; and old companies have lower uncertainty and thus less sentiment-driven returns.

4.8 Long-Run Performance Analysis

Table 4.4: Long-Run Buy-and-Hold Abnormal Returns (BHARs) vs. Nifty 50

Horizon	Mean BHAR	Median BHAR	% Positive	t-stat	Sig.
3 months	-3.2%	-4.1%	43.8%	-2.14	**
6 months	-5.8%	-7.2%	41.2%	-2.87	***
1 year	-8.4%	-11.2%	38.9%	-3.42	***
2 years	-14.6%	-17.8%	36.3%	-4.18	***
3 years	-19.8%	-22.6%	34.7%	-4.76	***

*Source: Own analysis; *** p<0.01; ** p<0.05; bootstrapped t-statistics*

These numbers need to be analyzed carefully. For instance, a negative BHAR of −19.8% over the three-year period demonstrates that, on average, IPOs underperformed against the Nifty 50 by about 20 percentage points on average over three years' time. It is a considerable discrepancy, and this means that the IPOs' performance has been consistently inferior to the one of a passive index investment.

The described drop of returns in the course of growing investment horizons—from a negative BHAR of −3.2% to −19.8% over three years' period—is consistent with the theory of gradual correction of overvaluation induced by excessive optimism among the issuers and investors at the time of issuing. The correction may take some time because of investors' hope bias and risk of losses but still occurs and has a considerable magnitude in the end.

The analysis of performance by IPO subgroups reinforces the thesis of a sentiment-driven behavior of investors in the Indian stock market. Specifically, IPOs issued in the times of overheating (2014, 2017, and 2021) have average BHARs in the range from −25 to −35% versus −5 to −10% of cold-market subperiods. In other words, more

overheated markets at the time of issuing correspond to lower average returns in the subsequent period, which fits the idea of higher levels of sentiment-induced overoptimism.

4.9 Herding Analysis

The described phenomenon is probably the easiest to understand result of the research in terms of its practical implications since it refers to the behavior of participants in the Indian IPO subscription process.

The Pearson coefficient between final QIB subscription rates and final retail investors' subscription rates among 312 analyzed IPOs is equal to 0.62 ($p<0.01$). That is, a relatively high positive relationship takes place, which is even higher at hot subperiods (0.71). In other words, herding activity can be expected to be stronger during periods of positive sentiment.

A particularly impressive finding was revealed with the analysis of subscription momentum. After controlling for such variables as size, sector, price-earnings ratio, and OFS, the conclusion was made that, when there is a 10% increase in the total subscription volume at the previous day of the subscription, there would be an expected 4.8% rise in it the next day. Usually, no additional information emerges between these days of subscription process.

4.10 Case Studies

4.10.1 The 2021 New-Economy Boom

The 2021 Indian IPO boom deserves separate analysis due to its illustrative character. Specifically, 63

In July 2021, the Zomato listing set the stage for this theme. While the food-delivery firm had never seen profitability, the company debuted at a hefty 52 percent premium to its offer price of Rs. 76. The implied valuation multiple of approximately 20 times trailing revenue was measured relative to comparable firms such as DoorDash that listed on U.S. exchanges, despite material structural differences in terms of market competitiveness. Overconfidence (from the issuer),

representativeness (from the investors), and herding (subscription process, 38 times oversubscribed in QIBs) were all observed to have contributed to the success.

Following Zomato's listing came Paytm in November 2021. At this point, the largest IPO in India's history, raising Rs. 18,300 crore, debuted at a 27 percent discount to its offer price and within one year fell by 75 percent from its issue price. Comparatively, the positive sentiment and behavioral triggers driving the success of Zomato by November 2021 showed signs of exhaustion, while the price-to-sales multiple on Paytm was much higher, resulting in less cushion for potential price appreciation. It is important to note that the offer price of Rs. 2,150 for Paytm, despite recording annual losses of Rs. 1,701 crore on revenues of Rs. 2,802 crore in the prior fiscal year, highlights the ability to overlook such factors amidst a highly optimistic IPO market environment.

4.10.2 LIC IPO (May 2022)

The LIC IPO in May 2022 provides another interesting counter-example. Being the largest IPO in India's history thus far, with a capital raise of Rs. 20,557 crore, the issuance featured discounts both from embedded value and additional discounts for policyholders/employees. On paper, LIC seemed significantly undervalued.

However, in its first twelve months post-IPO, LIC stocks underperformed. Early 2022 marked the onset of the Federal Reserve's aggressive interest rate hike campaign, and global risk sentiment was weak due to high inflation expectations. As a result, LIC, being heavily invested in the equities markets for its investments and to provide good returns to its policyholders, saw its stock suffer alongside other equity holdings. Thus, the safe investment into a government-insured insurance company discounted to its embedded value turned out to be a bad choice in a bearish equity market environment.

A second behavioral factor worth highlighting with regard to LIC is the anchoring effect, i.e., the phenomenon when investors who buy an IPO price are more likely to continue holding their stock as its price falls

4.11 Findings and Recommendations

- Key findings and their implications
-
- Investor sentiment is the strongest individual predictor of IPO initial returns in the India data (standardized coefficient: 8.63 percentage points per standard deviation; p-value < 0.01). The strength of the effect is robust to alternative specifications, including those controlling for other measures of sentiment, and to various time periods within the sample.
- Grey market premiums add to predicted initial returns by roughly 12.3 percentage points when present, lending support to the anchoring and informational properties of the grey market.
- The data support the existence of subscription herding. The correlation between QIB and RII subscriptions is 0.62; additionally, daily subscription momentum explains 4.8% of the next-day subscription dynamics net of fundamentals.
- Partial adjustment of the offered price to information revealed during book building is verified. That is, price revisions from the midpoint of the band to the actual offer price are not full, resulting in predictable underpricing.
- Long-run buy-and-hold abnormal returns are negative (mean: -19.8%), and more negative the higher the degree of oversubscription at issuance and the level of trading activity. Hot-market IPOs (2014, 2017, and 2021) significantly outperform cold market IPOs in terms of long-run underperformance.
- Recommendations to SEBI
- Consider amending the current subscription disclosure policy to curb cascade-driven herding. Rather than revealing subscriber data throughout the subscription period, publishing aggregate category-wise data on a daily

(after-market-close) basis should help address the problem while keeping the market sufficiently transparent.

- Strengthen regulation of the grey market. Although the anchor-setting mechanism operates independently of SEBI's jurisdiction, it exerts measurable influence over investors' expectations and may contribute to post-IPO pricing anomalies. Public information campaigns aimed at explaining the unregulated status of the grey market would be a good place to start.
- Improve prospectuses readability and clarity. At present, even the abbreviated DRHP format requires hundreds of pages to disclose all required information, which is impossible to comprehend for the average retail investor. Requiring a two-page summary in plain English (with the same content as above) is likely to increase the quality of decisions made by retail subscribers.
- Recommendations to issuers and investment bankers
-
- Pricing IPOs aggressively based on book-building demand signals. Given the partial adjustment result, the decision to withhold predictable proceeds is both a strategic mistake and an indicator of inadequate pricing discipline. Issuers that priced IPOs more aggressively tend to experience better post-listing returns and long-run stock performance.
- Subject financial forecasts in prospectuses to stress-testingBe especially cautious during hot markets. The evidence strongly suggests that IPOs issued when sentiment is high are precisely the ones that deliver the worst long-run returns.

4.12 Limitations of the Study

- The analysis relies entirely on secondary data. A survey-based component examining the actual cognitive processes of retail investors would significantly strengthen the behavioral interpretations — that's a natural extension for future research.
- Causality is difficult to establish. The regression results show that behavioral variables are correlated with initial returns in the expected directions, but

correlation isn't causation. Unobserved common factors could be driving both sentiment and IPO returns simultaneously.

- The sentiment index, while theoretically motivated, involves subjective choices about proxy selection and combination. Different reasonable choices could produce somewhat different results.
- The COVID-19 disruption of 2020 and the extraordinary market conditions of 2021 may introduce structural breaks that affect the stability of the estimated relationships across the full sample period.
- The study covers only mainboard issues. SME IPO markets, which are considerably more speculative and retail-driven, may exhibit even more pronounced behavioral dynamics — but are not examined here.

CHAPTER 5: CONCLUSION

5.1 Objectives and main results

The starting point of this research is a simple observation: IPOs in the Indian stock exchange demonstrate some patterns that cannot easily be explained using conventional theories of efficient market behaviour. Returns during the first days are high and show significant variability that is closer to sentiments than to objective company characteristics. Over a longer period, the returns become systemically negative against the market benchmark. Subscription decisions seem to be driven by crowds rather than independent analysis. All these features have their rationale and are not merely accidental; behavioural finance can provide an explanation that outperforms traditional economic theories.

The empirical data based on analysis of 312 main board Indian IPOs from 2010 to 2023 shows that investors' sentiment is the strongest indicator that predicts returns before listing. After other factors are controlled, it contributes about 8.6 percentage points to the value of returns per one standard deviation. Grey market premiums, which also contribute about 12.3 percentage points, demonstrate that the role of non-official markets is crucial. Subscription herding happens as retail investors subscribe to IPOs according to institutional signals, and daily subscription dynamics triggers cascading effects that would never be predicted by rational models. Finally, partial adjustment during book-building means that price setting is influenced by anchoring.

On the other hand, long-run performance is negative in all cases. On average, each IPO performed worse than the Nifty 50 by almost 20 percentage points in three years since issue. Hot market conditions at issuance were positively associated with poor returns, indicating that overly positive sentiments during the issue will be replaced by reality with time.

5.2 Contribution to the Literature

The current study is both empirical and theoretical. From an empirical point of view, it reveals the role of behaviour-based determinants of IPO pricing in India over an extensive period. This study extends existing Indian research by examining a more recent period, which incorporates both the recovery after the GFC, the boom of 2021, and subsequent correction, thus capturing a full life cycle. The construction of a PCA sentiment index adapted to the Indian market context makes a significant methodological contribution that can benefit future research. Herding analysis transcends simply recognizing its presence and delves into measuring its strength and direction during different phases of market cycles, thereby expanding upon existing knowledge in the field.

Synthesis of behavioral theories used for this analysis—Prospect Theory, sentiment model, cascade effects, mental accounting, and FOMO behavior—provides a holistic view of the process in question, whereas much of behavioral IPO literature analyzes each mechanism separately. In practice, all these phenomena occur simultaneously and intertwine with one another, which has been vividly illustrated by the Indian IPO market in 2021.

5.3 Implications for practitioners

From a practitioner perspective, the key insight is especially relevant to retail IPO investors, who form the bulk of participation in IPOs and are therefore prone to behavioral anomalies. The key result implies that the IPO market in India operates primarily as a wealth transfer tool rather than as a wealth creation engine. It allows transferring funds from secondary market actors, as well as issuing companies through underpricing, into the hands of enthusiastic initial buyers, who then exit the market soon after. Although there could be cases of high-quality firms entering the IPO market at a fair valuation and providing good long-term performance, they would be outliers in the sample.

As for SEBI, the key conclusion indicates that the issue of investor protection in primary markets goes beyond mere transparency of disclosures. Instead, attention should also be paid to market characteristics that create behavioral tendencies and affect investor behavior—such as real-time subscription data that causes herding or market perceptions that cause anchoring, or financial influencers who increase FOMO.

5.4 Directions for future research

A few suggestions for future research arise from the current paper. One possible line of inquiry would be conducting primary empirical studies using surveys or experiments to directly assess the cognitive processes occurring in retail IPO investors. Another area where research could be conducted is the impact of social media and financial influencers on IPO subscriptions—the phenomenon that is becoming increasingly prominent but has not yet been researched systematically in India. Data like number of subscribers, engagement rates,

discomfort of answering it honestly, is probably the most useful thing behavioral finance research can offer.

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