



The Analysis of Factors Affecting IPO Premium

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Abstract. The study of initial public offering (IPO) pricing and premium is of significant importance, as improper pricing may lead to insufficient financing for companies or the formation of market bubbles, adversely affecting economic stability. This paper examines the impact of internal company factors, such as financial performance and corporate governance, as well as external market environment factors, including investor sentiment and macroeconomic conditions, on IPO pricing. Additionally, it explores the role of information asymmetry theory in explaining IPO premiums, highlighting how unequal information distribution between issuers and investors can lead to mispricing. The study provides a detailed analysis of the factors influencing IPO premiums and compares two common pricing methods: the discounted cash flow (DCF) model and the fixed price method, discussing their respective advantages and limitations. Furthermore, a multiple linear regression model is constructed using standardized data to assess the impact of eight key independent variables, such as issue price, first-day trading volume, and market volatility, on the first-day premium rate. The findings suggest that regulatory authorities should mandate the disclosure of institutional quotation distributions and enhance oversight to mitigate information asymmetry. Meanwhile, companies should adopt rational valuation practices based on industry benchmarks and improve transparency by disclosing project progress to foster market trust and ensure a fair pricing process.

Keywords: IPO pricing, IPO premium, information asymmetry, DCF valuation, fixed price method.

1 Introduction

There are many companies worldwide that aim to enhance their brand influence through going public, and IPO is an indispensable part of the process for companies to go public. During this process, there is a certain degree of premium phenomenon in most IPOs globally [1]. Moreover, the premium phenomenon in IPOs varies among different countries. For instance, the United States adopts a registration-based system, while Germany and Japan have a mixed system.

The pricing and premium of IPOs significantly affect the company's listing and stock issuance. Studying the pricing and premium of IPOs can better understand the operation of the capital market and control its development. Different pricing scenarios will lead to different situations. If the pricing is too low, it may result in insufficient

financing for the company and impact its subsequent development. If there is a premium phenomenon, it may lead to market bubbles after the IPO, damaging the interests of investors and the company's reputation [2]. Therefore, the pricing and premium of IPOs have great research significance.

Many studies only focused on the market value of IPO companies after their listing, without considering which factors would affect the IPO and the future development of the company. This paper mainly studies the pricing mechanism of IPOs and the influencing factors of IPO premiums, in order to discover the flaws and deficiencies in the policy rules of the market and put forward some opinions and suggestions. Firstly, this paper will introduce the core theory and pricing methods of IPO premium, then study the factors of IPO premiums, build a model for analysis, and finally provide some improvement suggestions and summaries.

2 Literature Review

2.1 The Core Theory of IPO Pricing

In the process of IPO pricing, internal factors of the company and market environment factors have a significant influence. Internal factors of the company can be divided into the following two points. The first point is financial performance and growth potential. Capital valuation can directly show the value and debt level of the company [3]. It can also analyze the company's profitability and revenue growth rate, thereby predicting the company's future prospects and potential risks, and better determine the IPO pricing of the company [4]. The second point is the company's position. The company's position represents the influence and potential of the company. Industry leaders or large enterprises often enjoy higher stock prices, and the IPO pricing will also be higher. Because they have higher competitive advantages and competitiveness, they can better utilize their advantages and resources in the future market development [5].

Market environment factors can be divided into the following two points. The first point is the current macroeconomic situation. Under different economic conditions, the sentiment of the capital market is also different. For example, during the economic upswing period, investors often have higher enthusiasm, and the IPO pricing will also be more aggressive [6]. The second point is industry popularity. Hot industries and those supported by the government usually have higher valuations [5].

2.2 The Core Theory of IPO Premium

During the IPO process, there is an information gap between the issuer's investors and the underwriters, which leads to deviations in IPO pricing. High-quality enterprises may lower the issue price to demonstrate their strong potential and development prospects, thereby attracting investors to invest [7]. Secondly, market rules and regulatory environments directly affect IPO premiums. For example, the early equity split in the Chinese stock market led to a significant disparity in pricing between non-tradable shares and tradable shares, with the low cost of non-tradable shares and the high pricing

of tradable shares creating a premium. IPO premiums are also influenced by investor psychology and market sentiment. In a market dominated by individual investors, speculative psychology and herd behavior can lead to a high first-day turnover rate, resulting in a significant premium. Additionally, the participation of venture capital also has an impact on IPO premiums [8]. The addition of VC can improve company management and innovation investment, reducing information asymmetry. The participation of high-reputation VC will generate a reputation effect. The VC provides a reputation endorsement to convey the high quality of the enterprise, thereby reducing investors' concerns and lowering the first-day premium.

2.3 Comparison of Pricing Methods

Discounted Cash Flow. The Discounted Cash Flow (DCF) valuation method is suitable for mature companies. Typically, mature companies have relatively stable cash flows, high predictability, and rich financial information, making them suitable for valuation using DCF. Additionally, asset-heavy industries, with their well-defined cost expenditures and capital depreciation figures, are also well-suited for DCF valuation.

DCF offers several advantages. Firstly, its core logic—discounting future cash flows from different time periods back to their present value using an appropriate discount rate—provides a unique advantage over traditional valuation methods like the Price-to-Earnings (P/E) ratio. Considering the time value of money allows for a better assessment of the investment appreciation potential of capital. For example, a company generating 1 million Chinese Yuan (CNY) in cash flow annually for five years sums to 5 million CNY, but its actual present value might only be equivalent to 4 million CNY today, a significant difference. In such cases, DCF's multi-period discounting can reduce this time decay and avoid overestimating distant future earnings [9].

The second advantage is DCF's strong future orientation, focusing on the company's long-term cash generation capacity. Its valuation logic is directly based on projections of future cash flows, rather than historical performance or existing assets. This enables a better assessment of a company's growth potential and future profitability [10].

However, DCF also has some drawbacks. Firstly, DCF calculations are highly dependent on the accuracy of forecasts. On one hand, they rely on predictions of future cash flows, but the future is inherently uncertain and can be significantly impacted by macroeconomic factors, industry competition [9]. Simultaneously, DCF struggles to capture the impact of short-term events or volatility; sudden events affecting stock prices might not be factored in. This can amplify errors, making precise predictions difficult and leading to potentially significant deviations in the calculated value. On the other hand, DCF depends heavily on the analyst's interpretation of data. Different analysts may have varying assessments and assumptions about growth rates, introducing strong subjectivity. This can lead to vastly different valuations, especially in industries or markets lacking sufficient historical data. Secondly, DCF calculations do not account for irrational behavior in the market. For instance, flaws in the efficient market hypothesis mean DCF inherently assumes perfectly efficient markets and rational investors, which is not the case in reality. Investors are influenced by information asymmetry,

liquidity constraints, and other factors, causing actual prices to deviate from intrinsic value [9].

Fixed Price Method. Typically, the issuer and the underwriter directly set a fixed offering price. This price is generally based on the company's existing financials, industry valuations, and market sentiment. Investors can then subscribe at this fixed price. The Fixed Price method is straightforward and transparent to operate, making it relatively suitable for retail investor-dominated markets. However, the pricing may deviate from the market's true demand because it lacks a market feedback mechanism and is susceptible to fluctuations in market sentiment [11].

3 Comparison Factor Affecting IPO Premiums

3.1 Market Environment Factors

The market encompasses various types, and hot markets significantly influence IPO premiums, primarily manifested through investor sentiment, market liquidity, and institutional mechanisms. When investor sentiment is exuberant, investors typically hold high expectations for new market entrants, driving up issuance pricing and leading to irrational premiums. Secondly, differences in liquidity and investor composition across markets also significantly impact IPO premiums. For instance, the A-share market features a larger proportion of retail investors and higher liquidity, making it more prone to IPO premiums. In contrast, the Hong Kong market, dominated by institutional investors, exhibits relatively more rational pricing. Furthermore, certain stock types utilize the book-building mechanism, where investors play a leading role in price discovery. In hot markets, investors' optimistic expectations drive up pricing, thereby creating premiums.

Concurrently, the formation of industry bubbles within market environment factors also affects the level of IPO premiums. The impact of industry bubbles on IPO premiums essentially reflects market irrationality and short-term economic fluctuations. When an industry becomes a capital focus due to surging consumer demand, technological breakthroughs, or policy incentives (e.g., real estate, tech stocks, new energy vehicles), investors often amplify their prospects and potential assessments. This leads investors to accept higher stock prices, thereby promoting IPO premiums.

3.2 Company Factors

Companies possess varying numbers of patents, which can partially reflect company quality and R&D potential, enabling investors to price IPOs more comprehensively. Patents represent an intangible asset. Companies with more patents may enhance their asset value due to possessing unique competitive advantages. Companies whose primary revenue sources and operations rely heavily on patents (e.g., in high-tech fields like semiconductors) may also command higher issue prices. Nevertheless, investors

may still invest or pay premium prices specifically targeting a company's unique patents, leading to IPO premiums.

A company's profitability and risk profile reflect its standing and future directions. Factors investors consider during IPO pricing. Companies with high profitability and low risk typically possess stable cash flows and returns on capital, demonstrating stronger competitiveness and resilience against industry competition. This makes more investors willing to purchase the shares at higher prices.

4 Multiple Linear Regression Analysis Model

The multiple linear regression model is a statistical analysis method whose core purpose is to examine how a dependent variable is linearly influenced by multiple independent variables. Therefore, based on the above analysis, this paper selects several factors potentially affecting the initial day premium rate and designates them as the independent variables for subsequent research (as shown in Table 1).

Table 1. Introduction of research variables.

Variable name	Symbol	Explanation
Actual total issuance volume of the product	x_1	The actual quantity of a certain asset that is in circulation in the market.
Issue price	x_2	The price at which the company sells its stocks to investors when conducting its initial public offering.
Closing price on the first day of listing	x_3	The final trading price of the stock at the end of its first day of listing.
Day-of-listing trading volume	x_4	On the first trading day of a stock's listing, the ratio of the stock's trading volume to its outstanding shares reflects the trading activity of the stock on its first day of listing.
First-day price-earnings ratio	x_5	The ratio of the stock's market price to its earnings per share on the first day of listing is an important indicator for measuring the relative valuation level of the stock.
First-day price to book ratio	x_6	The ratio of the stock's market price on its first trading day to its per-share net asset value can to some extent reflect the market sentiment.
The market index on that day	x_7	Reflect the overall market trend
The premium rate on the first day of listing	y	$(\text{Closing price} - \text{Issue price}) / \text{Issue price}$

Next, the data obtained from building the model using SPSS are analyzed. Figure 1 can show the distribution of the standardized residuals in the regression model, and test whether the residuals meet the normality assumption. From the figure below, it can be

seen that the overall trend is in a unimodal shape, with the center being relatively concentrated. This indicates that the standardized residuals conform to the normal distribution assumption, and the model is relatively reasonable, with high credibility in the statistical analysis.



Fig. 1. Residual histogram of the model.

From the scatter plot in Figure 2, it can be seen that the residuals are evenly distributed throughout the graph, without showing any curve trend or fan-shaped heteroscedasticity characteristics. This indicates that the residuals are random and independent. From this, it can also be concluded that the regression model is relatively stable, and the residual distribution meets the assumptions, which can demonstrate the relationship between the return rate on the first day of listing and the predictor variables.

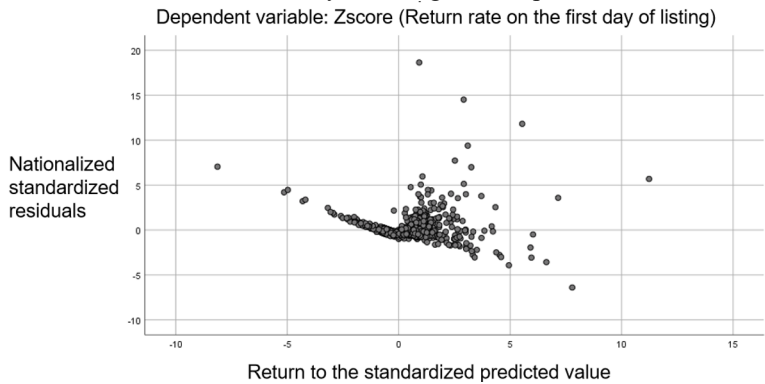


Fig. 2. Scatter plot.

Table 2 below shows that the R-squared value is 0.507, which indicates the proportion of the dependent variable's variance explainable by the independent variables [12]. This means that approximately 50.7% of the variation in the first-day listing return rate

can be explained by the independent variables in the model, suggesting that the gap between the two values is minimal and that the addition of independent variables in the model has not had an adverse impact on the data.

Table 2. R-squared and Durbin-Watson value of the model.

Model	R Square	Adjusted R Square	Standard Error	Durbin-Watson
11	0.712	0.506	0.703	1.962

From the data in Table 3, it can be seen that all Variance Inflation Factor (VIF) values are less than 5, indicating that the variables are mutually independent and the model is relatively reasonable [12].

Table 3. The results of multiple linear regression.

Variables	Coefficient	Standard Error	t	Significance	VIF
Constant	0.000	0.016	0.000	1.000	
x_1	0.022	0.017	1.332	0.183	1.065
x_2	-0.990	0.027	-36.085	0.000	2.938
x_3	1.012	0.030	33.507	0.000	3.566
x_4	0.195	0.018	10.607	0.000	1.318
x_5	0.015	0.016	0.931	0.352	1.014
x_6	0.034	0.017	2.029	0.043	1.118
x_7	-0.025	0.016	-1.516	0.130	1.037

The p-values for the offering price, the closing price on the first trading day, and the turnover rate on the first trading day (based on total share capital) are 0.000, while the p-value for the price-to-book ratio on the first trading day is 0.043. All of these are less than 0.05, suggesting a highly significant relationship between these independent variables and the first-day trading return.

The coefficient for the offering price is -0.099, showing a negative correlation with the first-day trading return. This implies that a higher offering price leads to a lower first-day trading return. This phenomenon is likely attributed to excessively high IPO pricing compressing the upward price potential on the first trading day, causing the stock price to decline below market expectations.

The coefficient for the closing price on the first trading day is 1.012, which is greater than 1, indicating a strong positive correlation with the first-day trading return. This demonstrates that fluctuations in the closing price on the first trading day exert a significant impact on the first-day trading return.

The coefficient for the turnover rate on the first trading day is 0.195, reflecting a positive correlation with the first-day trading return. This means that as the turnover rate on the first trading day increases, the first-day trading return also rises. A high turnover rate typically signals strong market enthusiasm and trading activity; such robust demand can drive the stock price to continue rising during the first-day trading, thereby boosting the first-day return.

The coefficient for the price-to-book ratio on the first trading day is 0.043, indicating a positive correlation with the first-day trading return. Since 0.043 is approximately 0, it suggests that the price-to-book ratio on the first trading day has a weak influence on the dependent variable.

However, the p-values for the actual total issuance (0.183), the price-to-earnings ratio on the first trading day (0.352), and the daily market index (0.130) all exceed 0.05, indicating that their relationships with the first-day trading return are statistically insignificant and can be excluded from the model. It is now necessary to declare any competing interests or to specifically state that the authors have no competing interests.

5 Recommendations

To address unreasonable IPO premiums, the government can strengthen information disclosure regulations and scrutiny over pricing rationality. Underwriters should be required to fully disclose institutional quotation distributions and provide specialized explanations regarding the alignment between risk factors and valuation, thereby reducing information asymmetry. Additionally, for companies that pricing significantly deviates from the industry average price-to-earnings ratio, mandatory disclosure of detailed valuation parameters and data should be enforced. By enhancing transparency in the pricing process and ensuring thorough justification for pricing decisions, the cost and difficulty of excessive pricing for issuers and underwriters can be increased. This will enable market participants to more clearly assess the reasonableness of pricing while providing regulators with grounds for intervention and oversight.

The government should also intensify supervision and accountability for underwriters and price inquiry institutions. By clarifying the responsibility for ensuring pricing rationality, they should be required to independently and rigorously evaluate pricing reasonableness in their reports, rather than merely executing the issuer's preferences. Severe penalties should be imposed on institutions that fail to exercise due diligence, resulting in severe unreasonable IPO premiums that ultimately harm investor interests.

Companies themselves should adopt rational valuations before determining IPO pricing. Firms must conduct rigorous audits of historical performance, focusing on sustainable profitability and cash flow while avoiding excessive embellishment. During valuation assessments, they should benchmark against listed companies in the same industry and at similar stages, comparing metrics such as industry-average P/E and price-to-sales ratios to prevent unrealistic IPO pricing.

Furthermore, regular disclosure of project progress and performance is critical. This practice provides investors with transparent and detailed corporate data, enabling more accurate and reasonable company valuations. By reducing information asymmetry, it helps build trust with the market.

6 Conclusion

This study identifies issue price, first-day closing price, and turnover rate as key drivers of IPO first-day premiums. A one-standard-deviation rise in issue price reduces the

premium by 0.99 units. IPO premiums stem from investor structure disparities, industry bubbles, and opaque underwriter pricing. For the policy implications, regulators should enforce pricing transparency, mandate detailed prospectus disclosures, and penalize underwriter misconduct. From the corporate actions, firms must benchmark valuations against peers, avoid irrational pricing, and enhance project disclosure to justify IPO pricing.

The limitation of this study is that the industry scope and time span of the sample companies are not specified. If the data is concentrated during policy reform periods (e.g., 2019–2021), the conclusions may be skewed by policy impacts, leading to unreasonable results. Additionally, the analysis overly focuses on first-day stock performance, neglecting long-term trends. For instance, some stocks may surge on the first day but fall below the issue price months later, which could reduce the accuracy and rigor of the model.

Future research could deepen the temporal and market dimensions by establishing a dynamic analytical framework across cycles and markets. Current conclusions are limited by short-term data and single market samples. Future studies should track IPO performance over 1–3 years post-listing to reveal the dynamic relationship between first-day premium rates and long-term risks like price drops and valuation changes. Comparisons could also be made across markets with different regulatory systems (e.g., approval-based systems like China's A-shares, registration-based systems like the U.S. stock market, and hybrid systems like those in Japan and Germany) to examine how the same variables differentially affect premium rates. Such comparisons could uncover how regulatory systems influence IPO premiums.

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