# Analyst Coverage in the Premarket of IPOs*

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## Abstract

There are on average 9.87 brokers/analysts covering an IPO in the premarket in China. Using a sample of Chinese IPOs from 2006 to 2012, we find that greater premarket analyst coverage and more optimistic earnings forecasts have a statistically significant and economically important positive impact on offer price revisions. More premarket analyst research also has a significant positive impact on the first-day returns. Interestingly, unlike the pattern in other countries, offer price revisions are negatively related to initial returns. Public disclosure of valuation information from lead underwriters, however, has little incremental impact on IPO pricing.



Keywords: IPOs, Analysts, Premarket Research, Offer Price Revision, Underpricing, China

*JEL* classification: G14, G15, G18, G24

The average first-day return of initial public offerings (IPOs) in the U.S. from 1980 to 2012, measured as the return from the offer price to the market closing price on the first trading day, is 17.9% (Ritter (2013)). The average first-day return of IPOs from 2006 to 2012 in China is 60.3%. The persistent and large first-day returns clearly indicate that the pricing of IPOs is challenging. Information production is thus critical in the premarket for IPOs, and hype is also widespread. Analysts are known to play an important role in producing and disseminating information in the securities markets. Yet for IPOs, an important question remains unanswered: Can analyst research in the premarket help improve the pricing efficiencies of IPOs? While it is difficult to answer such questions for the U.S. market since few analysts publish their research before a firm's IPO, there exists active research coverage in the premarket for IPOs in China. We shed light on the role of analysts in the premarket using a sample of 1,105 Chinese IPOs from 2006 to 2012.

Analysts can produce information and hence improve risk sharing and pricing efficiency for IPOs. Since IPOs are typically less well known, this can help the market function more efficiently. On the other hand, exactly because IPOs are less well known, analyst research can be used to hype up a stock and mislead the public about the valuation of an IPO. Quiet period restrictions exist for the U.S. market that prohibit issuing firms and their underwriters from publishing opinions that are not in the written prospectus concerning valuation and from making forward-looking statements regarding earnings, revenues, and similar items. The quiet period for a U.S. IPO usually ranges from the time a firm is "in registration" until 40 calendar days after the IPO.[1] Whether the quiet period restrictions provide the proper balance between information production and hype remains controversial. Indeed, the recent

[1] For more details about the quiet period restrictions in the U.S., see NASD Rule 2711 and NYSE Rule 272. Note that the 40-day quiet period does not apply to "Emerging Growth Company" IPOs after April 2012, when the JOBS Act was signed into law, abolishing quiet period restrictions for these IPOs. More information can be found at the Financial Industry Regulatory Authority, Inc. ("FINRA") website (see, e.g., http://www.finra.org/Industry/Regulation/RuleFilings/2012/P180831 and the links therein). The regulatory restrictions also apply to oral statements to the general public. Oral statements made to institutional investors are permissible. Note that the quiet period restrictions in the U.S. do not prevent unaffiliated brokers, investment banks, and other research houses from publishing their research on an IPO. However, since institutional investors that are the clients of the lead underwriters of an IPO have the most access to the allocations of the IPO shares, unaffiliated analysts have little incentive to do research on IPOs because research is generally supported by investment banking and trading activities within a brokerage house in the U.S. See, e.g., Cliff and Denis (2003), Irvine (2001), Jackson (2005), Niehaus and Zhang (2010), and Michaely and Womack (1999) for descriptions on how research is paid and the resulted biases in research. On the U.S. market, Renaissance Capital is probably the only research institution that routinely sells research reports on most IPOs. Renaissance Capital research on IPOs is also used for investment decisions for its IPO fund that attracts aftermarket retail investors in IPOs.

Facebook IPO of 2012 rekindled a debate about this regulation. During the days leading to the offering of Facebook shares, analysts at Facebook's underwriters, including Morgan Stanley, Goldman Sachs, and JPMorgan, cut revenue forecasts. They did not reveal this to the bullish public in compliance with the quiet period restriction.[2] After the IPO, Facebook experienced price declines and individual investors lost a large amount of money, prior to the stock increasing to above its offer price. As questioned by U.S. Congressman Darrell Issa, the quiet period restrictions could "provide institutional investors with an informational advantage over ordinary investors" and "inhibit price discovery in the IPO process".[3] As a response to the inquiries from the U.S. Congress, as well as a part of the rulemaking for implementing the Jumpstart Our Business Startups Act (JOBS Act), the U.S. Securities and Exchange Commission (SEC) is (again) evaluating the rules governing communications during IPOs.[4] How to encourage and regulate premarket IPO research is of importance for the U.S. market.

Both institutional and retail investors have access to IPOs in China. Research analysts in China, like their U.S. colleagues, typically work for investment banks and brokerage houses. Since all retail and institutional investors, not just those clients of the lead underwriters, have significant access to IPO allocations, premarket research coverage is very active for Chinese IPOs. For the 1,105 IPOs in our sample, the average number of brokers/analysts covering a stock before its first trading day is 9.87, and it ranges from zero to 28 brokers.

The active premarket research coverage on the Chinese market provides a unique opportunity for us to shed light on the concern of Congressman Issa and many others and to gain insights into the role of premarket information production for arguably one of the most opaque security types – IPOs. More specifically, it is interesting for investors and regulators, both in China and abroad, including the U.S., to know the answers to the following questions: First, how will premarket research coverage affect the pricing of IPOs? Second, are pre-IPO research reports mostly hype? Or do research analysts produce

[2] See Poornima Gupta and Alexei Oreskovic, The numbers on the Facebook earnings revisions, Reuters (May 22, 2012). Note that many institutional clients were informed of the updated forecast via the phone in private, and this is legal.
[3] See page 17 of the SEC former Chairman Mary Schapiro's letter to Congressman Darrell Issa on August 23, 2012.
[4] See, e.g., the SEC former Chairman Mary Schapiro's letter to Congressman Darrell Issa on April 6, 2011 (http://www.sec.gov/news/press/schapiro-issa-letter-040611.pdf).

useful information? Third, what are the implications from the answers for the first two questions for relaxing the quiet period restrictions in the U.S. and other markets when relevant?

We acquire detailed information of analyst research for the 1,105 Chinese IPOs. There are three key dates for Chinese IPOs: the file date, the offer date, and the listing date. The three dates refer to when an IPO is filed with the China Securities Regulatory Commission (CSRC, the Chinese counterpart of the U.S. SEC), when the offer price and allocation are determined for the IPO, and when the stock for the IPO starts trading, respectively. Unlike IPOs in the U.S., for which there is only one evening between offering and listing/trading, there are typically a few days between the offering date and the listing date for Chinese IPOs. In order to differentiate the effects of analyst research on offer price and initial returns, we categorize analyst reports into the pre- and post-offer date reports. It is likely that only the reports issued before the offer date affect the offer price, and the reports issued before the listing date (inclusive) can have an effect on initial returns. Accordingly, we construct measures of pre- and post-offer date analyst coverage and optimism, where coverage is measured using the number of brokers providing research, and optimism is computed as the industry-adjusted P/E ratio based on earnings forecasts.[5]

We first examine how analyst coverage and optimism affect offer price revisions. The offer price revision, also referred to as the price adjustment, is defined as the percentage change from the expected offer price to the final offer price (Hanley (1993)). After controlling for firm and issue characteristics, we find that both pre-offer date analyst coverage and optimism have statistically significant positive impacts on offer price revisions. Our estimations indicate that an increase of 3.68 brokers (one standard deviation) covering a stock prior to the offer date will result in a 4.7% to 13.7% increase in the offer price revision. For the pre-offer date optimism, a one-standard-deviation increase (0.77) in the earnings per share (EPS) based optimism measure leads to a 32% higher offer price revision. All these estimates are statistically significant at the one percent level. Economically, a 4.7% increase in the offer price represents an increase of Chinese ¥46.61 million (U.S. $7.42 million based on the exchange rate ¥6.2855/$ at the end of

[5] Unlike the U.S., for our sample period, the CSRC requires that IPO candidates have positive pre-IPO earnings, allowing our use of P/E ratios.

2012) in offer proceeds for an average IPO in our sample. These results suggest that, both statistically and economically, analysts have a significant impact on offer price revisions.

Another measure for IPO pricing is the first-day return. We use first-day return, underpricing, and initial return interchangeably in the paper. We find that the post-offer date number of analysts covering an IPO has an insignificant impact on initial returns. The coefficient on post-offer date optimism is positive and statistically significant at the one percent level in regressions with initial returns as the dependent variable. Economically, a one standard deviation increase in this optimism measure would result in an 8.0% increase in the first-day return of an average IPO.

An interesting and important result is the impact of price revisions on initial returns. For IPOs in the U.S. and many other markets, a greater price revision is a reliable predictor for a higher first-day return. This is the well-known partial adjustment phenomenon (Benveniste and Spindt (1989), Hanley (1993), and Loughran and Ritter (2002)). For the 1,105 Chinese IPOs in our sample, the offer price revision has a statistically significant *negative* impact on initial returns. Economically, a one standard deviation increase in the offer price revision (109.7%) would result in a 4.3% to 6.0% decrease in the initial return. Note that the trade-off is not one-to-one. This suggests that positive price revisions still imply favorable information being discovered for the IPO, just like the case for the U.S. IPOs. However, since the lead underwriter for a Chinese IPO cannot allocate underpriced shares to its regular clients, the offer price adjustment is largely complete in China, unlike the U.S., due to differences in the alignment of underwriter incentives. This finding is important in that it provides alternative yet strong support for the information acquisition mechanism for IPOs as suggested by Benveniste and Spindt (1989) and Benveniste and Wilhelm (1990).

Our results suggest that analysts have a significant influence on the pricing of IPOs. But do they produce new information, or do they just aggregate public information and try to hype the stock? The research reports used in our analysis are from unaffiliated analysts. Will the lead underwriter of an IPO use its connections to boost analyst coverage for its IPO? We shed light on these issues in two different ways. First, we decompose analyst coverage and optimism into a predicted component that is attributed to

the connections of the lead underwriter and/or the industry trend, and a residual component that is attributed to private information. More specifically, we regress analyst coverage and optimism, respectively, on the respective averages of analyst coverage and optimism of all the IPOs underwritten by the same lead underwriter during the last twelve months prior to the current IPO. We also control for firm and issue characteristics that are publically known. We find that the breadth of pre-offer date analyst coverage of past IPOs in the last twelve months by the same lead underwriter is positively related to the pre-offer date analyst coverage of the current IPO, and the association is statistically significant at the one percent level. However, the optimism for past IPOs by the same lead underwriter cannot be transferred to the current IPO. Furthermore, we find that both the predicted coverage and the unexpected coverage have a statistically significant positive impact on offer price revisions, while only unexpected optimism measures have significant positive impacts on price revisions. These results hold if we also control for the industry trend (historical measures of IPOs in the last twelve months in the same industry), suggesting that investment banks do use their connections to boost research coverage for their IPOs, but such connections do not result in persistent biases in research. Note that the strength of connections helps – more coverage results in higher offer price revisions. Second, we calculate the one-, two-, and three-year buy-and-hold returns (BHRs) for IPOs in our sample starting from the end of the first month after trading started. We find that the optimism measure derived from post-offer date EPS forecasts has a statistically significant positive impact on the one to three-year BHRs. Furthermore, the breadth of analyst coverage after the offer date also has a statistically significant positive impact on the BHRs for the first two years. The market is unlikely to underreact to hype in the long-run. These results thus suggest that analysts do produce information in the premarket for Chinese IPOs, although marketing and hype are also likely to exist (Loughran and Ritter (2004) and Huang and Zhang (2011)).

The Facebook example suggests that it could improve the pricing efficiency for IPOs if the lead underwriter(s) is allowed (or required) to disclose its valuations. U.S. Congressman Issa, in a series of letters to the SEC, suggests that we can improve the IPO pricing efficiency if we relax the quiet period restrictions and allow/require the underwriters of an IPO to publish their research. That is, making

research reports from the underwriters publicly available would have a significant impact on offer price revisions and initial returns. We call this the Issa Hypothesis. One particular change in IPO regulations in China provides us a natural experiment to shed light on this important premarket information production issue. Since November 2010, the lead underwriter of an IPO in China is required to disclose its valuation about the issuing firm to the public. Note that such valuation reports, although available to institutional investors who participated in road shows and bookbuilding, were not made public before November 2010. Due to this rule change, we are able to obtain the lead valuation reports for 465 IPOs. To investigate whether this rule change benefits the price discovery or hurt the market (by not restricting the hyping behavior of the lead underwriter), we examine the relations between IPO pricing and the availability of the lead underwriter's valuation. Although the valuation from the lead underwriter is more optimistic than those from unaffiliated analysts, the availability of the lead valuation report for an IPO has no significant impact on offer price revisions and initial returns. This is not supportive of the Issa Hypothesis.

The contributions of our paper are three-fold. First, to the best of our knowledge, our paper is the first to examine the impact of publicly available analyst research in the premarket of IPOs. The literature suggests that premarket trading, which exists for some European and Asian markets and largely captures retail investor information production, can be informative (Löffler, Panther, and Theissen (2005), Aussenegg, Pichler, and Stomper (2006), Cornelli, Goldreich, and Ljungqvist (2006), Derrien and Kecskés (2007), Dorn (2009), and Chang, Chiang, Qian, and Ritter (2014)). There also exists an extensive literature on aftermarket analyst coverage and its impact on IPOs (see, e.g., Michaely and Womack (1999), Bradley, Jordan, and Ritter (2003, 2008), Cliff and Denis (2004), James and Karceski (2006), Ljungqvist, Marston, and Wilhelm (2006), Degeorge, Derrien, and Womack (2007), and Liu and Ritter (2011)). Our paper provides the first set of comprehensive evidence on the role of analysts, arguably one of the most important information providers in the financial markets, in the premarket of IPOs.

Second, our paper provides timely evidence for the ongoing debate about quiet period restrictions. Affiliated analysts can provide overoptimistic research to attract investment banking business. Such optimistic research can be used to create hype and condition the market for an IPO. Consequently, quiet

period restrictions are put in place to prevent such potential market manipulations. Such restrictions, however, can also restrict information production and reduce the pricing efficiency for IPOs. The existing evidence on analyst research at best has an indirect connection to the debate on the quiet period regulations because all research is based on activities in the aftermarket after the quiet period ends. Our research directly examines analyst behavior before a firm goes public and therefore sheds light on the debate about the quiet period restrictions by providing the most relevant evidence.

Finally, our paper provides a much needed update of the IPO pricing process in the second largest economy – China. There is a relatively limited literature focusing on Chinese IPOs. The main message of the literature is that the number and the pricing of Chinese IPOs are significantly influenced by government interventions (Tian (2011)), and which companies go public is influenced by political connections (Fan, Wong, and Zhang (2007) and Piotroski and Zhang (2013)). As one of the largest emerging markets, IPO regulations in China have been evolving at a fast pace and with a few interesting exceptions that are examined carefully in the paper, the Chinese IPO market has developed to a stage that closely resembles the developed markets such as the U.S. in terms of the letter of its regulations. The new evidence in this paper will thus help us further our understanding of the Chinese IPO market.

The rest of the paper is organized as follows. We discuss the Chinese IPO market and develop our hypotheses in Section I. Section II provides descriptions of the data. We discuss our regression results on research coverage, offer price revisions, and initial returns in Section III. In Section IV, we separate premarket research into predicted and innovative components and discuss how these components are related to offer price revisions and initial returns. Section IV also links premarket research to the long-run performance of IPOs. We study the (lack of) incremental impact of the research reports from lead underwriters on pricing of IPOs in Section V. Section VI concludes.

## I. Institutional Background and Development of Hypotheses

### *A. Institutional Background*

China opened its markets in 1978. In 1990 and 1991, respectively, the Shanghai Stock Exchange

(SSE) and the Shenzhen Stock Exchange (SZSE) were established. In May 2004, the SZSE established the Small and Medium Enterprises (SME) Board to list firms that are smaller than the ones listed on the existing Main Board. These two markets on the SZSE have the same listing rules. In October 2009, the Growth Enterprise Market, ChiNext, was established on the SZSE for firms with less restrictive listing rules. Another important milestone for the Chinese stock market is the stock structure reform in 2005. Probably due to caution, early stock listings in China used a split share structure. Before 2005, about two thirds of shares of all listed companies were held by governments and other entities and were not tradable. The other third were held by institutional and retail investors and were tradable. In 2005, the CSRC implemented the market-wide stock structure reform and all shares of listed companies became tradable afterwards.[6] At the end of 2012, 2,494 firms are listed on the two stock exchanges. With a total market capitalization of Chinese ¥23 trillion (U.S. $3.7 trillion), representing 44.36% of 2012 Chinese GDP, China has the second largest stock market in the world, after the U.S.[7]

Figure 1 reports the overall number and underpricing (first-day return) of Chinese IPOs. The Chinese IPO market is often characterized by extremely high underpricing and frequent government interventions (see, e.g., Fan, Wong and Zhang (2007), Tian (2011), and Piotroski and Zhang (2013)). The IPO process in China has also gone through many changes, and the current regulations have many similarities to those in the U.S. Like the U.S., an IPO in China starts with a filing with the CSRC. But unlike the U.S., the CSRC has the authority to approve or disapprove an IPO after preliminary examinations if it determines the issuing firm as being of low quality.[8] Before 2005, the offer price of an IPO was dictated by the CSRC based on P/E ratios and other accounting or even arbitrary variables (Tian

[6] Investors who held tradable shares of a firm were compensated with additional cash and/or shares due to the increased supply of floating shares. Some firms used warrants. See Allen, Qian, and Qian (2005) for discussions of the Chinese stock market, including the split share structure, during the early years, and Powers and Xiao (2014) and Li, Wang, Cheung, and Jiang (2011) for discussions of the structure reform and the Chinese warrants.

[7] For our sample period of 2006 to 2012, over 1,105 firms have listed their shares on these two domestic exchanges and have raised Chinese ¥1,779.52 billion, or U.S. $283.12 billion, through IPOs. The dollar amount is based on the exchange rate of ¥6.2855/$ on December 31, 2012. Given the appreciation trend of the Chinese Yuan over the U.S. dollar during this period, $283.12 billion is an underestimate of the total amount of proceeds raised by these IPOs.

[8] The preliminary examinations of IPO applications are conducted by the Issuance Examination Committee, which is operated under the CSRC but has outside members. Note that the SEC also has the authority to approve or disapprove an offering, but the key difference is that the CSRC uses fair pricing, whatever that means, as a factor in its regulatory decisions throughout the IPO process.

(2011)). In 2005, the CSRC implemented new regulations that allow firms to engage in price inquiries and bookbuilding before setting the offer price. Note that price inquiries and bookbuilding can only happen after the IPO is approved by the CSRC and an IPO issuance announcement is made to the public. For our sample period of 2006 to 2012, price inquiries include two stages: the preliminary inquiry and the bookbuilding inquiry. For the preliminary price inquiry stage, the underwriter(s) and the issuing firm solicit non-binding bids from qualified institutions including mutual funds, securities firms, trust investment companies, insurance companies, etc. to set an initial price range.[9] The initial price range, which cannot be modified afterwards, will be used for the consequent bookbuilding inquiry. For the bookbuilding stage, the same qualified institutions can and typically will submit binding bids for the IPO shares. The underwriter will then set the offer price based on the competitive bids from these institutions.[10] Since the issuing firm and its underwriter need to submit reports to the CSRC to provide reasons for setting the initial price range and the offer price, and the CSRC is often concerned about unjustified stock prices that could hurt ordinary investors, the initial price range is typically set relatively low and the offer price is set at the top end of the initial price range. Note that most of the time only institutional investors participate in the price inquiries. Although retail investors often get a majority of the IPO shares, they are simply price takers and do not have direct impact on setting the offer price.

For the bookbuilding process of Chinese IPOs, unlike the U.S., the underwriters have little discretion in their IPO allocations. For IPOs with more (less) than 400 million shares, no more than 50% (20%) are allowed to be allocated to institutional investors who participate in the price inquiries.[11] Retail investors will get the rest of the shares. Both retail and institutional investors have to deposit enough cash in their designated escrow accounts for their subscriptions of the desired IPO shares. Oversubscription for

[9] Before 2010, the CSRC decided the list of qualified institutions. After that, lead underwriters were allowed to recommend institutions, and retail investors are sometimes being inquired.

[10] For firms going public on the Small and Medium Enterprise Board or the Growth Enterprise Market, ChiNext, of the Shenzhen Stock Exchange (SZSE), the offer price can be set without soliciting bids from institutional investors. In this case no explicit initial price range is provided.

[11] Since April 28, 2012, the CSRC issued new directions starting that no *less* than 50% for all IPOs should be allocated to institutional investors. At the same time, if the retail demand is strong (the retail oversubscription is high), the lead underwriter and the issuing firm are required to re-allocate shares from the institutional pool to the retail pool. See the CSRC Directions on Securities Issuance Reforms on April 28, 2012.

an IPO is often very high. Allocations among institutional investors with valid bids (above the offer price) are on a pro rata basis, and allocations for retail investors are based on lottery drawings.[12] Since retail investors' subscriptions for an IPO are processed via the listing exchange's online trading system, this part of the IPO sale is often called online allocations. Selling to institutional investors via price inquiries is called offline allocations. After all the shares of an IPO are allocated to institutional and retail investors, the stocks will be listed and start trading on either the Shenzhen Exchange or the Shanghai Exchange. There is typically a short period for Chinese IPOs between allocations and trading of the shares. The CSRC has been trying to reduce this waiting period. From 2005 to 2007, the average length is 14 days (Jia and Gao (2008)). Since 2010, the SSE requires this period to be less than 7 days.

At least partly due to the regulations and practices on IPO allocations, there exists active research coverage on Chinese IPOs in the premarket (before the trading starts). Analysts in China, like those in the U.S., publish their research and build up their reputations to attract trading and investment banking business for their affiliated firms. But unlike in the U.S., many analysts in China cover IPO firms on the premarket. The pro rata allocation of IPO shares in China implies that all qualified institutions have the same access to all IPOs. The regulations also allow retail investors to have a significant chance to buy IPO stocks.[13] Sell side analysts thus have great incentives to provide coverage on IPOs in the premarket to serve their clients. Such active premarket research coverage provides a great opportunity for researchers to examine the effects of analyst research coverage in the premarket for IPOs.

China has had certain quiet period restrictions for the lead underwriter(s) of an IPO, which have changed over time. The CSRC did not allow the lead underwriter(s) to disclose its valuations of an IPO to

[12] Lottery drawings are also used for some later IPOs in our sample for institutional allocations so that each allocation can be of a greater (and more meaningful) size. But the expected allocation for an institutional investor is still proportional to its valid bids. Note that one can argue that Chinese "bookbuilding" is not really bookbuilding because underwriters do not have discretion in allocation. The CSRC Directions on Securities Issuance Reforms on April 28, 2012 gives the underwriter and the issuing firm of an IPO discretion in allocating the shares to institutional investors. For all IPOs in our sample after April 28, 2012, we do not observe any use of such discretions. Shares are still allocated on a pro rata basis. As time goes by, this may change. But note that the required allocations for retail investors do not change.

[13] The average online allocation for the IPOs in our sample from 2006 to 2012 is 79%. Although institutional investors did participate in both online and offline allocations before 2009 (they no longer participate in online allocations after 2009 due to quota limits set by the CSRC), our discussions with practitioners and regulators suggest that their involvement in the online allocations is minimal. The 79% average allocation is thus a good estimate for average retail allocations for the IPOs in our sample.

the public in its regulations of securities issuance in 2006. Starting from 2011, the CSRC started to implement more explicit quiet period restrictions similar to those of the U.S. But as an experiment to improve information disclosure while maintaining restrictions on potential market manipulations, the CSRC revised the rule on the valuation reports in November 2011 and required the lead underwriter of an IPO to disclose its valuation to the public during the road show and price inquiries.[14] This rule change provides a natural experiment to test whether certain quiet period restrictions hinder information production in the premarket for IPOs.

### *B. Premarket Research, Offer Price Revisions, and Initial Returns*

It is well documented that analyst forecasts are informative and have price impacts (see, e.g., Griffin (1976), Givoly and Lakonishok (1979, 1980), Brennan and Subrahmanyam (1995), Kelly and Ljungqvist (2012), and Derrien and Kecskés (2013)). Greater analyst following produces more information, reduces information asymmetry, and hence reduce a firm's cost of capital. This would have a positive impact of IPO prices. From the perspective of investors, it is also likely that analysts have greater access to the management of the company and thus superior information. Therefore, more optimistic analyst coverage will induce larger demand for the stock and result in a higher market price. For example, James and Karceski (2006) find that stock prices of newly public firms increase more when the analyst research is more optimistic.

Like many other markets, research analysts in China publish research reports to earn reputation and attract trading activity for their affiliated brokers. Optimistic research and the resulting buying activity generally generate more trading, and this is especially true for IPOs since short selling is not possible.[15] Consequently, an analyst is more likely to cover a stock if s/he has positive information.

Furthermore, even without positive information, analyst coverage itself can increase the stock

[14] See the *CSRC Directions on Securities Issuance and Underwriting*, September 17, 2006 and the *CSRC Directions on IPO Regulation Reforms*, October 11, 2010. For the rule change on the disclosure of the lead underwriter valuation, see CSRC announcement (2010〕26 for details. It has been a standard practice for lead underwriters to provide confidential research reports to the institutional investors participating in the road show. Since November 1, 2010, such reports are required to be disclosed to the public. The goal of this reform is to "increase the transparency" of IPO pricing.

[15] Short selling in the secondary market was also prohibited in China before March 2010.

price by increasing the investor pool (Merton (1987) and Zhang (2004)) or attracting more media coverage and hence more attention from unsophisticated investors (see, e.g., Shiller (2000), Barber and Odean (2008), and Bhattacharya, Galphin, Ray, and Yu (2009)). This would also imply a positive impact of premarket analyst research on IPO prices.

From the perspective of the lead underwriter and the issuing firm, since analyst reports are publicly observable, they can condition the offer price on the analyst reports. In particular, when coverage is more extensive and/or is more optimistic, the lead underwriter anticipates that the institutional investors will be more willing to accept a higher offer price since they will profit more from selling their shares in the aftermarket. Thus, we expect that an increase in analyst coverage and optimism before the offer date will have a positive impact on offer price revisions:

***H1A**: Pre-offer date research coverage is positively related to offer price revisions; Greater optimism from analysts will also result in greater offer price revisions.*

For the same reasons as we have discussed above, it is likely that more research coverage and greater optimism after the offer date but before the listing date will have a positive impact on the first-day market closing price and hence a positive impact on the initial return of an IPO.

The pre-offer date research will have little impact on initial returns. For Chinese IPOs, shares are proportionally allocated. As a result, the lead underwriter of an IPO cannot allocate underpriced shares to investors in exchange for soft dollar commission business (Loughran and Ritter (2002, 2004), Reuter (2006), Hoberg (2007), Nimalendran, Ritter, and Zhang (2007), and Goldstein, Irvine, and Pucket (2011)) or to executives to sway their decisions in choosing which investment banking firm to hire, a practice known as spinning (Liu and Ritter (2010)). In China, the main source of income for the lead underwriter is the underwriting fee (the gross spread), which is simply a percentage of the proceeds. When analysts provide more coverage and positive information on an IPO, the offer price is likely to reflect the price impact of the pre-offer date research coverage.

So we hypothesize that:

***H1B**: Post-offer date coverage and optimism are positively related to initial returns.*

*C. Analyst Hype and Information Production*

In addition to being informative, analyst reports can be biased and analysts can become cheerleaders for a stock. The reasons for such positive biases include attracting investment banking businesses from the company, gaining preferred access to the company management for timely information and insights on the company, and generating trading commissions (see, e.g., Hayes (1998), Lim (2001), Bradley, Jordan, and Ritter (2003), Cliff and Dennis (2003), Loughran and Ritter (2004), Irvine (2001), Jackson (2005), and Niehaus and Zhang (2010)).

Both information production and marketing (hype) can be useful for securities issuance. Huang and Zhang (2011), using a sample of U.S. seasoned equity offerings (SEOs), show that underwriters perform a useful marketing function. However, the debate for quiet period regulations, as suggested by the correspondences between the U.S. Congress and the SEC as discussed in the introduction, focuses on encouraging more information production. The regulators are concerned about manipulative market hypes for IPOs. In this sub-section, we discuss measures for information production and hype and present hypotheses on the existence of information production and hype in premarket analyst research.

For affiliated and unaffiliated analysts, although the incentives for hyping a stock can be different, their research biases are likely to be predictable. We use the average number of brokers and the average optimism from all analyst reports on IPOs underwritten by a particular underwriter during the past twelve months to capture the lead momentum (or the effect of lead connections). The underwriters of an IPO receive a certain percentage of the proceeds and thus have incentives to increase the offer price. The pro rata allocation rules means that Chinese investment banks do not have as strong an incentive of leaving money on the table as that in the U.S. as suggested by Nimalendran, Ritter, and Zhang (2007), since all investors, not just the lead underwriter's clients, have equal access to the IPO shares. If the lead underwriter influences and works with analysts from unaffiliated investment banks and brokers to provide research coverage for its IPO, its connections and relationships are likely to be persistent. This is the rationale for us to use the past coverage to predict the impact of the lead underwriter. We also use the

averages for all analyst reports on all IPOs in a particular industry during the last twelve months to capture the market sentiment for the industry, which we refer to as industry momentum. Analyst hype is likely to have a positive impact on the stock price (Aggarwal, Krigman, and Womack (2002)). Consequently, if we use the lead momentum, the industry momentum, and the issuing firm and issue characteristics to forecast research coverage and optimism on an IPO, the predicted coverage and predicted optimism will have a positive impact on the offer price and the market price. Depending on the degree of the offer price revision, such predicted values of pre-offer date analyst research may or may not have a positive impact on the initial return of an IPO.

Womack (1996) suggests that analyst research on the U.S. market has investment value. It is also reasonable to expect that analysts on the Chinese market do valuable research and produce useful information on IPOs that they cover. Such innovative research will be captured by the residual term in the aforementioned predictive regressions. We call the residual term in such predictive regressions as the innovation component of analyst research. Since the innovation component captures the investment value of analyst reports, it will be positively related to the offer price and the market price. For the pre-offer date research, this component will be positively related to the offer price revision. For the post-offer date research, it is likely to be positively related to the market price and hence the initial return.

Since we use both the lead and the industry momentums in addition to the issuer and issue characteristics in the predictive regressions, we refer to the predicted terms and the residual term as the lead-industry-momentum predictions and the lead-industry-momentum innovations.

We also use only the lead momentum as defined above, as well as the issue and issuer characteristics, to predict analyst research coverage and optimism. If the investment banks work together to help each other by providing research coverage to each other's IPOs, the lead-only-momentum predictions will have a positive marginal impact, after controlling the issuer and issue characteristics, on the offer price and hence the offer price revision.

We thus have the following hypothesis:

***H2A****: Both the lead-industry-momentum and the lead-only-momentum predictive components and*

*the respective innovation components for pre-offer date analyst research are positively related to offer price revisions.*

Post-offer date analyst research can still increase the investor awareness of a stock. Good information from the post-offer date analyst coverage will still have a positive impact on the market price and hence the initial return of the IPO. Since the offer price will likely incorporate the effects of pre-offer date research coverage, momentum related predictions and innovations from pre-offer date research will have little impact on the initial returns even if they can have a positive impact on the market price. As a second part of the second hypothesis, which we term H2B, we propose the following:

***H2B**: Both the lead-industry-momentum and the lead-only-momentum predictive components and the respective innovation components for post-offer date research are positively related to initial returns.*

Price reactions of analyst forecasts on the secondary market are often incomplete and a post forecast drift is documented (Stickel (1991), Chan, Jegadeesh, and Lakonishok (1996), Gleason and Lee (2003), and Hui and Yeung (2013)). Such a drift can also exist in the stock returns of IPOs due to underreactions to the premarket research. To shed further light on whether analysts produce information in the premarket, we examine the link between analyst research and the long-run performance of IPOs. If analyst research is just hype and/or nothing more than an aggregation of other publicly available information such as those related to firm size or growth potential, premarket analyst research will have little marginal prediction power for the long-run performance of IPOs. If analyst research contains new information, and if a similar forecast drift due to underreactions exists, premarket research would have positive impact in a predictive regression of IPO long-run performance. We thus have another hypothesis for analyst information production:

***H2C**: Premarket analysts that cover an IPO do produce new information, and consequently their research coverage and optimism of a stock are positively related to its long-run performance.*

Note that hypotheses H2A, H2B, and H2C do not set up a horse race between hype and information production for analysts. If both the predictive and the innovative components of analyst research have significant impacts on offer price revisions and initial returns, information production and

hype are likely co-exist. It is important, however, to provide supportive evidence for the existence of information production by analysts in the premarket. Such evidence for information production arguably provides justifications for encouraging premarket analyst research from the regulatory perspective.

### *D. The Issa Hypothesis*

We have valuation reports from the lead underwriters for 465 IPOs due to the CSRC regulation that requires the public disclosure of such reports in 2010. Such reports were not available for the public before the rule change in 2010. U.S. Congressman Issa argues that it can improve IPO pricing efficiency if we allow the underwriters to discuss an IPO publicly. The rule change by the CSRC thus provides a natural experiment and a partial test to the Issa argument. The valuation report from the lead underwriter can be more or less positive than those from the unaffiliated analysts. We thus cannot make a directional prediction on the impact of the availability of the lead affiliated analyst report on the offer price revision. However, if Congressman Issa is correct, the public disclosure of the valuation report from the lead would improve the pricing efficiency of an IPO. Given the trend of Chinese IPOs being underpriced for reasons unrelated to these valuation reports, a more efficient price revision will likely help to reduce the initial return for the IPO. We thus have the Issa Hypothesis:

***H3 The Issa Hypothesis****: The public availability of the valuation reports from the lead underwriter helps improve the IPO pricing efficiency and reduce the initial return of an IPO.*

## II. Data and Descriptive Statistics

### *A. Sample Construction*

Our data are from the China Stock Market & Accounting Research (CSMAR) database and several other sources. We start with a sample of 1,154 IPOs from 2006 to 2012 from the CSMAR database. We choose 2006 as our starting point since the stock structure reform was implemented in 2005 and firms going public after that time are isolated from the problem of split share structure (Li, *et al*. (2011)). The following firms (with overlapping) are also excluded: 24 financial institutions, seven firms

with missing initial returns or proceeds, one exchange offer (exchange IPO shares for existing shares of another public company), and 35 firms with shares already being traded on the Hong Kong Stock Exchange (H-Shares). Our final sample consists of 1,105 IPOs. To investigate the post-IPO performance of these firms, we also retrieve daily stock prices, the market index returns (value-weighted average returns using all stocks listed on both Shanghai and Shenzhen stock exchanges), and accounting information at the end of the listing year from the CSMAR database.

One important empirical contribution of this paper for future research on Chinese IPOs is the construction of the expected offer price. For IPOs around the world where bookbuilding is used, the underwriters acquire information from investors and revise the offer price accordingly. For the IPOs in the U.S., the adjustment from the initial file price (the midpoint of the file price range) to the final offer price is used to measure such information acquisition (Hanley (1993)). Such price revision or adjustment measures are critical to study how information production is incorporated into the IPO process. For Chinese IPOs, an issuing firm and its underwriters do not report any price ranges with their initial filing with the CSRC. However, an IPO registration in China is required to report the proposed investment project(s) that the proceeds from the IPO will be used for. A detailed financing plan will be included if other sources of funding are used. Such investment proposals are approved by the appropriate governments before the IPO registration is filed. The proposed investment amount from the IPO can thus be used as a reliable measure for the total expected proceeds. In addition, the maximum number of shares offered for the IPO also has to be approved by the CSRC. For all IPOs in our sample, the maximum approved number of shares has been the final number of shares offered. We thus manually search both the preliminary and final prospectuses for each IPO and retrieve the proposed investment amount and the approved maximum number of shares for each IPO.[16] We use the ratio of the two figures as a measure for the expected offer price.

Data on analyst research coverage are also obtained from the CSMAR database. We only include

[16] The prospectuses can be found on CNINFO (http://www.cninfo.com.cn/information/companyinfo.html), a designated website for disclosing security information by the CSRC.

research reports that are issued no later than the listing date of an IPO. After excluding reports with missing report date or identity of the broker, we have 11,360 reports covering 1,067 IPO firms (some IPOs have zero analyst coverage as reported in Table II). These reports are issued by at least 2,345 analysts from 84 brokers.[17] Earnings forecast is the most common item in the published research reports in the CSMAR database. Our research optimism measure is thus mainly based on earnings forecasts.

Note that our earnings forecasts are from unaffiliated analysts. As discussed in Section I.A, the CSRC requires that the lead underwriter(s) of an IPO issues a valuation report for the offering. Such a report was only available to institutional investors before November 2011 and is publicly available after that. Although the regulations do not prevent the lead underwriter from issuing additional analyst reports in the premarket, it is unlikely for the analysts affiliated with the lead underwriter(s) of an IPO to publish reports that are different from the lead valuation report. And it is likely to violate the CSRC regulations if the affiliated analysts simply publish a report that is a copy and paste of the valuation report. So not surprisingly, we see very few analyst reports from affiliated analysts.[18]

### *B. Variable Definitions*

We study the impact of analysts on the pricing of IPOs at various stages, and our dependent variables are three price changes (returns) for IPOs. The first dependent variable, *Offer Price Revision*, is defined as the percentage change from the expected offer price to the offer price. The second dependent variable is the initial return for an IPO, denoted as *IR*, and is defined as the percentage change from the offer price to the first-day market closing price. The third dependent variable is the one, two, or three-year buy and hold returns, denoted as *BHR*. This variable is calculated as the return from the market price at the end of the first trading month to the respective year-end price, adjusted for stock splits and dividends. We will briefly discuss the constructions for the independent variables for the rest of this sub-section. A

[17] The CSMAR Analyst database is very similar to the I/B/E/S database. Both databases include forecasts of accounting variables for different fiscal years and stock recommendations. The CSMAR database includes the name of and the affiliated broker for each observation. It is possible that we treat two John Smith from same brokerage firm as one analyst.

[18] For the 1,105 IPOs in our sample, affiliated analysts only issued 117 reports (about 1.03% of the sample). These reports are likely published in the gray area of the CSRC regulations. Our results remain virtually the same whether we include these reports or not.

list of variable definitions is provided in the appendix Table A1.

Our key independent variables are measures for analyst coverage and analyst optimism in the premarket for IPOs. Following Mola and Guidolin (2009), we use the number of brokers that issue reports during a particular period of the IPO process as a measure for the breadth of analyst coverage for an IPO for that period.[19] To study the impact of analyst coverage on offer price revisions, we use the number of brokers that issue reports before the offer date, and this variable is denoted as *Pre-Coverage*. We denote the number of brokers issuing reports after the offer date (but no later than the listing date) as *Post-Coverage*, and the total number of brokers issuing reports until the listing date is denoted as *Overall-Coverage*. We link both *Post-* and *Overall-Coverage* to the initial return of an IPO.

Analyst optimism is calculated from their earnings forecasts.[20] To measure the implied optimism for an earnings forecast for an IPO, we first calculate the implied P/E ratio based on the estimated earnings per share (EPS) and the latest stock price before the report date of the forecast. For an EPS forecast before the offer date, the expected offer price is used. For an EPS forecast after the offer date, the offer price, which is determined on the offer date, is used for the implied P/E ratio. Since a more optimistic EPS forecast results in a smaller P/E, we use the negative of the adjusted P/E ratio to measure optimism:

$$\text{Optimism} = -\frac{\text{Implied P/E from EPS Forecast} - \text{Industry P/E}}{\text{Industry P/E}}$$

where the *Industry P/E* is the moving average P/E ratio of the listed firms in the same industry during the last 30 calendar days before the reporting date of the EPS forecast.[21] We then use the average of *Optimism* based on all EPS forecasts for an IPO before the offer date as *Pre-Optimism* of the IPO. The variable *Post-Optimism* is the average of the EPS implied optimism based on all EPS forecasts between

[19] In unreported tests, we also use the number of analysts and the number of reports as our measures of coverage, and the results remain qualitatively the same.

[20] In unreported analysis, we also use price targets to calculate analyst optimism. The results are consistent with those of earnings forecasts. Note that price targets are likely to be a much noisier measure for analyst optimism since price targets involve the estimation of long-term earnings growth trends. We also do not use recommendations because the number of recommendations is small (1,788 compared to 10,826 EPS forecasts).

[21] 1,105 IPO firms are classified into 21 industries following the coding system by the CSRC. More specifically, firms in nonmanufacturing sectors are classified based on the first industry code (letter code) while manufacturing firms are classified based on the first two industry codes (both letter and number codes).

the offer date and the listing date (inclusive), and the variable *Overall-Optimism* is the average based on all the premarket EPS forecasts.

There are many similarities between the Chinese and the U.S. IPO markets, and we thus follow the literature in choosing some of our control variables (see, e.g., Bradley and Jordan (2002), Hanley and Hoberg (2012), Loughran and Ritter (2004), and Loughran and McDonald (2013)). More specifically, to control for the IPO market conditions and the overall market conditions, we use two variables: *IR [-30, Offer]* and *MktRet [-30, Offer]* (or *MktRet [-30, List]*). They are defined as the average IPO initial returns and the average market returns, respectively, for the 30 calendar days before the IPO offer (listing) date. We use *Log(Expected Proceeds)* to measure the expected offer size. We define *Log(Asset)* as the logarithm of total assets for the latest fiscal year before IPO. We use this variable as a measure of ex ante uncertainty of the issuing firm (Beatty and Ritter (1986)). *ROE* and *Leverage* are defined as the return on equity and the ratio of total debt to total assets, respectively, for the latest fiscal year before IPO. The variable *Overhang* is the number of shares retained divided by the number of shares offered in the IPO. This variable is used as a scarcity measure. The fewer shares offered to the public, the stronger the investor demand for the IPO. We denote *Lead_MktShare* as the measure for the IPO market share of the lead underwriter during the last three years.[22] We include this variable in our regressions to catch the underwriter's reputation effect on offer price revisions and initial returns.

We also include some variables that are specific to the Chinese IPO market. As we discussed in Section I.A for the institutional background, both institutional and retail investors have access to an IPO and their respective subscriptions are publicly available. To control for investor demand, we include both *Log_OverSub_offline* and *Log_OverSub_online*, which are defined as the logarithms of oversubscription from institutional (offline) and retail (online) investors during the offering, respectively. For both demand measures, oversubscription is calculated as the ratio of the subscription from a particular group of investors (offline or online) divided by the total number of shares offered for that group. *SOE_Central*

[22] If there are more than one lead underwriter, which is very uncommon in China during our sample period, we split the proceeds equally among the underwriters in calculating each underwriter's market share. We use the largest market share in our regressions if multiple underwriters exist. We also compute the lead underwriter's market share using one year window and the results are virtually the same.

and *SOE_Local* are dummy variables. *SOE_Central* (*SOE_Local*) equals to one if the controlling shareholder of the issuing firm is affiliated with the central government (local governments). These variables are included to control for the effect of political connections on IPO pricing (Fan, Wong, and Zhang (2007)).

### *C. Summary Statistics*

In Table I, we report the summary statistics on issue and firm characteristics for IPOs in our sample. One noticeable feature about Chinese IPOs is the high initial returns. As reported in Table I, the average initial return for the 1,105 IPOs in our sample from 2006 to 2012 is 60.32%. We also report the number of IPOs and the annual average initial returns from 1992 to 2012 in Figure 1 and the quarterly numbers for 2006-2012 in Figure 2. Although the average initial return of 60.32% is still greater than those in the U.S. and most other markets (Loughran, Ritter, and Rydqvist (1994), with updated initial returns for 50 countries in 2013 available at http://bear.warrington.ufl.edu/ritter/Int.pdf), initial returns for IPOs in China have experienced a significant decline over the years due to the establishments of various institutions (such as analysts that we study in this paper) and other still ongoing reforms. Although it is too early to call it a trend, the average initial returns for the last two years in our sample period have been around 20%.

The average offer price revision is 111.59% for the IPOs in our sample. This figure is much higher compared to the U.S. figure. Hanley and Hoberg (2010) report an average price adjustment of 4.3% for the 1996-2005 period for the U.S. market. The Chinese CSRC has the power of disapproving a firm's IPO for performance-related reasons. Consequently, firms eligible for going public in China are required to have continuous positive earnings before IPO. The average ROE for our sample is 29.11% and it varies from 0.18% to 166.93%. In contrast, Loughran and McDonald (2013) report that only 37% of the firms in their U.S. IPO sample have positive earnings in the year before IPO. So it is likely that positive earnings give these Chinese firms more room to adjust their offer price upwards. But note that not all IPOs have positive price revisions. There are 120 IPOs, or about 11% of the sample, that are priced below the

expected offer price. The minimum offer price revision, as reported in Table I, is -61.94%.

Also note that many state-owned enterprises had already gone public before 2006. During our sample period of 2006 to 2012, private firms account for a large portion of IPO firms. As shown in Table I, only about 14% of the IPOs are controlled by either the central or the local governments.

We report the summary statistics on analyst coverage and optimism in Table II. Our sample only includes premarket analyst coverage. The average number of brokers covering an IPO before listing is 9.87 (the median is 7), reflecting the unique active premarket research coverage on IPOs in China. Table II also reports analyst optimism based on EPS forecasts. The *Overall Optimism* has a mean of -0.01. The EPS forecast is more optimistic in the pre-offer date period than that for the post-offer date period (the averages are 0.55 vs. -0.62). This pattern arises since our definitions of pre- and post-optimism use the different relevant price (expected vs. actual offer price) to compute the implied P/E ratio.[23]

## III. Research Coverage and Optimism, Offer Price Revisions, and Initial Returns

As reported in Table II, analyst coverage and optimism can vary considerably across the IPO firms. In this section, we shed light on Hypotheses *H1A* and *H1B* by examining the relations between premarket analyst research and offer price revisions and initial returns.

### *A. Analyst Research and Offer Price Revisions*

We first investigate the relations between the pre-offer date analyst coverage/optimism and offer price revisions. The results are reported in Table III. Regressions 1-3 focus on the relation between offer price revisions and our measure of analyst coverage, *Pre-Coverage*, which is the logarithm of one plus the number of brokers covering an IPO before the offer date. Note that the definition of *Pre-Coverage* in the regressions is different from that in Table II, where we simply count the number of brokers. Also note that neither industry fixed effects nor year fixed effects are included in Regression (1). Regression (2) controls

[23] Note that our analysis focuses on cross-sectional comparison. Furthermore, our main results rely on separate use of pre- and post-offer date optimism measures. The use of different base prices for the implied P/E calculations does not affect our results.

for year fixed effects, and Regression (3) controls for both industry and year fixed effects. The IPO market condition (*IR[-30,offer]*, the average initial returns of all IPO that were listed during past 30 days until the offer date) and the overall market condition (*MktRet[-30,offer]*, the return on the composite market index for the past 30 days until the offer date) are only statistically significant in Regression (1). It seems that they capture the IPO and market conditions that are related to industry or year fixed effects.

For the other control variables, an interesting result is that both *Log(Assets)* and *Log(Expected Proceeds)* are statistically significant at the one percent level but with opposite signs. This pattern arises when firms with larger size suffer less information asymmetry and are therefore associated with greater offer price revisions, while firms with greater offer size (proceeds) face a downward sloping demand curve that will induce them to set a lower offer price. The statistically negative coefficient on *Overhang*, the number of shares retained divided by the number of shares offered, is also consistent with a negatively slopped demand curve. Note that all shares are tradable for the IPOs in our sample as we discussed in Section I.A, and a greater share overhang will depress the price expectation of an IPO given a downward sloping demand curve.

Table III also shows that IPOs with better earnings performance (higher *ROE*) or managed by underwriters with better reputation (measured as the IPO market share in recent three years, *Lead_MktShare*) have greater offer price revisions. We also control for the identity of the controlling shareholder (two dummy variables indicating whether an IPO firm is affiliated with the central government or local governments) to examine whether firms with connections to the government have greater price revisions. Inconsistent with Fan, Wong, and Zhang (2007), however, the coefficients on *SOE_central* are all insignificant and those on *SOE_local* are only marginally significantly negative in two of the five regressions. This might be due to the difference in how we measure political connections. Fan *et al.* measure whether the CEO has political connections, and the two dummy variables that we use only captures the political identity of the controlling shareholder.

The coefficients on the key independent variable in Regressions (1) to (3), *Pre-Coverage*, are positive and statistically significant at the one percent level. Depending on whether we control industry

and year fixed effects, the estimated coefficient varies from 11.27 to 32.83. This coefficient is economically important. More specifically, when we control for both the industry and the year fixed effects (Regression (3)), a one standard deviation increase in the number of brokers covering an IPO (3.68 brokers) from the mean (6.12 brokers) can result in a 4.69% increase in the offer price. For an average IPO with an expected offer price of ¥11.38 and an expected offer size of 87.33 million shares, the 4.69% increase in the offer price represents an increase of 46.61 million yuan (or 7.42 million U.S. dollars based on the 2012 exchange rate).

We include analyst optimism in Regressions (4) and (5). We include both the industry and year fixed effects in these two regressions. The coefficients on the control variables are similar to those in Regression (3). The coefficient on the optimism measures are positive and statistically significant at the one percent level, with and without controlling for the breadth of analyst coverage. Economically, if we use Regression (5) as an example, the coefficient of 42.13 on *Pre-Optimism* suggests that a one-standard-deviation increase in *Pre-Optimism* leads to a 32.44% (=42.13×0.77) higher offer price revision. This is economically significant. These results suggest that firms with more optimistic analyst coverage attract more attention and demand from investors, which enables its lead underwriter to adjust the offer price upwards.

Note that some of our variables, such as offer price revision, have high standard deviations. To make sure that our results are robust, we also use bootstrap estimates for calculating the standard errors and t-statistics for the regressions in Tables III and IV. To obtain sufficient accuracy, we use 500 bootstrap repetitions (Andrews and Buchinsky (2000)). The statistical significance of the coefficients on our key variables remains virtually the same.

To summarize, our results show that both analyst coverage breadth and optimism are positively related to offer price revisions. Broader and more optimistic analyst coverage results in a statistically significant and economically important upward revision of the offer price. This provides strong support for our hypothesis *H1A*.

*B. Analysts research and initial returns*

In this subsection we examine the relations between premarket analyst research and initial returns. As noted before, the offer price for a Chinese IPO is determined on the offer date, while the trading starts on the listing date. Since initial returns are measured as the price difference from the offer price to the first-day market closing price, we distinguish analyst research before and after the offer date in studying the relations between premarket analyst research and initial returns.

The regression results are reported in Table IV. For all regressions in Table IV, we include the industry and year fixed effects. We report the baseline regression with only the control variables in Regression (1). The coefficients on the control variables in Regression (1) and the other regressions in Table IV have similar patterns and are well behaved. Both the IPO and the overall market conditions, as captured by *IR[-30,offer]* and *MktRet[-30,List]*, have a positive and statistically significant impact on the initial returns. Large and profitable firms, as indicated by the coefficients on *Log(Assets)* and *ROE*, are less underpriced. This is expected since these firms are less risky and have less information asymmetry. IPOs with high investor demand and larger oversubscriptions from institutional and retails investors can have a greater price run-up on the first trading day since many investors will not get share allocations due to oversubscription. This explains the statistically positive coefficients on *Log_OverSub_Offline* and *Log_OverSub_Online*. Somewhat surprisingly, share overhang is positively related to initial returns. This is possible in that share overhang can be more a concern for institutional investors and hence depress the offer price. Lead underwriter reputation as captured by *Lead_MktShare* only has a negative but insignificant impact on initial returns. And similarly to those for offer price revisions, government ownership has little to do with initial returns.

The key variables of interest are the analyst related measures. In Regression (3), we include the measure for the breadth of premarket analyst coverage after the offer date, *Post-Coverage*. The variable *Post-Coverage* has a positive but insignificant coefficient. We include both *Post-Coverage* and the measure for analyst optimism, *Post-Optimism*, in Regression (5). The coefficient on *Post-Optimism* is

positive and statistically significant at the one percent level. The coefficient on *Post-Coverage* remains statistically insignificant. Economically, one standard deviation increase in *Post-Optimism* leads to an increase of 8.02% (10.28 × 0.78 as reported in Table II) for the first-day return. For the IPOs in our sample, this represents an increase of more than 10% of the mean first-day return of 60.32%.

In Regressions (4) and (6), we also include the overall measures for premarket analyst coverage and optimism, which include analyst reports before the offer date. The coefficients on these overall measures are all insignificant. These insignificant coefficients are not surprising. Note that we control for offer price revisions in all the regressions. The pre-offer date components that are included in these overall measures add noise but have little additional information.

Another key variable of interest is offer price revision. One of the important theoretical findings on the premarket information production for U.S. IPOs is that an offering is underpriced to induce institutional investors to reveal their information truthfully (Benveniste and Spindt (1989) and Benveniste and Wilhelm (1990)). Hanley (1993) and numerous other studies have documented that, due to this information production mechanism, offer price revisions have a significant positive impact on initial returns and the price adjustment is one of the most reliable predictors for IPO first-day returns. This partial adjustment phenomenon is based on the U.S. market where the lead underwriter has discretionary allocation power and there is little premarket analyst research. Lead underwriters in China do not have discretions in IPO share allocations and there is active analyst research coverage in the premarket. So it is interesting to know how price revisions are related to initial returns when share allocation rules and analyst coverage are different.

Interestingly, the coefficients on *Offer Price Revision* in all regressions are reliably negative, without and with including analyst related measures on the right hand side of the regressions, as reported in Table IV. Economically, the coefficients on *Offer Price Revision* as reported in Table IV imply a decrease of 4.28% to 6.04% in the initial return for an IPO if its offer price revision is increased by one standard deviation (109.73%). The statistically significant and economically important negative

coefficients on *Offer Price Revision* reported in Table IV suggest that the well-documented partial adjustment phenomenon does not exist on the Chinese IPO market.[24] The likely reason is because the lead underwriter for a Chinese IPO does not control the allocation of the IPO shares and hence cannot reward institutional investors for information production with underpriced shares. This is consistent with Benveniste and Wilhelm (1990), suggesting that uniform pricing and evenhanded share distribution make information gathering from investors on the premarket less useful. The lead underwriter has an incentive to increase the offer price to earn higher gross spreads as a percentage of the offer price, and this results in a negative relation between offer price revision and initial returns.[25]

Overall, the results reported in Tables III and IV suggest that greater pre-offer date analyst coverage and optimism result in higher offer price revisions and post-offer date optimistic premarket analyst coverage has a positive impact on initial returns. These results are supportive for Hypotheses *H1A* and *H1B*, suggesting that improved analyst coverage for IPOs in the premarket helps to improve the IPO pricing efficiency.

## IV. Analyst Hype and Information Production

Analysts can simply aggregate publicly available information or try to hype up a stock. Or they can produce new information. IPO firms are opaque because they do not have a long trading history. Such information opaqueness can only be more severe for the premarket since only the underwriters of an IPO have significant access to the management of the issuing firm. The lack of information makes informative analyst research more important, but it also gives analysts more room to hype up a stock. It is also likely that many players on the premarket, including institutional investors, unaffiliated brokers, and the

[24] As shown in Figure 2, the CSRC suspended all IPO approvals for 2008Q4 and 2009Q1. After that, the CSRC increased its monitoring of the consistencies of the prices provided by institutional investors in price inquiries (not binding) and for binding biding and share allocations. The magnitudes of the average offer price revisions and the average initial returns before and after the IPO suspension in 2008-2009 are flipped. Although this does not necessarily imply a different cross-sectional relationship between the two variables, we split our sample into two samples, pre-2009 and post-2009, and replicate our regressions for each sub-period. The results (unreported) indicate that the negative coefficients on offer price revision appear in both sub-samples and are all statistically significant at the one percent level.

[25] Even without government intervention, the lead underwriter's incentives of increasing the offer price as we pointed here will not result in a zero underpricing. The lead underwriter still has the incentive to avoid a failed IPO and investors are still compensated for taking risk in investing in the IPO. The risk-related factors are supported by the negative coefficients on *Log(Assets)* and *ROE*.

underwriters, are connected. The connections can also give certain analysts incentives to hype up a stock. Information production and hype are thus of particular relevance for IPOs in the premarket. We separate premarket analyst coverage and optimism into predicted and innovative components in this section. We shed light on the hype/information production issue by studying the marginal effects of the predicted and innovative components on offer price revisions and initial returns. To shed further light on this issue, we also examine the marginal predicting power of premarket analyst research for the long-run performance of IPOs.

### *A. Predicting Analyst Coverage and Optimism*

To decompose premarket analyst coverage and optimism, we use the average number of brokers and the average optimism from all premarket analyst reports on IPOs underwritten by a particular underwriter during the last twelve months (LTM) to capture the lead momentum (or the effect of lead connections). We also use the LTM averages for all premarket analyst reports on all IPOs in a particular industry to capture the market sentiment for the industry. For ease of presentation, we term it as the industry momentum. We denote these four variables as *LTM Pre-Coverage_Lead*, *LTM Pre-Coverage_Ind*, *LTM Pre-Optimism_Lead*, and *LTM Pre-Optimism_Ind*, respectively, for the four LTM averages based on pre-offer date coverage and optimism. For the post-offer period regressions, we denote them as *LTM Post-Coverage_Lead*, *LTM Post-Coverage_Ind*, *LTM Post-Optimism_Lead*, and *LTM Post-Optimism_Ind*.

As an example, to decompose the breadth of analyst coverage for an IPO before the offer date, *Pre-Coverage*, into predictive and innovative components, we use the following lead- and industry-related variables. *LTM Pre-Coverage_Lead* is the average of *Pre-Coverage* for all IPOs during the last twelve month prior to the current IPO by the same lead underwriter, and *LTM Pre-Coverage_Ind*, the average of *Pre-Coverage* for all IPOs in the same industry during the last twelve month prior to the current IPO. In addition to these lead- and industry-related variables, we control for firm and issue characteristics as in Tables III and IV.

We report these predictive regressions in Table V. Note that no industry or year fixed effects are included in the regressions reported in Table V since the LTM variables help to capture such effects. For each of the four measures for pre- and post-offer date coverage and optimism, we report two regressions: one with only lead-related LTM variables, and one with both lead-and industry-related LTM variables. As we will report in Table VI, we use the lead-only based on predictive component to see if connections with the lead underwriter play a role in terms of influencing offer price revisions or initial returns. Also note that our control variables differ depending on whether the dependent variable is pre- or post-offer date.

In Regressions (1) and (2), the dependent variable is *Pre-Coverage*, and the dependent variable in Regressions (3) and (4) is *Pre-Optimism*. Interestingly, the coefficients on both *LTM Pre-Coverage_Lead* and *LTM Pre-Coverage_Ind* are positive and statistically significant at the one percent level for predicting the pre-offer date analyst coverage, *Pre-Coverage*. For *Pre-Optimism*, the coefficients on both LTM variables are insignificant. This suggests that the decision of providing coverage for an IPO is partly driven by the motivation of maintaining relationships with the lead underwriter of the IPO; however, for reputational concerns, analysts do not provide persistent optimistic reports for maintaining relationships.

In Regressions (5) and (6), we regress *Post-Coverage* on the LTM variables and other control variables. In Regressions (7) and (8), the dependent variable is *Post-Optimism*. Since the offer price has been determined, there is less demand for analysts to curry favor with the lead underwriter and the data support this prediction: the coefficient on *LTM Post-Coverage_Lead* is insignificant. Interestingly, the coefficients on *LTM Post-Optimism_Lead* and *LTM Post-Optimism_Ind* are positive and statistically significant at the one percent level in both Regressions (7) and (8). This is partly due to the fact that analysts are more likely to cover an IPO when they have positive information. The lead-specific effect might be attributed to the lead underwriter's reputational effect among analysts.

### *B. Predicted and Innovative Components of Analyst Research, Offer Price Revisions, and Initial Returns*

We decompose the pre- and post-offer date coverage and optimism measures into predicted and innovative (residual) components based on the regressions reported in Table V. We examine in this

sub-section how the predicted and residual components of these coverage and optimism measures affect offer price revisions and initial returns. The regression results are reported in Table VI. For all the regressions in Table VI, we include the same control variables as in Table III (offer price revisions) or Table IV (initial returns). The coefficients on the control variables have similar patterns as in Tables III and IV and are not reported.

As to the notations, we use *Pred. Pre-Coverage by LEAD* and *Res. Pre-Coverage by LEAD* to denote the predicted and residual values for *Pre-Coverage* based on Regression (1) in Table V. That is, we use *LEAD* in the variable name to indicate that we only include the lead-LTM pre-coverage measure, as well as firm and issue characteristics, to generate the predicted and residue values. As another example, *Pred. Pre-Coverage by LEAD&IND* and *Res. Pre-Coverage by LEAD&IND* are the predicted and residual values for *Pre-Coverage* based in Regression (2) in Table V, where we use *LEAD&IND* to indicate that both the lead- and industry-LTM pre-coverage measures, as well as firm and issue characteristics, are used in generating the predicted values. The other predicted and residual values are defined and denoted in the similar way.

In Panel A of Table VI, we regress *Offer Price Revision* on the predicted and residual components of *Pre-Coverage* and *Pre-Optimism*. A few interesting patterns arise. First, regardless of whether we include only lead-related or both lead- and industry-related LTM pre-offer date coverage measures, the coefficients on the predicted and residual components for pre-offer date coverage are all positive and statistically significant at the one percent level. This suggests that improved coverage on IPOs in the premarket, even if such coverage is based on already public information, helps improve the pricing efficiency of IPOs. Second, the coefficients on *Pred Pre-Coverage_Lead* are positive and statistically significant at the one percent level in both Regressions (2) and (4). Note that we use Regression (1) of Table V to construct *Pred Pre-Coverage_Lead.* And in Regression (1) of Table V, *LTM Pre-Coverage_Lead* has a positive and statistically significant coefficient. Together, these results suggest that the lead underwriter of an IPO uses its connections to increase pre-offer date analyst coverage for its IPO and the increased coverage helps improve the offer price of the IPO. Third, regardless the model

specifications for decomposing analyst optimism, while the coefficients on the residual term are positive and statistically significant, the coefficients on the predicted component of optimism is generally insignificant in the regressions. This suggests that optimistic information in analyst research that is surprising to investors helps increase the offer price, and such information production is not related to lead connections.

In Panel B of Table VI, we examine whether the predicted and residual components of *Post-Coverage* and *Post-Optimism* help predict the initial returns. As we noted before, since the motivation of currying favor with the lead underwriter is less of a concern during the post-offer date period, we expect that the variables *Pred Post-Coverage by LEAD* and *Pred Post-Optimism by LEAD*, our measures of lead connections, will have little effect on the initial returns. The results in Panel B of Table VI confirm our expectation. As reported in Panel B of Table VI, neither of these two variables shows any statistical significance. In contrast, the coefficients on the residual components, *Res. Post-Optimism by LEAD&IND* and *Res. Post-Optimism by LEAD* are positive and statistically significant.

Overall, the results reported in Table VI suggest that the lead underwriter can use its connections to increase research coverage of an IPO. Regardless of the motivations for providing coverage, both predicted and surprising coverage helps improve the offer price of the IPO. These results are consistent with Hypotheses *H2A* and *H2B*. For both pre- and post-offer date optimism, only the innovative components have an impact on offer price revisions or initial returns. Lead underwriters' connections cannot generate predicted and thus biased optimistic research.[26]

### *C. Analyst Research and IPO Long-Run Performance*

In this sub-section, we examine the relations between premarket analyst coverage and optimism and the long-run performance of IPOs. We use one-, two-, and three-year buy-and-hold returns (BHRs) after the IPO as the measures for IPO long-run performance. We calculate the buy-and-hold returns for a

[26] In unreported analysis, we also re-run the regressions in Tables III and IV using only the predicted values of pre- and post-offer date analyst coverage and optimism. The coefficients on these analyst-related measures remain qualitatively the same as those reported in Tables III and IV. This suggests that endogeneity is unlikely to be a concern for our regression results.

specific holding period (one to three years) using monthly returns starting from the first month after the IPO listing date. As a control variable, the market buy-and-hold returns for the same holding period are based on the value-weighted market return of both the Shanghai and Shenzhen stock exchanges. The cumulative abnormal return (CAR) for an IPO is calculated as the cumulative difference of the monthly returns of the IPO and the corresponding market index for the same holding period.

We report the summary statistics of IPO long-run performance in Panel A of Table VII. The regression results are reported in Panel B of Table VII. In Regressions (1)-(3), the dependent variable is one-year BHR after IPO. The coefficients on *Post-Coverage* and *Post-Optimism* are positive and statistically significant (except that on *Post-Coverage* in Regression (1)). We also use two- and three-year BHRs in Regressions (4) and (5) and the results are similar. These results suggest that premarket analyst coverage for Chinese IPOs is not just hype of promoting the stocks. Instead, it involves information production. Note that we need market underreactions to have the positive coefficients on these two variables. Such underreactions are more likely to exist if analyst coverage involves information production. The results reported in Panel B of Table VII thus provide support for Hypothesis *H2C*.

## V. The (Lack of) Impact of Availability of Lead Underwriters' Research Reports

The results reported in the previous two sections suggest that analyst coverage and (unexpected) optimism in the premarket can have a significant impact on the pricing of IPOs. Furthermore, the lead underwriter's connections can help its IPOs to gain more coverage and hence obtain a higher offer price. Note that our results so far are based on research coverage from unaffiliated analysts. Although affiliated analysts may face conflicts of interest, the evident information advantage possessed by underwriters make them potentially the best candidate of information providers, as suggested by U.S. Congressman Issa. If affiliated analysts' reputational concerns dominate their incentives of providing biased research on their IPOs for short-term business gains, then relaxing the quiet period regulations and allowing underwriters to publish research in the premarket will benefit investors. The 2010 rule change by the CSRC that requires the lead underwriter of an IPO to publish publically its valuation of the IPO provides us with a

natural experiment to shed light on this issue.

As we discussed in Section I.A, since November 2010, the lead underwriter in China is required to disclose its valuation of the issuing firm to the public after price inquiries while before listing. We are therefore able to collect such valuation reports by the lead underwriter for 465 IPOs. The analysis of these data indicates that lead underwriters indeed provide significantly more optimistic valuation than unaffiliated analysts (unreported). Given this fact, it is interesting to know whether the availability of the lead underwriters' optimistic reports affects IPO pricing. Notice that unlike the U.S., unaffiliated analysts in China provide extensive research coverage in the premarket for an IPO. If the market perceives the lead underwriter as a more reliable information provider than those unaffiliated ones, the availability of the lead valuation report will have a positive impact on IPO pricing. On the other hand, if investors are cautious about the possible conflicts of interest, or if the unaffiliated analysts have produced enough information that makes the lead report redundant, then the availability of the lead valuation report will have little impact on IPO pricing. This is summarized as the Issa Hypothesis. We test this hypothesis and report the results in Table VIII.

Panel A of TABLE VIII compares the offer price revision, initial returns and other variables conditional on the availability of lead underwriter's valuation report. The results show that after the reform for the disclosure requirement, IPOs have larger offer price revisions while lower initial returns. Note that the 465 IPOs for which the lead valuation report is available are concentrated in the second half of our sample period. The pricing differences can be due to the time trend or some other confounding factors. In order to formally examine the effect of the availability of the lead valuation reports, we regress offer price revisions and initial returns on the dummy variable of the availability of the lead valuation, *Lead_Val_Available*, which equals one if the lead underwriter's valuation report is available to the public due to the rule change and zero otherwise. We report the regression results in Panel B of Table VIII. Although the coefficients on *Lead_Val_Available* are positive in both the offer price revision and the initial returns regressions, they are statistically insignificant. This indicates that although lead underwriters on average show more optimism than unaffiliated analysts, the market reaction does not

show any systematic change after such reports are made publically available.[27]

In sum, our results do not support the Issa Hypothesis – the availability of lead underwriters' valuation opinions does not have a significant impact on IPO pricing. However, we are cautious to apply our results to other markets since investors in China can acquire information from unaffiliated analysts. Such extensive research coverage from unaffiliated analysts can be a driving force behind our results.

## VI. Conclusion

After 23 years since the rebirth of the Chinese stock market, the operations and regulations of the IPO market in China are similar to those in the U.S. But due to path dependency and political reasons, the allocations of IPO shares are very different in China. A significant fraction of the shares for an IPO is required by the CSRC, the Chinese counterpart of the U.S. SEC, to be allocated to retail investors. For our sample period of 2006 to 2012, the average retail allocation is 79%. Furthermore, for both retail and institutional share allocations, a lottery or pro rata allocation system is used and the lead underwriter has little discretion over share allocations.[28] Although it is difficult to establish a causal link between share allocation rules and analyst coverage, we think that largely due to the widespread access to IPO shares by investors, there exists active premarket research coverage for Chinese IPOs. This provides us a unique opportunity to examine how analysts and their information production in the premarket can affect the pricing of IPOs.

Using a sample of 1,105 Chinese IPOs from 2006 to 2012, we find that analyst coverage and optimism have a significant positive impact on offer price revisions and initial returns. For example, the offer price of an IPO can increase by 4.7% if the number of brokers that publish reports before the offer

[27] In unreported analysis, we also examine the impact of the excess optimism of the lead underwriter (the difference of optimism between lead underwriter's valuation and the unaffiliated analysts' valuations) on the pricing, and the results are also insignificant. Note that the availability of the lead valuation report after 2010 happens right after the offer date but before the listing date. That is, it happens after the offer price is determined. It is plausible that the lead underwriter anticipate its impact on retail investors and adjust the offer price accordingly, but the timing of the availability of the report can mitigate its effect on price revisions and result in an insignificant coefficient on the *Lead_Val_Available* dummy.

[28] The CSRC reopened the IPO market at the end of 2013. With the reopening of the IPO market, the CSRC also explicitly states that the underwriter(s) of an IPO has discretion over share allocations for institutional investors (the offline part). But many underwriters still choose to follow the old pro rata system.

date increases by 3.68 (the standard deviation). For an average IPO, this represents a gain of Chinese ¥46.61 million (U.S. $7.42 million). This provides strong support for the notion that an increase in information production in the premarket can improve the pricing efficiencies of an IPO.

Interestingly, when we decompose the number of brokers covering an IPO and the optimism of the coverage into predicted and residual components, we find that the historical breadth of research coverage of all IPOs underwritten by the same lead underwriter is positively associated with the level of coverage (measured by number of brokers) for its current IPO. However, the historical optimism of past IPOs by the same lead underwriter cannot predict the coverage optimism (measured by the industry-adjusted implied P/E ratio based on EPS forecasts) of its current IPO. We also find that both the predicted and residual components of analyst coverage have a significant impact on offer price revisions. But for optimism, only the residual component has a significant impact. This suggests that the lead underwriter of an IPO can use its connections to boost the coverage of its IPO and hence increase the offer price, but the analysts' reputational concerns are strong enough for them not to issue any overly optimistic research even if they have connections with the lead underwriter.

We also find that more analyst coverage and more optimistic earnings forecasts after the offer date but before the listing of the IPO are associated with better long-run performance of the IPO. Taken together, our results suggest that analysts in China play an important role as information providers in the premarket for an IPO and their work contributes to the IPO pricing efficiency.

A rule change by the CSRC in November 2010 enables all investors to gain access to the lead underwriter's valuation report for an IPO, while such report is kept confidential and are only available for institutional investors that participate in price inquiries and bookbuilding for the IPO before the rule change. We exploit this particular experiment to examine the issue proposed by U.S. Congressman Issa: Does relaxing quiet period restrictions help IPO price discovery? Our results suggest that the availability of lead underwriters' valuation reports has an insignificant impact on IPO pricing.

Finally, an interesting result for Chinese IPOs is that offer price revisions are negatively associated with initial returns. This is contradictory to the partial adjustment phenomenon documented for

the U.S. IPOs. We interpret this result as the consequence of the pro rata share allocation rules for Chinese IPOs. Since the lead underwriter cannot use allocations of underpriced shares to reward regular investors, it incorporates positive information provided by analysts and other sources more fully into the offer price. The negative association between offer price revisions and initial returns thus provides alternative evidence that strongly supports the information acquisition hypothesis for pricing IPOs (Benveniste and Spindt (1989) and Benveniste and Wilhelm (1990)).

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**Figure 1**
**Chinese IPOs: 1992-2012**

This figure plots the number of IPOs (on the left axis) and the average initial returns (on the right axis) for each year from 1992 to 2012 for the Chinese IPO market (A-share only, where A-share refers to stocks for domestic investors. B-Shares are for non-domestic investors. There are 110 IPOs until 2001 that involve B-shares. The B-share market is small and no longer active after 2001). The data are from the China Stock Market & Accounting Research (CSMAR) database. Nine IPOs with missing initial returns or proceeds are excluded. We also exclude 13 IPO before 1992 because of their extreme initial returns (the average initial return for these 13 IPOs is 5,143%). Initial return is defined as the percentage change from the offer price to the market closing price on the first trading day of the IPO. The big drop in the number of IPOs in 2005 reflects the suspension of IPO approvals by the China Securities Regulatory Commission (CSRC). The big increase in the number of IPOs in 2010 corresponds to the introduction of the Growing Enterprises Market, ChiNext, on the Shenzhen Stock Exchange (SZSE), which aims at helping small growth firms to go to public.

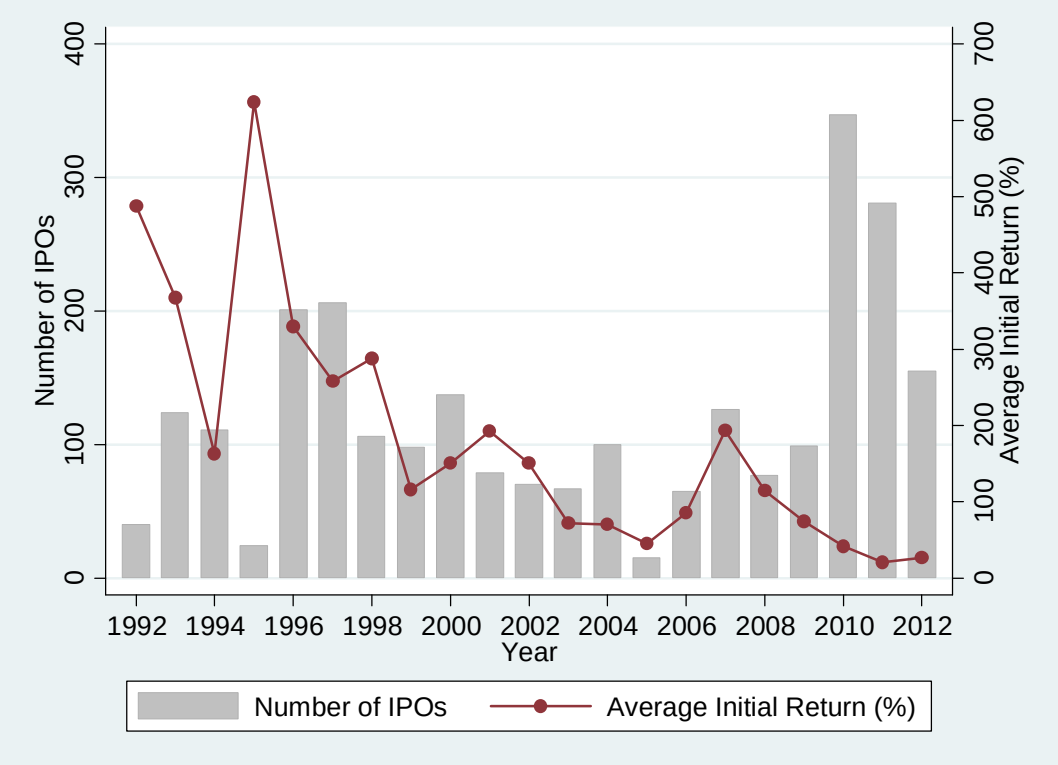

**Figure 2**
**Number of IPOs, Price Revision, and Initial Return for the Sample Period of 2006-2012**

On a quarterly basis, Figure 2 reports average offer price revision (%), average initial return (%), and total number of IPOs on the Chinese market from 2006 to 2012. Offer price revision and initial return are indicated on the right vertical axis, and number of IPOs is on the left vertical axis. Offer price revision is defined as the percentage change from the expected offer price to the offer price, where the expected offer price is calculated based on the proposed investment amounts for the IPO and the approved number of shares. Initial return is defined as the percentage change from the offer price to the market closing price on the first trading day of the IPO. Note that we have no IPOs for the fourth quarter of 2008, the first quarter of 2009, and only one IPO for the second quarter of 2009. The CSRC suspended the approval of IPOs during this period due to market conditions. We also have no IPOs for the fourth quarter of 2012 due to similar suspensions.

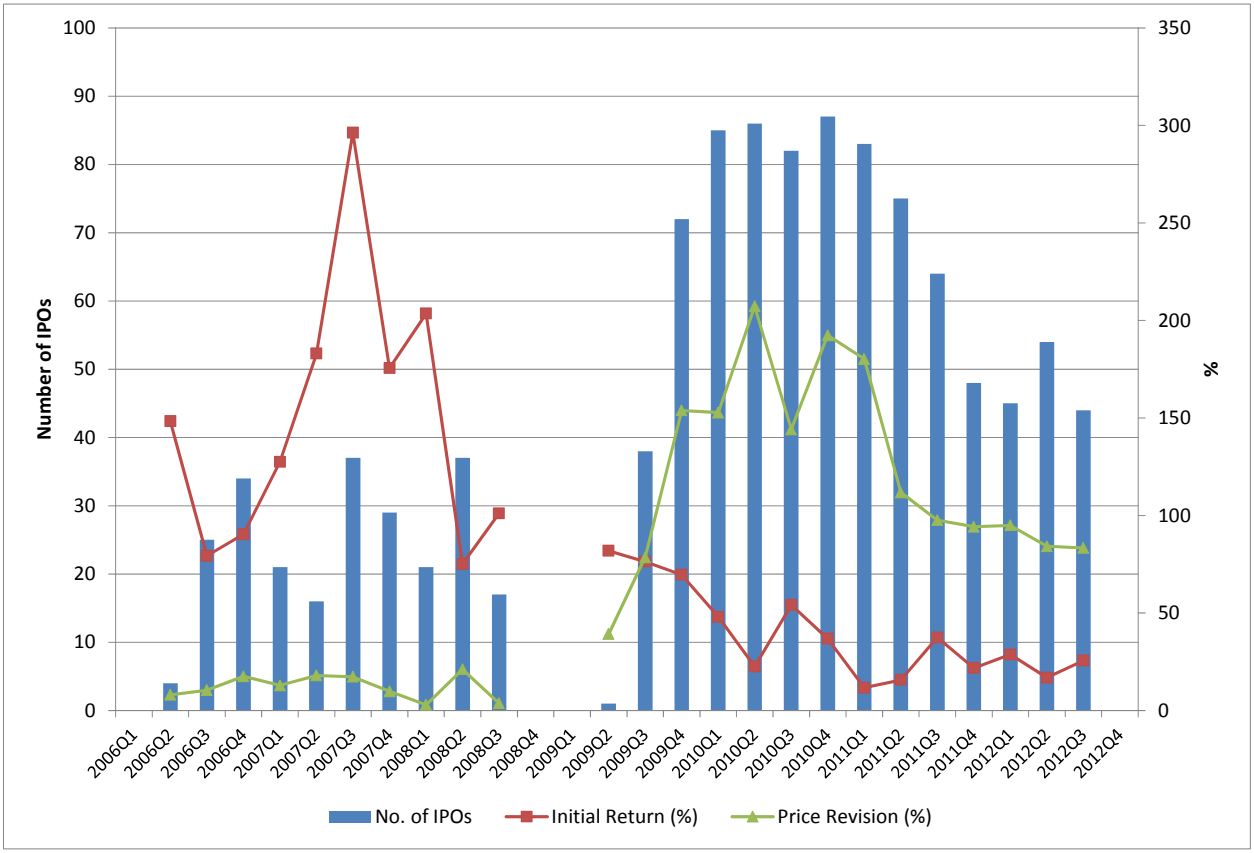

**Table I**
**Descriptive Statistics of IPOs, 2006-2012**

This table reports the summary statistics of IPOs that have gone public on the Chinese stock market (including both the Shanghai and Shenzhen stock exchanges) from 2006 to 2012. The data are from the China Stock Market & Accounting Research (CSMAR) database. Financial firms are excluded. We also exclude firms that have missing proceeds or have shares publicly traded on the Hong Kong Stock Exchange. The resulting sample includes 1,105 IPOs. *IR* (%) is the initial return of an IPO, which is defined as the percentage change from the offer price to the first-day market closing price. *Offer Price Revision* (%) is calculated as the percentage change from the expected offer price to the offer price. *Expected Offer Price* is the ratio of the *Expected Proceeds* (reported as proposed investments for the use of IPO proceeds) over the *Expected Number of Shares* offered (the maximum number of shares that can be offered as approved by the CSRC). The expected proceeds and the expected number of shares reported in this table are manually retrieved from the IPO initial prospectus filed with the CSRC. Chinese IPOs are allocated to both institutional investors and retail investors. Retail investors can only participate in the offering of the shares through the online trading system of the listing exchange (often referred to as online allocation), and institutional investors (with certain approvals from the CSRC) can also participate in the offering of shares organized by the underwriter (referred to as the offline allocation). The biddings and pro rata allocations for the two categories are separate, and the *Off-* and *On-line Oversubscription*s are the ratios of the number of shares subscribed to the shares allocated for each category. For the other issue characteristics, offer price, shares offered, and proceeds are from the CSMAR database, and overhang is the ratio of the number of shares retained by the issuing firm's existing owners over the number of shares offered. Market returns are based on the value-weighted index of all the stocks listed on both Shanghai and Shenzhen stock exchanges. *MktRet [-30, Offer Date]* (*MktRet [-30, Listing Date]*) is the cumulative market return from the 30 calendar days before the offer date (the listing date) to the offer date (the listing date). The *Market Share of Lead Underwriter*(s) is computed using all the IPOs during the recent three years prior to the current IPO. When there are multiple lead underwriters for an IPO, we split the proceeds equally for calculating market share. For firm characteristics, sales, assets, leverage (percentage debt over assets), P/E ratio (offer price over latest EPS before IPO), and age (IPO year minus year of firm being founded) are based on the reported items for the latest fiscal year before the IPO. *Shares after IPO* is the total number of shares outstanding after the IPO. *Ownership of controlling shareholder (%)* is the percentage of shares both directly and indirectly under the control of the controlling shareholder (it's set as missing if no controlling shareholders exist). These data items on firm characteristics are from the CSMAR database. We define *SOE_Central* (*SOE_Local*) as a dummy variable that equals one if the controlling shareholder is, or is controlled by, the central (local) government, and zero otherwise. *Market value of equity* is defined as the first-day market price times the total number shares outstanding after the IPO. Following Fama and French (2001), we define M/B ratio as the ratio of the market value of the firm over its book value, where the market value is defined as the market value of equity plus the book value of debt. Both the market value and the book value are based on the year end numbers of the IPO year. Assets, sales, market value, and IPO proceeds (expected and actual) are adjusted for inflation (using the Consumer Price Index) and are in 2011 Chinese yuan. The numbers for the IPOs in 2012 are not adjusted. For more detailed variable definitions, see Appendix Table A1.

| | N | Mean | Median | SD | Min | Max |
|---|---|---|---|---|---|---|
| *IR (%)* | 1,105 | 60.32 | 35.96 | 77.50 | -26.33 | 538.12 |
| *Offer Price Revision (%)* | 1,102 | 111.59 | 91.07 | 109.73 | -61.94 | 778.92 |
| | | | | | | |
| *Expected Offer Price (Yuan)* | 1,102 | 11.38 | 10.15 | 6.40 | 1.70 | 88.99 |
| *Expected Proceeds (Million Yuan)* | 1,102 | 612.80 | 301.73 | 1,860.37 | 78.93 | 44,100.13 |
| *Expected Shares Offered (Million Shares)* | 1,103 | 87.33 | 28.00 | 486.76 | 8.67 | 12,000.00 |
| *Offer Price （Yuan）* | 1,105 | 22.94 | 20.00 | 14.84 | 2.18 | 148.00 |
| *Shares Offered (Million Shares)* | 1,105 | 83.06 | 27.70 | 461.58 | 8.67 | 12,000.00 |
| *Proceeds (Billion Yuan)* | 1,105 | 1.05 | 0.61 | 2.42 | 0.11 | 54.61 |
| *Offline Oversubscription* | 1,105 | 82.52 | 49.41 | 92.02 | 1.10 | 431.18 |
| *Online Oversubscription* | 1,082 | 391.93 | 162.00 | 740.30 | 1.53 | 7,727.00 |
| *Overhang* | 1,105 | 3.26 | 3.00 | 1.37 | 1.20 | 24.38 |
| | | | | | | |
| *MktRet [-30, Offer Date](%)* | 1,105 | 0.51 | 0.27 | 8.41 | -27.47 | 26.74 |
| *MktRet [-30, Listing Date](%)* | 1,105 | 0.72 | -0.06 | 9.01 | -27.03 | 28.85 |
| *Market Share of Lead Underwriter (%)* | 1,105 | 2.53 | 1.36 | 3.53 | 0.00 | 24.04 |
| | | | | | | |
| *Sales (Billion Yuan)* | 1,098 | 1.96 | 0.46 | 11.95 | 0.05 | 220.01 |
| *Assets (Billion Yuan)* | 1,102 | 1.99 | 0.48 | 11.84 | 0.07 | 222.26 |
| *Leverage (%)* | 1,079 | 47.80 | 48.53 | 15.94 | 3.80 | 94.28 |
| *ROE (%)* | 1,100 | 29.11 | 26.54 | 13.36 | 0.18 | 166.93 |
| *P/E* | 1,105 | 44.67 | 40.21 | 20.62 | 6.67 | 150.82 |
| *Age (Years)* | 1,098 | 7.68 | 7.00 | 4.85 | 0.00 | 28.00 |
| *Shares After IPO (Million Shares)* | 1,105 | 347.50 | 108.64 | 1,532.14 | 34.67 | 30,000.00 |
| *Ownership of Controlling Shareholder (%)* | 1,046 | 44.50 | 43.34 | 17.39 | 5.89 | 100.00 |
| *SOE_Central* | 1,105 | 0.05 | 0.00 | 0.22 | 0.00 | 1.00 |
| *SOE_Local* | 1,105 | 0.09 | 0.00 | 0.28 | 0.00 | 1.00 |
| *Market Value of Equity (Billion Yuan)* | 1,098 | 6.61 | 3.57 | 14.20 | 0.83 | 218.80 |
| *M/B Ratio* | 1,105 | 4.33 | 3.85 | 2.13 | 1.40 | 24.67 |

**Table II**
**Descriptive Statistics of Analyst Coverage of IPOs**

This table reports the summary statistics of analyst coverage of IPOs. The analyst coverage data are from the CSMAR database. We report both breadth and optimism of analyst coverage of an IPO. The breadth is measured in two different ways, the number of brokers covering the firm and the number of reports of earnings per share (EPS) forecasts, and for three periods: Overall Coverage for the whole period before the listing of the IPO, Pre-Coverage for the period before the offer date at which the offer price is determined, and Post-Coverage from the offer date to the listing date (inclusive). We report the optimism measures based on EPS forecasts for the aforementioned three periods. The optimism measure is the average industry-adjusted implied P/E ratios based on EPS forecasts for a particular period during the IPO process. See the text for more detailed definitions. Note that we use the negative value of the adjusted P/E ratio for EPS forecasts since a more optimistic EPS forecast leads to a lower P/E ratio. A greater number for the optimism measure implies more optimistic coverage.

| | N | Mean | Median | SD | Min | Max |
|---|---|---|---|---|---|---|
| *Overall Coverage: Total No. of Brokers before IPO Listing Date* | 1,105 | 9.87 | 7.00 | 4.84 | 0.00 | 28.00 |
| *Pre-Coverage: No. of Brokers before offer Date* | 1,105 | 6.12 | 4.00 | 3.68 | 0.00 | 22.00 |
| *Post-Coverage: No. of Brokers from offer to Listing* | 1,105 | 4.80 | 3.00 | 2.79 | 0.00 | 21.00 |
| *Overall: No. of EPS Forecasts* | 1,105 | 9.94 | 7.00 | 5.03 | 0.00 | 31.00 |
| *Pre-Coverage: No. of EPS Forecasts* | 1,105 | 5.20 | 3.00 | 3.41 | 0.00 | 20.00 |
| *Post-Coverage: No. of EPS Forecasts* | 1,105 | 4.75 | 3.00 | 2.83 | 0.00 | 22.00 |
| *Overall Optimism* | 1,062 | -0.01 | -0.35 | 0.65 | -2.86 | 2.55 |
| *Pre-Optimism* | 995 | 0.55 | 0.27 | 0.77 | -3.63 | 2.52 |
| *Post-Optimism* | 1,036 | -0.62 | -1.10 | 0.78 | -4.97 | 2.55 |

**Table III**
**Analyst Research and Offer Price Revisions**

This table presents the regression results with offer price revision as the dependent variable. The offer price revision (%) is defined as the percentage change from the expected offer price to the offer price. The key independent variables are *Pre-Coverage* and *Pre-Optimism*. Slightly different from that in Table II, *Pre-Coverage* is measured as *log(1+No. of Brokers before Offer Date)*. Same as those in Table II, *Pre-Optimism* for an IPO is measured as the mean value of industry-adjusted implied P/E ratios for all EPS forecasts before the offer date for the IPO. Note that we use the negative value of the adjusted P/E ratio for EPS forecasts. A greater number for the optimism measure implies more optimistic coverage. For the detailed definition of the expected offer price as well as the control variables, refer to the notes in Tables I and II as well as Appendix Table A1 for more information. We include the industry and/or year fixed effects in some regressions but do not report their coefficients. We report heteroskedasticity-consistent t-statistics in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| *Pre-Coverage* | 32.828*** | 13.058*** | 11.265*** | | 24.233*** |
| | (7.09) | (3.09) | (2.60) | | (4.08) |
| *Pre-Optimism* | | | | 43.556*** | 42.134*** |
| | | | | (8.81) | (8.53) |
| *IR [-30,Offer]* | -0.004*** | -0.000 | -0.000 | -0.000 | -0.000 |
| | (-10.76) | (-0.22) | (-0.95) | (-0.43) | (-0.38) |
| *MktRet [-30,Offer]* | 1.011*** | 0.258 | 0.387 | 0.411 | 0.369 |
| | (3.11) | (0.99) | (1.51) | (1.33) | (1.18) |
| *Log(Expected Proceeds)* | -93.679*** | -113.872*** | -116.251*** | -76.014*** | -79.693*** |
| | (-12.79) | (-15.25) | (-16.25) | (-8.21) | (-8.69) |
| *Overhang* | -6.013*** | -9.054*** | -10.084*** | -4.677** | -5.133** |
| | (-2.80) | (-2.96) | (-3.76) | (-2.07) | (-2.15) |
| *Lead_MktShare* | 1.043 | 3.044*** | 2.668*** | 2.139*** | 1.973** |
| | (1.07) | (3.89) | (3.46) | (2.82) | (2.58) |
| *Log(Assets)* | 40.579*** | 56.264*** | 60.733*** | 33.698*** | 35.102*** |
| | (7.51) | (10.50) | (11.22) | (4.94) | (5.17) |
| *ROE* | 2.707*** | 3.162*** | 3.097*** | 2.072*** | 2.131*** |
| | (6.69) | (7.56) | (7.60) | (4.73) | (4.99) |
| *SOE_Central* | 9.334 | 10.983 | 2.964 | 11.704 | 8.365 |
| | (0.66) | (0.90) | (0.24) | (0.81) | (0.59) |
| *SOE_Local* | -16.592* | -1.748 | -16.335* | -13.038 | -14.028 |
| | (-1.81) | (-0.22) | (-1.86) | (-1.50) | (-1.57) |
| *Constant* | 587.909*** | 669.369*** | 711.191*** | 393.358*** | 381.275*** |
| | (14.26) | (16.58) | (14.62) | (6.72) | (6.80) |
| Industry Fixed Effect | No | No | Yes | Yes | Yes |
| Year Fixed Effect | No | Yes | Yes | Yes | Yes |
| Observations | 1,093 | 1,093 | 1,093 | 986 | 986 |
| Adjusted R-squared | 0.311 | 0.517 | 0.538 | 0.582 | 0.589 |

**Table IV**
**Analyst Research and Initial Returns**

This table presents the regression results with initial return as the dependent variable. The dependent variable, *IR (%)*, is defined as the percentage return from the offer price to the market closing price on the first trading day. The independent variables of interest are as follows. Slightly different from those in Table II, *Post-Coverage* is defined as *log(1+No. of Brokers after Offer Date)*, and *Overall Coverage* is defined as *log(1+ Total No. of Brokers until Listing Date)*. Same as that in Table II, *Post-Optimism* for an IPO is measured as the mean value of industry-adjusted implied P/E ratios for all EPS forecasts for the IPO after the offer date. Note that we use the negative value of the adjusted P/E ratio for EPS forecasts. A greater optimism measure implies more optimistic coverage. For the definitions of the control variables, refer to the notes in Tables I and II as well as Appendix Table A1 for more information. We include the industry and year fixed effects but do not report their coefficients. We report heteroskedasticity-consistent t-statistics in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| *Post-Coverage* | | | 4.411 | | -1.452 | -0.022 |
| | | | (1.39) | | (-0.39) | (-0.00) |
| *Overall Coverage* | | | | 4.059 | | -2.920 |
| | | | | (1.06) | | (-0.42) |
| *Post-Optimism* | | | | | 10.283*** | 11.760*** |
| | | | | | (3.63) | (3.34) |
| *Overall Optimism* | | | | | | -2.227 |
| | | | | | | (-0.47) |
| *Offer Price Revision* | | -0.055*** | -0.055*** | -0.055*** | -0.039*** | -0.032** |
| | | (-4.53) | (-4.55) | (-4.57) | (-3.11) | (-2.02) |
| *IR [-30,Offer]* | 0.005*** | 0.005*** | 0.005*** | 0.005*** | 0.005*** | 0.005*** |
| | (7.12) | (7.09) | (7.07) | (7.07) | (6.83) | (6.86) |
| *MktRet [-30,List]* | 1.491*** | 1.467*** | 1.508*** | 1.501*** | 1.593*** | 1.598*** |
| | (6.75) | (6.65) | (6.99) | (6.98) | (7.42) | (7.48) |
| *Lead_MktShare* | -0.419 | -0.351 | -0.396 | -0.394 | -0.393 | -0.384 |
| | (-1.29) | (-1.06) | (-1.19) | (-1.17) | (-1.26) | (-1.23) |
| *Overhang* | 5.220*** | 4.951*** | 4.916*** | 4.958*** | 5.849*** | 5.775*** |
| | (3.38) | (3.20) | (3.16) | (3.19) | (3.92) | (3.87) |
| *Log_OverSub_Offline* | 4.058** | 5.040*** | 4.867*** | 4.742** | 5.583*** | 5.753*** |
| | (2.21) | (2.79) | (2.68) | (2.56) | (3.04) | (3.06) |
| *Log_OverSub_Online* | 10.768*** | 9.051*** | 8.755*** | 8.772*** | 6.024*** | 6.118*** |
| | (5.07) | (4.13) | (3.93) | (3.95) | (2.83) | (2.86) |
| *Log(Assets)* | -9.414*** | -10.164*** | -10.364*** | -10.599*** | -13.334*** | -13.062*** |
| | (-4.19) | (-4.52) | (-4.58) | (-4.66) | (-6.41) | (-6.27) |
| *ROE* | -0.432*** | -0.357*** | -0.378*** | -0.372*** | -0.463*** | -0.461*** |
| | (-3.66) | (-3.03) | (-3.23) | (-3.18) | (-4.02) | (-3.98) |
| *Leverage* | 0.167 | 0.151 | 0.153 | 0.156 | 0.134 | 0.135 |
| | (1.55) | (1.41) | (1.44) | (1.47) | (1.23) | (1.25) |
| *SOE_Central* | -1.824 | -2.207 | -2.434 | -2.324 | 2.256 | 2.241 |
| | (-0.29) | (-0.35) | (-0.38) | (-0.37) | (0.35) | (0.35) |
| *SOE_Local* | 1.992 | 1.855 | 2.122 | 2.149 | -0.683 | -0.992 |
| | (0.29) | (0.27) | (0.30) | (0.31) | (-0.10) | (-0.15) |
| *Constant* | -20.060 | -61.104** | -62.439** | -62.818** | -41.184** | -36.944** |
| | (-0.80) | (-2.01) | (-2.07) | (-2.08) | (-2.40) | (-2.01) |
| Industry Fixed Effect | Yes | Yes | Yes | Yes | Yes | Yes |
| Year Fixed Effect | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,050 | 1,049 | 1,049 | 1,049 | 986 | 986 |
| Adjusted R-squared | 0.652 | 0.656 | 0.656 | 0.656 | 0.657 | 0.657 |

**Table V**
**Predicting Analyst Coverage and Optimism Using Lagged Broker and Industry Averages**

This table presents the regression results for predicting analyst coverage and optimism for an IPO by using the last twelve month (LTM) average coverage and average optimism. For the pre-offer date period of the IPO process, the dependent variables, *Pre-Coverage* and *Pre-Optimism*, are the same as in Tables III: the natural logarithm of one plus the number of brokers covering the IPO before the offer date and the mean value of the negative of the industry adjusted implied P/E based on all EPS forecasts prior to the offer date for the IPO, respectively. For the period after the offer date to the listing date of the IPO process, the dependent variables, *Post-Coverage* and *Post-Optimism*, are the same as in Tables IV: the natural logarithm of one plus the number of brokers covering the IPO between the offer and the listing dates and the mean value of the negative of the industry adjusted implied P/E based on all EPS forecasts between the offer and the listing dates for the IPO, respectively. In addition to the firm and issue characteristics of an IPO that are used as control variables in the regressions in Tables III and IV, we include *LTM Pre-Coverage_Lead*, *LTM Pre-Coverage_Ind*, *LTM Pre-Optimism_Lead*, and *LTM Pre-Optimism_Ind* for the pre-offer period regressions, and for the post-offer period regressions, we include *LTM Post-Coverage_Lead*, *LTM Post-Coverage_Ind*, *LTM Post-Optimism_Lead*, and *LTM Post-Optimism_Ind*. As indicated by each variable name, for an IPO (an observation), the variables are the average of a particular variable for all IPOs by either the same lead underwriter or the same industry during the last twelve month from the IPO. For example, *LTM Pre-Coverage_Lead* is the average of *Pre-Coverage* (that is, *log(1+ No. of Brokers before Offer Date)*) for all IPOs during the last twelve month prior to the current IPO by the same lead underwriter, and *LTM Pre-Coverage_Ind*, the average of *Pre-Coverage* for all IPOs in the same industry during the last twelve month prior to the current IPO. For the definitions of other control variables, refer to Tables III and IV as well as Appendix Table A1 for more information. No industry or year fixed effects are included since the LTM variables help to capture such effects. We report heteroskedasticity-consistent t-statistics in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | *Pre-Coverage* | | *Pre-Optimism* | | *Post-Coverage* | | *Post-Optimism* | |
| *LTM Pre-Coverage_Lead* | 0.300*** | 0.228*** | | | | | | |
| | (5.04) | (3.36) | | | | | | |
| *LTM Pre-Coverage_Ind* | | 0.278*** | | | | | | |
| | | (4.27) | | | | | | |
| *LTM Pre-Optimism_Lead* | | | 0.033 | 0.059 | | | | |
| | | | (0.70) | (1.21) | | | | |
| *LTM Pre-Optimism_Ind* | | | | 0.038 | | | | |
| | | | | (0.65) | | | | |
| *LTM Post-Coverage_Lead* | | | | | -0.028 | -0.083 | | |
| | | | | | (-0.46) | (-1.23) | | |
| *LTM Post-Coverage_Ind* | | | | | | 0.157** | | |
| | | | | | | (2.18) | | |
| *LTM Post-Optimism_Lead* | | | | | | | 0.189*** | 0.149** |
| | | | | | | | (3.33) | (2.52) |
| *LTM Post-Optimism_Ind* | | | | | | | | 0.181*** |
| | | | | | | | | (2.85) |
| *MktRet[-30 Offer]* | -0.011*** | -0.012*** | -0.009*** | -0.006** | | | | |
| | (-3.82) | (-4.15) | (-2.94) | (-2.02) | | | | |
| *Log(Expected Proceeds)* | 0.134*** | 0.141*** | 0.143*** | 0.164*** | | | | |
| | (2.89) | (3.12) | (2.98) | (3.59) | | | | |
| *MktRet[-30 Listing]* | | | | | -0.015*** | -0.014*** | 0.003 | 0.001 |
| | | | | | (-6.11) | (-5.53) | (0.95) | (0.41) |
| *Offer Price Revision* | | | | | 0.000 | 0.000 | -0.002*** | -0.002*** |
| | | | | | (0.77) | (0.28) | (-8.91) | (-7.80) |

**Table V Continued:**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | *Pre-Coverage* | | *Pre-Optimism* | | *Post-Coverage* | | *Post-Optimism* | |
| *Leverage* | | | | | -0.002 | 0.000 | 0.003 | 0.002 |
| | | | | | (-1.18) | (0.01) | (1.33) | (0.83) |
| *Log_OverSub_Offline* | | | | | -0.058*** | -0.064*** | -0.097*** | -0.094*** |
| | | | | | (-2.92) | (-3.01) | (-3.68) | (-3.37) |
| *Log_OverSub_Online* | | | | | 0.100*** | 0.092*** | 0.136*** | 0.159*** |
| | | | | | (3.81) | (3.45) | (4.00) | (4.47) |
| *IR[-30 Offer]* | -0.000*** | -0.000 | -0.000*** | -0.000*** | -0.000*** | -0.000*** | -0.000 | -0.000 |
| | (-3.30) | (-0.90) | (-7.15) | (-6.68) | (-4.61) | (-3.66) | (-0.34) | (-1.25) |
| *Log(Assets)* | -0.023 | -0.030 | -0.019 | -0.038 | 0.038 | 0.018 | 0.193*** | 0.210*** |
| | (-0.67) | (-0.86) | (-0.54) | (-1.06) | (1.34) | (0.61) | (5.14) | (5.40) |
| *ROE* | -0.001 | -0.002 | -0.000 | -0.001 | 0.006*** | 0.005*** | 0.010*** | 0.011*** |
| | (-0.30) | (-0.83) | (-0.17) | (-0.53) | (4.36) | (3.93) | (5.21) | (5.29) |
| *SOE_Central* | -0.038 | 0.021 | -0.017 | 0.124 | -0.043 | -0.004 | -0.190 | -0.113 |
| | (-0.30) | (0.18) | (-0.12) | (1.04) | (-0.39) | (-0.03) | (-1.26) | (-0.86) |
| *SOE_Local* | -0.079 | -0.176 | -0.081 | -0.083 | -0.031 | -0.123 | 0.050 | 0.001 |
| | (-0.79) | (-1.54) | (-0.76) | (-0.69) | (-0.39) | (-1.34) | (0.43) | (0.01) |
| *Overhang* | 0.027 | 0.028 | 0.026 | 0.023 | 0.006 | 0.011 | -0.051*** | -0.082*** |
| | (1.60) | (1.23) | (1.46) | (1.05) | (0.46) | (0.51) | (-2.65) | (-3.17) |
| *Lead_MktShare* | 0.008 | 0.005 | 0.012** | 0.007 | 0.016*** | 0.012* | -0.009 | -0.009 |
| | (1.47) | (0.84) | (2.24) | (1.29) | (2.71) | (1.78) | (-1.35) | (-1.27) |
| *Constant* | 0.479 | 0.044 | 1.038*** | 0.931*** | 1.370*** | 1.169*** | -0.717*** | -0.590*** |
| | (1.59) | (0.14) | (3.56) | (3.25) | (7.38) | (4.97) | (-3.49) | (-2.61) |
| Observations | 942 | 844 | 914 | 796 | 906 | 810 | 845 | 748 |
| Adjusted R-squared | 0.211 | 0.232 | 0.165 | 0.173 | 0.185 | 0.192 | 0.244 | 0.258 |

**Table VI**
**The Impact of Predicted and Innovative Components of Analyst Coverage and Optimism on Price Revisions and Initial Returns**

The dependent variable in Panel A is *Offer Price Revision*, which is defined as the percentage change from the expected offer price to the offer price, as defined in Table III. The dependent variable in Panel B is *Initial Return*, which is defined as the percentage return from the offer price to the market closing price on the first trading day, as defined in Table IV. In Panel A, we include the predicted and residual values of the pre-offer date coverage and pre-offer date optimism measures as presented in Table V. *Pred. Pre-Coverage by LEAD&IND* and *Res. Pre-Coverage by LEAD&IND* are the predicted and residual values with *Pre-Coverage* as the dependent variable and with the LTM pre-coverage measures by the same lead and the same industry on the right-hand side (Regression (2) in Table V). *Pred. Pre-Coverage by LEAD* and *Res. Pre-Coverage by LEAD* are the predicted and residual values with *Pre-Coverage* as the dependent variable and only with the LTM pre-coverage measures by the same lead on the right-hand side (Regression (1) in Table V). Similarly, *Pred. Pre-Optimism by LEAD&IND* and *Res. Pre-Optimism by LEAD&IND* are based on Regression (4) of Table V; and *Pred. Pre-Optimism by LEAD* and *Res. Pre-Optimism by LEAD* are based on Regression (3) of Table V. The post-offer date coverage and optimism measures are labeled in the same way and are from the respective regressions in Table V. For the regressions in Panel A, we include the same set of control variables as those in Table III, which also use offer price revision as the dependent variable. For the regressions in Panel B, we include the same set of control variables as those initial return regressions in Table IV. The coefficients on the control variables in both panels have similar patterns as those reported in Tables III and IV and hence are omitted in this table. We report heteroskedasticity-consistent t-statistics in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Effects on Offer Price Revisions

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| *Pred. Pre-Coverage* | 60.996*** | | 71.757** | |
| *by LEAD&IND* | (2.88) | | (2.09) | |
| *Res. Pre-Coverage* | 19.762*** | | 36.229*** | |
| *by LEAD&IND* | (3.69) | | (4.93) | |
| *Pred. Pre-Coverage* | | 67.379*** | | 88.654*** |
| *by LEAD* | | (3.01) | | (2.75) |
| *Res. Pre-Coverage* | | 17.369*** | | 29.264*** |
| *by LEAD* | | (3.47) | | (4.25) |
| *Pred. Pre-Optimism* | | | 33.743* | |
| *by LEAD&IND* | | | (1.65) | |
| *Res. Pre-Optimism* | | | 53.133*** | |
| *by LEAD&IND* | | | (6.76) | |
| *Pred. Pre-Optimism* | | | | 22.169 |
| *by LEAD* | | | | (1.19) |
| *Res. Pre-Optimism* | | | | 48.549*** |
| *by LEAD* | | | | (7.52) |
| Industry Effect | Yes | Yes | Yes | Yes |
| Year Effect | Yes | Yes | Yes | Yes |
| Observations | 840 | 937 | 741 | 841 |
| Adjusted R-squared | 0.533 | 0.532 | 0.574 | 0.576 |

Panel B: Effect on Initial Returns

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| *Pred. Post-Coverage* | 72.908* | | 52.252 | |
| *by LEAD&IND* | (1.80) | | (1.48) | |
| *Res. Post-Coverage* | 2.589 | | 0.704 | |
| *by LEAD&IND* | (0.69) | | (0.20) | |
| *Pred. Post-Coverage* | | | | 22.382 |
| *by LEAD* | | | | (0.11) |
| *Pred. Post-Coverage* | | | | -1.169 |
| *by LEAD* | | | | (-0.30) |
| *Pred. Post-Optimism* | | -11.033 | -11.592 | |
| *by LEAD&IND* | | (-0.80) | (-0.84) | |
| *Res. Post-Optimism* | | 14.816*** | 14.831*** | |
| *by LEAD&IND* | | (5.03) | (5.05) | |
| *Pred. Post-Optimism* | | | | -7.541 |
| *by LEAD* | | | | (-0.39) |
| *Res. Post-Optimism* | | | | 11.657*** |
| *by LEAD* | | | | (3.84) |
| Industry Effect | Yes | Yes | Yes | Yes |
| Year Effect | Yes | Yes | Yes | Yes |
| Observations | 810 | 748 | 748 | 845 |
| Adjusted R-squared | 0.669 | 0.644 | 0.644 | 0.651 |

**Table VII**
**Analyst Research and Post-IPO Stock Performance**

This table presents the descriptive statistics and the regression results on one-, two-, and three-year buy-and-hold returns (BHRs) after the IPO. We calculate the buy-and-hold returns for a specific holding period (one to three years) using monthly returns starting form the first month after the IPO trading date. The market buy-and-hold returns for the same holding period are based on the value-weighted market index return of both the Shanghai and Shenzhen stock exchanges. The cumulative abnormal returns (CARs) are calculated as the cumulative difference of the monthly returns of the IPO and the corresponding market index for the specific holding period. Panel A reports the summary statistics for the BHRs and CARs in decimals. Panel B reports the regression results with the corresponding BHRs as the dependent variables. The variables of interest are the analyst coverage and optimism variables, and they are defined in the same way as in Tables III and IV. The control variables are defined in Appendix Table A1. We include dummy variables for industry fixed effects for all regressions, while their coefficients are not reported. We report heteroskedasticity-consistent t-statistics in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Summary Statistics of Post-IPO Performance

| | N | Mean | Median | SD | Min | Max |
|---|---|---|---|---|---|---|
| 1 Year BHR after IPO | 965 | 0.94 | 0.82 | 0.58 | 0.18 | 6.83 |
| 2 Year BHR after IPO | 712 | 0.84 | 0.69 | 0.53 | 0.20 | 5.65 |
| 3 Year BHR after IPO | 371 | 1.29 | 0.99 | 0.92 | 0.22 | 7.18 |
| 1 Year CAR after IPO | 978 | -0.06 | -0.09 | 0.37 | -1.26 | 1.35 |
| 2 Year CAR after IPO | 737 | -0.03 | -0.09 | 0.48 | -1.22 | 1.74 |
| 3 Year CAR after IPO | 398 | 0.24 | 0.16 | 0.62 | -1.36 | 2.14 |

Panel B: Regression of Post-IPO Performance

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | *1 Year BHR* | | | *2 Year BHR* | *3 Year BHR* |
| *Post-Coverage* | 0.051 | | 0.086** | 0.179*** | 0.068 |
| | (1.39) | | (2.34) | (3.73) | (0.52) |
| *Post-Optimism* | 0.073*** | | 0.066*** | 0.089*** | 0.212*** |
| | (3.42) | | (3.60) | (3.57) | (3.53) |
| *Overall Coverage* | | -0.036 | | | |
| | | (-0.97) | | | |
| *Overall Optimism* | | 0.033 | | | |
| | | (1.33) | | | |
| *Pre-Coverage* | | | -0.031 | | |
| | | | (-0.86) | | |
| *Pre-Optimism* | | | 0.009 | | |
| | | | (0.45) | | |
| *Initial Return (%)* | -0.002*** | -0.002*** | -0.002*** | -0.001** | -0.001* |
| | (-7.73) | (-7.47) | (-9.07) | (-1.97) | (-1.67) |
| *1 Year Market BHR after IPO* | 0.568*** | 0.576*** | 0.483*** | | |
| | (7.48) | (8.05) | (6.97) | | |
| *2 Year Market BHR after IPO* | | | | 0.891*** | |
| | | | | (5.17) | |
| *3 Year Market BHR after IPO* | | | | | 0.635*** |
| | | | | | (5.18) |
| *Log(Assets)* | 0.023 | 0.026 | -0.009 | -0.084*** | -0.191*** |
| | (0.95) | (1.07) | (-0.45) | (-2.61) | (-2.60) |
| *ROE* | 0.001 | 0.001 | -0.001 | 0.002 | 0.004 |
| | (0.65) | (0.62) | (-0.77) | (1.01) | (0.67) |
| *Leverage* | -0.001 | -0.001 | -0.001 | 0.003* | 0.008* |
| | (-1.24) | (-1.05) | (-1.08) | (1.79) | (1.71) |
| *SOE_Central* | 0.123 | 0.124 | 0.166* | 0.020 | 0.217 |
| | (1.16) | (1.17) | (1.86) | (0.20) | (0.85) |
| *SOE_Local* | -0.004 | -0.015 | 0.010 | 0.012 | -0.110 |
| | (-0.05) | (-0.20) | (0.17) | (0.20) | (-0.72) |
| *Overhang* | -0.062*** | -0.057*** | -0.033** | -0.028** | -0.069 |
| | (-3.37) | (-3.09) | (-2.41) | (-1.97) | (-1.48) |
| *M/B* | 0.087*** | 0.078*** | 0.074*** | 0.044*** | 0.013 |
| | (7.66) | (7.17) | (7.45) | (3.13) | (0.41) |
| *Ownership* | 0.001 | 0.001* | 0.001* | 0.001 | 0.002 |
| | (1.60) | (1.74) | (1.69) | (0.85) | (0.63) |
| *Lead_MktShare* | -0.003 | 0.000 | -0.002 | 0.006 | 0.024 |
| | (-0.58) | (0.01) | (-0.50) | (0.86) | (1.20) |
| *Constant* | 0.340* | 0.437** | 1.056*** | -0.384 | 0.543 |
| | (1.85) | (2.50) | (5.90) | (-0.67) | (0.51) |
| Industry Effect | Yes | Yes | Yes | Yes | Yes |
| Observations | 828 | 853 | 771 | 589 | 278 |
| Adjusted R-squared | 0.465 | 0.461 | 0.403 | 0.172 | 0.231 |

**Table VIII**
**Does Public Disclosure of the Lead Valuation Matter?**

This table presents the results on the estimated effects of the public disclosure of the lead underwriter's valuation on price revisions and initial returns. We have valuation reports from the lead underwriter for 465 IPOs due to a rule change by the CSRC. The dummy variable, *Lead_Val_Available*, is one for these 465 IPOs, and zero for the other 640 IPOs. Panel A of the table presents the summary statistics of price revisions, initial returns, market conditions, and firm size (measured by inflation adjusted assets) for the two groups. The differences and the corresponding t-statistics are in the last two columns. Panel B presents the regression results of the effects of the *Lead_Val_Available* dummy. In addition to the dummy variable *Lead_Val_Available*, we include other independent variables as in offer price revision and initial return regressions in Tables III and IV. The coefficients on the firm and issue characteristics related variables are similar to those reported in Tables III and IV and are not reported. Note that the number of observations varies in both panels due to missing variables. We report heteroskedasticity-consistent t-statistics in parentheses. For both panels, *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Summary Statistics

| | *Lead_Val_Available* =0 | | *Lead_Val_Available* =1 | | 1 vs. 0 | |
|---|---|---|---|---|---|---|
| | N | Mean | N | Mean | Diff. | t-stat |
| *Off Price Revision (%)* | 637 | 101.81 | 465 | 124.99 | 23.18*** | 3.48 |
| *Initial Return (%)* | 640 | 87.47 | 465 | 22.96 | -64.51*** | -14.98 |
| *MktRet [-30, Offer Date]* | 640 | 1.77 | 465 | -1.23 | -3.01*** | -5.96 |
| *MktRet [-30, Listing Date]* | 640 | 2.26 | 465 | -1.39 | -3.65*** | -6.77 |
| *Asset (Billion Yuan)* | 638 | 2.52 | 464 | 1.26 | -1.26 | -1.75 |

Panel B: Regression Results

| | (1) | (2) |
|---|---|---|
| | *Offer Price Revision* | *Initial Return (%)* |
| *Lead_Val_Available* | 17.118 | 6.042 |
| | (1.32) | (1.12) |
| *Pre-Coverage* | 24.051*** | |
| | (4.07) | |
| *Pre-Optimism* | 41.872*** | |
| | (8.47) | |
| *Post-Coverage* | | -1.820 |
| | | (-0.49) |
| *Post-Optimism* | | 10.290*** |
| | | (3.63) |
| Industry Fixed Effect | Yes | Yes |
| Year Fixed Effect | Yes | Yes |
| Observations | 986 | 986 |
| Adjusted R-squared | 0.589 | 0.657 |

## Appendix: Table A1
## Variable Definitions

We provide detailed definitions of the main variables used in the paper. We use data from the China Stock Market & Accounting Research (CSMAR) database or directly from the IPO prospectus filed with the CSRC to construct the variables. Most of the data are from the CSMAR database unless otherwise noted. For sales, assets, and proceeds (actual and expected), the number is adjusted for inflation and is expressed in the 2011 level of Chinese yuan. The numbers for the IPOs of 2012 are not adjusted.

| Variable | Definition |
|---|---|
| *IR (%)* | The percentage change from the offer price to the first-day market closing price. |
| *Offer Price Revision (%)* | The percentage change from the expected offer price to the offer price. |
| *Expected Offer Price* | The ratio of the expected proceeds divided by the expected number of shares offered as approved by the CSRC. |
| *Expected Proceeds* | The proposed investments for the use of IPO proceeds as reported in the prospectus. This data item is manually retrieved from the initial prospectus all the filings with the CSRC by public firms can be found at CNINFO (http://www.cninfo.com.cn/information/companyinfo.html). |
| *Expected No. of Shares* | The maximum number of shares that can be offered as being approved by the CSRC. |
| *Proceeds* | Offer price times the number of shares offered, where the number of shares offered is almost always the maximum number of shares approved by the CSRC. |
| *Log(Expected Proceeds)* | The natural logarithm of expected proceeds. |
| *Offline Oversubscription* | The ratio of the total subscriptions from institutional investors divided by the number of shares that are allocated to institutional investors. |
| *Online Oversubscription* | The ratio of total subscriptions from retail investors divided by the number of shares that are allocated to retail investors. |
| *Log_OverSub_Offline* | The natural logarithm of *Offline Oversubscription*. |
| *Log_OverSub_online* | The natural logarithm of *Online Oversubscription*. |
| *Overhang* | The number of shares retained divided by the number of shares offered. |
| *IR [-30,Offer]* | Average initial return for the IPOs during the past 30 calendar days before the offer date of the current IPO. |
| *IR [-30,Listing]* | Average initial return for IPOs during the past 30 calendar days before the listing date of the current IPO. |
| *MktRet [-30, Offer]* | The cumulative market return for the past 30 calendar days before offer date of the current IPO. Market returns are based on the value-weighted index of all stocks listed on both Shanghai and Shenzhen stock exchanges. |
| *MktRet [-30,Listing]* | The cumulative market return for the past 30 calendar days before the listing date of the current IPO. |
| *Lead_MktShare* | The percentage market share for a lead underwriter based on the total IPO proceeds credited to the lead divided by the total proceeds of all IPOs during the past three years from the current IPO. For multiple lead underwriters in an IPO, the proceeds are split equally for each underwriter. |
| *Assets* | Total assets for the latest fiscal year before the IPO. |
| *Log(Assets)* | The natural logarithm of assets. |
| *Sales* | Sales for the latest fiscal year before the IPO. |
| *Leverage (%) (before IPO)* | Percentage of total debt over assets for the latest fiscal year before the IPO. |
| *ROE (%)* | Return on equity for the latest fiscal year before IPO. |
| *P/E* | Offer price over the earnings per share (EPS) for the latest fiscal year before the IPO. This is reported in the final prospectus and is available from the CSMAR database. |
| *M/B* | Following Fama and French (2001), the market to book ratio is defined as the ratio of the market value of equity plus the book value of debt over the book value of assets. Both the market and book value numbers are based on the year-end numbers after the IPO. |

Table A1 Continued:

| Variable | Definition |
|---|---|
| *Market Value of Equity* | First-day market closing price times the number of shares outstanding after IPO |
| *Ownership of Controlling Shareholder (%)* | Percentage of shares directly or indirectly under the control of the controlling shareholder as reported in CSMAR. |
| *SOE_Central* | A binary variable that equals one if the controlling shareholder of the IPO firm is or controlled by the central government, and zero otherwise. |
| *SOE_Local* | A binary variable that equals one if the controlling shareholder of the IPO firm is or controlled by a local government at the provincial or city level, and zero otherwise. |
| *Overall Optimism* | The mean value of the negative of the industry-adjusted P/E ratios based on all EPS forecasts issued by analysts before trading for an IPO. The implied P/E ratio for an EPS forecast is simply the ratio of the latest price of the IPO over the EPS forecast. We use the expected offer price as the price for the stock if the EPS forecast is before the offer date, and use the offer price if the forecast is after the offer date. The adjustment is as follows: – (*Implied P/E-Industry P/E*)/*Industry P/E*, where the Industry P/E is the moving average P/E ratio of the listed firms in the same industry during the last 30 calendar days before the reporting date of the EPS forecast. |
| *Pre-Optimism* | The mean optimism based on EPS forecasts issued before the offer date |
| *Post-Optimism* | The mean optimism based on EPS forecasts issued between the offer and the listing dates. |
| *Overall Coverage* | The natural logarithm of one plus the number of brokers covering the IPO before trading. |
| *Pre-Coverage* | The natural logarithm of one plus the number of brokers covering the IPO before the offer date. |
| *Post-Coverage* | The natural logarithm of one plus the number of brokers covering the IPO between the offer and the listing dates. |