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Theories and Determinants of IPO Underpricing: A Comprehensive Review

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Abstract: IPO underpricing, the tendency for newly issued shares to trade above their offer price on the first day, is a persistent global phenomenon. Empirical evidence suggests that U.S. IPOs averaged an 18.8% first-day return from 1980 to 2001, imposing significant indirect costs on issuers. This paper reviews key explanations for underpricing, including information asymmetry, signaling, agency conflicts, and behavioral factors. Empirical research highlights firm characteristics, underwriter reputation, market conditions, and regulatory factors as major determinants. While underpricing facilitates liquidity and market participation, it also reflects inefficiencies. This study synthesizes theoretical perspectives and empirical findings, emphasizing the need for improved disclosure, governance, and regulatory oversight.

Keywords: IPO underpricing; Theoretical explanations; Empirical determinants

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1. Introduction

IPO underpricing — the phenomenon in which newly issued shares close their first trading day at a price higher than the offer price — is a persistent and globally observed anomaly. Empirical studies indicate that U.S. IPOs from 1980 to 2001 exhibited an average first-day return of 18.8%, with substantial cross-country variation. This pricing inefficiency represents a significant indirect cost to issuing firms, as they forgo potential capital that could be raised at a more accurate valuation.

The academic literature attributes IPO underpricing to multiple interrelated factors. Information asymmetry theories suggest that disparities in knowledge among issuers, underwriters, and investors necessitate pricing discounts to mitigate adverse selection and encourage participation. Signaling theories posit that high-quality firms deliberately underprice their IPOs to convey credibility and enhance future capital-raising opportunities. Agency perspectives highlight conflicts of interest between managers, underwriters, and shareholders, which can lead to strategic underpricing for control retention or preferential share allocations. Behavioral finance theories further suggest that investor sentiment, speculative demand, and market timing play a crucial role in amplifying underpricing beyond what rational models predict.

This study synthesizes these theoretical frameworks and examines empirical determinants of IPO underpricing, including firm characteristics, underwriter reputation, market conditions, and regulatory environments. Additionally, the analysis explores the broader implications of underpricing for market efficiency, corporate financing strategies, and investor behavior. Finally, we identify key areas for future research, particularly in light of technological advancements, alternative listing mechanisms, and evolving regulatory landscapes.

2. Theoretical explanations of IPO underpricing

2.1. Information asymmetry theories

IPO underpricing is extensively explained through information asymmetry, where issuers, underwriters, and investors possess differing levels of knowledge. This asymmetry occurs through three primary channels: (1) issuers having superior insights into firm value, (2) underwriters possessing privileged market information, and (3) disparities in expertise between institutional and retail investors. Underpricing serves as a market equilibrium mechanism to address these inefficiencies, compensating less-informed participants and ensuring market participation.

Rock's winner's curse model posits that informed investors selectively participate in underpriced IPOs, leaving uninformed investors exposed to overvalued issues [1]. To sustain uninformed investor participation, issuers must underprice shares. Empirical validation by Beatty confirms that firms with higher valuation uncertainty, proxied by smaller size and younger age, experience greater underpricing [2].

Baron's principal-agent model highlights underwriters' superior market knowledge, suggesting they underprice IPOs to minimize marketing efforts and ensure full subscription [3]. While empirical evidence is mixed, the strategic use of underpricing remains well-documented, particularly through spinning, where underpriced shares are allocated to favored clients [4].

Underwriter reputation plays a dual role in mitigating or exacerbating underpricing. While reputable underwriters provide certification that reduces uncertainty [5], some studies suggest that top underwriters may intentionally underprice to benefit institutional clients in exchange for future business [4].

The book-building model further explains underpricing as a tool for price discovery [6]. By soliciting investor demand before pricing, underwriters incentivize information disclosure by offering underpriced shares, as confirmed by Hanley's partial adjustment phenomenon [7].

Overall, empirical evidence strongly supports information asymmetry as a primary driver of IPO underpricing. Higher uncertainty, weaker underwriter reputation, and opaque firm characteristics correlate with greater underpricing, while transparency, institutional participation, and strong certification mechanisms mitigate it. Despite alternative explanations, information asymmetry remains the dominant theoretical framework for understanding IPO underpricing.

2.2. Signaling theories

Signaling theories propose that IPO underpricing serves as a strategic tool for high-quality firms to differentiate themselves from lower-quality issuers. These models assume that insiders possess private information about their firm's true prospects and use underpricing to generate excess investor demand, enhance market reputation, and facilitate future capital raising.

Seminal studies argue that firms willingly forgo IPO proceeds in anticipation of long-term benefits, particularly in future seasoned equity offerings (SEOs) [8,9]. High-quality firms can afford this strategy, expecting stock price appreciation to offset initial underpricing, whereas lower-quality firms lack the sustainability to replicate this behavior. Empirical evidence supports this notion, with IPOs exhibiting higher underpricing often conducting earlier and larger follow-on issuances, and retaining greater insider ownership [9,10].

However, signaling models face empirical challenges. Ritter and question why underpricing, rather than alternative [11], less costly signals (e.g., issuing warrants, increased disclosure), would be the preferred mechanism. Additionally, the link between underpricing and long-term firm performance remains inconsistent. Survey evidence suggests that some executives accept underpricing to ensure a strong IPO debut [12], aligning with behavioral perspectives.

Despite these critiques, signaling theories contribute to underpricing research by emphasizing strategic firm behavior. While not universally applicable, they suggest that underpricing may, in some cases, serve as an investment in future market credibility rather than a pure market inefficiency.

2.3. Agency and ownership structure theories

Agency-based theories explain IPO underpricing as a consequence of conflicts of interest among managers, underwriters, and shareholders, often leading to inefficiencies that deviate from firm value maximization. Unlike information asymmetry and signaling models, these theories suggest that underpricing benefits certain stakeholders at the expense of others.

Brennan argues that managers may deliberately underprice to achieve dispersed ownership, reducing external monitoring and shareholder intervention [13]. This entrenchment strategy allows managers to maintain control at the cost of lower IPO proceeds. Empirical evidence supports this view, with highly underpriced IPOs exhibiting lower post-IPO ownership concentration.

Underpricing also facilitates wealth transfers to favored parties, such as venture capitalists and executives, through mechanisms like "spinning," where underwriters allocate underpriced shares to secure future business [14]. Additionally, the "issuer's changing objective" hypothesis suggests that executives tolerate underpricing when personal compensation is tied to short-term stock performance, as a strong first-day price increase inflates perceived wealth.

Corporate governance structures significantly influence underpricing. Firms with stronger governance, such as independent boards, experience lower underpricing, while weaker governance, including CEO duality, is associated with higher underpricing due to increased agency risks. Institutional factors, including litigation avoidance and price stabilization mechanisms [15], also contribute to underpricing.

Empirical research confirms that agency-related factors drive IPO pricing inefficiencies. Venture-backed firms tend to exhibit lower underpricing, as venture capitalists prioritize maximizing proceeds over managerial entrenchment. Ultimately, agency theories emphasize that not all underpricing is a necessary market equilibrium; some instances result from self-interested decision-making, underscoring the need for stronger governance and regulatory oversight.

2.4. Behavioral and market timing theories

Behavioral factors and market timing play a critical role in IPO underpricing, emphasizing the impact of investor sentiment, cognitive biases, and cyclical market conditions.

Investor sentiment theory suggests that speculative demand, particularly during IPO booms, leads to excessive underpricing [16]. During periods of heightened optimism, such as the late 1990s internet bubble, investors irrationally overvalue new issues, prompting issuers and underwriters to set offer prices below fundamental value to ensure oversubscription and momentum-driven gains [17]. Information cascades further amplify underpricing [18], as strong early demand signals reinforce investor herding behavior, exacerbating price surges.

From the issuer's perspective, prospect theory explains underpricing as a psychological response [4], where substantial first-day gains are perceived as a success, mitigating regret over capital left on the table. Market timing also influences IPO pricing, as issuers tend to go public during favorable market conditions, aligning offerings with investor optimism [19].

Behavioral and timing-based explanations complement information asymmetry, signaling, and agency theories by accounting for irrational demand, speculative excess, and cyclical variations in underpricing. Together, these perspectives provide a comprehensive framework for understanding IPO pricing dynamics across market conditions.

3. Empirical determinants of IPO underpricing

A vast empirical literature tests the above theories by examining which factors are associated with higher or lower IPO underpricing. While each IPO is unique, studies across countries and periods have identified several robust determinants of the degree of underpricing. We focus on the major determinants that consistently emerge in the literature, connecting them back to the theoretical explanations. Importantly, many of these factors serve as proxies for the informational, signaling, or agency-related constructs discussed earlier.

3.1. Firm characteristics

The attributes of the issuing company itself often predict underpricing. A well-established finding is that smaller, younger firms tend to have higher underpricing. Smaller or early-stage companies are harder to value (greater uncertainty), which aligns with information asymmetry theory – these firms face more ex-ante uncertainty, so they must underprice more to attract investors. Conversely, larger, older firms with longer track records and more publicly available information usually experience less underpricing.

For example, an IPO by a decades-old profitable company might only rise a few percent on day one, whereas a young tech startup might soar by double digits. Company size (e.g., market capitalization or sales) has a documented negative relationship with underpricing in many studies.

Additionally, firm age and financial health (profitability, lower debt) often correlate with lower underpricing, consistent with these firms being easier for investors to evaluate. Another firm-specific factor is industry type: high-tech or emerging sector IPOs historically show greater underpricing on average than, say, utility or manufacturing IPOs, which again ties to differing uncertainty and investor enthusiasm levels.

3.2. Offering characteristics

Various features of the IPO deal itself influence underpricing. The offer size (number of shares and price) can matter – interestingly, larger offerings have sometimes been associated with higher percentage underpricing.

This might seem counterintuitive since large firms underprice less, but offer size is not identical to firm size; a small firm could float a large fraction of itself, or a large firm could float a small fraction. A large offering might require a deeper discount to place all the shares, especially if the market's absorptive capacity is a concern. Fraction of shares sold float ties into signaling and agency stories: if insiders retain a large portion, underpricing might be higher as part of the signal or due to wealth transfer effects, whereas if they are selling a lot, they might price more aggressively. Use of proceeds can also signal something – firms raising money for growth may face different dynamics than those where insiders are mostly cashing out. The offer price range and revision during the book-building process have a notable effect: IPOs whose final offer price is revised upward from the initial filing range tend to have especially strong first-day performance partial adjustment phenomenon. This is an empirical proxy for information extraction – a large upward revision implies good news during the roadshow, yet typically the revision doesn't fully incorporate all the good news, leaving a gap that appears as underpricing.

On the other hand, IPOs priced at the bottom of their range or cut in price often have little to no first-day pop and sometimes even trade down. Thus, price revision is one of the strongest correlates of underpricing in the U.S.

data [7]. Another offering feature is whether the IPO is oversubscribed, demand exceeding supply by multiple times – high oversubscription is associated with high underpricing, but this is, of course, contemporaneous since both are outcomes of high demand. Some markets use different pricing mechanisms (auction vs. book-building vs. fixed-price); evidence suggests that book-building leads to less underpricing than fixed-price in some cases, because of better pricing efficiency, though even auctions which, in theory, should price at market-clearing levels, have seen underpricing due to winner's curse dynamics.

3.3. Underwriter and intermediary reputation

As discussed in theory, the reputation of the lead investment bank (underwriter) is a key determinant. Empirical studies often use rankings (like Carter-Manaster ranks) to measure underwriter prestige. The general finding is that higher underwriter reputation is associated with lower underpricing on average, supporting the certification role of reputable banks.

Top-tier underwriters presumably price the issue closer to fair value and attract more informed investors, reducing the need for a big discount. However, this relationship can be complicated in certain periods. The systematic review by Oliveira *et al.* interestingly notes underwriter reputation as having a positive relationship with underpricing on average [20], which might reflect those specific sample papers or contexts where prestigious underwriters were involved in highly sought IPOs (causality can go either way: top underwriters often win mandates for large, hyped IPOs which could have high underpricing due to hype). Nonetheless, controlling for other factors, many studies do find a mitigating effect of underwriter reputation on underpricing. Similarly, the presence of a venture capitalist (VC) backing the firm before IPO tends to reduce underpricing.

Megginson famously showed that VC-backed IPOs had lower underpricing, attributing it to the certification by VC investors and the monitoring they provide [21]. VCs also have an incentive not to underprice too much because they are selling some shares, and their fund's returns depend on proceeds. Other intermediaries include auditors and equity research analysts: a Big-4 auditor is another credibility signal that can lower perceived risk (and thus underpricing), and having prestigious analysts likely to cover the stock can affect how investors price it initially.

3.4. Market and timing factors

External market conditions are crucial determinants. A strong bull market or recent streak of IPO success creates an environment where underpricing tends to be higher. For example, in hot market periods, when the Nasdaq is surging and recent IPOs have done very well, investors are eager and less price-sensitive, so underpricing can escalate. Empirical proxies include the market return in the weeks or months before the IPO, or the level of IPO activity (number of IPOs) in the current quarter — these often show a positive correlation with underpricing levels in that same period.

As Lowry documented, high average underpricing leads to increased IPO volume and, causally, many interpret that as issuers timing offerings when they see others leaving a lot of money on the table [17]. Conversely, a weak market or following a market crash sees lower underpricing or even occasional overpricing. Industry cycles matter too: if an industry is "hot" (investors favor companies in that sector), IPOs in that industry will likely be underpriced more. The dot-com bubble is a perfect example, where tech IPOs between 1999–2000 had astonishing first-day gains, whereas in other sectors during that time, the underpricing was not as extreme. Another timing factor is issue timing within a year – sometimes IPOs bunched in certain months have different dynamics (though that can be coincidental with other conditions).

4. Conclusion

IPO underpricing persists as a multifaceted phenomenon driven by information asymmetry, signaling strategies, agency conflicts, and behavioral factors. No single theory fully explains the observed patterns, as different mechanisms interact to shape IPO pricing dynamics.

Empirical evidence consistently supports information asymmetry as a primary driver, with underpricing serving as compensation for uncertainty. Signaling theories suggest that firms may deliberately underprice to establish credibility, while agency perspectives highlight managerial incentives and underwriter-client relationships. Behavioral factors further contribute to fluctuations in underpricing, particularly in speculative market conditions.

While underpricing represents a cost to issuers, it also facilitates market participation and post-IPO liquidity. Firms seeking to minimize underpricing can improve transparency, engage reputable intermediaries, and strategically time their offerings. Future research should explore how technological advancements, regulatory changes, and alternative listing methods influence IPO pricing efficiency.

Ultimately, IPO underpricing reflects the complex interplay of market forces, institutional structures, and investor behavior, ensuring its continued relevance in financial research and practice.

Disclosure statement

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