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# What comprises IPO initial returns: Evidence from the Chinese market<sup>☆</sup>

Yan Gao<sup>\*</sup>

China Europe International Business School, 699 Hongfeng Road, Pudong, Shanghai, 201206, PR China

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### ABSTRACT

We studied the IPO price and long-term performance in China after the adoption of the book-building pricing mechanism. Using comparable firm value, we separated the IPO initial returns into pre-market deliberate underpricing and aftermarket overpricing. This separation enables us to clearly test different theories regarding high IPO initial returns. We find little evidence supporting the classic information theory on IPO underpricing but strong evidence supporting the behavioral arguments regarding IPO overpricing. Even though the results are specific to the Chinese market, we find some general results on what composes and drives IPO initial returns that have been lacking in the IPO literature.

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## 1. Introduction

China's stock market experienced an explosive growth in 2006 and 2007 and, as a result, became the fourth-largest capital market in the world. Together with the market bull-run came intensified IPO activities with a record amount of money raised and number of firms listed. More importantly, this was the time period in which the book-building method was adopted in setting IPO prices, which is the most popular pricing mechanism used worldwide. Previous studies on China's IPO market largely neglected the fact that Chinese IPO offer price is tightly controlled, and sometimes actually fixed, by the regulator.

There is a large literature on IPOs, particularly on the US stock markets, regarding what determines IPO initial returns and the long-term performance. Several rational theories, which are mostly information asymmetry-based, have been proposed in the literature to explain why firms leave money on the table by

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<sup>\*</sup> Tel.: +86 21 2890 5604; fax: +86 21 2890 5620.

E-mail address: [gyan@ceibs.edu](mailto:gyan@ceibs.edu).

setting the offer price low. There is a general agreement that firms and underwriters encourage participation and price discovery by offering IPO shares at a discount to fair value. Without that inducement, an investor may wait to buy shares in the aftermarket and if all investors wait, the IPO would fail. For example, according to [Rock \(1986\)](#), underpricing is necessary to induce uninformed investors to participate in IPO offerings when faced with adverse-selection by informed investors. [Benveniste and Spindt \(1989\)](#) and [Benveniste and Wilhelm \(1990\)](#) focus on the critical role that informed investors play in setting the offer price. Underpricing enables the issuing manager to reward sophisticated investors who share their information through a *lemons market*<sup>1</sup>.

The empirical challenge to rational theories of underpricing comes from the following observations. First, there is some evidence supporting the view that the closing price on the first day may not reflect fair value. A long-term investor who buys shares of a firm right after it goes public may realize abnormal negative risk-adjusted returns. [Ritter \(1991\)](#) and [Loughran and Ritter \(1995\)](#) provide empirical support for this observation. However, [Brav et al., \(2000\)](#) argue that the long-run underperformance of IPO may be due to insufficient correction for risk. They found that IPO firms have long-run returns that are similar to non-issuing firms matched by firm size and book-to-market ratios. [Loughran and Ritter \(2000\)](#) nevertheless point out that size and book-to-market matching schemes may miss significant market anomalies. Second, using a sample of more than 2000 IPOs during 1980–1997, [Purnanandam and Swaminathan \(2004\)](#) find that on average the offer price substantially exceeds the corresponding intrinsic value computed using multiples of firms in the peer group of the issuing firm. Furthermore, overvalued IPOs have large first-day returns but low long-run risk-adjusted returns. This suggests that investor sentiment and irrational over-optimism may drive the IPO market price as well as the offer price.

There is still no consensus on whether IPO initial return represents rational underpricing or irrational sentiment in the US market or both. The ambiguity puts empirical studies in an awkward situation. When a factor is found to be associated with IPO initial returns, we are not sure which theory should be used to identify this factor. For example, IPO firm size has a negative relationship with IPO initial return. The rational theory suggests that size is a proxy for information asymmetry. Small firms suffer more from asymmetric information; therefore, investors demand more underpricing. Behavioral finance theory may argue that investor over-optimism bids up small firm prices, which are much easier to manipulate.

China's market has experienced the largest IPO initial return in the world, with an average easily exceeding 100% for most years. This magnitude and variation may provide the opportunity to separate the deliberately underpriced and optimistically overpriced components in an IPO initial return. If the separation is possible, it will lead to a much more conclusive empirical analysis. In order to achieve this separation, we need to estimate the fair value (or intrinsic value) for an IPO issue. Following common practice in the literature, we use comparable firm P/E ratio to determine the fair value of the IPO. We find that the IPO offer price is less than its intrinsic value, which in turn is less than the IPO first-day market price. Therefore, China's IPO initial returns seem to exhibit both deliberate underpricing and irrational overpricing. We conduct further regressions on both the underpricing and overpricing components to determine which factors drive them. Because we have a clear separation, we can explain underpricing based on rational theory and overpricing based on behavioral theory, therefore avoiding the ambiguity problem often encountered in IPO research. We find little empirical support for rational theory but strong support for behavioral theory. Furthermore, only the overpricing component determines IPO underperformance in the long run.

Another contribution of our work is that we clarify China's IPO phenomena in comparison to other markets discussed in the literature. There is a substantial amount of research studying IPO underpricing in China that relates it to the general IPO literature, such as [Mok and Hui \(1998\)](#), [Su and Fleisher \(1999\)](#), and [Chang et al. \(2008\)](#). Much of the China IPO research uses data before 2006, when the dominant IPO pricing scheme was not market-oriented. Therefore, the empirical results from these studies are not directly comparable to the general IPO literature in which the offer price is determined by the market, mostly through book-building processes. When the IPO offer price is arbitrarily set by the regulator, it is hard to derive any economically meaningful results. We therefore limit our IPO sample to the period during which book-building is adopted as the only pricing mechanism in China.

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<sup>1</sup> The literature in this area is rather large, and we refer the interested reader to a survey by [Ritter and Welch \(2002\)](#).

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