



# Analysis of Stock Pricing Factors

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## Abstract

With the development of commodity economy and its productive forces, a product-stock is obtained. European securities market has formed a complete system, but Chinese stocks themselves have the characteristics of “controlling more with less” in trading. Because legal person shares and state-owned shares promise not to circulate when they are listed, each share is only tradable shares traded according to the stock price in the market, but the index is calculated according to the weighted total share capital. Therefore, the pricing of new shares listed in China still has some problems such as high underpricing and unreasonable listing price, which itself has non-market problems. Theoretically, company potential, development prospect, stock market status, number of issues, etc. may all become the influencing factors of IPO pricing. In order to prevent speculation and stabilize the stock market, it is necessary to analyze the pricing factors of new shares. Nowadays, stock pricing determines the equilibrium of stock market, and there are many factors that affect the pricing of new shares, which are divided into ontological factors and environmental factors in this study. Ontological factor It is the influencing factor of the issuance price when the stock issuer operates and manages internally. There are many kinds of environmental factors, such as the overall economic situation, policies, industries and so on. As an emerging market, the regulatory concepts and rules, investor maturity and intermediary service capabilities of China’s capital market are constantly improving. The pricing mechanism of new shares is still being adjusted and improved. In view of this, this paper will analyze various factors that affect the pricing of new shares and use principal component analysis to reveal the relevant variables that affect the pricing level, sort out their importance, and put forward corresponding suggestions.

## Subject Areas

Business Finance and Investment

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## Keywords

Ipo Pricing, Listing, Factor Analysis

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### 1. Introduction

With the continuous development of China's economy, as an emerging market, with the financial reform and development, although the financial market has been gradually improved, there are also some unstable factors in the development process. Under the strong fluctuation of the market, there will be an unreasonable premium. After the emergence of premium, there are corresponding policies, and there is an inquiry system. This is a way to price new shares. When new shares are issued, the price is determined by the issuer and the underwriters themselves. In 2004, the CSRC issued the Inquiry System according to the Pricing Principles of the Market to determine the price of new shares. When determining the price of a stock, according to the market demand of the issuer, the issuer and the investor will first determine the range of the issue prices through negotiation. Then set a price level acceptable to most investors, so as to determine the listing price of new shares [1]. On January 1, 2005, China implemented the Inquiry System of Initial Public Offering, which improved the legal environment of the securities market and protected the interests of investors. Nevertheless, there is no complete guarantee that there will be no premium or underpricing. Sometimes, supervision will be excessive or fail, and the protection mechanism for investors needs to be constantly improved. Therefore, this study will analyze the factors that affect the IPO pricing, and analyze the collected influencing factors by principal component analysis, and draw a significant correlation between variables and IPO price changes. There are many factors that have a certain influence on the pricing of new shares, but most of them are not very significant. Therefore, the main factors and environmental factors are selected for further analysis.

### 2. The First Chapter Is the Pricing System of New Shares in China

#### 2.1. Overview of Stock Pricing Theory

##### 2.1.1. Stock Pricing Theory

Stock pricing theory is regarded as a theory to determine the stock price and stock market under uncertain circumstances, which makes the financial market equilibrium. It focuses on the risk factors included in the necessary rate of return and their interrelationships. Because of its remarkable reality and widely used empirical test methods, it has become one of the active threads in financial economics in the past 50 years. Stock pricing theory has experienced a change from traditional pricing theory to modern pricing theory.

Modern pricing theory should be considered more for investors, so as to con-

sider more comprehensively according to the real situation of investment. Investors generally form a portfolio (not one stock, but multiple stocks).

### 2.1.2. Intrinsic Value Theory

The research of intrinsic value theory began with the delivery of Benjamin Graham on Wall Street. As a securities analyst, his representative work is *Securities Analysis*, in which he puts forward that stock price fluctuation is based on intrinsic value of stocks. The future profitability of enterprises has a certain influence on intrinsic value [2]. After that, Gordon put forward the cash flow model of stock pricing based on the in-depth analysis of intrinsic value—"Gordon Model". Gordon Model Has an important influence on stock analysis:

Dividend intimate model is the most important in intrinsic value theory, and its core principles are as follows:

$$P_0 = D_0/(1+r) + D_2/(1+r)^2 + \dots + D_n/(1+r)^n \quad (1)$$

Here  $P_0$  For the intrinsic value of stocks,  $D_1, D_2, \dots, D_n$  is the dividend, and  $r$  is the discount rate.

From the formula of discount model, the following two simple formulas can be derived:

#### 1) Stock Pricing Model under Fixed Dividend Growth Rate—Gordon Model

If the issuing company can keep the cash dividend of the stock on top of the basic dividend and increase at a fixed rate every year, the pricing model of the stock dividend is as follows:

$$\begin{aligned} P_0 &= D(1+g)/(1+r) + D(1+g)^2/(1+r)^2 + \dots + D(1+g)^n/(1+r)^n \\ &= D(1+g)/(r-g) \end{aligned} \quad (2)$$

( $g$  = Fixed rate of dividend growth)

#### 2) Stock Pricing Model under Constant Dividend Condition

Assuming that the issuer of the stock keeps the amount of the stock unchanged and the investor holds the stock permanently, the pricing model of the stock is as follows:

$$P_0 = D/(1+r) + D/(1+r)^2 + \dots + D/(1+r)^n = D/r \quad (3)$$

## 2.2. Changes in IPO Pricing System

### 2.2.1. Fixed Price System

In the early days of the securities market, new shares were issued at a fixed price. Fixed issue price is more suitable for retail-dominated securities market, and fixed price leads to a low degree of marketization [3]. The formulation of this system is mainly calculated by price-earnings ratio, and the formula is:

Stock price = earnings per share  $\times$  reasonable price-earnings ratio.

Later, because the price-earnings ratio is more suitable for the trend of stocks in the secondary market, with the development of the securities market, this pricing system is easy to be manipulated, so that the IPO price of this pricing system is not suitable for the development of the securities market.

### 2.2.2. Development Stage of IPO Pricing System

From 1999 to 2004, a variety of pricing systems appeared in China's securities market, as shown in **Table 1**.

From 1999 to 2004, the IPO pricing system has been changing constantly, which fully reflects the continuous efforts and innovations of China's financial market towards marketization. Nevertheless, the closing price of many new shares is still much higher than the opening price on the day of issuance, resulting in excess returns, which hinders the healthy development of China's financial market [4].

## 2.3. Stock Issuance

### 2.3.1. Stock Discovery Summary

Under normal circumstances, when a stock is issued, it will be publicly issued to the society and raise share capital. The mechanism of financial market has a great influence on the decision of price. With the change of the input value of the company and the change of the relationship between supply and demand in the market, the issue price of the stock will also change accordingly. If the price of a stock issued by the issuer is too much higher than the par value, it is called a premium issue. After consultation between the underwriting securities institution and the issuer, it will determine how much higher the par value can be and submit it to the securities regulatory authority under the State Council for approval. When the stock is issued, the mechanism of financial market determines the issue price of the stock, but at the same time it will be supervised and managed by the securities institution of the State Council.

### 2.3.2. Issue Price of Shares

In the stock issue price, premium issue or equivalent issue is allowed, but discount issue is not allowed, that is, it is sold at a price lower than the par value of the stock. In this case, the issue price will lead to the actual capital of the company being less than the due capital, which does not conform to the principle of

**Table 1.** Development of IPO pricing.

Time (year)	Pricing system of new share issuance
1999	Strategic investors can participate in the pricing, and the issue price of new shares is decided by the issuer and investors through negotiation.
2000	Pricing system in which primary market pricing and secondary market investment are linked to gradually reduce the impact of price-earnings ratio.
2001.05	The online bidding is determined for the first time, and the black-box operation is effectively placed, which has a positive impact.
2001-present	Reset the pricing system of P/E ratio, and determine the issuance interval by preliminary inquiry. The IPO pricing breaks through the traditional P/E ratio limit, specifically adopting the practice of "a certain total amount, uncertain issuance volume, and the price only sets the base price, not the upper limit".

capital enrichment of the company, and the company will have an imaginary number [5]. In fact, it shows that the company has debt behavior to creditors, and the company issues shares at a price lower than the par value, which is not beneficial to creditors.

In the process of raising, more funds can be raised with the same number of shares than calculated at par, so that the capital of the company can be increased accordingly [6]. This situation is usually called premium shares.

### **3. Analysis of Influencing Factors of Stock Issuance Pricing**

#### **3.1. Ontological Factors Affecting Stock Issuance**

Under normal circumstances, the issue price depends on the actual operating conditions of the issuer. Noumenon factors and environmental factors are particularly important [7]. Noumenon factors include profit level, capital status, future profit, quality of employees, cost control, enterprise management level and other factors. At the same time, the popularity of corporate brands and the social evaluation of issuers themselves are also important factors that determine the stock issue price. The brand has certain popularity, and the issuer has a good public image, which will increase the number of market demand and produce a strong response, thus the issue price will be improved to a certain extent.

When new shares are issued, the information of issuers is asymmetric. This situation mainly refers to the asymmetry of the actual ability of the operators of related companies and the asymmetry of information about the quality of products or projects of enterprises. Under normal circumstances, it mainly refers to the strict management and supervision of the projects invested by enterprises and whether they work hard. In economic development, the first type of information asymmetry will lead to adverse selection, and the second type of information asymmetry has moral hazards.

In the daily operation of enterprises, production, operation and management are particularly important, and the strict degree of enterprise management will have a direct impact on the economic benefits and efficiency of enterprises. Management ability is mainly reflected in the three aspects of production, supply and sales, which constitute a complete management system. So that it can be more convenient to manage and control the ability.

#### **3.2. Environmental Factors Affecting Stock Issuance**

Environmental factors have an impact on the stock issue price of enterprises through environmental impact. The key of environmental factors lies in the factors that have obvious influence on the internal production value and internal characteristics of the enterprise, thus the factors that have a certain influence on the stock price, and the external factors that have nothing to do with the characteristics of the enterprise are not considered.

External environmental factors mainly include the current macroeconomic

situation, Shanghai Composite Index, GDP, financial structure and so on [8]. Today's overall economic policies can affect the supply and demand of funds in the stock market, and have a direct impact on the pricing of new shares. Economic cycle and macro-economy will have a psychological impact on investors' investment behavior, thus investors have a greater impact on stock prices. When facing these environmental factors, the fluctuation of stock price is particularly obvious. For example, fiscal policy expands the profit rate of enterprises, which can promote the development of economic market and make the stock price rise to a certain extent; the increase of profit rate in financial market will cause the decline of stock value.

The influencing factors of the stock market are a long-term investigation process. Although environmental factors have little influence on value creation, the important role of environmental factors is to analyze the characteristics of enterprises, so as to show the influence of environmental factors on IPO pricing.

## **4. The Research on China's Stock Issuance**

### **4.1. Selection of Stock Samples**

In the primary market, issuers will sell securities to the public for the first time. Usually refers to the initial issuance of new securities by unlisted companies to the public. Stock exchanges provide a link between savings in the household sector and economic investment in enterprises. It mobilizes savings and puts them as securities into these enterprises, which are favored by investors for their future growth prospects, good returns and capital appreciation. Most transactions are conducted in the secondary market. The market in which new securities are issued to the public for the first time or traded after listing in the primary market is called the secondary market. Stock market and bond market are also included. The decision to go public, or to construct an initial public offering (IPO), represents an important milestone in a company's life cycle. Companies go public for several reasons. At first, enterprises can reduce the consumption of costs when raising funds. By switching to the stock market, entrepreneurs and existing shareholders have the opportunity to diversify their investments by converting them into cash.

After nearly 30 years' development, China's securities market is developing steadily and gradually forming a scale [9]. From the aspects of financing quota, investment quantity and investor quantity of listed companies, China's capital market has reached a certain scale, and the securities market is playing an increasingly important role in China's economic development. Therefore, the new shares issued from 2014 to 2018 are selected as the research object.

### **4.2. Principal Component Analysis**

At present, principal component analysis (principal component analysis) can effectively reduce the dimension of data, which simplifies multiple related indica-

tors into a few comprehensive indicators [10]. Users can compress the information of multiple variables into several comprehensive variables and extract effective principal components.

The principal component extracted in principal component analysis is a linear combination of original variables, and its model can be expressed by the following formula:

$$\begin{cases} Y_1 = a_{11}x_1 + a_{12}x_2 + \cdots + a_{1n}x_n \\ Y_2 = a_{21}x_1 + a_{22}x_2 + \cdots + a_{2n}x_n \\ \cdots \\ Y_n = a_{n1}x_1 + a_{n2}x_2 + \cdots + a_{nn}x_n \end{cases} \quad (4)$$

Among them, data  $X$  is the matrix data of the principal component to be proposed, and a data  $X$  has  $n$  variables, which are  $x_1, x_2, \dots, x_n$ ; through the  $X$  principal components can be extracted from linear changes of data  $Y_1, Y_2, \dots, Y_n$ . There is no correlation between the principal components; principal component  $Y_1, Y_2, \dots, Y_n$ . For data  $X$  and the coefficients are satisfied with the linear combination of variables in  $i_1^2 + a_{i2}^2 + \cdots + a_{in}^2 = 1, i = 1, 2, \dots, n$ ; for each famous stock, it is its and data respectively  $X$ . The combination with the largest variance in linear combination, that is, principal component  $Y_1$  is a variable  $x_1, x_2, \dots, x_n$ . The principal component with the largest variance in all linear combinations  $Y_2$ . For and principal component  $Y_1$  least relevant and variable  $x_1, x_2, \dots, x_n$ . All linear equations have the smallest combined variance, and so on.

In this paper, 100 listed companies with stable policies from 2014 to 2018 are selected by random sampling (Tables 2-6).

Because there are many influencing factors, but the number of samples is relatively small, principal component analysis will be used to comprehensively evaluate various factors, so as to extract principal components. The factors that affect the IPO pricing can be divided into two relatively important factors: the main factor and the environmental factor. Compared with the main factors, I think there are many kinds of environmental factors, and the degree of their influence is also different. In addition, the data of the related factors that affect the main factors are not clear, so it is impossible to carry out good data analysis. And the most important environmental factors have a relatively obvious influence on stock prices. External environmental factors mainly include financial and current economic situation, GDP and so on. Considering the diversity and complexity of environmental factors, we can not carry out one-to-one analysis and research on the impact of various environmental factors, and can not form a unified. Usually, the impact of gold on the economy can not be ignored. As an alternative tool of assets, gold is a very important aspect of economic analysis. Therefore, this paper will select five influencing factors which have an important influence on stock value, such as RMB exchange rate, stock turnover, gold price, Shanghai Composite Index and per capita GDP, and analyze them (Tables 7-14).

**Table 2.** Summary of sampled stocks of listed companies in 2014.

Code	Name	Date of the prospectus	Listing board	Issue price	Price-earnings ratio	opening quotation	The First-day Closing Price
300397	Tianhe defense	2014/08/20	GEM	24.05¥	20.73	28.86¥	34.63¥
300396	Dirui medical	2014/08/20	GEM	29.54¥	20.80	35.45¥	42.54¥
300390	Tianhua super clean	2014/07/15	GEM	8.47¥	18.29	10.16¥	18.29¥
603168	Sapais	2014/06/11	Main-Board	21.85¥	14.05	26.22¥	31.46¥
002730	Electro optic technology	2014/09/16	SME	8.07¥	19.59	9.68¥	11.62¥
603169	Orchid stone reloading	2014/09/16	Main-Board	1.68¥	21.73	2.02¥	2.42¥
002731	Cuihua jewelry	2014/10/24	SME	11.92¥	17.28	15.73¥	17.16¥
603456	Kyushu medicine	2014/09/16	Main-Board	15.43¥	22.36	18.52¥	22.22¥
300392	Teng letter shares	2014/08/20	GEM	26.10¥	22.70	31.32¥	37.58¥
002729	Haolilai	2014/08/20	SME	11.90¥	19.29	14.28¥	17.14¥
300395	Philippe	2014/08/20	GEM	19.13¥	18.94	25.26¥	27.55¥
603306	Chinachem Technology	2014/08/20	Main-Board	12.08¥	19.24	14.50¥	17.40¥
603166	Fuda shares	2014/11/17	Main-Board	5.80¥	20.00	8.35¥	8.35¥
601579	Huiji Mountain	2014/07/15	Main-Board	4.43¥	14.42	5.32¥	6.38¥
603126	Sinoma energy saving	2014/07/15	Main-Board	3.46¥	21.63	4.15¥	4.98¥
603288	Haitian taste industry	2014/01/15	Main-Board	51.25¥	31.90	61.50¥	66.41¥
300383	Halo New Net	2014/01/10	GEM	38.30¥	37.79	45.96¥	55.16¥
300380	An Shuo information	2014/01/09	GEM	23.40¥	40.06	28.08¥	33.70¥
300406	Nine strong organisms	2014/10/16	GEM	14.32¥	10.07	18.34¥	20.62¥
300400	Jintuo shares	2014/09/16	GEM	7.60¥	21.11	9.84¥	10.94¥

**Table 3.** Summary of sampled stocks of listed companies in 2015.

Code	Name	Date of the prospectus	Listing board	Issue price	Price-earnings ratio	opening quotation	The First-day Closing Price
300480	Optics and power technology	2015/06/23	GEM	7.28¥	22.99	9.49¥	10.48¥
300481	Puyang Huicheng	2015/06/19	GEM	9.13¥	22.95	12.06¥	13.15¥
300482	Wanfu biology	2015/06/19	GEM	16.00¥	18.56	20.94¥	23.04¥
300490	Huazi technology	2015/12/23	GEM	9.90¥	22.98	12.00¥	13.09¥
300491	Tonghe technology	2015/12/23	GEM	10.48¥	22.98	13.84¥	15.09¥
300492	Mountain tripod design	2015/12/14	GEM	6.90¥	22.96	8.28¥	9.94¥

## Continued

300496	Zhongke Chuangda	2015/12/02	GEM	23.27¥	22.99	28.41¥	33.51¥
300497	Fuxiang shares	2015/12/11	GEM	15.33¥	21.79	18.96¥	22.08¥
002771	True visual communication	2015/06/18	SME	12.78¥	22.98	16.61¥	18.40¥
002772	Zhongxing mushroom industry	2015/06/17	SME	13.00¥	22.98	15.60¥	18.72¥
002773	Kanghong pharmaceutical industry	2015/06/17	SME	13.62¥	22.98	16.34¥	19.61¥
002770	Cody dairy industry	2015/06/19	SME	6.85¥	20.81	8.22¥	9.86¥
002769	Prutone	2015/06/18	SME	28.49¥	19.64	37.61¥	41.03¥
002768	Guoen shares	2015/06/18	SME	17.47¥	22.99	22.86¥	25.16¥
002767	Pioneer Electronics	2015/06/03	SME	14.87¥	22.43	17.84¥	21.41¥
002766	Suoling shares	2015/06/03	SME	7.53¥	22.82	9.94¥	10.84¥
603223	Hengtong shares	2015/06/19	Main-Board	8.31¥	22.97	11.97¥	11.97¥
603227	Xuefeng technology	2015/05/06	Main-Board	4.98¥	22.95	7.17¥	7.17¥
603268	Songfa shares	2015/03/11	Main-Board	11.66¥	22.86	13.99¥	16.79¥
603299	Su Yanjing God	2015/12/23	Main-Board	3.69¥	22.92	5.31¥	5.31¥

Table 4. Summary of sampled stocks of listed companies in 2016.

Code	Name	Date of the prospectus	Listing board	Issue price	Price-earnings ratio	opening quotation	The First-day Closing Price
300502	Xinyisheng	2016/02/23	GEM	21.47¥	18.58	25.76¥	30.92¥
300503	Haozhi electromechanical	2016/02/29	GEM	7.72¥	22.98	9.26¥	11.12¥
300505	Chuan Jinnuo	2016/03/04	GEM	10.25¥	22.98	12.30¥	14.76¥
300507	Suo sensing	2016/04/20	GEM	24.92¥	22.99	32.89¥	35.88¥
300508	Weihong shares	2016/04/08	GEM	20.08¥	22.98	26.51¥	28.92¥
300510	Golden crown shares	2016/04/26	GEM	12.30¥	22.99	16.24¥	17.71¥
300512	Central Asia shares	2016/05/17	GEM	20.91¥	22.96	25.09¥	30.11¥
300517	Haibo Heavy Branch	2016/07/07	GEM	10.04¥	22.97	13.26¥	14.46¥
002818	Fu Sen Mei	2016/10/25	SME	23.49¥	22.99	31.01¥	33.83¥
002817	Huangshan Capsule	2016/10/13	SME	13.88¥	22.98	16.66¥	19.99¥
002816	And Koda	2016/10/12	SME	8.29¥	22.98	10.63¥	11.94¥
002815	Chongda technology	2016/09/22	SME	16.31¥	22.98	21.22¥	23.49¥

## Continued

002813	Luchang technology	2016/09/23	SME	6.89¥	22.97	8.95¥	9.92¥
002812	Enjie shares	2016/08/31	SME	23.41¥	22.99	28.09¥	33.71¥
002811	Asia Pacific International	2016/08/30	SME	13.99¥	22.98	18.47¥	20.15¥
603090	Hongsheng shares	2016/08/16	Main-Board	8.47¥	22.98	10.16¥	12.20¥
603069	Haiqi Group	2016/06/29	Main-Board	3.82¥	18.20	4.58¥	5.50¥
603067	Zhenhua shares	2016/09/01	Main-Board	6.13¥	22.98	8.83¥	8.83¥
603060	National Inspection Group	2016/10/28	Main-Board	10.04¥	22.97	12.05¥	14.46¥
603887	City land shares	2016/10/10	Main-Board	12.13¥	22.97	14.56¥	17.47¥

Table 5. Summary of sampled stocks of listed companies in 2017.

Code	Name	Date of the prospectus	Listing board	Issue price	Price-earnings ratio	opening quotation	The First-day Closing Price
300625	Trio Aurora	2017/03/07	GEM	19.30¥	22.99	23.16¥	27.79¥
300626	Huarui shares	2017/03/09	GEM	7.50¥	22.98	9.00¥	10.80¥
300640	Deyi Wenchuang	2017/04/05	GEM	9.41¥	22.98	11.29¥	13.55¥
300643	Wantong Zhikong	2017/05/05	GEM	4.30¥	22.01	5.16¥	6.19¥
300642	Viewing life	2017/04/12	GEM	36.10¥	22.99	47.65¥	51.98¥
300641	Zhengdan shares	2017/04/06	GEM	10.73¥	22.98	12.88¥	15.45¥
300653	Orthoceanic organisms	2017/05/03	GEM	11.72¥	22.98	15.47¥	16.88¥
300654	Century Tianhong	2017/09/14	GEM	7.71¥	22.98	9.25¥	11.10¥
002878	Yuan Long Yatu	2017/05/19	SME	14.48¥	22.75	17.38¥	20.85¥
002879	Long cable technology	2017/06/01	SME	18.02¥	22.99	23.78¥	25.95¥
002881	Meg intelligence	2017/06/09	SME	8.96¥	22.98	11.83¥	12.90¥
002887	Green ecology	2017/07/20	SME	42.01¥	22.98	55.45¥	60.49¥
002888	Hivi Technology	2017/07/12	SME	8.97¥	22.97	10.76¥	12.92¥
002891	Zhongchong shares	2017/08/10	SME	15.46¥	22.98	18.55¥	22.26¥
002893	Huatong thermal power	2017/09/06	SME	8.56¥	22.97	10.27¥	12.33¥
002896	Zhongda Dali Germany	2017/08/18	SME	11.75¥	22.99	15.51¥	16.92¥
603938	Sanfu shares	2017/06/16	Main-Board	9.64¥	22.99	13.88¥	13.88¥
603963	Dali pharmaceutical industry	2017/09/12	Main-Board	12.58¥	22.69	18.12¥	18.12¥
603970	Middle peasant Li Hua	2017/11/07	Main-Board	12.47¥	22.98	17.96¥	17.96¥
603960	Mechatronics	2017/03/02	Main-Board	9.51¥	22.99	13.69¥	13.69¥

**Table 6.** Summary of sampled stocks of listed companies in 2018.

Code	Name	Date of the prospectus	Listing board	Issue price	Price-earnings ratio	opening quotation	The First-day Closing Price
300741	Huabao shares	2018/02/13	GEM	38.60¥	22.99	46.32¥	55.58¥
300742	Yue Bo power	2018/04/25	GEM	23.34¥	22.99	28.01¥	33.61¥
300743	Tiandi Digital	2018/04/04	GEM	14.70¥	22.99	19.40¥	21.17¥
300745	Xinrui technology	2018/05/14	GEM	11.65¥	17.29	15.38¥	16.78¥
300746	Hanjia design	2018/05/16	GEM	5.62¥	21.45	6.74¥	8.09¥
300747	Rico laser	2018/06/13	GEM	38.11¥	17.96	45.73¥	54.88¥
300748	Gold force permanent magnet	2018/09/06	GEM	5.39¥	22.98	6.47¥	7.76¥
300749	Dinggu Jichuang	2018/09/13	GEM	12.22¥	22.99	14.66¥	17.60¥
002925	Yingqu technology	2018/01/04	SME	22.50¥	22.99	27.00¥	32.40¥
002927	Tai Yong Long March	2018/02/07	SME	14.78¥	22.99	17.74¥	21.28¥
002930	Hirokawa Wisdom	2018/03/14	SME	8.53¥	22.97	10.24¥	12.28¥
002932	Mingde biology	2018/06/29	SME	20.45¥	22.99	24.54¥	29.45¥
002933	Emerging equipment	2018/08/15	SME	22.45¥	22.99	26.94¥	32.33¥
002937	Xingrui technology	2018.09/12	SME	9.94¥	22.99	11.93¥	14.31¥
002938	Pengding Holdings	2018/09/05	SME	16.07¥	22.99	19.28¥	23.14¥
002939	Great Wall Securities	2018/10/17	SME	6.31¥	22.98	7.75¥	9.09¥
603156	Yangyuan drink	2018/01/31	Main-Board	78.73¥	17.74	94.48¥	113.37¥
603214	Baby-friendly room	2018/03/21	Main-Board	19.95¥	22.98	23.94¥	28.73¥
603895	Tianyong intelligence	2018/01/10	Main-Board	18.22¥	22.99	22.00¥	26.40¥
603871	Jiayou International	2018/01/25	Main-Board	41.80¥	22.99	50.27¥	60.32¥

\*The data comes from tonghuashun of northeast securities.

**Table 7.** Environmental factor data.

Year	RMB exchange rate (annual average price)	Transaction amount of stock (100 million yuan)	Gold price (USD)	Shanghai Composite Index (closing price)	Per capita GDP
2000	827.84	60827	279.01	2073.48	7857.68
2001	827.7	38305	271.08	1645.97	8621.71
2002	827.7	27990	309.88	1357.86	9398.05
2003	827.7	32115	363.57	1497.04	10541.97
2004	827.68	42334	409.72	1266.5	12335.58
2005	819.17	31665	444.74	1161.06	14185.36
2006	797.18	90469	603.46	2675.47	16499.7
2007	760.4	460556	695.39	5261.56	20169.46
2008	694.51	267113	871.57	1820.81	23707.71
2009	683.1	533161	963.35	3277.14	25575.48
2010	676.95	545634	1232.57	2808.08	30494.44
2011	645.88	421650	1567.95	2199.417	35931.53
2012	631.25	314667	1677.75	2269.128	39446.62
2013	619.32	468072	1409.08	2115.98	43213.8
2014	614.28	742385	1266.4	3234.68	46490.78
2015	622.84	2368150	1148.19	3539.18	51571.71
2016	664.23	1273845	1252.3	2988.6	53974.23
2017	650	1124625	1332.3	3139.88	59201.72
2018	619.32	901739	1365.45	3189.96	98274.85

Principal component analysis using SPSS.

FACTOR

/VARIABLES RMB exchange rate (annual average price) stock turnover (100 million ¥) gold price (USD) Shanghai Composite Index (closing price) per capita GDP

/MISSING LISTWISE

/ANALYSIS RMB exchange rate (annual average price) stock turnover (100 million ¥) gold price (USD) Shanghai Composite Index (closing price) per capita GDP

/PRINT INITIAL CORRELATION SIG KMO EXTRACTION

/PLOT EIGEN

/CRITERIA MINEIGEN(1) ITERATE(25)

/EXTRACTION PC

/ROTATION NOROTATE

/METHOD=CORRELATION.

Factor analysis.

**Table 8.** Notes.

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	Notes	
	Active dataset	Dataset 1
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Input	Weight	<none>
	Split a file	<none>
	N rows in the working data file	19
Missing value processing	Definition of missing	MISSING=EXCLUDE: User-defined missing values are treated as missing.
	Cases used	LISTWISE: Statistics are based on cases where there are no missing values for any of the variables used.
	Grammar	<p>FACTOR</p> <p>/VARIABLES RMB exchange rate (annual average price) stock turnover (100 million ¥) gold price (USD) Shanghai Composite Index (closing price) per capita GDP</p> <p>/MISSING LISTWISE</p> <p>/ANALYSIS RMB exchange rate (annual average price) stock turnover (100 million ¥) gold price (USD) Shanghai Composite Index (closing price) per capita GDP</p> <p>/PRINT INITIAL CORRELATION SIG KMO EXTRACTION</p> <p>/PLOT EIGEN</p> <p>/CRITERIA MINEIGEN(1) ITERATE(25)</p> <p>/EXTRACTION PC</p> <p>/ROTATION NOROTATE</p> <p>/METHOD=CORRELATION.</p>
Resources	Processor time	00:00:00.19
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	Maximum memory required	4248 (4.148K)

[Dataset 1].

**Table 9.** Correlation Matrix (1).

		RMB exchange rate (annual average price)	Transaction amount of stock (100 million ¥)	Gold price (USD)
	RMB exchange rate (annual average price)	1.000	-0.673	-0.954
	Transaction amount of stock (100 million ¥)	-0.673	1.000	0.541
Correlation	Gold price (USD)	-0.954	0.541	1.000
	Shanghai Composite Index (closing price)	-0.480	0.565	0.401
	Per capita GDP	-0.816	0.677	0.765
	RMB exchange rate (annual average price)		0.001	0.000
	Transaction amount of stock (100 million ¥)	0.001		0.008
Sig. (Unilateral)	Gold price (USD)	0.000	0.008	
	Shanghai Composite Index (closing price)	0.019	0.006	0.044
	Per capita GDP	0.000	0.001	0.000

**Table 10.** Correlation Matrix (2).

		Shanghai Composite Index (closing price)	Per capita GDP
Correlation	RMB exchange rate (annual average price)	-0.480	-0.816
	Transaction amount of stock (100 million ¥)	0.565	0.677
	Gold price (USD)	0.401	0.765
	Shanghai Composite Index (closing price)	1.000	0.445
	Per capita GDP	0.445	1.000
	Sig. (Unilateral)	RMB exchange rate (annual average price)	0.019
Transaction amount of stock (100 million ¥)		0.006	0.001
Gold price (USD)		0.044	0.000
Shanghai Composite Index (closing price)			0.028
Per capita GDP		0.028	

**Table 11.** KMO and Bartlett inspection.

Kaiser-Meyer-Olkin metric of sampling adequacy.		0.747
Approximate chi-square		75.236
Bartlett's sphericity test	df	10
	Sig.	0.000

**Table 12.** Common factor variance

	Initial	Extraction
RMB exchange rate (annual average price)	1.000	0.899
Transaction amount of stock (100 million ¥)	1.000	0.661
Gold price (USD)	1.000	0.792
Shanghai Composite Index (closing price)	1.000	0.422
Per capita GDP	1.000	0.797

Extraction method: Principal component analysis.

**Table 13.** Total variance explained.

Composition	Initial eigenvalue			Extract sum of squares and load		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	3.570	71.410	71.410	3.570	71.410	71.410
2	0.761	15.226	86.636			
3	0.410	8.202	94.838			
4	0.227	4.546	99.385			
5	0.031	0.615	100.000			

Extraction method: Principal component analysis.

**Table 14.** Component Matrix A.

	Composition
	1
RMB exchange rate (annual average price)	-0.948
Transaction amount of stock (100 million ¥)	0.813
Gold price (USD)	0.890
Shanghai Composite Index (closing price)	0.649
Per capita GDP	0.893

Extraction method: Principal components. A, 1 component has been extracted.

## 5. Conclusions

Through the understanding of stock pricing theory, this paper analyzes the factors that affect the pricing of stock issuance. Environmental factors can not only significantly affect the fluctuation of stock prices, but also have a wide variety of environmental factors, which have complex forms of influence on stock prices and different degrees of influence on stock prices. Therefore, this paper will select five influencing factors which have an important influence on stock value, such as RMB exchange rate, stock turnover, gold price, Shanghai Composite Index and per capita GDP, and analyze them. Our country's securities market is constantly developing, and stock pricing has become our concern for more and more months.

At the beginning of studying the current price of IPO theory, Combined with the characteristics of China's stock listing subjects, from the data from 2000 to 2018, this paper analyzes the factors affecting the pricing of new shares from five aspects: RMB exchange rate, stock turnover, gold price, Shanghai Composite Index and per capita GDP, and finds that the application effect of the model is better, which shows that the applicability of the model is better. At the same time, from the results of the model, we can see that the RMB exchange rate has a great influence on the stock issue price, and the stock transaction amount, gold price, Shanghai Composite Index and per capita GDP also have a certain influence on the stock issue price. In addition, the capital market should also strengthen the rational guidance of people's development based on the needs of the country, which will help upgrade China's industrial mechanism and guide the flow of quality resources to high-quality enterprises and industries.

## Conflicts of Interest

The authors declare no conflicts of interest.

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