

# Does Information Disclosed in “Use of Proceeds” from Prospectuses Affect IPO Initial Underpricing?

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## Abstract

We study the impact of intended use of proceeds disclosed in the section of “Use of Proceeds” in prospectuses on ChiNext IPOs’ initial underpricing. After splitting the entire period into two non-overlapping sub-periods to control for regulatory changes and after controlling for the firm-level characteristics and market conditions, we find that the overall information disclosed from “Use of Proceeds” affects IPO initial underpricing significantly over the two sub-periods. Moreover, the intended use of IPO proceeds in several specific categories affects underpricing too. The proceeds raised for IPO firms’ information platform and research and development over the 2<sup>nd</sup> sub-period while the proceeds to promote marketing and sales and to expand existing products over the 1<sup>st</sup> sub-period are significantly and positively related to initial underpricing. The significance changes for the IPOs with the opportunity to change their use of proceeds after IPOs. We explore the causes and effects to explain our findings.

**Keywords:** Information disclosed in “Use of Proceeds” from prospectuses; initial underpricing; IPOs with opportunities to change their use of proceeds

**JEL Classification:** G12, G14, G15

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## **1. Introduction**

Initial public offerings (IPOs) are considered as a common and effective method for firms to raise capital directly from the public. When firms decide to go public, they must meet the standards and follow the procedures set by the relevant regulatory agents. Chinese IPO firms are no exceptions, and they must follow the rules and regulations set by the China Securities Regulatory Commission (CSRC hereafter) to disclose all the necessary information in their prospectuses when filing for IPOs. A prospectus is considered as one of the most important and informative documents that an IPO firm and its associated investment bankers (underwriters) need to prepare to make the IPO to happen. A prospectus lists all the opportunities, risks, along with financial details about the company that is going to public. Among all the information disclosed, the intended use of proceeds disclosed in a specific section called “Use of Proceeds” in a prospectus carries crucial information for the underwriters and potential investors.

Downes and Heinkel (1982) argue that under the information asymmetry, high-quality IPO firms prefer sending signals to the market and prospectuses are an important channel for them to reveal those signals. One of the most important signals is where and how the raised proceeds will be spent. Beatty and Ritter (1986) document a positive relationship between the ex-ante uncertainty in using IPO proceeds and IPO initial underpricing. A higher ex-ante uncertainty leads to higher information asymmetry and higher initial underpricing. Beatty and Welch (1996) directly examine the roles that IPO prospectuses play. They focus on the number of risk factors and the number of uses in IPO proceeds listed in prospectuses. Their results show that firms with more risk factors disclosed in prospectuses are sufficiently riskier, leading to an increase in the required compensation and more severe initial underpricing. Autore, Bray, and Peterson (2009) further recommend a more clear and comprehensive information disclose on the intended use of IPO proceeds, especially in the investment area (where the proceeds will be invested) to attract more interests from potential investors in the market.

The amount to spend on a specific category disclosed in the “Use of Proceeds” section is another important signal sent by an IPO company to the market. Leone, Rock and Willenborg (2007) link the dollar amount that an IPO issuer discloses in the use of proceeds to IPO’s initial underpricing for the US IPOs. The Security Exchange Commission (SEC hereafter) in the US requires all the US IPO firms to report (ex-post but not ex-ante) on how the IPO proceeds are spent. A typical IPO firm that desires to retain more flexibility, in general, favors a vague information disclose. Actually, the US IPO firms can choose voluntarily whether they are willing to disclose the detailed amount for a specific purpose in the use of IPO proceeds in their prospectuses. Leone et al. (2007) use the fraction of IPO proceeds from the “Use of Proceeds” section that the IPO firms provide for a specific use as a proxy for voluntary information disclose and report that IPO firms that provide this specific information tend to have less ex-ante uncertainty, resulting in a lower underpricing. However, using a similar approach, Balatbat and Bertinshaw (2008) report that about 70% of the IPO firms with full information disclose about their use of proceeds in Australia don’t have any significant impact on initial underpricing. Andriansyah and Messinis (2017) investigate the potential connection between the intended use of proceeds and post-issue operating performance for the IPOs in Indonesian. Using a small sample of 140 non-financial firms, they find that the information disclosed in the investment sector, especially in the areas of fixed assets and stocks from IPO prospectuses tends to make IPOs to perform more efficiently (with less underpricing).

As different capital markets have different information disclosure requirements and by comparing the prospectuses of the firms listed on the ChiNext board in China and Nasdaq board in the US, we find that prospectuses from both boards have one common and specific section named “Use of Proceeds”. The main different is that the firms listed on Nasdaq voluntarily disclose the dollar amount in the use of IPO proceeds while the firms listed on ChiNext are explicitly required by the CSRC to disclose in detail how they plan to use their proceeds (after

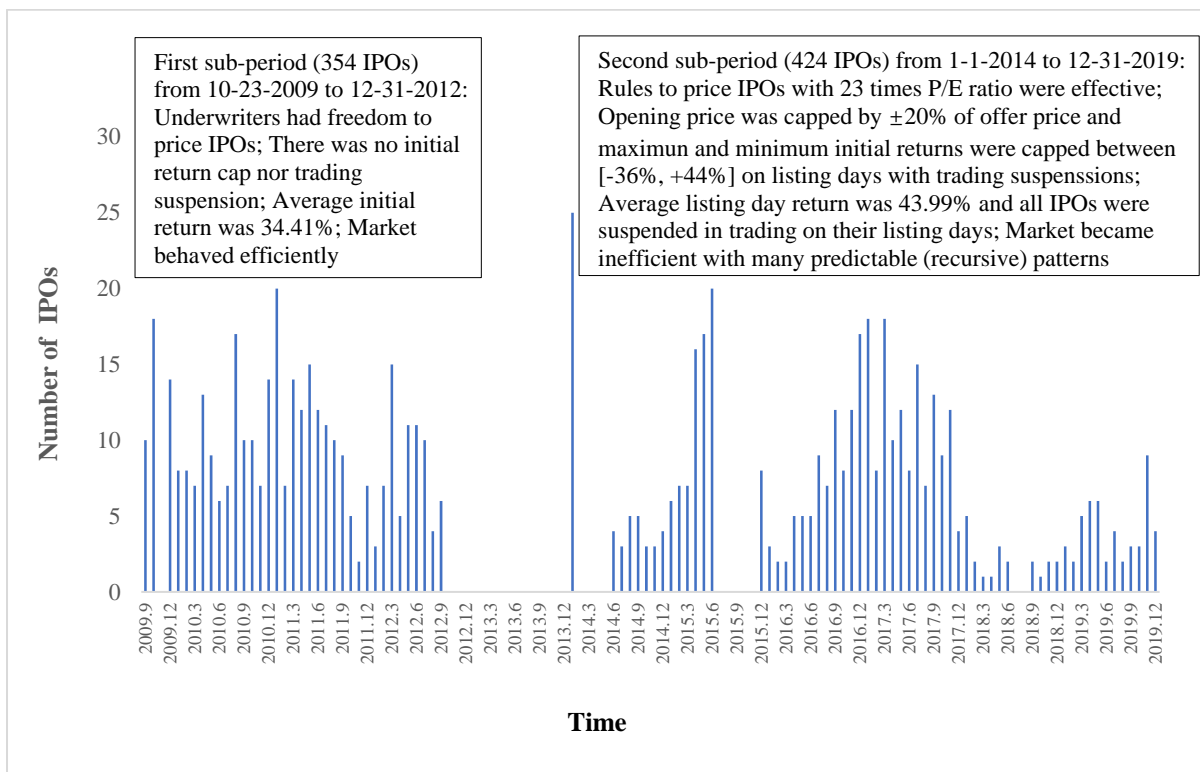
deducting IPO related commissions and expenses) and even how much they plan to spend in each of the intended use categories.

Compared to many capital markets around the world, the capital markets in China have the most restricted information disclose requirements for the use of IPO proceeds in both ex-ante and ex-post bases. Therefore, a detailed information disclose in the intended use of IPO proceeds should provide a unique opportunity to investigate its potential impact on IPOs' initial underpricing. Any information release provides a reliable resource for rational investors to make informed decisions. It foreshadows whether an IPO firm can change its intended use of proceeds after IPOs, another interesting phenomenon that is also worth further investigating.

We presume that the release of any valuable information in the "Use of Proceeds" in IPOs' prospectuses should be reflected in IPOs' initial underpricing. Extending the work by Hussein, Zhou, Deng (2019) who use the IPO data before the market reform in 2013 to identify several risk factors disclosed in the section of "Risk Factors" in ChiNext IPOs' prospectuses that affect initial underpricing significantly after controlling for the firm-level characteristics and stock market conditions, we examine the potential impact from the intended use of IPO proceeds disclosed in the section of "Use of Proceeds" from ChiNext IPOs' prospectuses on IPOs' initial underpricing. We focus on the possible connection between the information disclose from the "Use of Proceeds" and IPO underpricing, after controlling for the regulatory changes, firm-level characteristics, market conditions, and other risk factors. Moreover, we are interested in investigating whether and how different use of IPO proceeds affects IPOs' initial underpricing. We also examine whether and how the impact will be different on IPOs' initial underpricing for the IPO firms that have the opportunity to change their intended use of proceeds after IPOs.

As shown in Figure 1, there was a suspension period for Chinese IPOs from October 2012 to December 2013, which was the longest suspension for the IPOs in the Chinese capital market. During that period, the stock market underwent a major reform, and new rules and regulations

were promulgated, both in terms of IPO pricing and price limits on the listing days. There was another IPO activity pause for 4 months from July 2015 to November 2015 due to a short-term bailout during a downturn to increase liquidity without major changes in rules and regulations. To deal with the change in rules and regulations for ChiNext IPOs, we split the entire sample into two non-overlapping sub-periods. The first sub-period is from the inception of the ChiNext board on October 23, 2009 (while the first prospectus was released to the public on September 25, 2009) until December 31, 2012 and the second sub-period covers from January 1, 2014 to December 31, 2019. Since the rules and regulations are quite different over the two sub-periods, causing different reactions to stock prices in the market we propose different alternatives to estimate initial underpricing. With the estimated initial underpricing, we further investigate the potential connections between the use of IPO proceeds and initial underpricing.



**Figure 1 - Distribution of listed IPOs in two sub-periods under different rules and regulations**

This figure shows the number of IPOs listed on the ChiNext board each month from October 23, 2009 to December 31, 2019. More importantly, it shows a structure break during the stock market reform in 2013 when substantial changes in rules and regulations for Chinese IPOs occurred. The differences in policies and their consequences are highlighted in the boxes for comparison. As a result, it is necessary to split the entire sample into two non-overlapping sub-periods based on the regulatory changes.

After splitting the entire sample into two sub-periods to deal with the structural break, controlling for the firm-level characteristics and listing day market conditions, and using the traditional initial return measure for the 1<sup>st</sup> sub-period and the adjusted initial return for the 2<sup>nd</sup> sub-period, we confirm that the overall information disclosed from the “Use of Proceeds” indeed affects initial underpricing in different ways over the two sub-periods. Among the intended use of IPO proceeds in seven distinct areas, we find that spending in research and development and investing in information platform have a significantly positive impact on IPO underpricing over the 2<sup>nd</sup> sub-period while the intended use of proceeds for marketing and sales and for expanding existing products have a significantly positive impact on IPO underpricing over the 1<sup>st</sup> sub-period. The results suggest that investors value the investment opportunities disclosed in IPO prospectuses differently over time as the society and technology advance. The significant level changes for the IPOs with the opportunity to change their use of proceeds after IPOs. We explore the probable causes and effects for our findings.

Our findings are different from the previous research in the following ways. First, we use a more detailed and accurate dataset that enables us to calculate the percentages of the intended use of IPO proceeds relative to the total amount of proceeds raised in each of the seven “Use of Proceeds” categories, instead of using only the number of specific words mentioned in IPO prospectuses to proxy as documented in the current IPO literature. Second, we use a longer time period that covers a natural structure break (the 2013 stock market reform), which makes the analysis more interesting. To deal with the break we split the entire sample into two non-overlapping sub-periods to control for regulatory changes, in addition to control for the firm-level characteristics, market conditions, and other risk factors. Third, we propose an alternative approach along with the traditional one to estimate initial underpricing to make our results more reliable and robust. Fourth, we develop an overall information disclosed measure to study whether the information disclosed in the “Use of Proceeds” affects IPO initial underpricing.

And last, we separate the IPO firms with or without the opportunity to change their raised proceeds after IPOs to further investigate the potential connections among the intended use of proceeds, overall information discloses and initial underpricing. Our study is an early attempt to investigate this interesting issue. We believe that our findings will contribute to the existing IPO literature in general and Chinese IPO literature in particular, which casts light for future research in this field.

The paper is organized as follows. Section 2 provides the institutional background, initial underpricing measures, related regulatory changes over time for ChiNext IPOs, and general information release requirements. Section 3 covers the sample selection, variables, intended use of IPO proceeds and detailed classifications while Section 4 develops hypotheses. Section 5 discusses the methodology and models used in this paper and Section 6 presents the empirical results. Section 7 concludes the paper.

## **2. Background, information release, regulations, and initial underpricing measures**

### **2.1. Why ChiNext?**

Required by the CSRC, the prospectuses for all ChiNext IPOs must follow a standardized template with specific categories/sections. In addition to general rules and regulations, such as the *Guidelines on the Supervision of Listed Companies No. 2 (Regulatory Requirements for the Management and Use of Proceeds)*, the *ChiNext Information Disclosure Memorandum (1-19)* requires a detailed information release on how the raised funds will be spent. That ensures a reliable data source to perform our analysis. In addition, as all the ChiNext IPOs are priced using a “Chinese-style” bookbuilding process the ChiNext IPO market is supposed to be unique, market-oriented, and transparent. Like the firms listed on Nasdaq in the US, the firms listed on ChiNext are typically young, small, fast-growing, and hi-tech firms, representing a unique with growth potential and dynamic IPO market in the largest developing economy around the world.

It is our belief that the detailed information release in the use of IPO proceeds will reveal useful information that should further affect IPO initial underpricing and the results should have additional ripple effect for other emerging IPO markets in the world.

## **2.2. Proper initial return measures**

From the launch of the ChiNext board to the end of 2019, there are 778 IPO firms listed, raising a total of 372 billion Yuan.<sup>1</sup> The initial underpricing is more volatile for ChiNext IPOs before the 2013 reform while the market seems more efficient. During the stock market reform from October 2012 to December 2013, a set of new rules and regulations was promulgated. One of them was to limit the listing day maximum and minimum return of +44% and -36%, relative to the offer price after the ChiNext IPO market resumed on January 1, 2014.

The second requirement was to use a preset P/E ratio of 23 to price all the ChiNext IPOs, starting from July 1, 2014. Almost all the ChiNext IPOs that went public after that day followed this policy by setting up the offer prices around 23 times of their firms' earnings per share (EPS hereafter). The third requirement was to cap the opening price at  $\pm 20\%$  of the offer price and at any time during the listing day the maximum price movement is limited to additional  $\pm 20\%$  of the opening price.<sup>2</sup> The maximum daily price limit of  $\pm 10\%$  remained in effect for normal days. As a result, we observed many trading suspensions on listing days for ChiNext IPOs after July 1, 2014 since the maximum initial return was reached. In fact, all the IPOs listed on the ChiNext board hit the maximum price of 144%, relative to their offer prices on their listing days (or the maximum return cap of 44%) and were suspended for trading. Most ChiNext IPOs continued to reach their maximum daily return limit of +10% after their initial listing for many consecutive days, resulting a predictable pattern and leading to an inefficient market.

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<sup>1</sup> Yuan is the unit of Chinese currency. Given the current exchange rate between US and China is approximately \$1= 7.15 Yuan 372 billion Yuan is around \$52.03 billion.

<sup>2</sup> The maximum price movement on the listing day is  $\pm 20\%$  of the opening price while the maximum opening price is  $\pm 20\%$  of the offer price, which leads to the maximum of +44% and minimum of -36% of the offer price on the listing day for a ChiNext IPO.



Therefore, it is not appropriate to estimate a ChiNext IPO's initial underpricing by the traditional way across all the IPOs over different periods. Like Yang, Zhou, and Zhou (2022) who estimate initial underpricing by using the number of continuously suspended trading days, we propose another measure that uses the closing price for a ChiNext IPO on the first day when its trading is not suspended as an effective price to estimate the adjusted initial underpricing. Following that argument, we use the first day closing price to estimate initial underpricing for the ChiNext IPOs initiated during the 1<sup>st</sup> sub-period and the effective closing price to estimate adjusted initial underpricing for the ChiNext IPOs initiated during the 2<sup>nd</sup> sub-period.

### **2.3. Information release requirements**

In China, the following documents stipulate the requirements of information release in the intended use of proceeds, which include the *Company Law of the People's Republic of China*, *Securities Law of the People's Republic of China*, the *Administration of Securities Issuance*, the *Guidelines on supervision of Listed Companies No. 2 (the management and use of proceeds)*, the *Guidelines on the Content and Format of Corporate Information Disclosure for Public Securities No.28 -Prospectus for ChiNext Companies*. Specifically, the proceeds raised from IPOs should only be used for firms' core business in accordance with the purposes listed in IPO prospectuses. A resolution can be requested by a shareholders' meeting before the IPO firms can change the use of proceeds. The *Guidelines on the Content and Format of Corporate Information Disclosure for Public Securities No. 28* require IPO firms to disclose any specific use of proceeds in a timetable. We provide the detailed requirements in Appendix 1.

To a considerable extent, the use of IPO proceeds reflects the future direction of a firm's intended investment and operation, which should affect the firm's future earnings potential and its value. Different investments usually generate different benefits and costs to a firm in various horizons in the future and any specific information release will guide investors to make more informed decisions. The degree of uncertainty and predictability of future returns are expected

to vary with different projects. From this perspective, long-term investments, such as research and development are viewed as substantially risky and rewarding projects, which should lead to a higher initial underpricing.

As the information release from IPO prospectuses varies there are no unified formats and definite conclusions on the economic consequences of the intended use of proceeds. Autore et al. (2009) group the intended use of US IPO proceeds into three categories: investment, debt repayment, and general corporate purposes. Walker and Yost (2008) detail these assortments. Investment includes an increase in assets, acquisition of other firms, and research and development. Debt repayment includes to repay outstanding debt and revolve credit borrowing. General corporate purposes include to reserve for firms that do not want to detail their planned use of proceeds. Andriansyah and Messinis (2016) further expand the use of proceeds into five categories, which include fixed assets investment, working capital financing, investment in stocks, repaying debt, and secondary shares. However, not all the listed firms are willing to release their specific purposes to raise capital as they may not wish to divulge the real intended purposes to the public (Autore et al., 2009).

#### **2.4. Changes in use of IPO proceeds**

As we can see from the *Guidelines on the Content and Format of Corporate Information Disclosure for Public Securities No.28* that the information disclosure of the intended use of IPO proceeds is clearly defined and highly focused by the regulatory agents in China. However, we also notice that many of the Chinese IPO firms have changed their intended use of proceeds after they raise money. Since the number of those firms is not trivial, it is worthwhile to investigate how those IPO firms will behave relative to the otherwise similar IPO firms in the same sample period without that opportunity. As additional opportunity to change IPO proceeds after IPOs provides the firms an additional option, we expect different consequences on initial underpricing for those firms.

### **3. Data description, variables, intended use of proceeds and classifications**

We hand collected all the firm-level data for 778 IPOs listed on the ChiNext board from October 23, 2009 to December 31, 2019. The use of proceeds is collected directly from sections 10 (2009 edition) and 11 (2014 edition) from the “Use of Proceeds” in prospectuses. All the other data, including individual stock and market index returns are obtained from China Stock Market & Accounting Research (CSMAR), a leading financial database in China.

Appendix 2 lists four groups of the variables and their symbols used in this paper. The first group has two return variables, the initial return for 354 IPOs initiated during the 1<sup>st</sup> sub-period and estimated using the traditional approach (the percentage change in the closing price on the listing day relative to the offer price) and the adjusted return for 424 IPOs initiated in the 2<sup>nd</sup> sub-period and estimated using the effective closing price. The second group lists the control variables, including offer size, firm age, offline and online oversubscriptions, board member, profit growth, market conditions on listing days, pricing to listing delay, industry ID, pre-issue P/E ratio, ongoing litigation or lawsuit, and piracy or trademark infringement. The industry ID is defined the same as in Hussein, Zhou, and Deng (2019) with 778 IPOs being placed into 16 different industry sectors. All the control variables are documented in the previous literature.

The third group includes seven variables to represent seven distinctive categories obtained directly from the section of “Use of Proceeds” in IPO prospectuses. Those variables include expanding existing products (PE hereafter), producing new products (NP hereafter), research and development (R&D hereafter), marketing and product sales (MAR hereafter), developing information platform (IS hereafter), working capital (WP hereafter), and repaying debt (RB hereafter). The last group has only one variable to represent the level of information release. It is proxied by the ratio of the total number of pages in the section of ‘Use of Proceeds’ to the total number of pages in an IPO’s prospectus (INF hereafter). We believe that the higher the ratio, the more information release, and the lower the information asymmetry and underpricing.

Previous research on the use of proceeds, seeking to employ a more detailed classification, fails to identify whether the funds raised are planned for specific purposes (Leone et al., 2007; Andriansyah et al., 2016). Our classifications are more disaggregated, specific, inclusive, and detailed. For example, we separate expanding existing products from developing new products, which will make our results more specific. Different from Balatbat et al. (2008) who report that financing working capital and debt servicing (repayment of debt) account for about 34% to 35% of the total proceeds raised from the IPOs in Australia, the percentages for similar purposes are much lower for the ChiNext IPOs in the sample. Finally, our classifications come along with the estimated percentages of the intended use of proceeds relative to the total amount of funds raised, which makes our analysis more convincing.

#### **4. Hypothesis development**

##### **4.1 Use of proceeds and underpricing**

Investing in different projects involves different risks and returns and therefore should generate different economic effects on corporate performance. As the intended use of proceeds will be spent on different projects it is important for the investors to know the intended use from “Use of Proceeds.” Without the information release it is difficult to predict the potential impact of the projects on the listed companies. For example, the information release on raising funds for R&D may have different effects on IPO underpricing from on raising funds to repay debt. On one hand, the information release reduces information asymmetry, resulting in a lower initial underpricing. On the other hand, investing in high-tech with high growth potential is an important condition for an enterprise to grow and investors tend to value growth potential for the investment in R&D higher. Therefore, investment in R&D can be interpreted as a positive signal to the market eventually. Given the IPO pricing constraint of 23 times of EPS during the 2<sup>nd</sup> sub-period, we believe that the positive role will dominate. Similarly, investment in fixed

assets, new projects, information technology and marketing are all expected to send a positive signal to the market while using proceeds to repay debt will be viewed as a negative signal to the market. As a result, we develop the first hypothesis.

H1: Under general conditions, the use of proceeds in each category in the “Use of Proceeds” section should be correlated to initial underpricing. In particular, if a specific use of proceeds can attract more investors (signaling a positive growth potential) in the market the correlation will be positive and significant. Otherwise, the correlation will be insignificant or negative (if it sends a negative signal).

#### **4.2 Overall information release and underpricing**

Under the theory of information asymmetry, IPO underpricing is to compensate for the information asymmetry, and underpricing is positively related with the degree of information asymmetry. As mentioned before, a prospectus is the most important venue for a company to reveal signals to the market during its IPO, and the ‘Use of Proceeds’ is regarded as one of the most important places where the investors obtain the information. A higher degree of release is expected to reduce information asymmetry, so as to reduce IPO underpricing. Based on that argument, we have the second hypothesis.

H2: Under general conditions, the more detailed information is disclosed in the section of ‘Use of Proceeds’ in an IPO prospectus, the lower the IPO initial underpricing. Given that the rules and regulations are quite different over the two sub-periods the effect from information release in the “Use of Proceeds” section may vary over time.

The above two hypotheses are not mutually exclusive. Hypothesis 1 is more specific, and it examines whether and how each of seven categories in the “Use of Proceeds” affects IPOs’ initial underpricing while hypothesis 2 is more general and it tests whether and how the overall information release in the “Use of Proceeds” (including all seven categories) affects IPO initial underpricing. Therefore, the test results from both hypotheses can be complementary.

## 5. Methodology

We investigate initial underpricing, using the entire sample and two sub-periods, separated by the natural structural break of the 2013 reform. As discussed earlier, we use the traditional definition of listing day closing price to calculate initial underpricing before 2013 and use the effective price to estimate the adjusted initial underpricing after January 1, 2014.

To test different hypotheses, we propose the following cross-sectional regression:

$$CPR/CPR\_AD_i = a + \sum \beta_j CV_{i,j} + \sum \gamma_k UF_{i,k} + \delta_i INF_i + \varepsilon_i, \quad (1)$$

where  $CPR/CPR\_AD_i$  is either the listing day closing price return over the 1<sup>st</sup> sub-period or the adjusted closing price return over the 2<sup>nd</sup> sub-period for IPO<sub>*i*</sub>,  $a$  is the regression intercept,  $CV_{i,j}$  is the control variable  $j$  for IPO<sub>*i*</sub>,  $UF_{i,k}$  is the use of proceeds variable  $k$  for IPO<sub>*i*</sub>,  $INF_i$  is the overall information disclose variable for IPO<sub>*i*</sub>, and  $\varepsilon_i$  is an error term. Different from the previous studies, we use the percentage of the intended use of proceeds relative to the actual raised funds in each of the seven unique categories as fund use factors to estimate their impact on initial underpricing, in addition to the control variables to make the results more reliable and robust to add additional value to the existing IPO literature.

We estimate equation (1) in a three-step sequential approach with the next step being based on the previous one. Specifically, we start with regression (1) using all the control variables to identify the significant ones. By retaining all the significant control variables at the 10% level identified in a sub-period (removing the insignificant ones appeared in both sub-periods), we then add all the use of proceeds variables to continue the regression. Finally, we include the overall information disclosure variable to finish the analysis. The first step is to control all the external factors that may affect initial underpricing and the second step is to test hypothesis 1 while the last step is to test hypothesis 2. Our goal is to detect any incremental and significant impact from adding additional variables on IPO initial underpricing one step at a time, after controlling for the regulatory changes, firm-level characteristics, market conditions, and other

factors. We repeat the procedure multiple times for both sub-periods and a sub-sample of IPOs with the opportunity to change their use of proceeds after IPOs. We compare the results from different samples to explore similarities, differences, possible causes, and effects.<sup>3</sup> We provide summary statistics for the entire sample, two sub-periods, and for the IPOs with the opportunity to change their use of proceeds in Table 1, the summary of intended use of proceeds in Table 2, the summary statistics of the IPOs with the opportunity to change their use of proceeds in Table 3, and the detailed regression results in Tables 4 and 5.<sup>4</sup>

## 6. Empirical results

Appendix 1 provides the detailed information disclose requirements for the use of IPO proceeds by the CSRC over time. There are three different editions issued respectively in 2009, 2014, and 2020. The most relevant requirements are specified in the 2009 edition (Section 11) and 2014 edition (Section 10), both having multiple articles. Since our data covers 778 ChiNext IPOs over the period from October 23, 2009 to December 31, 2019 the 2020 edition is not related to this study. We list it only for the purpose of comparison.

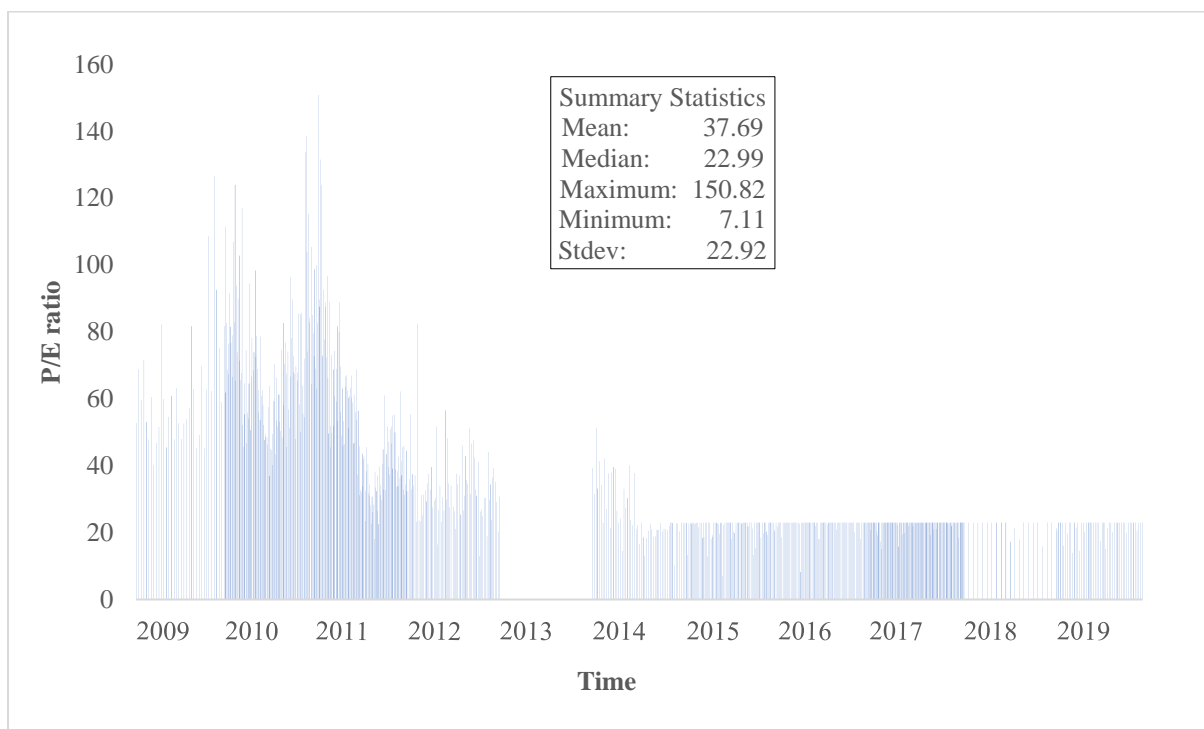
Figure 2 provides a visual picture of the distribution of the P/E ratios for 778 ChiNext IPOs over time when they went public. During the 1<sup>st</sup> sub-period, the underwriters have complete freedom to price IPOs. Therefore, we observe a wide variation in P/E ratios, resulting in a more accurate IPO pricing and lower average underpricing with no listing day trading suspensions (there was no initial return cap). The overall market looks normal and efficient.

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<sup>3</sup> Since we estimate initial underpricing using different time horizon over the 1<sup>st</sup> and 2<sup>nd</sup> sub-periods, we may need to make some adjustments to make the adjusted initial return and average initial return more comparable. As a simple difference between the two returns only changes the regression intercept, Yang, Zhou, and Zhou (2022) try to normalize the adjusted initial return do address that issue. They find that the overall results don't change meaningfully.

<sup>4</sup> We calculate correlations among all the variables over different periods. As expected, we observe significant correlations between the return variables and control variables. More importantly, we detect significant correlation between the return variables and the use of proceeds variables. Over the entire sample the correlations between the returns and IS and R&D are significant at the 1% level. It is similar for the correlations between the returns and MAR and PE over the 1<sup>st</sup> sub-period. Over the 2<sup>nd</sup> sub-period, the returns and R&D are significantly correlated at the 1% level. Even though we don't report the matrix it is available from the authors upon request.

Since the implementation of the new rules by the CSRC from June 1, 2014 to set IPOs' offer prices at 23 times of IPO firms' EPS, we find a uniform distribution, showing that almost all the IPOs are priced at 23 times of EPS (or slightly lower), regardless of a firm's risk, industry, growth potential and financial performance, leading to many trading suspensions and a higher average adjusted initial return. The mean P/E ratio over the entire sample is 37.69 with a median of 22.99, which is identical to 23 set by the CSRC during the 2013 reform. The maximum and minimum P/E ratios are 150.82 and 7.11 respectively. The standard deviation of all P/E ratios is 22.92. The market becomes irrational and inefficient as there appear many recursive trading patterns and suspensions.



**Figure 2 - Distribution of P/E ratios to set up offer prices for ChiNext IPOs**

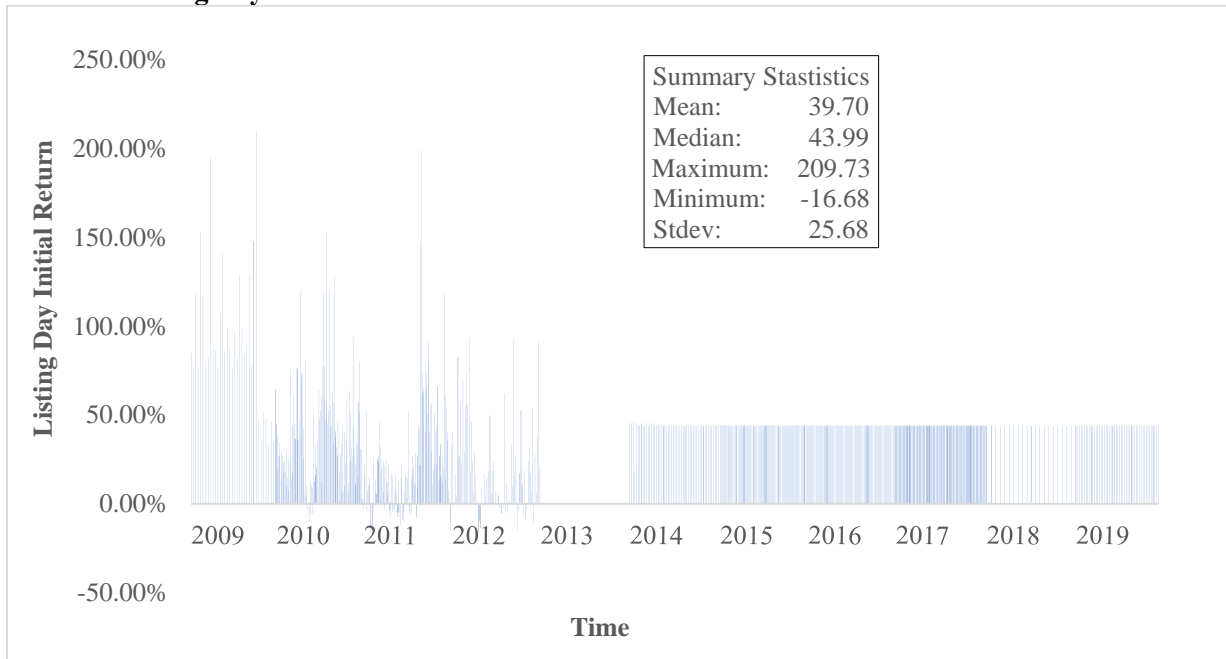
This figure shows the distribution of P/E ratios used to set up the offer price for 778 ChiNext IPOs over the entire sample period from October 23, 2009 to December 31, 2019. The regulatory change of using a preset P/E ratio of 23 to set up the offer price was proposed by the CSRC during the 2013 stock reform when all the IPO activities were suspended and was implemented from June 1, 2014.

Figure 3 provides another visual observation focusing on initial returns and adjusted initial returns. Panel A shows the listing day initial returns for all 778 ChiNext IPOs over the entire sample. During the 1<sup>st</sup> sub-period, we observe the initial returns varying across IPOs. However, we see a vastly different picture, a horizontal line during the 2<sup>nd</sup> sub-period as all the initial

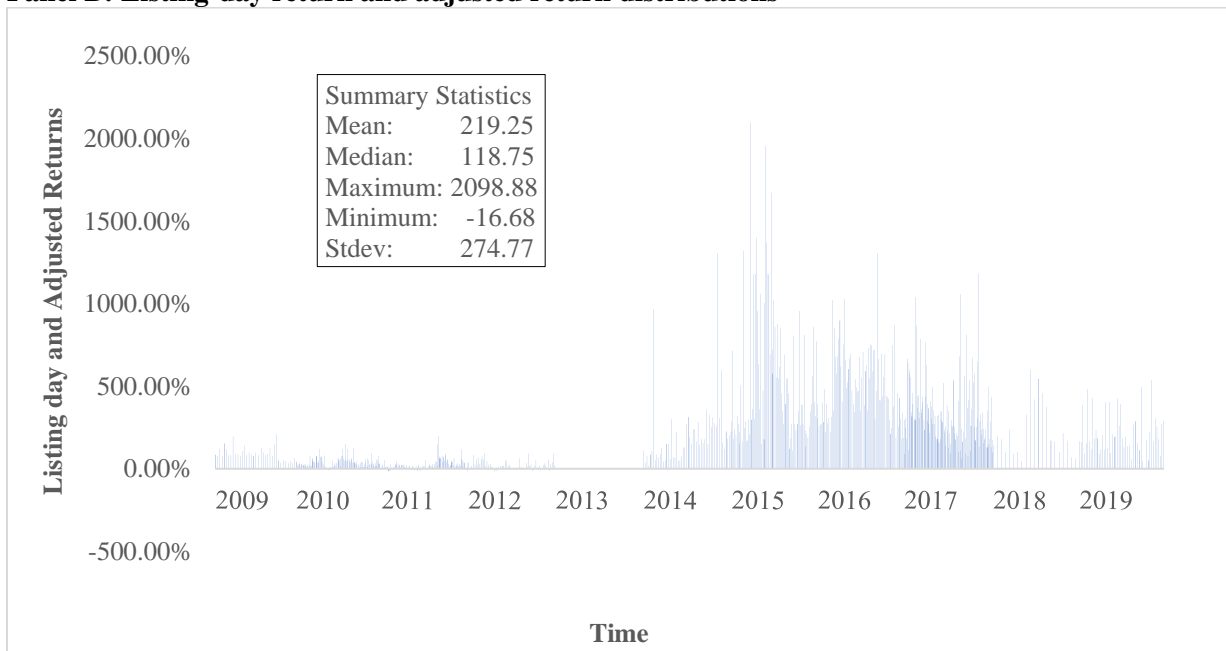


returns hit the maximum return cap of 44% and are suspended in trading resulted from the rules and regulations imposed by the CSRC. Both Figures combined reinforce our decision to split the entire sample into two sub-periods as the initial returns behave so differently.

**Panel A: Listing-day initial return distribution**



**Panel B: Listing-day return and adjusted return distributions**



**Figure 3 - Distributions of listing day and adjusted closing price returns**

This figure provides evidence to show the impact from the regulatory change proposed by the CSRC in 2013 and implemented on January 1, 2014 about the maximum return cap of 44% and minimum return cap of -36% on the listing day. Panel A shows the return distribution using the listing day initial returns while Panel B provides the distribution using the listing day returns before 2013 and adjusted returns from 2014.

Over the entire sample with 778 IPOs (Panel A), the average listing day return is 39.70% with a median of 43.99% that matches the maximum initial return cap of 44% for the 2<sup>nd</sup> sub-period. The maximum listing day return is 209.73% while the minimum is -16.68%. Both occur during the 1<sup>st</sup> sub-period. Panel B provides the summary statistics for initial underpricing, using the traditional initial return for the 1<sup>st</sup> sub-period and adjusted return for the 2<sup>nd</sup> sub-period for a comparison. The overall average is 219.25% and the median is 118.75%, indicating a skewed distribution the right, presumably caused by some extreme observations (returns). As expected, the maximum adjusted return reaches 2,098.88% (with 28 consecutive trading day suspensions from initial listing). The minimum remains at -16.68% and the standard deviation is extremely high at 274.77%.

The quite different results from Figure 3 clearly show the potential impact from regulatory change in 2013 on ChiNext IPOs' initial underpricing, which further confirm the necessity to split the entire sample into two sub-periods for further analysis. As the initial underpricing is so different over the sub-periods it is more interesting to further investigate the reasons along with probable causes and effects.

Table 1 reports the firm-level summary statistics, including the listing day market condition measured by the SZSE Composite index return for all 778 IPOs over the entire sample (Panel A), for 354 IPOs over the 1<sup>st</sup> sub-period (Panel B), and for 424 IPOs over the 2<sup>nd</sup> sub-period (Panel C). In addition, Table 1 also reports the statistics for another sub-sample, 234 IPOs that can change their use of IPO proceeds after IPOs (Panel D).

In Panel A, we confirm the average initial return of 219.25% for the entire sample. The average offer size is 19.93 measured by the logarithm of IPO firms' total assets. The average age for an IPO firm from establishment to listing is 8.31 measured by the logarithm of days. The average board member is 8.19. Most notably, the offline and online oversubscriptions for institutional and very experienced investors and for normal individual investors are 2,584.62

and 1,828.02, respectively. This huge imbalance between the demand for and supply of new ChiNext IPO shares should lead to severe initial underpricing. The average pricing to listing delay is about 13.26 days, in line with the existing literature while the average profit growth rate a year prior to IPOs is 43.09%. The average SZSE Composite index return on the listing days is 0.74%. There are 161 firms (about 20.69% out of 778) with ongoing litigation or lawsuit, and 65 firms (about 8.35% out of 778) with ongoing piracy or trademark infringement. The average pre-issue P/E ratio is 28.73.

Looking at the use of IPO proceeds and from Panel A over the entire sample, we find that 689 firms list PE as their potential use of proceeds and the intended average to spend on PE is 52.09%, out of the actual raised funds. That number suggests that most IPO firms use proceeds to expand the capacity for existing products. As new product development is also important to a firm's success, we observe 174 firms listing NP as their potential use of proceeds with an intended average of 8.22%. R&D shows potential growth and is another key factor for a firm to keep competitive in the market and there are 487 firms listing it as their intended use of IPO proceeds. The average is 10.28% out of the total raised funds, the second highest behind PE. Since promoting and selling products is equally important for a firm there are 171 firms listing MAR as their use of proceeds with an intended average of 3.53%. Development in information technology is a new trend in the market and it is expected to gain importance as the society and technology advance. Unfortunately, we only observe 70 firms listing IS as their potential use of proceeds and the intended average is relatively low as well at 1.20%. There are 228 firms listing WP as a potential use of proceeds with an intended average of 8.74%, the third highest behind PE and R&D. Finally, there are 30 firms listing RB as their intended use of proceeds with an average of 0.76%, which is expected as most of IPOs try to raise money for growth and expansion but not for repaying debt. Overall, the use of proceeds in PE, R&D, and WP capture top three on the list.

The number of pages in each prospectus varies wildly from 224 to 692 with an average of 356 pages, while the number of pages for the section of ‘Use of Proceeds’ in each prospectus also varies dramatically from 4 to 82 with an average of 26 pages. The results seem to indicate that some IPO firms are willing to reveal more information regarding the intended use of IPO proceeds while some others are reluctant to do so. The ratio (the total number of pages in the section of “Use of Proceeds” to the total number of pages in a prospectus) fluctuates in a wild range of 1.36% and 19.85% with an average of 7.48%.<sup>5</sup>

Panel B in Table 1 reports the comparable numbers for 354 ChiNext IPOs over the 1<sup>st</sup> sub-period. The average listing day initial return is moderate at 34.41%. The average offer size is 20.05, average firm age is 8.13, and average board member is 8.36. A notable difference is found in the offline and online oversubscriptions, which are only 40.20 and 136.73. The results indicate the effectiveness of the “Chinese-style” bookbuilding process during the 1<sup>st</sup> sub-period when the underwriters have freedom to set up IPO offer prices. The ChiNext IPO market behaves efficiently during that period as documented by Deng and Zhou (2016). The average profit growth is 60.63%, higher than 43.09% over the entire sample. The SZSE Composite index return on the listing days averages 0.19%. There are 61 firms with ongoing litigation or lawsuit, and 33 with piracy or trademark infringement. The average of pre-issue P/E ratio is 41.91.

Checking the intended use of IPO proceeds, we find that out of 354 IPOs over the 1<sup>st</sup> sub-period, there are 295 firms listing PE as the intended use of proceeds with an average intended use of 39.47%, out of total raised funds. The result indicates that expanding existing products is the number one priority for ChiNext IPOs to raise money. There are 100 firms listing NP as their use of proceeds with an intended average of 9.43%. In addition, 186 firms list R&D as

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<sup>5</sup> Since our analysis focuses only on the ratios, we don’t report the original numbers of pages in prospectuses and in the section of “Use of Proceeds” in Table 1. However, those numbers (statistics) are available from the authors upon request.

their intended use of funds with an average of 6.51%. 68 firms list MAR as the intended use with an average of 2.39%. The number of firms listing IS only 32 with an intended average of 0.83%. Both a small number of IPOs and a low percentage indicate that IPO firms during the 1<sup>st</sup> sub-period haven't realized the importance of information platform development during that time. Moreover, 60 firms list WP as their use of funds with an intended average of 8.84%. there are no IPO firms listing RB as their intended use of funds.

The number of pages in prospectuses ranges from 224 to 575 during the 1<sup>st</sup> sub-period with an average of 345 pages, while the number of pages in the 'Use of Proceeds' section also varies from 11 to 82 with an average of 32 pages. The ratio of the number of gages in the "Use of Proceeds" to the total number of pages in a prospectus fluctuates between 1.91% and 18.68% with an average of 9.31%.

Panel C reports the summary statistics for 424 ChiNext IPOs initiated during the 2<sup>nd</sup> sub-period. As expected, the adjusted average initial return is much higher at 374.99%. While the offer size, firm age, board members vary slightly across the two sub-periods, the offline and online oversubscriptions differ dramatically, jumping much higher during the 2<sup>nd</sup> sub-period to 6,559.42 for the offline and 1,898.38 for the online. The big jump suggests a policy change or a structural break that causes a much higher market demand for new shares, leading to more severs initial underpricing. The time between the pricing and listing delay is a bit shorter during the 2<sup>nd</sup> sub-period while the average profit growth is 28.45%. The average SZSE Composite index return on the listing days is 0.02%. There are 100 IPO firms with ongoing litigations or lawsuits and 32 with piracy or trademark infringement.

Again, the number of pages in prospectuses ranges between 224 and 692 with an average of 366 pages, while the number of pages in the 'Use of Proceeds' section varies too from 4 to 77 with an average of 22. The ratio fluctuates from 1.36% to 19.85% with an average of 5.92%. Compared to the numbers obtained from the 1<sup>st</sup> sub-period, the average number of pages from

the section in the “Use of Proceeds” and the average ratio seem to be lower during the 2<sup>nd</sup> sub-period.

Looking at the intended use of IPO proceeds, we find that out of 424 IPOs initiated during the second sub-period, 394 list PE as their use of funds with an intended average of 61.32%. It shows that existing product expansion is a focus for IPO proceeds. There are 74 IPOs listing NP as their use of proceeds with an average of 8.62%. There are 301 IPOs listing R&D as their use of funds with an intended average of 13.22%. It is a significant increase in the number of IPOs that intend to use proceeds in R&D. There are 103 IPOs listing MAR as their use of funds with an intended average of 4.09%. Only 38 IPOs list IS as their use of funds and the intended average is 1.72%. There are 168 IPOs listing WP as their use of funds and the intended average is about 7.89%. Finally, there are 30 IPO firms listing RB as their intended use of IPO proceeds and the intended average is about 1.78%.

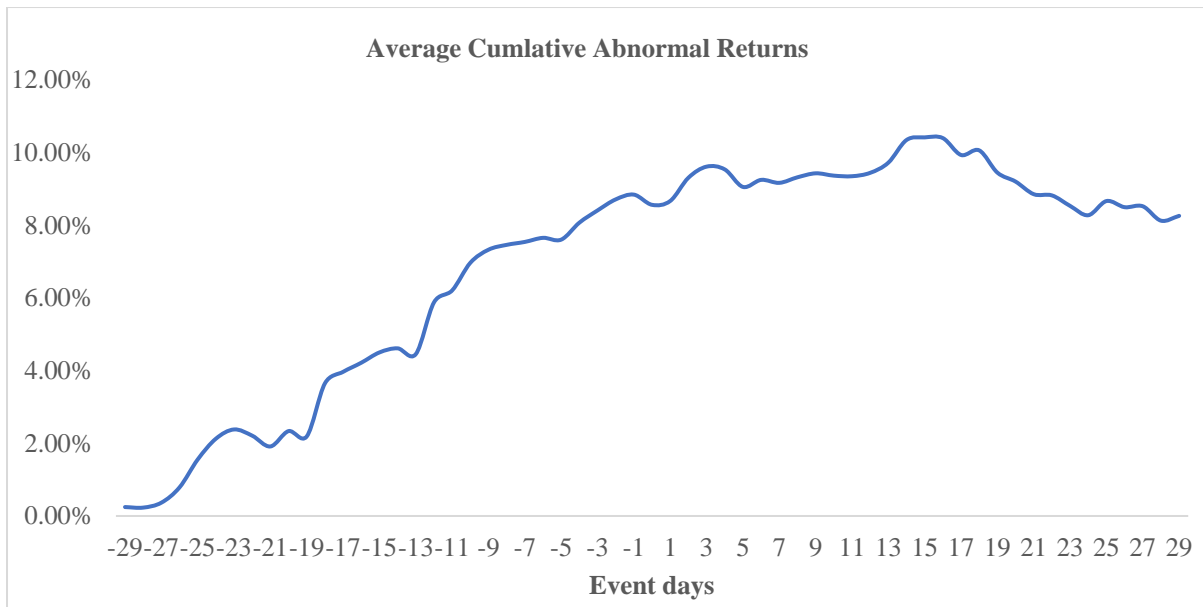
Finally, Panel D reports statistics for the 234 IPOs with the opportunity to change their use of proceeds. It appears that most of them are initiated during the second sub-period since their average initial return is 228.91%, much higher than that over the first sub-period. In addition, the offline and online oversubscriptions are 3,415.27 and 2,046.26 respectively, much higher than the averages from the first sub-period. The average profit growth is 44.31%. There are 48 firms with ongoing litigations or lawsuits and 21 firms with piracy or trademark infringement.

Under the background of the project-financing system in China, when companies go public, they not only have to disclose the projects for which the money is going to be spent, but also need to go through the procedures such as environmental impact assessments and feasibility studies. After raising the intended funds and if the listed companies don't invest in the ways promised in their prospectuses, they need to fulfil a legal change procedure, that is, the new projects shall be reevaluated and approved by the board of directors and a general shareholders' meeting, and it must be disclosed to the public. Even with such a series of strict requirements

and supervision there are still many companies in the ChiNext IPO market that would like to have the option to change the purposes of their raised funds after IPOs. As shown in Table 3, about 7.96% of total proceeds raised from ChiNext IPOs over the entire sample is changed the use either during the listing year or a year after.

Yang (2011) divides the fund changes roughly into two distinctive categories: good or bad. If the change can improve a firm's future performance it is viewed as good, which increases the firm's value. Otherwise, it is classified as bad that puts a negative impact on the firm. Huang (2019) points out that it is reasonable to change the use of IPO proceeds according to the market conditions, including macro environments. He argues that some companies plan good projects in their prospectuses to disguise the true intended use of funds. Right after the listing, they want to change the use of proceeds. In this paper, we only focus on the change in use of IPO proceeds during the IPO year since the forecast and judgement in the IPO year should be more relevant, accurate and the possibility of other major changes in the macro environment is smaller.

It is believed that the companies that change their use of proceeds in the IPO year may have the possibility of whitewashing the use disclosed in their prospectuses to conceal the true intended use. If that is the case, we should observe a negative reaction to such an announcement. To further investigate that issue, we apply event-study approach by selecting an event window of 30 days, with  $\pm 29$  trading days around the announcement day ( $t = 0$ ). As shown in Figure 4, the average cumulative abnormal return (CAR hereafter) starts to rise from 29 days before the announcement, suggesting a possible information leak or speculation in the market. It seems to suggest that before the announcement firms with the option to change their use of IPO proceeds can attract more investors because they hold this option. The increase in CAR continues until the announcement day. After the announcement investors in the market start to realize that the added information (the change of proceeds) may not be consistent with what investors expect, causing the CAR to decline eventually.



**Figure 4 - Average CAR around announcement date of changing use of proceeds**  
 This figure shows the average CAR over time around the announcement of changes in the use of funds. We use a  $\pm 29$  trading day window around the announcement day ( $t = 0$ ).

Table 2 provides summary statistics for the intended use of IPO proceeds over time, which include the number of IPOs initiated, the average of initial underpricing on the listing days, the average of adjusted initial underpricing, the average amount of proceeds planned to raise, the average amount of proceeds actually raised, and the average of expenses in ChiNext IPOs. It seems that during the 1<sup>st</sup> sub-period the proceeds raised exceed the amount planned to raise because the final offer prices are generally set higher than the initial planned ones. This practice leads to an over-raised-fund phenomenon, a unique and interesting situation in China during that specific time. At the meantime, it leads to lower initial underpricing and a more efficient IPO market.

Table 3 reports the summary statistics for 234 IPOs with the opportunity to change their use of IPO proceeds after IPOs. The amount raised or changed in the use of proceeds varies over time. The highest change happens in 2012 with about 19.33% of the raised proceeds that has been used for other purposes, which is not trivial. The lowest change occurs in 2018 with about 1.36% of the raised proceeds. The overall average of the change is about 7.96% out of the total raised funds, which is worth further investigation.



Table 4 reports the regression results with IPOs in the 1<sup>st</sup> and 2<sup>nd</sup> sub-periods, respectively. From columns 2 and 3 in Panel A, we confirm the significance of the control variables. The adjusted R<sup>2</sup> using only the control variables reaches 0.51, in line with the previous research. After adding the use of proceeds variables and from columns 2 and 3 in Panel B, we find that while all the control variables remain their significance the variable MAR has a significantly positive impact on initial underpricing and another variable PE is significant at the 10% level, suggesting that the IPO firms listing MAR and PE as their potential uses of proceeds send a positive signal to the market, which attracts more investors to purchase new shares from the open market on the listing days. The adjusted R<sup>2</sup> rises to 0.52.

After including the overall information disclosure variable and from columns 2 and 3 in Panel C, we confirm the significance of the control variables. However, the significance of MAR drops to the 10% level while PE becomes insignificant. It seems that the potential impact from the variables of MAR and PE is absorbed by the overall information disclosure variable of INF\_PAGE as it is significantly positive. Even though that result seems inconsistent with hypothesis 2 it suggests that the overall information disclosure reveals a strong and positive signal to attract more investors from the market. The overall model fitness measured by the adjusted R<sup>2</sup> rises further to 0.53, indicating that by including the information disclosure variable increases the model fitness.

Columns 4 and 5 in Table 4 report the regression results over the 2<sup>nd</sup> sub-period, where the adjusted return is used. From Panel A, we find that even though most of the control variables remain significant the adjusted R<sup>2</sup> drops to 0.18 as the adjusted returns reflect the fair market values for those IPOs (Deng and Zhou, 2016). After including all the use of proceeds variables and from Panel B, we find that the variables R&D and IS are significantly positive, indicating that R&D and IS reveal valuable information to attract more investor to acquire new shares from the open market. The result also suggests a shift in the market to value IPO use of proceeds.

As expected, the coefficient associated with variable RB is negative, suggesting an adverse impact from repaying debt. The adjusted  $R^2$  rises to 0.22, indicating that adding the use of proceeds variables improves the model fitness.

Finally, columns 4 and 5 from Panel C reveal the impact on initial underpricing from the information disclose variable. While most of control variables remain similar significance and the use of proceeds variables of R&D and IS remain positive and significant, the coefficient associated with the disclose variable of INF becomes negative and significant at the 10% level. It is consistent with hypothesis 2 that as more information is released the more accurate the pricing will be, leading to a lower underpricing. The adjusted  $R^2$  rises to 0.23.

Table 5 reports the regression results for the IPOs with the opportunity to change their use of IPO proceeds. Using 92 IPOs that have changed their use of proceeds during the listing year over the 1<sup>st</sup> sub-period and from columns 2 and 3 in Panel A, we find that the offer size, pricing to listing delay, stock market condition, pre-issue P/E ratio, offline and online oversubscriptions remain significant while the other control variables turn insignificant. The adjusted  $R^2$  is 0.54. After including the use of proceeds variables and from Panel B, we find that only the variable of PE is significant but negative. This result is different from those obtained using IPOs from the two sub-periods. As the IPOs with the opportunity to change their proceeds are effectively granted an option and that option is priced in the IPOs' offer price over the 1<sup>st</sup> sub-period (as the underwriters can freely set up offer price). As a result, the "Use of Proceeds" variables are losing their potential values. The adjusted  $R^2$  rises to 0.56 after including the use of proceeds variables.

After including the information disclose variable of INF and from Panel C we find that the overall model fitness increases to 0.58. While most of the control variables remain similar the use of proceeds variable of PE stays negative and significant while the disclosure variable is positive and significant, indicating again that the overall information disclosure sends a positive

signal to the market that attracts more investors to buy new shares, leading to a higher initial underpricing.

As shown in columns 4 and 5 of Panel A for the 2<sup>nd</sup> sub-period, we find that the control variables of offer size, online oversubscriptions, pre-issue P/E ratio, and profit growth remain significant relative to the adjusted initial return while the other variables become insignificant. The adjusted  $R^2$  drops to 0.25. After including the use proceeds variables and from Panel B, we find that the variables of IS, NP, and R&D are significant at the 10% level and the adjusted  $R^2$  increases to 0.27. After including the information disclose variable of INF, we find that only the variables of NP and R&D remain positive and significant at the 10% level.

The results from Tables 4 and 5 seem to re-enforce each other and support our conclusions that during the 1<sup>st</sup> sub-period the variables of NP and MAR are more important while the variables of IS and R&D become more important during the 2<sup>nd</sup> sub-period, in affecting initial underpricing. The change of importance in the “Use of Proceeds” over time is expected since as we are moving towards a more tech-driven society any use of proceeds related to improve a firm’s technology is highly valued in the market. The overall information release affects initial underpricing as well but in different ways because of the change in rules and regulations and probable complementary effects from distinct categories in the use of IPO proceeds or even from the overall information release.

## **6. Conclusions**

We study the impact of the intended use of proceeds disclosed in prospectuses on ChiNext IPOs’ initial underpricing. We confirm size, oversubscription, and market momentum effects. After controlling for the regulatory and policy changes, firm-level characteristics, and general stock market conditions, we find that the overall information release in the “Use of Proceeds” affects IPO initial underpricing. More specifically, the intended use of proceeds raised for firms’

information platform and for research and development during the 2<sup>nd</sup> sub-period while the intended use of proceeds for marketing and sales and for expanding existing products during the 1<sup>st</sup> sub-period affect IPO underpricing positively and significantly. The results also show a shift of the importance as the time (society) advances. The significance changes for the IPOs with the opportunity to alter their use of proceeds after IPOs.

We further explore the probable causes and effects to explain our findings. Different from a traditional initial underpricing that usually happens when underwriters purposely underprice an IPO offer price to attract more investors from the market or to benefit themselves for future underwriting business, we find that initial underpricing is reflected in a much higher adjusted initial return from the secondary market where investors overbid for new shares, evidenced by extremely high offline and online oversubscriptions during the 2<sup>nd</sup> sub-period, listing trading suspensions and many consequent trading suspensions on regular business days. Higher initial returns are the direct results of a higher market demand for new IPO shares and the regulatory change in 2013 causes the market to become less efficient.

On April 27, 2020, the CSRC proposed another regulatory change to govern ChiNext IPOs. The proposed changes include to change from current approval system to a registration system to ease IPO application process, to lower listing standards by allowing more firms to register for IPOs, to enforce corporate governance to protect individual investors, to reduce government intervention to increase market efficiency, to eliminate the maximum price limit during the first 5 trading days, and to increase the daily price limit on regular trading days from  $\pm 10\%$  to  $\pm 20\%$ . On June 15, 2020, the CSRC started implementing the new rules and regulations. Our analysis reveals the weakness of the ChiNext IPO market before 2020 and our results provide necessary evidence to support the policy change by the CSRC in 2020.

Based on our findings, we recommend that IPO firms should disclose their use of proceeds carefully and honestly since any information release sends a signal to the market, which can

affect a firm's value. The use of IPO proceeds for any potential profitable projects sends a positive signal, which can attract more investors to buy shares, and virus versa. However, when a firm with an option to alter its use of proceeds makes an announcement to change the intended use of proceeds the stock price will change, depending on whether the change will bring the firm more growth potential and benefit or not. That evidence suggests that unless firms have solid investment projects, they should not make the announcement to change their original use of IPO proceeds.

This is an early attempt to examine the possible connection between initial underpricing and information disclose in the "Use of Proceeds" released in prospectuses. We hope that our research can ignite this interesting issue to attract more related work in the future. At the same time, our findings may provide empirical background for the policymakers to make better and more informed decisions in the future when they try to move the Chinese IPO market towards a less regulated and more efficient and transparent market.

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## **Appendix 1 - Specific disclosure requirements for use of proceeds by CSRC**

This Appendix summarizes the specific disclosure requirements for ChiNext IPOs in the 2009, 2014, and 2020 editions proposed by the CSRC.

### **2009 Edition (Section 11)**

**Article 93:** The issuers shall invest in its main business. They shall disclose the estimated amount and the schedule of the expected investment.

If there is any difference between the actual and the expected amounts of proceeds, the issuers shall release the arrangements for the use and the management of excess funds raised.

**Article 94:**

If the funds are planned to be used to improve service capacity, marketing, management, service process, or human resources, issuers shall release specific investment arrangements and the impact on future business.

**Article 95:** To expand capacity of existing products, the issuer shall disclose the production capacity, sales, and the new capacity after investment.

If the funds are planned for the development and production of new products, the issuer shall analyze the market capacity of the new product, main competitors, technical support, and new production capacity after the project is put into operation.

**Article 96:** If there is a massive increase in fixed asset investment or R&D expenditure, the issuer should explain the impact of depreciation of new fixed assets and R&D expenditure on operating performance.

**Article 97:** For fixed assets investment projects, the following information should be disclosed: investment budget, main equipment, core technology, raw material, completion time, location of project.

**Article 98:** If the investment involves cooperation, the information of the partner shall be disclosed.

**Article 99:** To increase capital or purchase shares of other enterprises, issuers should disclose the situation of the enterprise to be increased capital or acquired.

**Article 100:** For the acquisition of assets, the information of the assets and its relationship with the main business shall be disclosed.

**Article 101:** To repay debts, the general arrangements for the repayment of the debts and the specific impact on the issuer's financial position, solvency and financial expenses shall be disclosed.

**Article 102:** To supplement the working capital, the issuer shall disclose the necessity of supplementing the working capital, the management & operation arrangements, and the impact on the company's financial position.

**Article 103:** For other purposes, issuer shall disclose the specific arrangements and impacts on its operating performance.

### **2014 Edition (Section 10)**

**Article 83:** The issuers shall make investment arrangements for the funds on its main business, and make a brief list of the specific uses, estimated amount, and the time schedule of the planned investment.

**Article 84** The issuer should disclose the use of funds in accordance with the importance principle. There are no more specific classification guidelines excepting to repay debts and to supplement working capital.

### **2020 Edition (Section 9)**

**Article 84:** The issuers shall list and briefly disclose the intended investment and arrangement of the proceeds.

**Article 85:**

The issuer shall disclose the use of proceeds in accordance with the importance principle:

- (1) Specific use of proceeds.
- (2) Investment budget.
- (3) Estimated investment cycle and schedule.
- (4) Administrative examination and approval
- (5) Disclose environmental protection and related investment if environmental protection issues are involved.
- (6) If the investment involves cooperation, the information of the partner shall be disclosed.



## Appendix 2 - Definitions and symbols of variables

This Appendix defines all the variables and lists their symbols for all 778 ChiNext IPOs over the entire sample period from October 23, 2009 to December 31, 2019.

<b>Initial underpricing variables</b>	<b>Definitions</b>
CPR	(Listing day closing price – offer price) / offer price
CPR_AD	(Closing price when trading was not suspended – offer price) / offer price
<b>Control variables</b>	
Offer size	Logarithm of pre-IPO total assets
Firm age	Logarithm of firm age, from the formation to listing measured in days
Board	Number of board members
OSM_Off	Offline oversubscription for institutional and very experienced investors
OSM_On	Online oversubscription for general individual investors
Pld_lag	Time lag in days from an IPO's pricing to listing
Mkt	Listing day market condition, measured by the SZSE Composite Index return
Pt_gr	Previous year profit growth before IPO
Industry	Industry ID
Litigation	Ongoing litigation or lawsuit
Piracy	Ongoing piracy or trademark infringement
Pre-PE	Pre-issue P/E ratio
<b>Use of proceeds variables</b>	
PE	Proportion of raised funds for expanding existing products to total proceeds
NP	Proportion of raised funds for production of new products to total proceeds
R&D	Proportion of raised funds for research and development to total proceeds
MAR	Proportion of raised funds for marketing and product sales to total proceeds
IS	Proportion of raised funds for information platform to total proceeds
WP	Proportion of raised funds for working capital to total proceeds
RB	Proportion of raised funds for debt repayment to total proceeds
<b>Information disclosure variable</b>	
INF	Number of pages in "Use of Proceeds" / number of pages in prospectus

**Table 1 - Summary statistics for ChiNext IPOs in different samples**

This table reports the firm-level summary statistics (including listing day market conditions) for all 778 ChiNext IPOs over the entire sample from October 23, 2009 to December 31, 2019 (Panel A), for 354 and 424 IPOs over the two sub-samples from October 23, 2009 to December 31, 2012 and from January 1, 2014 to December 31, 2019 (Panels B and C), and for 234 IPOs with the opportunity to change their use of raised funds (Panel D). All the variables are defined in Appendix 2. The numbers in parentheses are the number of firms reporting the use of funds in each category in their IPO prospectuses (frequency).

**Panel A: For 778 ChiNext IPOs over entire sample**

	Mean	Median	Maximum	Minimum	Stdev	Skewness	Kurtosis
CPR/CPR_AD	219.25	118.75	2098.88	-16.67	274.76	2.30	10.61
Size	19.93	19.86	24.59	18.35	0.71	1.07	6.71
Age	8.31	8.32	9.37	5.97	0.42	-0.72	5.16
Board	8.19	9.00	15.00	3.00	1.45	-0.35	4.44
OSM_Off	2584.62	51.00	34436.07	1.50	5386.08	2.45	9.18
OSM_On	1828.02	229.00	8640.14	5.00	2456.96	1.18	3.03
Pld_lag	13.26	13.00	51.00	8.00	4.62	3.12	17.15
Mrk	0.74	0.85	14.19	-20.19	4.52	-0.31	4.60
Pt_gr	43.09	28.70	969.82	-73.66	62.63	5.94	70.74
Industry	8.92	8.00	16.00	1.00	3.46	0.42	2.17
Litigation	0.21	0.00	1.00	0.00	0.41	1.45	3.09
Piracy	0.08	0.00	1.00	0.00	0.28	3.01	10.06
Pre-P/E	28.73	19.82	111.79	6.19	17.14	1.58	5.38
PE (689)	52.09	52.92	123.40	0.00	31.51	-0.12	1.92
NP (174)	8.22	0.00	108.29	0.00	18.94	2.71	10.49
R&D (487)	10.28	7.39	100.00	0.00	13.99	2.96	15.79
MAR (171)	3.53	0.00	91.13	0.00	9.56	4.37	27.72
IS (70)	1.20	0.00	60.12	0.00	5.08	5.99	47.52
WP (228)	8.74	0.00	100.00	0.00	17.82	2.42	8.54
RB (30)	0.76	0.00	80.32	0.00	4.88	9.37	116.45
INF	7.48	7.12	19.85	1.36	3.20	0.72	3.39

**Panel B: For 354 ChiNext IPOs over 1<sup>st</sup> sub-period**

	Mean	Median	Maximum	Minimum	Stdev	Skewness	Kurtosis
CPR	34.41	25.23	209.73	-16.67	37.34	1.51	6.14
Size	20.05	19.99	21.61	18.81	0.56	0.42	3.01
Age	8.13	8.15	9.08	5.97	0.42	-1.04	6.49
Board	8.36	9.00	14.00	5.00	1.42	-0.18	4.29
OSM_Off	40.19	27.7	226.40	1.50	34.44	1.44	5.83
OSM_On	136.73	125.00	345.00	5.00	75.79	0.58	2.81
Pld_lag	13.88	13.00	51.00	9.00	5.26	3.24	16.55
Mrk	0.19	0.24	10.60	-9.97	4.29	0.01	2.62
Pt_gr	60.63	43.68	969.82	-17.56	73.51	6.60	71.48
Industry	9.05	8.00	16.00	1.00	3.58	0.29	2.11
Litigation	0.17	0.00	1.00	0.00	0.38	1.74	4.01
Piracy	0.09	0.00	1.00	0.00	0.29	2.80	8.83
Pre-P/E	41.91	38.85	111.79	9.70	17.55	0.92	4.02
PE (295)	39.47	35.00	123.00	0.00	29.95	0.50	2.39
NP (100)	9.43	0.00	102.00	0.00	19.19	2.45	9.20
RD (186)	6.51	3.00	100.00	0.00	11.40	4.54	31.35
MAR (68)	2.39	0.00	91.00	0.00	7.94	6.56	59.84
IS (32)	0.83	0.00	23.00	0.00	3.20	4.53	24.68
WP (60)	8.84	0.00	100.00	0.00	21.86	2.35	7.14
RB (0)	0.00	0.00	0.00	0.00	0.00	NA	NA
INF	9.31	8.94	18.68	1.91	2.97	0.53	3.17

**Panel C: For 424 ChiNext IPOs over 2<sup>nd</sup> sub-period**

	Mean	Median	Maximum	Minimum	Stdev	Skewness	Kurtosis
CPR_AD	374.99	274.18	2098.88	-9.07	317.42	2.09	8.76
Size	20.34	20.25	24.59	18.93	0.72	1.58	8.46
Age	8.46	8.49	9.37	7.16	0.37	-0.37	3.05
Board	8.21	9.00	15.00	3.00	1.39	-0.40	5.52
OSM_Off	6559.42	4013.05	34436.07	2.85	6946.60	1.10	3.87
OSM_On	1898.38	2153.41	5953.79	38.59	1603.93	0.10	1.36
Pld_lag	12.12	12.00	36.00	8.00	3.82	2.89	15.36
Mrk	0.02	0.02	0.14	-0.20	0.05	-0.78	5.93
Pt_gr	28.45	17.63	446.55	-73.66	47.16	3.35	23.54
Industry	8.81	8.00	16.00	1.00	3.35	0.53	2.24
Litigation	0.24	0.00	1.00	0.00	0.43	1.24	2.55
Piracy	0.08	0.00	1.00	0.00	0.26	3.21	11.33
Pre-P/E	17.73	17.23	47.36	6.19	3.99	3.31	20.40
PE (394)	61.31	64.23	109.48	0.00	29.27	-0.55	2.46
NP (74)	8.61	0.00	108.29	0.00	20.31	2.66	9.86
R&D (301)	13.22	10.13	100.00	0.00	15.74	2.41	11.67
MAR (103)	4.08	0.00	79.81	0.00	10.11	3.62	19.91
IS (38)	1.72	0.00	60.12	0.00	6.86	5.12	32.61
WP (168)	7.89	0.00	68.87	0.00	13.41	2.14	8.14
RB (30)	1.78	0.00	80.00	0.00	7.53	5.98	48.29
INF	5.96	5.50	19.85	1.36	2.51	1.16	5.58

**Panel D: For 234 ChiNext IPOs with opportunity to change their use of proceeds**

	Mean	Median	Maximum	Minimum	Stdev	Skewness	Kurtosis
CPR/CPR_AD	228.91	129.64	1371.65	-15.76	274.69	1.83	6.66
Size	19.70	19.63	21.44	18.23	0.61	0.41	2.81
Age	8.32	8.36	9.23	6.45	0.42	-0.78	5.32
Board	8.09	9.00	12.00	4.00	1.35	-0.69	3.28
OSM_Off	3415.27	44.85	34436.07	1.70	6713.51	2.29	7.98
OSM_On	2046.26	255.90	7756.99	11.00	2486.22	0.90	2.42
Pld_lag	13.05	12.00	36.00	8.00	4.53	2.89	13.83
Mrk	0.78	0.11	20.04	-13.27	3.89	1.16	9.17
Pt_gr	44.31	28.46	969.82	-54.95	80.57	7.35	78.69
Industry	8.90	8.00	16.00	1.00	3.50	0.36	2.16
Litigation	0.21	0.00	1.00	0.00	0.40	1.46	3.13
Piracy	0.09	0.00	1.00	0.00	0.29	2.87	9.24
Pre-P/E	24.63	17.25	82.83	10.46	12.84	1.97	6.94
PE (204)	52.05	54.16	103.21	0.00	32.28	-0.16	1.88
NP (69)	9.00	0.00	100.00	0.00	19.87	2.51	8.98
R&D (163)	11.11	7.82	100.00	0.00	15.71	3.11	15.90
MAR (56)	3.61	0.00	66.60	0.00	8.49	3.43	19.04
IS (24)	1.18	0.00	27.96	0.00	4.31	4.13	20.30
WP (72)	6.11	0.00	79.12	0.00	13.86	3.00	12.87
RB (14)	0.54	0.00	31.43	0.00	3.13	6.80	55.04
INF	7.04	6.67	16.78	1.36	2.94	0.70	3.26

**Table 2 - Summary statistics for ChiNext IPOs' planned and raised funds over time**

This table provides annual summary statistics about the number of IPOs listed on the ChiNext board, the average listing day return before 2013, the average adjusted initial return from 2014, the average amount of funds (measured in billions of Chinese currency Yuan) planned to raise, the average amount of funds actually raised, along with the average expenses in ChiNext IPOs for 778 ChiNext IPOs listed on the SZSE over the entire sample period from October 23, 2009 to December 31, 2019.

Year	Number of IPOs	Average initial underpricing	Adjusted average underpricing	Proceeds planned to raise	Proceeds raised	Net proceeds	Expense
2009	42	84.00%		9.57	24.70	23.14	1.55
2010	116	37.26%		46.80	97.49	91.68	5.59
2011	124	22.90%		32.75	73.38	67.59	5.79
2012	72	21.18%		18.52	34.00	31.09	2.77
2013	0			All IPO activities are suspended			
2014	54	43.84%	205.99%	15.01	16.97	14.80	2.17
2015	84	45.53%	554.82%	28.50	31.05	27.06	3.99
2016	88	45.76%	492.17%	27.34	29.07	25.80	3.27
2017	126	44.00%	330.13%	42.38	47.48	41.91	5.57
2018	22	44.66%	221.34%	27.05	19.67	18.34	1.33
2019	50	44.00%	214.10%	33.50	34.09	31.14	2.95

**Table 3 - Summary statistics for ChiNext IPOs with opportunity to change raised proceeds**

This table reports the number of IPOs (and the percentage to the total IPOs) that have changed the use of funds during their listing year for 778 ChiNext IPOs over the period from October 23, 2009 to December 31, 2019. The funds are measured in billions of Chinese currency Yuan.

Year	# of IPOs	# of IPOs changed use of proceeds	Percentage of IPOs	Funds raised	Funds changed in use	Percentage of funds changed
2009	42	5	11.90%	23.14	0.72	3.11%
2010	116	18	15.52%	91.68	4.17	4.55%
2011	124	37	29.84%	67.59	3.61	5.34%
2012	72	32	44.44%	31.09	6.01	19.33%
2013	0			All IPO activities are suspended		
2014	54	15	28.85%	14.80	2.03	13.72%
2015	84	23	27.38%	27.06	1.99	7.35%
2016	88	35	40.70%	25.80	2.24	8.68%
2017	126	50	39.68%	41.91	6.54	15.60%
2018	22	1	4.55%	18.34	0.25	1.36%
2019	50	18	36.00%	31.14	2.08	6.68%
All	778	234	30.08%	372.55	29.64	7.96%

**Table 4 - Regression Results with 354 IPOs over 1<sup>st</sup> sub-period and 424 IPOs over 2<sup>nd</sup> sub-period**  
 We run regression (1) below, using two sub-periods separately and report the results in this table. All the variables are defined in Appendix 2.

$$CPR/CPR\_AD_i = a + \sum \beta_j CV_{i,j} + \sum \gamma_k UF_{i,k} + \delta_i INF_i + \varepsilon_i, \quad (1)$$

where  $CPR/CPR\_AD_i$  is either the listing day closing price return over the 1<sup>st</sup> sub-period or the adjusted closing price return over the 2<sup>nd</sup> sub-period for IPO<sub>*i*</sub>,  $a$  is the regression intercept,  $CV_{i,j}$  is the control variable  $j$  for IPO<sub>*i*</sub>,  $UF_{i,k}$  is the use of proceeds variable  $k$  for IPO<sub>*i*</sub>,  $INF_i$  is the information disclose variable for IPO<sub>*i*</sub>, and  $\varepsilon_i$  is an error term. We estimate equation (1) in a three-step sequential approach. Specifically, we start with regression (1) using all the control variables to identify the significant ones (Panel A). By retaining all the significant control variables at the 10% level identified in either one of sub-periods, we add the use of proceeds variables to continue (Panel B). Finally, we include the information disclose variable to finish the analysis (Panel C).

**Panel A: OLS model with only significant control variables**

Variables	354 IPOs over 1 <sup>st</sup> sub-period		424 IPOs over 2 <sup>nd</sup> sub-period	
	Coefficient	t-statistics	Coefficient	t-statistics
C	246.34	3.97	2480.55	5.24
SIZE	-12.81	-4.05	-88.44	-3.82
OSM_OFF	0.45	9.17	0.01	3.98
OSM_ON	0.13	5.87	-0.05	-3.37
PLD_LAG	0.86	2.90	-2.70	-0.57
PRE_PE	-0.17	-1.77	-16.64	-4.41
MKT	2.80	7.89	11.82	3.35
PT_GR	0.04	2.04	0.33	2.31
LITIGATION	11.73	3.14	44.90	1.15
Adjusted R <sup>2</sup>	0.51		0.18	

**Panel B: OLS model with significant control and use of proceeds variables**

Variables	354 IPOs over 1 <sup>st</sup> sub-period		424 IPOs over 2 <sup>nd</sup> sub-period	
	Coefficient	t-statistics	Coefficient	t-statistics
C	224.59	3.57	2240.06	4.66
SIZE	-11.83	-3.71	-80.22	-3.51
OSM_OFF	0.42	8.41	0.01	3.73
OSM_ON	0.12	6.02	-0.05	-2.49
PLD_LAG	0.67	2.16	-0.56	-0.12
PRE_PE	-0.19	-1.92	-18.04	-4.81
MKT	0.42	7.47	11.34	3.22
PT_GR	0.04	2.02	0.16	1.13
LITIGATION	11.72	3.13	44.87	1.16
IS	0.42	0.93	5.35	2.18
MAR	0.42	2.21	-1.35	-0.69
NP	0.07	0.88	-0.14	-0.10
R&D	0.03	0.23	4.47	2.88
PE	0.11	1.83	0.39	0.32
WP	0.07	0.87	-0.19	-0.12
RB	-	-	-0.94	-0.42
Adjusted R <sup>2</sup>	0.52		0.22	

**Panel C: OLS model with significant control, use of proceeds and disclosure variables**

Variables	354 IPOs over 1 <sup>st</sup> sub-period		424 IPOs over 2 <sup>nd</sup> sub-period	
	Coefficient	t-statistics	Coefficient	t-statistics
C	233.81	3.73	2404.18	4.94
SIZE	-12.64	-3.95	-83.35	-3.64
OSM_OFF	0.42	8.14	0.01	3.79
OSM_ON	0.12	5.62	-0.06	-3.49
PLD_LAG	0.59	1.90	-0.73	-0.16
PRE_PE	-0.20	-2.02	-17.85	-4.78
MKT	2.72	7.66	10.79	3.07
PT_GR	0.04	2.19	0.16	1.09
LITIGATION	12.32	3.30	47.55	1.23
IS	0.37	0.84	5.74	2.34
MAR	0.34	1.79	-1.32	-0.68
NP	0.05	0.66	-0.24	-0.18
R&D	0.02	0.19	4.30	2.79
PE	0.09	1.51	0.02	0.02
WP	0.06	0.74	-0.35	-0.22
RB	-	-	-0.83	-0.37
INF	1.04	2.06	-11.84	-1.84
Adjusted R <sup>2</sup>	0.53		0.23	

**Table 5 - Regression Results for 234 IPOs with changes in use of proceeds**

We repeat regression (1), using 92 IPOs that have changed their use of proceeds during the listing year over the 1<sup>st</sup> sub-period and 142 IPOs over the 2<sup>nd</sup> sub-period and report the results in this table. All the variables are defined in Appendix 2.

$$CPR/CPR\_AD_i = a + \sum \beta_j CV_{i,j} + \sum \gamma_k UF_{i,k} + \delta_i INF_i + \varepsilon_i, \quad (1)$$

where  $CPR/CPR\_AD_i$  is either the listing day closing price return over the 1<sup>st</sup> sub-period or the adjusted closing price return over the 2<sup>nd</sup> sub-period for IPO<sub>*i*</sub>,  $a$  is the regression intercept,  $CV_{i,j}$  is the control variable  $j$  for IPO<sub>*i*</sub>,  $UF_{i,k}$  is the use of proceeds variable  $k$  for IPO<sub>*i*</sub>,  $INF_i$  is the information disclose variable for IPO<sub>*i*</sub>, and  $\varepsilon_i$  is an error term. We estimate equation (1) in a three-step sequential approach. Specifically, we start with regression (1) using all the control variables to identify the significant ones (Panel A). By retaining all the significant control variables at the 10% level identified in either one of sub-periods, we add the use of proceeds variables to continue (Panel B). Finally, we include the information disclose variable to finish the analysis (Panel C).

**Panel A: OLS model with only significant control variables**

Variables	92 IPOs over the 1 <sup>st</sup> sub-period		142 IPOs over the 2 <sup>nd</sup> sub-period	
	Coefficient	t-Statistic	Coefficient	t-Statistic
C	160.90	1.72	5102.35	6.78
SIZE	-9.39	-2.00	-223.37	-5.98
OSMOFF	0.47	4.86	0.01	1.24
OSMON	0.17	4.29	-0.02	-2.40
PLD_LAG	1.42	2.84	-2.28	-0.46
PRE_PE	-0.02	-0.09	-18.56	-3.19
MKT	-1.09	-2.32	5.32	0.68
PT_GR	0.01	0.58	0.91	2.30
LITIGATION	6.68	1.13	77.13	1.64
Adjusted R <sup>2</sup>	0.54		0.25	

**Panel B: OLS model with significant control and use of proceeds variables**

Variables	92 IPOs over the 1 <sup>st</sup> sub-period		142 IPOs over the 2 <sup>nd</sup> sub-period	
	Coefficient	t-Statistic	Coefficient	t-Statistic
C	192.65	1.93	4983.25	6.521
SIZE	-10.57	-2.12	-230.49	-5.98
OSM_OFF	0.54	5.42	0.01	1.08
OSM_ON	0.15	3.75	-0.02	-2.12
PLD_LAG	1.51	3.02	-1.46	-0.29
PRE_PE	0.01	-0.06	-18.32	-3.06
MKT	0.72	-2.79	6.05	0.77
PT_GR	0.01	0.42	0.83	2.02
LITIGATION	7.62	1.29	49.61	0.97
IS	-0.69	-1.21	8.69	1.69
MAR	0.72	1.36	4.38	1.36
NP	-0.09	-0.82	3.95	1.70
R&D	-0.21	-1.40	4.18	1.86
PE	-0.21	-2.12	1.84	0.94
WP	-0.04	0.22	2.18	0.93
RB	-	-	1.48	0.27
Adjusted R <sup>2</sup>	0.56		0.27	



**Panel C: OLS model with significant control, use of proceeds and disclosure variables**

Variables	92 IPOs over the 1 <sup>st</sup> sub-period		142 IPOs over the 2 <sup>nd</sup> sub-period	
	Coefficient	t-Statistic	Coefficient	t-Statistic
C	199.95	2.06	5070.05	6.65
SIZE	-11.56	-2.38	-241.50	-6.31
OSM_OFF	0.56	5.53	0.01	1.37
OSM_ON	0.14	3.71	-0.02	-2.00
PLD_LAG	1.26	2.53	-0.74	-0.15
PRE_PE	-0.02	-0.14	-18.51	-3.11
MKT	-1.38	-2.74	6.14	0.78
PT_GR	0.01	0.41	0.90	2.23
LITIGATION	9.98	1.71	52.99	1.05
IS	-0.81	-1.45	6.34	1.19
MAR	0.33	0.61	4.77	1.49
NP	-0.08	-0.79	3.98	1.72
R&D	-0.16	-1.05	4.23	1.89
PE	-0.21	-2.29	2.17	1.10
WP	0.02	0.12	2.32	1.00
RB	-	-	1.39	0.25
INF	1.92	2.35	14.48	1.58
Adjusted R <sup>2</sup>	0.58		0.28	