

The Post-IPO Performance in the PRC

Zhang Hanbing¹, Jeffrey E. Jarrett² & Xia Pan³

¹ Macau University of Science and Technology, China

² University of Rhode Island, USA

³ Wake Forest University, USA

Correspondence: Jeffrey E. Jarrett, University of Rhode Island, USA. E-mail: jejarrett@uri.edu

Received: August 14, 2019

Accepted: September 12, 2019

Online Published: October 14, 2019

doi:10.5539/ijbm.v14n11p109

URL: <https://doi.org/10.5539/ijbm.v14n11p109>

Abstract

The long-run underperformance of IPOs (Initial Public Offerings) is one of the three “New Issues Puzzles” It indicates that if investors buy IPOs and hold for more than three years they will get negative abnormal returns It is necessary to examine the long-run performance of IPOs in China because it benefits how to enhance the efficiency of IPOs market and provides insight of emerging market This paper empirically examines the performance for three years after listing of 76 Shanghai Stock Exchange IPOs from 2002 to 2007, the matched company as the benchmark, the matched company comes from the same industry and similar circulated stock value with listed companies. First it computes the long-run excess returns of the IPOs with types of models. Then it examines whether the underperformance has statistical significance or not. After that, it analyzes the relationship between the variables and long-run performance of IPOs.

Research documents that the IPOs significantly underperformed the matched companies. The cumulative abnormal returns over the three years listing are -0.18446. The buy and hold abnormal returns over three years after listing are -0.01284. At last, using the cross-sectional analysis to analyze the factors that affect the long-run performance of IPOs, the regression result shows that EPS is the basic reason; the intrinsic value, issue characteristics and the investors’ sentiment (overoptimistic) are the main reason for long-run performance of IPOs.

This paper analyzes the reason of this phenomenon, then from the reason puts forward relevant suggestions: firstly, improving the information disclosure; secondly, evaluating the rational investors; thirdly, strengthening market supervision.

Keywords: Initial Public Offering (IPO), long-run underperformance

1. Introduction

The long-run underperformance of IPOs one of the three “New Issues Puzzles” an important issue focused by western academics in recent years’ Western scholars have put forward various theories on this topic including the divergence of opinion hypothesis the impresario hypothesis the windows of opportunity hypothesis and over packaging hypothesis. Long-run performance means the relationship between long-run return and standard return on the basis of initial closing price. The long-run underperformance is defined that if the investors buy IPO and hold over more than three years, they will get a negative abnormal return.

The phenomenon of long-run underperformance challenges the efficient market theory, in particular the validity of information, because the investors are rational, the stock price is random walk in the effective market. In this case, the stock price has been fully absorbed and reflects all the relevant information, taking into account the risk factors and transaction costs, anyone cannot obtain the excess returns under the public information. The phenomenon of the IPOs in the long-run underperformance account for investing the initial public offering of stock get a negative excess return, it obviously runs counter to the efficient markets hypothesis. As we know, the efficient market is divided into three parts, first is operational efficiency, which is named the transactions’ operational efficiency of stock market. Second is information efficiency, it has three conditions to achieve the following information: first of all, the public information efficiency, which the public information can be full, true and timely, publication of information in market. Then investors’ reaction to the information, according to the all information, the investors react to stock consistently, reasonably and timely. Last is the allocative efficiency of resources, refers to the stock price boot efficiency. Information efficiency is the cornerstone of the stock market efficiency. Therefore, we

research the IPOs' long-run underperformance contribute to test the degree of effectiveness, which is the prime importance to study the long-run performance of IPOs. Previous research by Datta Gruskin and Iskandar-Datta (2015) examined the post-IPO stock price performance by differentiating between IPOs and three types of RLBOs (i.e. public-to-private (or re-IPOs), division-to-private, and private-to-private deals). They documented that public-to-private RLBOs outperform their industry rivals. IPOs, mature firms in comparable industries, and a propensity-score matched control group for up to five years post-offering. In addition, they produced evidence that, within RLBOs, public-to-private RLBOs, outperform private-to-private and division-to-private RLBOs. More recently, Hartog (2016) analyzed post-IPO long-term performance of firms in a cross-nation study of the USA and China (PRC). He compared USA and PRC firms IPOs and determined that firms going public in the USA outperform similar firms going public in China. The largest impact was with firms not in technology. Last other scholars have put forward various theories on this topic including the divergence of opinion hypothesis the impresario hypothesis the windows of opportunity hypothesis and over packaging hypothesis.

Long-run performance means the relationship between long-run return and standard return on the basis of initial closing price. The long-run underperformance is defined that if the investors buy IPO and hold over more than three years, they will get a negative abnormal return.

The phenomenon of the IPOs in the long-run underperformance account for investing the initial public offering of stock get a negative excess return, it obviously runs counter to the efficient markets hypothesis. As we know, the efficient market is divided into three parts, first is operational efficiency, which is named the transactions' operational efficiency of stock market. Second is information efficiency, it has three conditions to achieve the following information: first of all, the public information efficiency, which the public information can be full, true and timely, publication of information in market. Then investors' reaction to the information, according to the all information, the investors react to stock consistently, reasonably and timely. Last is the allocative efficiency of resources, refers to the stock price boot efficiency. Information efficiency is the cornerstone of the stock market efficiency. Therefore, we research the IPOs' long-run underperformance contribute to test the degree of effectiveness, which is the prime importance to study the long-run performance of IPOs.

Secondly, from the perspective of investors, long-run underperformance means that the stock is not suitable for hold a long-term of IPOs, to examine whether the existence of IPOs in China can provide information to make the right investment strategy. Then from the perspective of listed companies, as investors hold the stock after the listing of the benefits is a financing cost of firms in the capital markets, the existence of the long-run underperformance account for enterprise is no real cost of equity financing, relatively low cost of equity financing to the financing function would discount this financing function, also would distort corporate investment decision-making behavior. If the cost of equity financing costs lower than debt financing costs, to be from the point of economic view explains why a large number of listed companies interested in equity financing, while traditional financing is the debt first and equity after it. The lower cost of equity financing makes the manager random changes financing of investment direction after financing, or lightly to raise funds put into the project which has not been fully to feasibility studies, resulting by business failures, it impacts on the results of operations.

Currently, the IPOs underpricing research has been quite perfect, but the long-run performance of IPOs is relatively less in west. From the previous research in western, it is long-run underperformance of IPOs as a rule in the mature market. It is almost a designate of long-run performance. In China, researchers study the IPO initial return rate is too high has been confirmed. Most of investors have been the consensus to buy IPO stock is almost risk-free return in primary market. As for examining the long-run performance of IPOs is varying few domestic literature, and each of scholars come to the conclusion are vary greatly. Researchers form the information asymmetry, agency.

Secondly, from the perspective of investors, long-run underperformance means that the stock is not suitable for hold a long-term of IPOs, to examine whether the existence of IPOs in China can provide information to make the right investment strategy. Then from the perspective of listed companies, as investors hold the stock after the listing of the benefits is a financing cost of firms in the capital markets, the existence of the long-run underperformance account for enterprise is no real cost of equity financing, relatively low cost of equity financing to the financing function would discount this financing function, also would distort corporate investment decision-making behavior. If the cost of equity financing costs lower than debt financing costs, to be from the point of economic view explains why a large number of listed companies interested in equity financing, while traditional financing is the debt first and equity after it. The lower cost of equity financing makes the manager random changes financing of investment direction after financing, or lightly to raise funds put into the project which has not been fully to feasibility studies, resulting by business failures, it impacts on the results of operations.

Currently, the IPOs underpricing research has been quite perfect, but the long-run performance of IPOs is relatively less. From the previous research in western, it is long-run underperformance of IPOs as a rule in the mature market. It is almost a designate of long-run performance. In China, researchers study the IPO initial return rate is too high has been confirmed. Most of investors have been the consensus to buy IPO stock is almost risk-free return in primary market. As for examining the long-run performance of IPOs is varying few domestic literature, and each of scholars come to the conclusion are vary greatly. Researchers form the information asymmetry, agency theory and investors expectation a variety of other possible explanations. So far, there is still no good theory to solve these problems, so we should continue to study necessarily.

2. Research Methods and Framework

This paper assumes the event study methods, and comparative analysis, parameter testing, one liner regression, stepwise, least squares and multiple liner regression model analysis to study some corporate characteristics to explain their long-run performance, whether significant systemic to the long-run underperformance and the characteristics, then based on this characteristic to various aspects reason of long-run underperformance of IPOs.

The main framework of discussion is as follows:

| Figure 1 | | Framework | |
|----------|-------------|--------------|------------|
| 1 | | Introduction | |
| 2 | Literature | Review | |
| 3 | Data | | |
| 4 | Performance | | |
| 5 | Conclusions | and | Discussion |

The literature review of long-run under performance includes two sections. First describes the long-run underperformance in foreign research, the reason for long-run underperformance and the research model. The second part describes the long-run underperformance of IPOs in China; it includes existence of long-run performance and long-run underperformance.

The study follows with the long-run performance of IPOs and the statistical test results, this portion divides into a number of sections. First, we identify sample data; In turn, we describe the research methods and design; we calculate results of the long- run performance of IPOs and statistical analytic. After that, we compare with a matched firm index as a result of the standard calculation of income including the tests pf hypotheses interpretation of results.

Included in the discussion, we produce general linear models of the behavior of two defined terms called BHAR and CAR respectively; Data analytics and empirical analysis of the variables leads to the explanation of significance of multiple regression results and description of the general descriptive analysis. After that, we produce conclusions and recommendations. The conclusions and analysis by examining results leads to proposals for better decision analysis and analytical applications.

We use matching firm adjusted return in a one to one comparisons. The standard return is matched companies by total market value. IPOs and matched companies have the similar market value, the difference control below 20%, most primary reason is from the same industry, it is a seldom analysis approach, those firms are from Shanghai Stock Exchange, and the market value would adjust at the end of each year, and then choosing the matched the most likely market value. The matched companies not issued the stock over three years compare with IPOs. The previous research never utilized both of them in China.

This sample is selected after the implementation booking-building basis. We use the daily closing price to calculate the long-run excess returns. China is emerging securities market. The market price fluctuations, considering the time span is too large, it will make the any major empirical results deviation. We use the closing price, through the accumulation of daily returns to calculate the long-run returns; it can avoid the market price fluctuations due to the problems cause by too much. So we adopt the western analysis, a month has 21 days of trading; we calculate the return remove the first day of initial public offering, due to the excess return.

Finally, we analyze the innovation and utilize exemplified by the methods of regression in two models, the response variables are cumulative abnormal returns and buy and hold abnormal returns respectively. The regressions are the result of using stepwise (backward) methods of including explanatory variables in the model equation.

3. Review of Previous Studies (Literature Review of Long-Run Performance)

3.1 Overview the Results of Long-Run Performance

A large number of studies examine the performance of initial public offerings (IPOs). Ibbotson (1975) examined returns from 120 IPOs between 1960 and 1969. The results found that the trend of long-run price was a spoon-shaped distribution, in the first year the return is normal returns, over the following three years, and the returns are negative. In the fifth year, the return has a normal return. In the long term, the market of performance of new shares has no deviation from the market efficiency. However, due to the small sample size and only 120 samples, the standard deviation enlarges, so he could not reject the null hypothesis- the effective market. RITTER (1991) uses a large data set, he selects 1526 IPOs between 1975 and 1984, while choosing the matched companies has been issued which the similar industry and market value Ritter presented impressive evidence for the poor long-run performance of U.S. initial public offerings. The hold returns over three years only 34.47%, compared with the matched companies as 61.86%, in the meantime the return which is worse for younger firms and when issuing activity is high. According this situation, Ritter explained that the evaluation standard is not exact; the second is unlucky; the third is amount of companies issued fads in a hot market. At last, he demonstrates that the issued fads are the main reason.

Loughran and Ritter (1995) found that the average return is 7% each year after those companies listed, compared with the unissued companies as the similar market value in the same periods of time, those unissued firms got a 15% returns. It means that investing the companies has not been issued in later days, investors need investing more than 44%, and then it would obtain the same market value after five years. Loughran and Ritter document serve underperformance of initial public offerings (IPOs) during the past 20 years. They suggest that the investors may be too optimistic about the prospects of firms that are issuing equity for the first time. Their results have been inspired innumerable essays in the popular press about the risk of investing in IPOs, as well as this academic study that has shown that underperformance prolongation to other countries as well as to the experienced equity offerings.

Dhahran and Ikenberry (1995) found that long-run underperformance is focused the small size of the enterprises, the companies' achievement is usually great, but widely held by institutional investors, large size firms' vulnerable unknown performance. they explained it is a good timing of small companies to list when they had a good outstanding achievement, because the large companies for listing is easier to achieve, but for those small companies, the New York Stock Exchange has a high standard, the pre-tax income is negative, in this situation, those small companies cannot be listed in next few years. So the small companies' managers select the companies reached a peak and decline in performance before issued. So the underperformance has a relationship with the issuing timing.

Welch and Ritter (2002) report that at the end of the first day of trading, the stocks of the average IPO trade at 18.6% above the price at which the company asked them, using U.S. data from 1980 to 2001. Nevertheless, over three years, the average IPOs underperforms the CRSP value-weighted index by 23.4%. Early research on IPOs focused on the large benefits that would be earned at the time of issue. The underpricing of IPOs (see, for example, Ibbotson *et al.* 1988) is, however, Ritter and Welch (2002) suggest that it is overoptimistic by retail investors that drives both the high initial returns and the poor long-run returns, whilst Ljungvist, *et al.* (2006) refer to 'exuberant' investors as being the cause.

Relative research documents that the long-run underperformance existed in other countries' security. Levis (1993) using the sample data from 1980 to 1988 in U.K, he found that the long-run underperformance over three years, also he found that the long-run underperformance exists in SEOs either. Wasserfallen, and Witterleider (1994), Ljungvist (1994), Schlag and Wordrich (2002) examine the long-run performance of different periods respectively; they found that it was not suitable for holding long-run in Germany IPOs. Keloharju (1993) documented that stocks three-year return is lower than the weighted average index about 26.4% in Finland. LEE *et al* (1996) also fund the long-run underperformance about 46% in three years in Australia. Ausnegg (1997) documented that the long-run underperformance is 74% over five years in Austria. Arussio *et al* (2001) refer to the buy and hold abnormal returns are -11.53% over three years in Italy. Ritter (1998) summarized about 13 countries' long-run performance, including 11 countries existed the long-run underperformance. All the previous research implied that the long-run underperformance was a common phenomenon.

The results concerning IPO performance however are controversial. BRAV and GOMPERS (1997) show that firms that go public do not perform worse than bench-marks matched on the basis of size and book- to-market ratios. In addition, they show that performance. Finally, they argue that weighting returns in event the time by a number of IPOs may exaggerate performance is poor. SCHULTZ (2003) argues that if more companies go public

after stock prices have been raised, event-time analyses may indicate that IPOs underperform, even if the expected return of these offerings is zero. The debate about the underperformance of IPOs, however, may not easily be answered without out-of-sample tests. Most studies on the underperformance of IPOs found that the same post-Nasdaq time period. Data from non-U.S. markets is not conclusive because of the shorter time periods employed and the cross-sectional correlation between returns of IPOs in the United States and the return of IPOs in these other markets. Common economic shocks or common movements in fads and sentiment potentially drive these correlations.

3.2 Explaining the Long-Run Underperformance of IPOs

Ritter (1991), Loughran and Ritter (1995, 2000), Baker and Wurgler (2000), Hirschleifer (2001) explain the reason of long-run underperformance of IPOs as behavioral finance. They think the stock price cycles deviate from its fundamental value, managers and investment bankers though the stock price above its fundamental value who sell to those over-optimistic investors to obtain the benefits of high prices. Investors overestimate the stock issuance value which the stock in the long term the gradual disclosure of information, when value of the stocks come to the real value, investors' mistaken views would be adjusted, the long-run underperformance of IPOs is a price correction by issued to high. There are two theories to explain this reason, first of all, the divergence of opinion hypothesis with IPOs, new share price is determined by the over-optimistic investors, and investment in the appearance of excessive optimism exists a cycle; other publishers can be expected to over optimism appears period, then utilize this "window of opportunity" to issue shares in order to obtain the highest issue price. This interpretation is supported by empirical research, for the proponents of efficient market theory is a blow. In fact, the core problem of long-run underperformance impacts in the efficient market, the problem is investors' rational, if they have no rational, the market cannot be the optimal allocation of resources.

The western researchers believe that the initial public offering is overoptimistic or overreact to publish information by the investors. Investors' over-optimistic for the stock earnings in the IPOs market, it caused a higher initial price of the irrational. With the gradual disclosure of the information and then the real value of the stock highlights, based on optimistic expectations of investors, investment enthusiasm will diminish; along with the stock price will gradually fall back to realistic levels. Behavioral finance shows that emotional and irrational investor behavior is leading the long-run underperformance. Based on this market expectations and behavioral economic theory, they refer to three systematic theoretical explanations.

a. Divergence of opinions hypothesis: Also known as differential expectations hypothesis. At the beginning, assuming negation of the consistency of expectations hypothesis of traditional efficient market theory, it means that majority of investors have different expectation for the future cash flows and potential growth about the listed companies in security market. In a word, investors have diversity of expectations.

It both exist investors optimistic and pessimistic investors in the security market, they expect the value of their shares based on mastering the private information by own. As DHS (DHS model is divided into investors and non-informed investors), mastering private information. Also, the stock's price is determined by the informed investor, but they are prone to bias the two judgments: over confidence from information and preference information at their disposal, as expressed in the model, they tend to over- confidence of private information. The investor confidence in the performance of the new shares will be the buyer for the initial public offerings in future behavior. If the larger uncertainty of new shares' value, then the optimistic investors will be much higher assessment than the pessimistic investors, they will become the new buyer, and optimistic investors are willing to pay the initial price is higher than the true value of IPOs, so that the stock price will be risen rapidly in the initial release. With the gradual disclosure of information, investors are optimistic and pessimistic investors about the differences in the expected value of new shares will be gradually reduced, the stock price will be adjusted downwards. In other words, long-run performance negatively related to the degree of the divergence of opinions: the greater of the divergence of opinions, the higher of the short-term price of new shares, new shares would be lower the rate of return in a period time. Krigmantel (1999), Aggarwall and Conroy (2000), Houget et al. (2001) was made from a specific part of empirical research.

Miller (2000) illustrates the hypothesis for divergence of opinion in detail; he assumes that market pricing of new shares class similar to a bidding process. The number of shares investors with their estimated value of the stock become a bell-shaped distribution, as each number of investors to buy one share, the number of investors is the company's largest stockholder, in the meantime, the average price for market price; the average price should be the peak in the curve. However, actually, on the number of investors are often willing to buy more than one share, so that although there are enough stocks in the market, but it is only a few investors to buy the asked-market price (demand equals to the supply, the equilibrium price). Therefore, the optimistic investors are willing to pay the

marginal price in the average price in the right, which means that the marginal investor is willing to pay higher than market prices, which can buy new shares. If the general investors expected the stock value is correct in the market, then the marginal value of the stock's expected investors to be too high. By the above analysis that the stock price determined by the optimistic investors. Miller cited as an example of network share is determined by investor optimism: Most investors think the high pricing of internet stocks, but these stocks are still bought by the investors, we need to note that the price is still high.

This assumption may well explain the abnormal returns on the first day of new shares and long-run underperformance phenomenon. When the initial public offerings are listed, investors' greater difference of opinion is determined by the optimistic investors, because of asking price is much higher, which caused the higher the excess return on the first day. With the passage of time, the information of the listed companies on the true value is more and more investors for new shares on the market value of the expected the divergence of opinion getting smaller and smaller. The asking prices were set to decline slowly by minority of the optimistic investors, closer and closer to the average price, which leads to long-run underperformance of new shares.

b. **Impresario hypothesis:** Shiller (1990) proposed the impresario hypothesis; he believes that the success of the IPOs and the number of shares sold will directly affect the investment bank's reputation or the commission receipts. In order to smooth the issuance of new shares, the investment bank in the packaging, promotional process of the issuing company shares played a "host" role. Efforts to promote investment bank will issue new shares, resulting in a demand excessive appearance, in order to reduce their underwriting difficulties. Investors on the market are often easier to "follow suit", the sound of new shares are the greater, and investors desire to invest the new shares more intense, and thus benefits in the first day of new shares would be higher. However, as the time goes on, the intrinsic value of new shares would stand out, the underwriters have previously been shown to promote the content which has been whitewashed, and the stock price will gradually fall back to realistic levels. This assumption implies: IPOs initial returns are higher, the lower its long-run returns. RITTER (1991) and LEVIS (1993) study show that new shares of the phenomenon of the long term do exist: the higher of the income at the first day of issuing return, worse long-run performance. This provides empirical support for this hypothesis. The SHILLER (1990) on the purchase of new shares made by individual investors research shows that only 26% of his sample of investors on the stock issue price and the intrinsic value of doing the fundamental analysis, the vast majority only receive information and make decisions.

Windows of opportunity hypothesis called the market timing assumptions. The hypothesis shows that issuers tend to choose the peak of the development of enterprises issuing new shares, or choose to vote on the prospects for the development businesses when issuing new shares over-optimistic. Ritter (1991) study finds that the long-run underperformance related to the high size about companies who issue new shares, so that these companies utilize the "window of opportunity". This theory holds that corporate managers have to predict when it will be great the business performance and when it will be a peak period and the period of sentiment investors the ability to select high during this period. If in a certain period of time, investors optimistic about growth potential in listed companies, in particular, they are willing to pay a higher price to buy new shares, because of this investors' motivation, issuers will use mood swings, the issuing time will issue fixed during this period, creating a hot issue market. Although the amount of new shares issued the size will be changed by a normal economic cycle, but sometimes it is difficult to explain fluctuations with firms' normal operating cycle, and thus the opportunity window hypothesis is reasonable. Assumption this hypothesis means that the window of opportunity during the circulation in the business of the company issuing new shares, the case of overpriced for the IPOs than any other company issued the size is the more serious, that is issued at the market peak of the new shares, the lowest long-term returns.

Loughran, Ritter, and Rydgvist (1994) find that the stock will be listed in the risen stock market, they think that they can predict that when the investors will be over-optimism. If the listed companies can really make the listing time is the same timing that the investor is over-optimism phase, in this situation, not only can be explained the long-run performance is poor, but also the phenomenon of issue stock is focus in a same timing can be well illustrate. The listed companies use this favorable "window of opportunity". Jain and Kini (1994) and Mikkelsen et al. (1997) indicate that listed companies have significant trend to decline the operation achievement, this phenomenon cannot explain as the trend of industry.

Over packaging hypothesis: Before the enterprises list, the investors cannot acquire the operation condition. Investors believe that the company fully disclosed in the prospectus. While the traditional pricing model defined that stock price equals the future cash flows, and according to the efficient market hypothesis, the historical information does not affect the future price. However, for investors, the company's historical information has important reference value. The investors usually based on the historical information provided to largely

determine the risks and benefits and make investment decisions. Teoh, Welch and T.J. Wong (1998) pointed out that the long-run performance of IPOs is related to the company whether to adopt a positive means of earnings management: before the stock issues, the company adopted a positive management, the long-run performance is worse than not use of earnings management company. In issuing the new stocks, in order to attract more investors to participate in the company will have a relevant information “packaging”. If the investors only are attracted by the “packaging” profits, but did not notice that this is earnings management used by companies means, then the investors will be buy the price too high at the first issuing day. With a variety of media, analysts and financial reports disclose the company information, and then the investors realize that the actual profit does not make them to maintain the initial impulse, they will gradually become less optimistic, and the stock price will fall. Earnings management when the issue more serious, and its stock prices down after the rate adjustment is the greater.

3.3 Asymmetric Information

For the study of the long-run underperformance of IPOs, it promotes the academic researchers started to pay attention to efficiency of IPO market information. The phenomenon of IPO market information efficiency is the issue of new shares related to the generation, validation, dissemination and use of mechanisms, in guiding of the effective allocation of resources and rational investors, investment and other aspects of this validity. Information asymmetry is extremely serious, the distribution of the real value of new shares information between investors and issuers are not at equilibrium.

The only channel of obtaining the information to investors is the public disclosure of the issuer's prospectus, and for more information needs to pay extra costs, so there is no issue of market equilibrium Pareto efficiency, the issuer owned information has a natural advantage. Therefore, the issuer may use this information asymmetry feature to spread false information or optimistic biased information. Investors lack of reliable sources of information, the disclosure of information for the issuer trust blindly to harm its long-term investment interests. Investors and issuers based on the information asymmetry between the characteristics, foreign scholars proposed the following hypothesis to explain the IPO market information efficiency of pricing model for new shares

a. Excessive earnings management hypothesis. While the traditional pricing model defines that stock prices equal to the future cash flow, and according to the efficient market hypothesis, the historical information does not affect future prices. However, investors for the companies' historical information are an important reference value, the investor will usually provide the basis historical information to determine the risks and benefits, and make investment decisions. Since before the issue of corporate information is limited, investors must rely on the prospectus and disclosure of information to determine the business values, especially those formed quickly. This is highly dependent on the disclosure of information coupled with the issuance of enterprise, it is possible motive to maximize the issue price, distribution companies through earnings management is likely to lead investors to evaluate the enterprise value. In addition, the issue of enterprise managers, and because of his commitment to holding shares in a company will not be sold in a period time, in order to maintain a high stock price, or forced by regulatory pressure to reach the pre-release forecasts the level of profitability, they will be continued to take the earnings management policies after issuing. Magnan and Cormier after listing, and closely to the release of the forecast published in a period of time. If the issue of motivation for earning strategic management is from strategic view, it will help long-term development and take appropriate earnings management for the companies. It is a way to transmit the high quality information, such as managers utilize income smoothing way to the investors the company's profit is high quality information, and the market prices with relatively stable income value of the industry are often very high, which is different from their own high-quality and low quality of corporate enterprises. To use the appropriate earnings management enterprises for IPOs market performance is much better, and the use of excessive profit is just managed as an immediately expedient adjustment of profits can be manipulated to increase the current profits to achieve their goals, making the investors the company's future expected profits will grow, but the manager cannot be a long time to maintain the false profit, the investor's assessment of its market value will drop, CHANEY and LEWIS (1998) show that prior to the IPO firms tend to focus only on immediate use of the surplus is management methods, so after the initial public offering, it emerges a long-term phenomenon. Teoh et al. (1994b) found that the long-run underperformance in the initial public offering of the first year after reporting profits, but the reports often manipulate profits is underperformance in three years, generally this passive management policy is that the firms difficult to achieve before the release of those standards of corporate profit forecasts, the managers cannot long maintain the inflated earnings, gradually cast investors evaluate the value of their business will decline. Teoh, Welch and Wong (1998) pointed out that the long-run performance and whether the companies utilize the passive earnings management or not. The firms use this passive earnings

management before the issue of new shares, the long-run performance is worse than the firms do not to adopt this management strategy. When the initial public offerings are issued, in order to attract more investors to participate, the company information will be "packaged" by the company. If the investor is only by this "packaging" attracted by the profits, but they did not notice that the surplus is used by companies, then investors will be the first to pay the purchase price too high. With a variety of media, analysts and financial reports of corporate information disclosure, investors realize that the actual profit does not allow them to maintain the most initial impulse; they will gradually become less optimistic about the stock price will fall. When the stock is issued, the earnings management more serious, then the stock price downward adjustment will be much greater.

b. Profit forecast of "excessive optimism" hypothesis. Mature capital markets in the West, the company issued new shares in its prospectus forecast of future earnings disclosure which is a common phenomenon. The price depends on the anticipated future operating conditions, so the firms' management or analysts' earnings forecasts, for many investors is valuable information. Forecast in the prospectus contains information to help reduce the prevalence of information asymmetries in IPO market. Rajan and. Servals (1997) through empirical research that has high initial income benefits of the new shares will be more the concern by market analysts, and market analysts tend to overestimate development prospects and profitability. Their over-optimism will spread to the entire stock market, after it issued, initial rate of return is run-up gradually, which will stimulate more companies issuing shares. After a period of time, the optimistic mood over the bubble always burst, and its long-run performance is poor.

In the mature capital markets, the forecast of earnings information mainly from analysts and management level of listing companies. Because of the investment bank analysts and issuers tend to maintain close ties, so they cannot for the issuer's earnings prospects provide an objective prediction. In general, the analysts forecast a positive trend, while the actual level of profit is only 80% for the forecast data. The firm's management for their own companies are often over-confidence or over-optimistic, in order to attract more investors to invest, they will over-optimistic forecast the company's earnings prospects. But investors increasingly will find themselves on the overreaction of earnings forecast, low profitability of the company's true earnings than analyst expectations, investors will gradually revise the evaluation of the company, thus causing long-run performance of new shares are poor. Therefore, the performance of shares depends on the long-term changes in real earnings and the revised profit forecast for the future. Research showed that IPO companies listed on the actual profit in only 80% of analyst earnings forecasts. Long-term performance related to the real profits of the company changes and the accuracy of earnings estimates, the accurate prediction of company is better than the company is not accurate prediction, but the smaller the prediction error, the actual earnings relative to the forecast earnings is much less, long-run underperformance of IPOs is less significant. The long-run underperformance is a result of adjusting the real earnings situation from companies' information.

c. Signal hypothesis. Signal is associated with the release of other information, such as reputation intermediaries, size, company's history and other factors can be named as a signal quality issue of the company, this information can reduce investment information asymmetry between the issuer and investors, therefore it will have a certain influence for long-term performance.

The value of issuing is another sign about the company's quality. In general, investors in such companies naturally have a sense of trust. If the value represents a company's quality, the larger issue size also means a better long-term performance of new shares.

(1) Efficient market hypothesis

The Efficient market hypothesis (EMH) explains the long-run underperformance can be divided into two categories, one is that the long-run underperformance does not exist, as represented by Fama; the other is that the long-run underperformance exists, but it cannot be defined the market is invalid, Schultz as the representative.

a. "Bad model": Fama (1998) summarizes abnormal long-run returns, these anomalies are the result of accident, behavioral theory defined that investors have lack of the information and the reaction and degree of frequency of occurrence is almost the same, both of them can cancel each other out, so the anomaly can only be attributed to accident. After the IPOs, and earnings before the IPOs and the reversal of the continued occurrence of the same probability, so that the income still comply with the random walk model. Fama boils down to "bad model" problem, in the calculation of excess returns, it is inevitable to use the expected return that is ordinary income model, but any model of expected return is just a model, and cannot fully describe the expected income, and the model in the calculation of the problem is more serious. If the event of the time window is very short, the expected rate of return per day is close to 0, so the role of excess return is small, but as time is going on, the bad model problem a false excess returns, and ultimately, the cumulative abnormal returns generated a

significance. Those who confirmed the existence of long-term research is vulnerable because of its method of calculating excess returns, when the excess return calculation a reasonable adjustment, the anomaly will disappear. Therefore, long-run underperformance cannot prove that the market is ineffective; its appearance is accidental or the result of model is error. Fama tended to refute the behavior of financial experts is not a valid point of view on the market in his study, but the cause was concerned to calculate the long-run excess return by later researcher, Bray, Geczy and Gompers (2000) identified the core problem through empirical analysis. Many researchers found that after using different abnormal returns models have very different conclusions, Kooli and Suret (2002) found that the Canadian IPOs between 1991-1998 as a long-term excess returns when the sample was calculated and the results of the weight indicators statistical significance plays a decisive role. Sapusek (2000) through empirical research found that when using a different baseline, there will be different revenue model (long-term excess return is zero, positive and negative, the sensitivity of long-run performance for the selected benchmark. Pseudo-capacity computing market: This theory is posed by Schultz (2003), he proposes that even the market is effective; IPOs will be long-run underperformance. He believes that the assumptions of behavioral economics to predict the timing issue of when is the best window of opportunity is not set up, managers only instinctively choose rising stock prices to issue equity in order to obtain the highest possible circulation revenue in a period time. Schultz utilize the distribution of income, distribution volume and the market rate to prove the long-run underperformance over 25% after IPOs issued after 5 years later, the market return is from the year 1973- 1997, the result is not surprising, even in efficient market is also common. In fact, "Pseudo-capacity computing market " hypothesis that the issue of new shares is likely as gambling, because in the last timing to win the money, that they think that will win in the next gambling, so increased the stakes, so the probability of losing money increased, even when each game is fair. Schultz believes that "Pseudo-capacity computing market "hypothesis may explain the more comprehensive of long-run underperformance.

3.5 IPOs Models of Long-Run Performance

Early studies on the measurement of excess returns are capital asset pricing model as a basic, very few people realize that excess return measurement method will affect the conclusions. In recent years, Barber and Lyon (1997), Kothard and Warner (1997), Lyon *et al.* (2000), Fama (1998a), Mitchell and Stafford (1998), Brav (1999), Loughran and Ritter (1999) begin to focus on this issue, these researchers believe that the method of measuring stock performance affects not only the size of excess returns but also affect the statistical tests to determine and validity. Method of calculating excess returns is to study the important issue of long-run performance. Fama (1998a) believes that the excess return of the model is to study the core question of long-run performance, because empirical study finds that the performance on the long-term abnormal stock may be due to a bad model caused this problem.

(2) Long-run excess return methods

a. a stock excess return of individual measurements

The following methodology, which is comparable with Ritter (1991), is used to calculate the long-run returns.

Relative return for stock i in the t th month is defined as

$$arit = rit - rmt \quad (1)$$

where rit is the return for stock i in the t th trading month and rmt is the return on the market during the corresponding time period.

The simple arithmetic average relative return on a sample of n stocks for the t th month of stock t can easily be demonstrated, along with the cumulative abnormal returns (CAR) its standard deviation and finally the buy and hold abnormal returns following the first trading month (BHAR) and its standard deviation.

The cumulative abnormal returns (CAR) from event month q to event month s of stock i is defined as;

We follow Ritter (1991) and Loughran and Ritter (1995) to measure the secondary market performance using wealth relatives. We interpret this statistic following the aforementioned methodology as follows:

"If wealth is greater than 1 shows the relative number of samples of the actual return over the expected return, if the result is less than 1, it means that exist the long-run underperformance."

From the excess returns on long-run study, inevitably adopt the expected return, as each models are not fully describing the expected return, so one chooses the appropriate expected return model to calculate the excess return is very important. Stock-specific excess returns in the estimation of the literature are often used in five expectations models: the base standard portfolio model, matched corporate model, market model, capital asset pricing model and the Fama-French three element model. Three-factor model is the Fama and French (1992, 1993)

stripping "Sharpe-Lintner capital asset pricing model type of correction obtained by increasing the size and the ratio of book value factor model extends the CAPM. The five models as follows:

Benchmark portfolio model: Excess return in month t is:

$$MMAR_{it} = R_{it} - R_{mt} \quad (2)$$

R_{it} which include dividends, including stock i in t th month return. R_{mt} is the benchmark portfolio return in t th month, the benchmark portfolio generally uses the market index or a part of the overall stock market, stocks such as the size is less than tenth of the stock portfolio.

Market model:

$$MAR_{it} = R_{it} - \alpha_i - \beta_i R_{mt} \quad (3)$$

Where α_i , β_i is the market model parameter estimates, using the stock i in t th month regressed with the stock market index monthly returns.

Matched companies' model:

Comparison companies used to calculate the excess return, for general use with the sample companies have some similar characteristics to the control of public secretary of the proceeds as expected return, such as the sample size of the company or the book value ratio, industry and other similar characteristics.

CAPM model:

$$CAPMAR_{it} = R_{it} - R_{ft} - \beta [R_{mt} - R_{ft}] \quad (4)$$

β is from the CAPM regression model to get. R_{ft} is the risk-free return, using the short term bonds rate

Fama-French three factor model:

$$FFMAR_{it} = R_{it} - R_{ft} - \beta_1 [R_{mt} - R_{ft}] - \beta_2 HML_t - \beta_3 SMB_t \quad (5)$$

β_1 , β_2 , β_3 is monthly excess returns on the market index during the calculation of excess return, book value, the scale factor regressed; HML_t and SMB_t is the book value ratio and size factors. HML_t is the difference return between the high B/M portfolios compared with the lower B/M ratio in t th month. SMB_t is the difference return between the large-scale enterprises months in a portfolio investment and small-scale in t th month. The current study is the most frequently used model of the benchmark portfolio companies with the control model, is generally using these two methods, others are rarely used.

CAR and BHAR which more accurately measure the performance of the stock's long-term it remains a controversial. Barber and Lyon (1997) think that researchers should use the simple purchase of sample companies holding return to comparison with the benchmark portfolio, or the difference between return compared to that long-term excess return, as with the daily excess return or monthly return, in this situation, the CAR has serious errors. They proved that CAR is BHAR biased estimates, so from the theory, the use of BHAR better. However, Fama (1998) considered that the statistical test in the BHAR will produce more than the problem of AAR and CAR.

Fama (1998) points out that because of the long-run performance of the stock expected return model is inevitable, but each model on the expected return on the expected return is not fully described, so the bad model problem is inevitable, but the window for long-term benefits in the event of a bad model for the problem is worse. For CAR, if each month has a false excess income is $x\%$, the final accumulation as the statistical test is significant, because the average of CAR increased with time, but the standard deviation is as CAR to increase by $N^{1/2}$, the velocity is slower than average CAR, the use of the ordinary t statistic for testing when it will be a bad model problem. The bad model problem for long-term purchase of holding excess proceeds (BHAR) is most serious, even by the time it calculates the characteristics of short-term return made in the interpretation of the model problems multiplied when extended.

(3) Measurement of excess return on the investment portfolio

In general, the study approaches to analyze the long-run underperformance is using the event study methods. The examination range is in a certain period (usually three to five years), and then research the stock market performance without systemic anomalies. This requires the investment of the sample composition portfolio or the calculation of the benchmark portfolio excess return, the portfolio of individual stock excess returns is calculated over based on the amount of income.

Sample portfolio of companies seeking an average between long-term excess return is normally a long-term excess return of the sample, which implies the choice of a measurement problem: the weighted average arithmetic or

average arithmetic mean. Loughran and Ritter (1999) point out that the choice of the weight of validity is important. To illustrate this point, to a sample of 1000 companies, in this case, 999 of which have one million of market value, it is a small company; a large scale, there are more than 100.1 million market value. Assume that these small firms' underperformance the average level of 50%, while the big companies' performance was stronger than the average level of 50%. It is easy to see that the arithmetic average excess return of serious measurement error (50%), but the researchers can draw weighted average excess return samples of close to 0. The arithmetic mean method provides a powerful technique against market evidence of the effectiveness of the weighted average method does not. Brav, Geczy and Gompers (2000) indicate that the choice depends on the arithmetic mean or a weighted average of the objectives the researchers, if the optional alternative hypothesis is more likely mispriced of the small cap stocks than large cap stocks, and then the individual should consider the validity of using the arithmetic mean method. Similarly, if the researchers of the potential mispricing of stock market interest in the management of meaning, the arithmetic average of the return may be more appropriate.

In addition, in the calculation of portfolio returns over time to pay attention to the implied investment strategy, in general, long-run performance of the stock are used in event study, using event time, this approach implied investment strategy is to invest the same funds in each sample; the other method is to use the calendar way, it means that the investment strategy is to invest the same funds in each calendar, Fama (1997), Loughran and Ritter (1995), Brav and Gompers (1997), Brav, Geczy and Gompers (1995) used these methods. Loughran and Ritter (1995) believe that using the calendar way can be reduced the "hot issue" by the enterprises when research the long-run performance of IPOs. Loughran and Ritter (1999) also expressed the use of the arithmetic average of each calendar month time series regression, regardless of each month concerns the number of observations. They believe that managers will respond to a temporary error evaluation, the value to be issued overvalued stocks, and these shares will be shown the underperformance in the following times. Brav, Geczy and Gompers (2000) examine of 92 calendar months does not reduce the arithmetic mean of the null hypothesis that there is no test of poor capacity.

(4) The measurement problems of Long-term excess returns

Calculating the long-run performance of IPOs, it needs to prove that whether the long-run performance is abnormal or not, to test it use statistics approach to testing, which involves different statistical test model, different methods to calculate the long-run return using different test methods. The different benchmark models to calculate the expected return between the estimated is vary, it also named that the research result is sensitive to the expected return. The common way to test the long-run excess return is error by the setting model, it was demonstrated by Barber and Lyon (1997a) and Kothari and Warner (1997). Their simulations show that the model set errors because the actual probability of rejection of the null hypothesis than under normal circumstances to refuse to probability theory, indicating that the long-run performance is abnormal because of the model may error in previous. Fama (1998) also suspected the long-run is abnormal because of the bad model problem. Barber and Lyon (1997a) stated that the use of benchmarks portfolios such as market size classification index or portfolio to calculate the long-term excess return is questionable. In general, the use of the benchmark portfolio excess return calculation is wrong statistics generated by the set (the actual rejection rate greater than the theoretical rejection rate), in simple terms, the test statistic has three deviations, including: a. IPOs deviation. Because in the event of long-term excess returns, usually the sample companies' return for a long period, but the composition of index (or benchmark portfolio) companies are generally required to include those event months then listing. b. Re-establishment bias. As a benchmark portfolio such as the overall market index return, which assume a specific period of time (usually monthly) to re-establishment, but in the calculation of sample overall portfolio return is not re-prepared. The cause of deviation is skewed distribution by long-term positive abnormal return. Generate positive cumulative abnormal return test statistics are biased, holding excess proceeds to produce biased test statistics bear. This is because that the initial public offerings, re-establishment, and partial state deviation of the cumulative abnormal returns and buy the different roles of holding excess proceeds.

(5) Improve to test the long-term excess returns

Barber and Lyon (1997) prove that calculate the long-run excess return has a good test control, the method is compared the matched companies by similar size, the ratio of book value with the sample companies. By the sample companies, and in a certain enterprise characteristics compared to the control the company can reduce IPOs market bias (because the sample and matched companies are defined event in a particular month listed), re-establishment bias (due to sample the company's revenue income and the matched companies are synthesized in a similar way), a skewed distribution (as used on calculated according to the company's excess return is nearly symmetrical.) By company size and the book value ratio of public secretary based on random samples and the size of the book or market value based on selective samples are possible. However, when future financial and

economic study found that an additional common share variable can be explained by changes in cross-sectional analysis, considering the extra variables is so important when the samples compare with the matched companies.

Lyon, Barber and Tsai (1999) propose two changes of long-term excess returns for the measurement method of testing. The first method is based on the traditional event study framework and the purchase of holding excess proceeds, first of all, it should build a non-deviation and non-bias of the benchmark portfolio preparation, the results of this benchmark portfolio produced a total mean excess return is 0, thus reducing the mode of test statistics type set incorrectly. Then use the positive skew in the distribution under the applicable test standard statistical methods to control long-term skew deviation of the excess return. They recommended removing skew deviation of the two statistical methods: (1) partial t statistic simulation method; (2) calculated from the pseudo-portfolio average excess return of long-term simulation of actual p values. Method (a) it is considering the t statistics in the light of the characteristics of positive skewness. Companies act and they also proved that the control will eliminate skew deviation. But in order to remove the skew deviation of calculating the benchmark portfolio excess return, Lyon, Barber and Tsai (1999) recommended that skewness statistic:

This is an estimate of the skewness? Method (b) based on Brock and LeBron (1992), Ikenberry *et al.* (1995), resulting in the assumption of zero over the actual distribution of income, in which generated based on the actual distribution of the sample mean by statistical significance.

They consider the second method is based on calendar time portfolios, Fama (1997) discussed calendar time portfolio, Loughran and Ritter (1995), Brav, Geczy and Gompers (1995) also used in empirical research. This approach eliminates problems related to cross-sectional, but the holding and buying excess return is not the same, this measurement does not accurately measure investor experience.

a. Decomposition. Jacobsen and Srensen (2001) for a serious long-term right to skewed points of the characteristics, a decomposition of the long-term buying of holding return and disturbance components for the mean method of composition.

From the research, to study the long-run return model concern in the manner of the models, the research result provides specification methods to the other researchers.

The long-run performance research in China

3.6 Long-Run Performance Exists

The focus of research whether the long-run performance of IPOs is the existence or not. Wang and Luo (2002) examine 165 A-shares for a sample from 1997 to 1998, it finds the long-run underperformance of IPOs exist at least 3 years, the third year is the cumulative abnormal return is -3.31%, the weak level higher than the previous two years, affecting the performance of the first and second major factor in the initial rate of return and shares, the factors that affect the performance of the third year is the initial returns and total assets, while regression analysis showed that three years of IPO market performance does not reflect the fundamental strength of the company's profit growth, stock price cannot reaction of companies, while the factors are individual factor, policy factor and speculative factors, there is a serious distortion.

Li (2001) examined that no matter the short-run or the long-run, the IPOs underpricing. He investigated 34 sample companies from 1996, the 34 matched companies between 1992 and 1994, he found that the IPOs performance is better than matched companies after seven months, CAR is positive.

Li et al. (2002) considered that the numbers of IPOs in the small-cap stocks are more, research methods used to calculate simple arithmetic average of excess returns would be exaggerated the overall performance of small cap effect in the previous time. Therefore, they used the weighted cumulative abnormal return calculated and found that the overall long-term performance is bad, IPOs three years after the return rate is only 78.15%, market investors to invest in new shares in the secondary market can be gained the benefits below the market return, which poor performance of large capitalization stocks, small cap stocks perform slightly better than market returns, they think it is widespread in China's listed companies "profit a year, two year average, three losses"

Du (2004) chooses 493 IPOs from between 1993-2001 in Shanghai Exchange Stock. He refers to the long-run performance not only relative with the methods, also influence of equity division. Using the BHAR model, as the weighted average market return as benchmark, the IPOs has the long-run underperformance. The period is longer, the degree of the weak is much greater, at the end of the five years, the excess return is reached about -50%.

Lu (2005) found that the IPOs significantly underperformed the market or the matching firms by size. The extent of this underperformance is between -32 and -20.88 according the calculating methods indicating that it is not proper to hold IPOs in China for a long time and the efficiency of IPO market is very low It also indicates that the cost of

external equity capital is lowered for these IPO firms. Jang (2005) using the cumulative abnormal returns methods to investigate the A-share in 1997 to 2000; he found that the long-run return is lower than the average return. The effect factors are earnings per share in first year, the circulation stock ratio, P/E, and the total capital stock.

Cai (2007) finds comparable levels of underperformance. In line with US results, initial over optimism and the size of the offer are important explanatory factors for this underperformance. Additional variables include the earnings per share prior to listing, the decision to switch investment banks at the time of issue and whether the firm issues share that can be purchased by foreign investors.

Liu (2007) examined that A-share market within 97 to 2004 and the Benchmark index is Shenzhen market yield. The result is that IPO in China outperforms underperforms in the long run. The extent of this underperformance is -0.0005 at the end of second year by CAR and -0.1775 by BHAR at the end of third year, it is - 0.0367 by CAR and -0.143 by BHAR. Factors which influence are the scale of enterprises firm age, state, owned shares account for depreciation ratio past operation performance the success rates the rate of return on first day, the reputation of underwriters.

3.7 Long-Run Performance Does not Exist

In the same time, it also has some results find the long-run underperformance is not existing.

Chen and Gao (2000) found that using the WR as the long-run return, the performance is similar with market security. Wang and S. Zhang (2002) examined the 110 sample IPO in Shanghai Stock Exchange from 1996-1997, the examination period is two years after listing. The sample is performing better and better, at the beginning, the IPO is poor than the market, but overall the period, the performance is better than the market. Investor can gain the more return rate than market in 1 year as the mid-term. They also pointed out that the value and the initial return rate and the shares would affect to the performance.

Chen and Chen (2002) selected the 283 IPOs in Shanghai Stock Exchange from 1993 to 1998. They found that the stock portfolio is weaker than the market returns at the beginning of 12 weeks, after the following 66 weeks, the IPOs performance is better than the whole market. Therefore, he believed that it does not exist the long-run underperformance, but he did not analyze the reason.

Wang (2002) found that the IPOs performance is better than the market returns as the benchmark, the average cumulative abnormal returns arrived at 19.13% and 27.94% for the Shanghai Stock and Shenzhen Stock. Then he examined that the different industries and different issue size that their performance. The real estate and public affairs were better other industries; the manufacturing industries was worse. Then he found the amount of issue was much smaller, the long-run performance is better, it indicated that investors much like to invest the small-size companies.

Yang (2004) selected the sample before 1998, in the analysis, the excess return is - 2.5% after one month of IPOs, and the market-adjusted cumulative return is positive after seven after listing, and after it, the cumulative is negative, so investors hold the IPO after the firm issued the stock about seven months. Then the cumulative is fallen, and risen in five years. It is not significant, in other words, the IPO does not exist the long-run underperformance.

The domestic researchers draw the methods from the abroad scholars. Although they set up the research about the long-run performance of IPOs, whether the IPOs exists the underperformance is controversy. But they have not mixed-models to examine the stock. It is necessary to research the long-run performance of IPOs in China because it benefits how to improve the efficiency of IPO market and provides insight of emerging market.

4. Data, Methodology and Results on IPOs Performance

The sample consists of all 76 companies that issued and listed their A shares in Shanghai Stock Exchange from 1 January 2002 to 31 December 2007. 76 matched companies have been issued before 2004, that time from 1 January 1993 to 31 December 2004. The data are supported by the internet (www.cnlist.com.cn & www.eastmoney.com). Choosing this period for the sample, the reason is booking- building basis for the majority of IPOs from November 2001, after its time, the operation of our market security is more standard, the degree of IPOs market is enhancing. The second reason is avoiding duplicate with former research. The third the sample and the matched sample are similar with the shares in A-shares, the difference of market value standard between matched companies and IPOs is controlling in 20%. The matched companies and IPOs come from the same industry.

4.1 Research Methods and Designing

This paper utilizes the event study method to empirically examine the market performance in the three years after

IPOs going public. To investigate the long-run performance, it can be divided specific manner: cumulative abnormal returns; buy and hold abnormal returns, to compute the excess return according to the different variables to choose the expected return. In this chapter, we use the matched companies as the benchmark return. it would lessen the model error for the research results.

In the first calculation, I utilize the easiest simple methods to compute the return. The arithmetic average rate of return (ARR), it defines that individual return plus each then deduct the numbers. The specific as follows:

$$R_t = (P_t - P_{t-1}) / P_{t-1}$$

In turn we use the buy and hold abnormal returns (BHAR) and cumulative abnormal returns to point out the long-run performance of initial public offerings. Without referring again to the previous researchers noted before, the results indicate that the CAR method is the better procedure to follow. The CAR method is in turn employed to answer the question; do sample companies hold on consistently and persistently earn abnormal monthly returns? Although CAR implicitly assumes that frequent portfolio rebalancing, Fama (1998) documents that it's utilize since it would create fewer spurious rejections of market efficiency than could utilize BHAR. There also exists a greater acquirement of the distribution properties and the statistical tests for CAR. Since in China the majority of investors are individual investors, and they trade much more frequently than those in other security, CAR may give a better estimate of the long-run performance of IPOs in the Chinese markets. Two methods have the drawback, computing both to reduce the probability of error.

We choose the event study of time window over three years after listing, detaching vary types of holiday, the trading days only about 240 days in china, but in order to compare with the foreign study, assuming the trading days have 252 days in one year. The trading days are 21 days in one month. Stocks from the first day after listed to the 21th event day as the first event month, and so forth. Thus, in this paper, the month means that the trading month, the year is named the trading year, three years indicates 756 trading days, and this definition is consistent with studies noted before.

Types of computing Models as follows;

$$\bar{R} = \frac{R_1 + R_2 + \dots + R_n}{n} = \frac{1}{n} \sum_{t=1}^n R_t$$

Relative return for stock i in the t th month is defined as:

$$arit = r_{it} - r_{mt} \text{ and } r_{it} = (P_{it} - P_{it-1}) / P_{it-1}$$

$$r_{mt} = (I_t - I_{t-1}) / I_{t-1}$$

Where r_{it} is the return for stock i in the t th trading month and r_{mt} is the return on the market during the corresponding time period. P_{it} is the closing price for stock in the t th trading period. The cumulative abnormal returns (CAR) from event month q to event month s .

$S > 2$, when $S = 21, 63, 126, 252, 378, 504, 756$. $CAR_{q,s}$ is the cumulative abnormal returns in event month 1, 3, 6, 12, 18, 24, 36. The buy and hold abnormal returns (BHAR) from event month q to event month s of stock i is defined. Furthermore, we observe that the arithmetic mean of buy and hold abnormal returns are defined as: $S > 2$, when $S = 21, 63, 126, 252, 378, 504, 756$, $CAR_{q,s}$ is buy and hold abnormal returns in event month 1, 3, 6, 12, 18, 24, 36.

In this two ways to compute the return remove the first day of excess return, because the lottery is lower, the average just high than 0.001, only minority of investors can buy the issue price for the IPOs, the majority of the investors go to buy the price in the secondary security, so utilize the issue price as the long-run return is not reasonable.

Since the time to market is short, the systematic risk is large. According to the Ibbotson (1975), of whom documents that the $\beta > 1$ for the initial public offerings in common, the β is greater than the matched companies either. But McConnell and Sanger (1987) think that the IPOs have no abnormal performance in the t-statistics. Ritter (1991) believes that the difference of β value between IPOs and matched companies could not explain the long-run underperformance of IPOs. So in this paper, I would not adjusted- β .

4.2 Three Models of Matched Companies

We utilize three different methods to measure the abnormal returns. In the first methods, I just use the normal return, computing the arithmetical average rate of return, and then I examine the matched companies as the benchmark portfolios to compute the cumulative abnormal returns (CAR) and buy and hold abnormal returns, then wealth relative returns, after that, giving the BHAR and CAR with the associated t-statistics for the study event

period.

Arithmetical average rate of return is the easiest simple method, in the following figure 1; we use the quarter mean rate of return. In the below graph, it includes 12 quarters over three years. Generally speaking, the average return of R_{mt} is higher than the R_{IPOs} , but this discrepancy is not obvious in the last two quarters. At the beginning, the IPOs are negative in the first five quarters. After that, it is positive in the later quarters, it increases gradually over the three years in general. Compare with the matched companies' return, the distinction is great from first event quarter to eighth event quarter. In the 10th event month, the difference is about 0.0097, the difference is about 0.0028 in 11th. At the last 12th event quarter, the difference is fallen to 0.0024, the distinction between average returns of IPOs and the average returns of matched companies is dwindling. Although the IPOs return is better than matched companies, in general, matched companies are better performance. It indicates that the average returns of IPOs need more than three years to catch the matched companies.

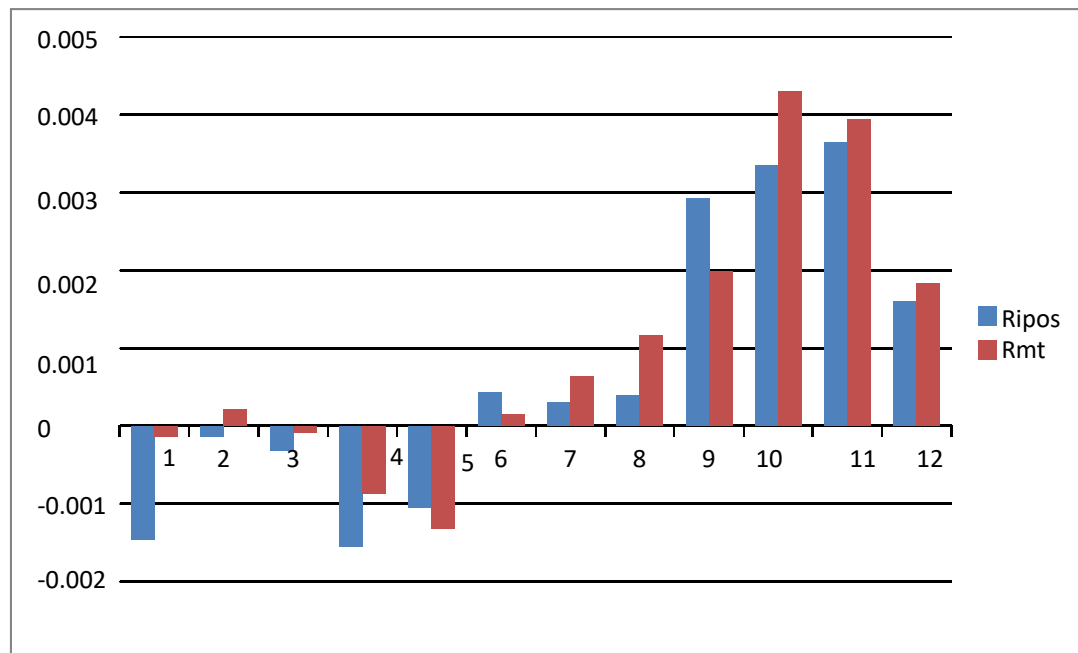


Figure 2. Arithmetical average (mean) rate of return

Then in order to the results are accurate, furthermore, to count the abnormal returns. We compute other two models, cumulative abnormal returns (CAR) and buy-and- hold abnormal returns (BHAR), separately.

Table 1. CAR and BHAR for the 36 months after listing

| Month | BHAR | CAR | Month | BHAR | CAR |
|-------|----------|----------|-------|----------|----------|
| 0 1 | -0.02915 | -0.03333 | 0 19 | -0.01536 | -0.12928 |
| 0 2 | -0.03235 | -0.04057 | 0 20 | -0.01067 | -0.10744 |
| 0 3 | -0.04777 | -0.05807 | 0 21 | -0.04297 | -0.14135 |
| 0 4 | -0.07704 | -0.0847 | 0 22 | -0.03869 | -0.14999 |
| 0 5 | -0.05778 | -0.06574 | 0 23 | -0.06946 | -0.16362 |
| 0 6 | -0.07999 | -0.08096 | 0 24 | -0.06252 | -0.19056 |
| 0 7 | -0.10811 | -0.08638 | 0 25 | -0.07932 | -0.19213 |
| 0 8 | -0.09002 | -0.10163 | 0 26 | -0.04925 | -0.17305 |
| 0 9 | -0.06895 | -0.09632 | 0 27 | 0.016532 | -0.1332 |
| 0 10 | -0.0458 | -0.07318 | 0 28 | 0.023636 | -0.14435 |
| 0 11 | -0.0659 | -0.07942 | 0 29 | -0.01612 | -0.15676 |
| 0 12 | -0.02258 | -0.14049 | 0 30 | 0.006541 | -0.14574 |
| 0 13 | -0.01029 | -0.1129 | 0 31 | 0.016049 | -0.15094 |
| 0 14 | 0.002692 | -0.13979 | 0 32 | 0.015192 | -0.13852 |
| 0 15 | -0.00946 | -0.12451 | 0 33 | -0.02918 | -0.16637 |
| 0 16 | -0.01915 | -0.09903 | 0 34 | -0.05 | -0.18555 |
| 0 17 | 0.030089 | -0.11309 | 0 35 | -0.05375 | -0.19064 |
| 0 18 | 0.042093 | -0.10686 | 0 36 | -0.01284 | -0.18446 |

Notes. The first trading day is not included to exclude the initial return.

Whatever the CAR or BHAR, the abnormal returns are negative in most time in the observation periods, it demonstrates that IPOs are long-run underperformance. After the 9th event month, the difference between CAR and BHAR are greater and greater. In the 9th event month, the excess return of CAR is -0.09632, and the BHAR only is -0.06895, especially, the event month 26th, 29th, and 36th, the excess return is greatest between the CAR and BHAR. Generally speaking, the long-run performance is nearly over the three years in BHAR. But overview the CAR, the excess return is smaller and smaller. The reason of calculation result has the greatest deviation which since in China the majority of investors are individual investors and investors' trade much more frequently than the people in other market, CAR may give a better estimate of the long-run performance of Chinese IPOs. The value (market total value) as the normal returns, the CAR of IPOs over one year is -0.14049, the two year returns are -0.19056, three year returns are -0.18446. Thus, the investors hold IPOs times are longer, they would loss more. In other words, the IPOs are not proper to long-run hold. The hold period is much longer, much loss.

Lu (2005) finds that the CAR is great difference with BHAR, over the three years, the BAHAR is -0.0158, but the CAR has -0.2886. In her method, she used the matched companies just only the similar with the size, the matched companies would change in each year, this method would have mistaken, because it cannot connect the closing price between the last day of first year and the beginning day of the second year. In my paper, I use the matched companies is fixed, the similar with the market total value and the same industry. In summary, the last approach is more reliable.

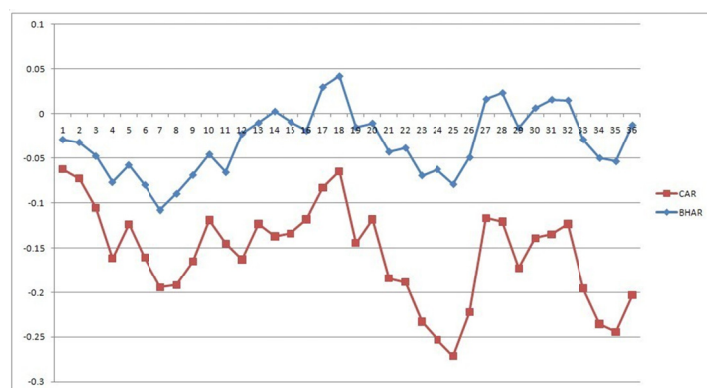


Figure 3. CAR and BHAR In Each Event Month

Note. The initial return is excluding to compute the BHAR and CAR.

To analyze the long-run performance of IPOs over three years after listing. From the Figure 2, the abnormal returns of BHAR has been reached above the first event month in the 36th event month, it means that the performance of IPOs are becoming better after 35th event month, the abnormal return of IPOs need more than three years, then the returns could closely equal to the matched returns, this result is the same with the most previous research in west. Overview the CAR, among the 1th event month and 17th event month, the abnormal returns like “teeter-totter”, up and down alternately, then the abnormal returns downward sloping in general, especially form 17th event month to 25th event month, the returns linear decrease. After 35th event month, the returns increase lightly. The excess returns of BHAR are better than CAR.

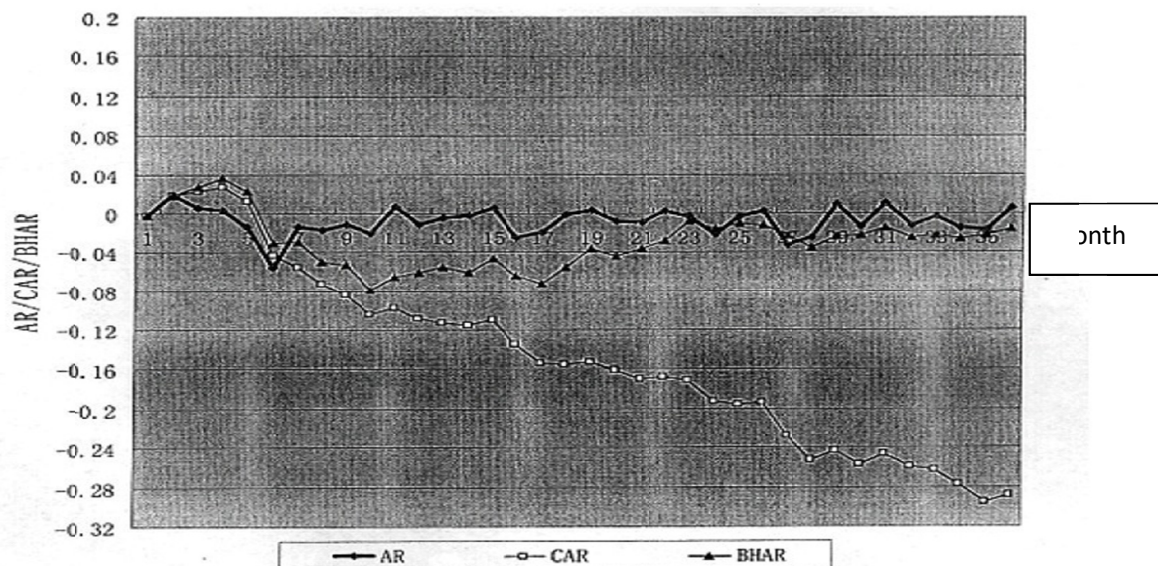


Figure 4. CAR and BHAR in each event month

Note. Figure 4 from Lu (2005) Month.

Comparing the Figures 2 and 3, the trend is similar, but BHAR has different, in my paper, in the 25th event month to 27, it rises rapidly. But in Lu (2005), the CAR is fallen gradually. The difference has been discussed in the former paragraph. So we do not analyze it again.

Above the graph, each event month, the standard deviation is augmenting over the time; it indicates the volatility increase with time. In the skewness, except 0 1,

Table 2. CAR-Descriptive Statistics

| Month | Minimum Statistic | Maximum Statistic | Mean Statistic | Std. Deviation Statistic | Skewness Statistic | Std. Error | Kurtosis Statistic | Std. Error |
|-------|----------------------|----------------------|-------------------|-----------------------------|-----------------------|------------|-----------------------|------------|
| 0 1 | -.38417 | .41297 | -.0333272 | .16107695 | .608 | .276 | .553 | .545 |
| 0 3 | -.77578 | .58295 | -.0580679 | .24763197 | .231 | .276 | .912 | .545 |
| 0 6 | -1.02753 | .73036 | -.0809595 | .31636184 | .002 | .276 | .461 | .545 |
| 0 12 | -4.43152 | .99851 | -.1404868 | .66291522 | -3.470 | .276 | 22.889 | .545 |
| 0 18 | -4.41333 | 1.48755 | -.1068561 | .72154906 | -2.675 | .276 | 16.310 | .545 |
| 0 24 | -5.08060 | 1.43824 | -.1905621 | .82404372 | -2.627 | .276 | 15.653 | .545 |
| 0 36 | -5.18470 | 1.92649 | -.1844573 | .97638412 | -1.519 | .276 | 8.193 | .545 |

0 3 and 0 6 event month are positive; the rest are negative. It indicates that smoothing of the plotting diagram is left-skewed distribution. From each event month the kurtosis of CAR, all the data is positive, indicating that histogram of the remaining smooth CAR monitoring than the standard normal distribution $N(0, 1)$ of the kurtosis, CAR has the leptokurtic feature.

Table 3. BHAR – descriptive statistics

| Month | Minimum | Maximum | Mean | Std. Deviation | Skewness | Kurtosis | | |
|-------|-----------|-----------|-----------|----------------|-----------|------------|-----------|------------|
| | Statistic | Statistic | Statistic | Statistic | Statistic | Std. Error | Statistic | Std. Error |
| 0 1 | -.34117 | .57326 | -.0291507 | .16255270 | .970 | .276 | 1.804 | .545 |
| 0 3 | -.89177 | 1.05307 | -.0477695 | .27724461 | .600 | .276 | 3.468 | .545 |
| 0 6 | -1.06910 | .93548 | -.0799879 | .38896781 | -.112 | .276 | 1.445 | .545 |
| 0 12 | -2.28588 | 3.51780 | -.0225791 | .76515131 | 2.150 | .276 | 10.149 | .545 |
| 0 18 | -3.46413 | 3.23057 | .0420932 | .71636563 | .175 | .276 | 12.846 | .545 |
| 0 24 | -2.09400 | 1.34085 | -.0625156 | .55828628 | -.383 | .276 | 2.668 | .545 |
| 0 36 | -4.08762 | 5.07613 | -.0128425 | 1.37128396 | .886 | .276 | 3.099 | .545 |

From the above table 3, the standard deviation is growing over the time from the 0.16 up to 1.37, although in the 24th event month is lower than 18th., in general, it increases and thus, the volatility increases over time. The standard deviation of BHAR is greater than CAR. Except 0 6 and 0 24 event months are negative, the remaining are positive. Hence, indicating that the plotting diagram is skewed to the right. From each event month the kurtosis of BHAR, is positive, and the histogram of the remaining smoothing of the BHAR results are standard normal [i.e. $N(0, 1)$] for kurtosis and BHAR is leptokurtic.

The analysis demonstrates that the long-run underperformance of IPOs exists, no matter whether one analyses with BHAR or CAR. These results corroborate Ritter's conclusion. In turn, the results documents the existence of long-run underperformance of IPOs in Shanghai Stock Exchange for the period studied

4.3 Statistical Significance, T-Statistics and Results

After the calculation obtain the degree of the long-run underperformance, in order to examine the statistics is significant or not, it computes the t test for the event month of the BHAR and the CAR, as mean as 0 test to verify the existence of significant for long-run underperformance of IPOs. Hypothesis test as follows:

Ho: the mean of the long-run excess return of sample = 0

(The null hypothesis)

In turn: *H1: the mean of the long-run excess return of sample $\neq 0$ (the alternative)*

Table 4. One – sample test of CAR (CAR One-Sample Test)

| Test Value = 0 | | | | | | |
|----------------|----------|----|-----------------|-----------------|---|-----------|
| Month | | | | | 95% Confidence Interval of the Difference | |
| | t | df | Sig. (2-tailed) | Mean Difference | Lower | Upper |
| 0 1 | -1.804* | 75 | .075 | -.03332720 | -.0701349 | .0034805 |
| 0 3 | -2.044** | 75 | .044 | -.05806793 | -.1146543 | -.0014816 |
| 0 6 | -2.231** | 75 | .029 | -.08095946 | -.1532512 | -.0086677 |
| 0 12 | -1.847* | 75 | .069 | -.14048677 | -.2919694 | .0109959 |
| 0 18 | -1.291 | 75 | .201 | -.10685614 | -.2717372 | .0580249 |
| 0 24 | -2.016* | 75 | .047 | -.19056209 | -.3788641 | -.0022600 |
| 0 36 | -1.647 | 75 | .104 | -.18445728 | -.4075706 | .0386560 |

Notes. * Estimate significant at the 10% level. ** Estimate significant at the 5% level. *** Estimate significant at the 1% level. df stands for degrees of freedom.

Table 5. One – Sample Test of BHAR (BHAR One-Sample Test)

| | | Test Value = 0 | | | | |
|-------|----|----------------|----|-----------------|---|--------------------|
| Month | | | | | 95% Confidence Interval of the Difference | |
| | | t | df | Sig. (2-tailed) | Mean Difference | Lower Upper |
| 0 | 1 | -1.563 | 75 | .122 | -.02915071 | -.0662956 .0079942 |
| 0 | 3 | -1.502 | 75 | .137 | -.04776951 | -.1111226 .0155836 |
| 0 | 6 | -1.793* | 75 | .077 | -.07998793 | -.1688709 .0088950 |
| 0 | 12 | -.257 | 75 | .798 | -.02257913 | -.1974237 .1522654 |
| 0 | 18 | .512 | 75 | .610 | .04209323 | -.1216033 .2057898 |
| 0 | 24 | -.976 | 75 | .332 | -.06251558 | -.1900895 .0650583 |
| 0 | 36 | -.082 | 75 | .935 | -.01284246 | -.3261943 .3005093 |

Notes. * Estimate significant at the 10% level. ** Estimate significant at the 5% level. *** Estimate significant at the 1% level.

From the examination results, the mean difference between CAR and BHAR is nearly negative. This indicates the long-run performance is poor over three years. In the fact, in the 18th and 36th event month cannot reject the hypothesis about CAR. By observing BHAR, except for the 6th event month, for other event months, we cannot reject the hypothesis in BHAR models. In general, from the CAR approach, the long-run performance of IPOs are poor, but seeking to the BHAR, only 6th month is general significant, in this situation, we could not obtain the long-run underperformance in the model of BHAR. But from the mean difference, it is negative, in other words, the performance is weak. In the previous section, I refer to the CAR is a better measurement in China. Therefore, the long-run underperformance exists, but also it is significant.

4.4 Relationship between Factors and Performance of IPOs

4.4.1 Regression Analysis IPOs Performance

From the front chapter, it would easily understand that utilize the multi-dimensional measurement, the results has some difference, in one matched companies as the benchmark, using the cumulative abnormal returns, it documents that the long-run underperformance of IPOs, from the method of buy and hold abnormal returns, the long-run underperformance is not significant, because of analyzing the descriptive Statistics, the long-run performance is existing, in the t-statistics, although the mean difference is negative, it could say that the long-run performance is poor, but it rejects the t-test, because just only one event month is significant. Overall the analysis, it could estimate that it exists the long-run performance, but not significant. To better understand the long-run performance of IPOs in China, this chapter studies relationship between the three-year cumulative abnormal returns and buy and hold abnormal returns with some corporate characteristics of listed companies to see which elements affect the long-run performance of IPOs. Considering the sample, in this chapter, I utilize the 76 IPOs with the one matched company. Since the Chinese (PRC) market structure and institutional features different from those in Western countries, we chose the variables that can reflect the unique institutional settings in China. In this section; I set up a multiple linear regression to examine which factors affect the long-run performance. in this chapter has extension of two models, I examine the one-year cumulative abnormal returns, one year buy and hold abnormal returns, two-year cumulative abnormal and two-year buy and hold abnormal returns.

4.5 Exploring the Long-Run Performance

First, there is a relationship between the long-run performance of IPOs and the quality of listed companies. The proxy used here was earnings per share, which shows the profitability of the company. The EPS variable measures the average earnings per share for the latest three years after the firm's listing, since this is the information that investors have on IPOs and is one of the two factors that determine offering prices during the period. I expect a positive coefficient for EPS. The symbols are EPS1, EPS2 and EPS3, respectively.

HYPOTHESI 1., 2 and 3 are all the same H0: There is no relationship between the average earnings per share for the first year after the firm's listing and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

H1: There is a positive relationship between the average earnings per share for the first year after the firm's listing and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

Asset size is an important feature of the enterprise, in general, large-scale enterprise development is much more mature stable, the future cash flows are relatively stable, and its performance in the secondary market would be a better of corresponding long-run performance. As market index returns as the normal rate of return of 3-year cumulative abnormal returns (or buy and hold abnormal returns) to represent the long-run performance of IPOs. LOUGHRAN and RITTER (1999) pointed out the big companies' performance was stronger than the average level of 50%. In this manuscript, the total assets are the latest size before listing, the symbol is TA, based on the above analysis², refer to the hypothesis 4;

Hypothesis 4. H0: There is no relationship between the total assets and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

H1: There is a positive relationship between the total assets and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

Sub-owned shares are peculiar to China's securities market, the same company shares divided into two types of shares, which are the tradable and non-tradable shares, before the split share structure reform is not carried out, the companies listed in Shanghai, tradable shares account for only one third of the total capital share, and the remaining two-thirds is not the flow of state shares and legal person shares. To some extent, the non-tradable equity is a kind of internal equity, the state and corporate shareholders are generally large shares of the company. On the one hand, the state and legal person shares with a larger proportion of enterprises are generally related to the national economy, so those companies have a better of size and asset quality; on the other hand, the higher the proportion of outstanding shares, the better of the corporate governance structure, the size of the outstanding shares of the total capital share, but also related on the agency cost problem, when a higher proportion of tradable shares, the agency cost relative much lower. The tradable shares divided into A- shares or H-shares. In this paper, the tradable shares mean that list the shares in the first issue day in Shanghai Stock Exchange, the symbol for circulation stock ratio is CSR, the hypothesis 5 as follows;

Hypothesis 5. H0: There is no relationship between the circulation stock ratio and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

H1: There is a negative relationship between the circulation stock ratio and the three- year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

One of the issue characteristic is the gross proceeds in first issuing day; it would affect the long-run performance of IPOs. As stated earlier, the demand for shares exceeds supply prevails in China. The lower the supply of listed shares, the better of the long-run performance a listed company would expect to have due to the popularity of the shares. We use total financing volume of IPOs to measure the supply of shares of each listed company, and we expect that firms with bigger financing volume will have better performance in the long-run. The symbol is (Total Financing Volume, TFV), the hypothesis as follows;

Hypothesis 6. H0: There is no relationship between the total financing volume and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

H1: There is a positive relationship between the total financing volume and the three- year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

Price-earnings ratio index calculation to the previous year's level of profitability the company is based, its biggest flaw is ignoring the situation of the company's future earnings forecasts. From a single company point of view, more stable earnings performance indicators for public utilities, business class reference to a larger company, but the unstable performance of the company, the easy to produce judging bias. In general, the high of price-earnings ratio, the capacity of potential growth will much great, it is a positive relationship. This variable is diluted earnings after listing. In this paper, the price earning per share is the issue price-earnings ratio. The symbol is defined as P/E, the hypothesis⁷ as follows;

Hypothesis 7. H0: There is no relationship between the P/E and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

H1: There is a positive relationship between the P/E and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs. The lottery reflects a market demand heat, when the lottery rate is lower, the greater of the demand, the more likely speculation. This variable is the level of activity of speculation investors, a reflection of the more speculative investors, listed companies active in the market early will have a speculative bubble, short-term trend is good, but in the long term, speculative bubbles may arise gradually disappear, its negative impact on long-term trend of IPOs. It means that the more active speculative for listed companies, the worse the long-term trend, the lower returns of long-run performance. Make assumptions based on the above

analysis 4, here the symbol is LOTTERY.

Hypothesis 8. H0: There is no relationship between the LOTTERY and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

H1: There is a negative relationship between the LOTTERY and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

1. Expectations hypothesis based on differentiation and distribution market, investors includes optimistic and pessimistic investors, the degree of shares is great difference the value of the expected, optimistic investors decided to deviate from the market clearing price the higher the degree of the true value of issue shares, the stock of long-term adjustment is greater, the long-term performance is worse. I used to measure the amplitude difference investors expected level of new shares in the first day of issuing. *Amplitude of the first day = (the highest price of the first day - the lowest price of the first day) / the opening price of the first day*, where the reason to compute this approach is calculating the opening price which is using a collection of price competition to the next generation, it could represent the expected issue price value by the investors before trade. The greater of amplitude ratio in the first day, the expected difference is much larger. The symbol is ISW, based on the above analysis7, refer to the hypothesis 9;

Hypothesis 9. H0: There is no relationship between the ISW and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

H1: There is a negative relationship between the ISW and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs. The high of Book value ratio (BV / MV) portfolio of long-term performance is often significantly lower than the low of book; this phenomenon is known as the BM ratio. FAMA and FRENCH (1992) makes the findings of B/M ratio has been widely watched and studied, Fama and French believe that the B/M ratio is not representative of the traditional risk indicators (such as β coefficients, price-earnings ratio, etc.) to capture the risk, which is the risk premium. The risk of B/M index indicates that the investors are willing to pay a premium for the units' net assets, in fact, it represents that the view of future development of enterprises by investors, the smaller of the BM indicates that investors think company's future prospects are over optimistic, willing to pay higher premium to net assets. Here the BM ratio defined as:

$BM = \text{Net assets per share after listing} / \text{close the first day of listing}$. This definition, albeit rough, but in some certain, enterprises could measure the true extent of the BM ratio, the symbol of the BM ratio is B/M, the hypothesis is defined as;

Hypothesis 10. H0: There is no relationship between the B/E ratio and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

H1: There is a positive relationship between the B/E ratio and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs. As for the relationship between the initial returns of the IPOs and the long-run performance, the 'impresario' hypothesis argues that IPOs are underpriced by investment bankers to create the phenomenon of excess demand. This hypothesis predicts that companies with higher initial returns should have the lower subsequent returns. CARTER and DARK (1993) examined the correlation between initial returns and 18-month after-market returns and found that firms with higher initial returns tend to provide slightly lower long-run returns than those companies with lower initial returns, therefore, in this paper, I also discuss this factor, the symbol is IR.

Hypothesis 11. H0: There is no relationship between the IR and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

H1: There is a negative relationship between the IR and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

Assuming issued shares has a better long-term trend in the latter year. With the gradual specification of market activity, information disclosure system, the way innovation of issuing, China's stock market becomes more mature, the more latter listing of IPOs, the better long-term trend of the stock. The progress of distribution market more transparent disclosure of information, the behavior of market players more specification, Chinese stock issuing market is improving over the latest ten years. From macro to micro level of the market system, the main level has a big change, it is necessary to study the relationship between market year and IPOs long-term returns, listed the year as a dummy variable, the order from 2002, listing of the shares in 2002 are assigned to 1, and so on, the greater the value, the closer the time to now, the symbol is defined as YEAR, based on the above analysis9, refer to the hypothesis 12.

Hypothesis 12: H0: There is no relationship between the YEAR and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

H1: There is a positive relationship between the YEAR and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

In the China security market development does not perfect, the phenomenon of speculation is common, information asymmetry between investors and investment banking (or issued companies) at the most time. Because those overoptimistic investors who are optimistic to the stock price, therefore, as the time is going, the opened information is more and more in public market. Expected divergence of the IPOs price is smaller and smaller, then the stock price would be fallen gradually to adjust the stock price, which would close to the real value (price), the symbol is PRICE, the hypothesis as follows.

Hypothesis 13: H0: There is no relationship between the issue price and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

H1: There is a negative relationship between the issue price and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs. Tracking the average net assets before this period, the symbol for it is ROE. *average return on equity before listed = (return on equity before first listed year + return on equity before the second listed year + return on equity before the third listed year)/3*, the return on equity is a profitability indicator, the greater of this index, indicating that the ability of average earnings during the tracking period is high. In summary, the changes reflect the amount of the company's profitability, company profitability is stronger, and the shares of the company gains more and more. Based on the above analysis¹², refer to the hypothesis 14;

Hypothesis 14. H0: There is no relationship between the return on equity over three years before the firm's listing and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

H1: There is a positive relationship between the return on equity over three years before the firm's listing and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

The China Securities Regulatory Commission published "the industry classification guidelines of listing companies" in 2001; it divided into 13 industries for all listed companies.

Table 6. 13 Industries

| Code | A | B | C | D |
|----------|--------------------------|-------------------|---------------|------------------------|
| Industry | Agriculture | Mining industry | manufacturing | Electricity Production |
| Code | E | F | G | H |
| Industry | Building trade | Transport | Real estate | IT |
| Code | I | J | K | L |
| Industry | Banking & Ins. Insurance | community service | Retail trade | Cultural Industry |
| Code | M | | | |
| Industry | General Industry | | | |

We set the industry dummy or categorical variable, when the industry is the mining industry and building trade, the industry variable is 1, for 0, represents other industry, the reason for setting it, I will refer it in the next part. The symbol is defined as IND (industry); the hypothesis as follow;

Hypothesis 15. H0: There is no relationship between the IND and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

H1: There is a positive relationship between the IND and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs. Welch and Wong (1998) pointed out that the long-run performance of IPOs are related to the company whether to adopt a positive means of earnings management: before the stock issues, the company adopted a positive management, the long-run performance is worse than not used this method companies. In the regression analysis, three-years average earnings per share before listed as an independent variable. The formula is: *average (mean) earnings per share = (average per share before first listed year + average per share before the second listed year + average per share before the third listed year)/3*, the symbol is BEPS, the hypothesis as follow;

Hypothesis 16. H0: There is no relationship between the average earnings per share over three years before the firm's listing and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

H1: There is a negative relationship between the average earnings per share over three years before the firm's listing and the three-year cumulative abnormal returns (or buy and hold abnormal returns) of IPOs.

We used the cumulative abnormal returns (buy and hold abnormal returns) over three years after listing as the dependent variable in the regression analysis. The empirical model is estimated using ordinary least squares (OLS) and is displayed as follows:

Model 1

$$CAR_i = c + \beta_1 EPS_1 + \beta_2 EPS_2 + \beta_3 EPS_3 + \beta_4 TA + \beta_5 CSR + \beta_6 TFV + \beta_7 P/E + \beta_8 LOTTERY + \beta_9 ISW + \beta_{10} B/M + \beta_{11} IR + \beta_{12} YEAR + \beta_{13} PRICE + \beta_{14} ROE + \beta_{15} IND + \beta_{16} BEPS$$

Model 2

$$BHAR_i = c + \beta_1 EPS_1 + \beta_2 EPS_2 + \beta_3 EPS_3 + \beta_4 TA + \beta_5 CSR + \beta_6 TFV + \beta_7 P/E + \beta_8 LOTTERY + \beta_9 ISW + \beta_{10} B/M + \beta_{11} IR + \beta_{12} YEAR + \beta_{13} PRICE + \beta_{14} ROE + \beta_{15} IND + \beta_{16} BEPS$$

Table 7. Each industry performance over three years

| INDUSTRY | N | CAR 0 12 | CAR 0 24 | CAR 0 36 |
|----------------------------|----|-----------|-----------|-------------|
| Agriculture | 3 | -0.10039 | 0.108411 | -0.28665 |
| Mining industry | 5 | 0.237042 | -0.19298 | 0.255777 |
| Building trades | 2 | 0.054877 | -0.20872 | -0.13849 |
| Elec. Prod. | 5 | -0.13022 | -0.36407 | -0.39874 |
| Transport | 5 | -0.28868 | 0.155449 | -0.29773 |
| Real estate | 3 | 0.080449 | 0.061822 | 0.481166 |
| IT | 3 | 0.013732 | 0.224297 | 0.209407 |
| Banking-InsIIIInsInsurance | 5 | -0.216762 | -0.14854 | -0.10709 |
| Com. service | 1 | -0.42012 | -0.60334 | -0.51579 |
| Manufacturing | 43 | -0.18635 | -0.27089 | -0.27899 |
| Retail trade | 1 | -0.34166 | -0.24675 | 0.297624 |
| INDUSTRY | N | BHAR 0 12 | BHAR 0 24 | BHAR30 0 36 |
| Agriculture | 3 | -0.03538 | 0.098818 | -0.34301 |
| Mining industry | 5 | 0.813891 | 0.074851 | 1.113072 |
| Building trades | 2 | 0.195664 | 0.524916 | 0.523223 |
| Elec. Prod. | 5 | -0.12789 | -0.27288 | -0.49726 |
| Transport | 5 | 0.151137 | 0.057684 | -0.43351 |
| Real estate | 3 | 0.033162 | 0.050504 | 0.762703 |
| IT | 3 | 0.016225 | 0.143904 | 0.254556 |
| Banking-Ins. nuance | 5 | -0.57985 | -0.40751 | -0.23172 |
| Com. Service service | 1 | -0.26065 | -0.31794 | -0.21956 |
| Manufacturing | 43 | -0.07943 | -0.09362 | -0.08749 |
| Retail trade | 1 | -0.16802 | -0.08112 | -0.03228 |

Now, the BHAR is not significant for long-run underperformance, in order to analyze more accurate, I examine the CAR and BHAR both. The analysis tool is Eviews. At the beginning, the ordinary least squares OLS and stepwise regression in Eviews (analytical software) was used for computation. Prior to the regression methods, we examined the CAR and BHAR for each industry. From table 7, we look over the CAR and BHAR, the mining industry and real state are better than the other industries. Wang (2002) pointed out the real estate is better performance; it is similar with my results. Especially the manufacturing, community service and Energy are worse. Considering the quantity, the dummy variable for mining industry and building trade are 1, other industries are 0. Table 8 shows that most of the variables are not significant; the different model has different result. From the CAR model, it shows that the EPS3, price and total financing volume are affecting the long-run performance of IPOs. In the BHAR model, it indicates EPS1, EPS3 and price impact on the long-run performance of IPOs.

In Table 8 most of the variables are not significant at any reasonable level.

Table 8. Regression of *CAR3* and *BHAR3*

| Dependent Variable: <i>CAR3</i> | | | Dependent Variable: <i>BHAR3</i> | | |
|---------------------------------|------------|--------|----------------------------------|-------------|--------|
| Method: Least Squares | | | Method: Least Squares | | |
| t -Statistic | | Prob. | t – Statistic | | Prob. |
| C | -1.727776 | 0.0893 | C | -0.919944 | 0.3613 |
| EPS1 | 1.270378 | 0.2089 | EPS1 | 1.967597* | 0.0538 |
| EPS2 | -0.464030 | 0.6443 | EPS2 | -0.499981 | 0.6189 |
| EPS3 | 2.331869** | 0.0231 | EPS3 | 3.086230*** | 0.0031 |
| TA | -0.813787 | 0.4190 | TA | -1.138705 | 0.2594 |
| CSR | -0.513501 | 0.6095 | CSR | -0.592531 | 0.5558 |
| TFV | 1.735366* | 0.0879 | TFV | 1.475060 | 0.1455 |
| PE | -0.141985 | 0.8876 | PE | -0.020272 | 0.9839 |
| LOTTERY | -0.133843 | 0.8940 | LOTTERY | -0.096658 | 0.9233 |
| ISW | 0.741490 | 0.4613 | ISW | 0.598235 | 0.5520 |
| BM | 0.960747 | 0.3406 | BM | 0.693133 | 0.4909 |
| IR | -0.028283 | 0.9775 | IR | -0.545247 | 0.5876 |
| YEAR | -1.204314 | 0.2333 | YEAR | -0.879048 | 0.3829 |
| PRICE | -1.798195* | 0.0773 | PRICE | -3.453959** | 0.0010 |
| ROE | -0.290196 | 0.7727 | ROE | -0.280950 | 0.7797 |
| IND | 0.252843 | 0.8013 | IND | 0.542548 | 0.5895 |
| BEPS | -0.898713 | 0.3725 | BEPS | -0.705506 | 0.4833 |

Note. * Estimate significant at the 10% level. ** Estimate significant at the 5% level. *** Estimate significant at the 1% level.

By observing table 8 for the CAR model, we would remove seven explanatory variables, which do not show significance. Observing the BHAR model, seven explanatory variables would also have to be removed from the regression. In addition, the R-square term for either multiple regression is again not very large (close to 1).

[In addition the adj. R-squares are even substantially smaller]. Note also the F-statistic are not small, suggesting that they are significant at small probabilities suggesting that the models can be reduced by eliminating the non-significant explanatory variables, thus corroborating the tests for each explanatory variable.

To summarize this section, the model 1, hypothesis 3. H1 is correct, there is a positive relationship between the average earnings per share for the third year after the firm's listing and the three-year cumulative abnormal returns of IPOs. The hypothesis13.H1 is also correct; there is a negative relationship between issue price and the three-year cumulative abnormal returns of IPOs. There is a positive relationship between the total financing volume and the three-year cumulative abnormal returns of IPOs, verifying the hypothesis 6, H1. Hypothesis 12 is rejected. Hence, we conclude that a negative relationship between year and three-year cumulative abnormal returns exist for IPOs.

Observe the results for model 2, we reject null hypothesis and 13. Thus there is a positive relationship between long-run performance and earnings per share for the third year after the firm's listing and the three-year buy and hold abnormal returns and, also, there is a negative relationship between price and three-year buy and hold abnormal returns. In addition, there is a positive relationship between the earnings per share for the first year after the firm's listing and the three-year buy and hold abnormal returns. For hypothesis 12, observe the negative relationship between year and the three-year buy and hold returns of IPOs. No significant relationship with three-year buy and hold returns. Overall the two models; the earnings per share, price, year and total financing volume affect the long-run performance over three years.

In this variables, total assets, circulation stock ratio, industry, earnings per share and return on equity belong to the intrinsic value. Issue characteristics include total financing volume, price and P/E. Investors Sentiment involves lottery, B/M ratio, ISW, initial return and year.

Next, we examine the one-year cumulative abnormal returns, one year buy and hold returns, two-year cumulative abnormal and two-year buy and hold returns. We observe which factors affect short-run performance, the following graph shows the final result, the analysis method the same as front. Tables 9 and 10 follows;

Table 9. Least Squares of CAR and BHAR using stepwise

| Response Variable: <i>CAR</i> ₂ | | | Response Variable: <i>BHAR</i> ₂ | | |
|--|-------------|----------|---|-------------|----------|
| Predictor | t-Statistic | Prob. | Predictor | t-Statistic | Prob |
| C | -1.442044 | 0.1540 | C | 1.485768 | 0.1422 |
| EPS3 | 2.094321** | 0.0401 | EPS3 | 1.678020* | 0.0981 |
| BM | 1.966831* | 0.0534 | BM | 1.517083 | 0.1341 |
| CSR | -1.977924* | 0.0521 | EPS2 | 0.716148 | 0.4765 |
| EPS1 | 1.057669 | 0.2941 | CSR | -2.378789** | 0.0203 |
| PRICE | -1.302744 | 0.1972 | EPS1 | 2.167360** | 0.0339 |
| PE | 1.245879 | 0.2172 | PRICE | -2.141706** | 0.0360 |
| ROE | 0.999352 | 0.3213 | ISW | 0.444994 | 0.6578 |
| ISW | 0.698921 | 0.4871 | PE | 1.511751 | 0.1354 |
| IND | -0.642049 | 0.5231 | TA | -1.564275 | 0.1226 |
| | | | YEAR | 0.980575 | 0.3304 |
| Adjusted R-squared | | 0.111164 | Adjusted R-squared | | 0.247868 |
| F-statistic | | 2.042220 | F-statistic | | 3.471655 |
| Prob(F-statistic) | | 0.048008 | Prob(F-statistic) | | 0.001056 |

Note. This table is the last step. The dependent abnormal returns (CAR & BHAR) over two years.

* Estimate significant at the 10% level. ** Estimate significant at the 5% level. *** Estimate significant at the 1% level.

Table 10. Least Squares of CAR and BHAR stepwise regression

| Response Variable: <i>CAR</i> ₁ | | | Response Variable: <i>BHAR</i> ₁ | | |
|--|-------------|--------|---|--------------|--------|
| | t-Statistic | Prob. | | t-Statistic | Prob |
| C | -1.816300 | 0.0738 | C | 3.183758 | 0.0022 |
| EPS1 | 1.648692 | 0.1039 | LOTTERY | 26.257561*** | 0.0000 |
| BM | 1.871422* | 0.0657 | YEAR ISW | 3.168141*** | 0.0023 |
| EPS3 | 1.564973 | 0.1223 | ROE IND | TA0.741706 | 0.4609 |
| CSR | -1.979922* | 0.0518 | CSR IR | 2.194204** | 0.0317 |
| ISW | 1.596801 | 0.1150 | | 1.821045* | 0.0731 |
| BEPS | 0.745973 | 0.4583 | | 1.013830 | 0.3144 |
| TFV | 1.248428 | 0.2162 | | -3.415991*** | 0.0011 |
| ROE | 0.823187 | 0.4133 | | -1.815265* | 0.0740 |
| | | | | -1.284272 | 0.2035 |

Note. This table is the last step. The dependent abnormal returns (CAR & BHAR) over two years.

* Estimate significant at the 10% level. ** Estimate significant at the 5% level. *** Estimate significant at the 1% level.

Over the two years, earnings per share, circulation stock ratio, book value ratio and issue price affect the medium-and-long-term performance of IPOs, in the short-run, earnings per share, lottery, total assets, is, book value ratio and circulation stock ratio, those variables affect the short-run performance. In next section, I use a classification to description analysis to explain the long-run performance. Each variable analyzes for specific relational results. For *CAR*₁ only BM and CSR produce significant results and at them 10% level. The R-square adj. is **0.323293** and is significant at level equal to **0.001358**. For the second response variable *BHAR*₁, we observe that LOTTERY, EPS2 and TA are significant at the 5% level and finally ROE and CSR are significant at 10% level. The R-square adj. is **0.432169** and is significant at larger EPS2.

5. Conclusion and Recommendation

From the above analysis, we may conclude that additional work will require more exhaustive analysis in describing the data utilized in this study Although the study is exhaustive we need to determine if the long-run underperformance of IPO's in China (PRC) specifically occur for cumulative abnormal after which month, the same event month and what is the specific buy and hold abnormal returns. Are their specific differences of the effectiveness of China's IPO market? Also can one determine whether firms lower the cost of equity financing associated with the rationale for equity financing.

Can one conclude that a firm's intrinsic value is the root causes for long-run underperformance of IPOs? The

behavior of the ROE should effect the cost of equity financing, but we need to build evidence showing this effect. From the above analysis, the following conclusions are drawn:

First, we observe the long-run underperformance of IPOs in China. From the empirical results, it occurred about -0.09632 of cumulative abnormal returns after 9th event month, in the same event month, the buy and hold abnormal returns are - 0.06895. It shows the underperformance of IPOs, according to the different computing approach, the extent of the underperformance is different over two years after listed. The cumulative abnormal returns and buy and hold abnormal returns over the three years after listing are -0.18446 and -0.01284. Overview the CAR, among the 1th event month and 17th event month, the abnormal returns like “teeter-totter”, up and down alternately, then the abnormal returns downward sloping in general, especially from 17th event month to 25th event month, the returns linear decrease. The excess returns of BHAR are better than CAR. The invertors invest the same quota to buy the market portfolio or a comparable portfolio of companies will obtain much higher returns than IPOs portfolio. This indicates the effectiveness of China's IPO market is not high, there is no reasonable allocation of resources. Also shows that our companies lower the cost of equity financing, from an economic point of view to explain the company interested in equity financing reasons.

A second conclusion refers to the enterprises' intrinsic value is the existence of the root causes for the long-run underperformance of IPOs. The decline of the profitability is the fundamental phenomenon of IPOs long-term underperformance reasons. The empirical study finds that the high of earnings per share, the better of the performance of IPOs.

If long-run underperformance is serious and indicated by larger issue prices, do issuing firms produce strategies to raise the issue price? Another question is to determine if a firm's prospects of underperformance in the long run is related to factors such as investor sentiment and relationships among performance, cumulative abnormal returns and buy and hold returns. Last do other factors among long-run performance and cumulative abnormal returns and buy and hold returns have relationships that affect the performance of IPOs to a great degree and at what level?

6. Recommendation

Through this empirical analysis shows that abnormal returns of IPO mechanism are the formation of asymmetric information between market players and investors overly optimistic of new shares worth, which has led to o uncertainty and excessive speculation, the new share issue price undervalued, overvalued market price formed a higher initial return, after long-run listing, the various factors of its intrinsic value becomes clearer, investors have gradually returned to a rational investor. It should eliminate the information asymmetry among market players and investors.

Specifically, it should improve the information disclosure system, pricing system release, foster rational behavior of investors. Our purpose is to improve the information disclosure system. Enhancing the information disclosure of listed companies is an important part to improve the efficiency of IPOs. Asymmetric information adverse selection of investors will become a survival of the fittest market, in order to avoid this situation, the prior companies would tell the invertors the intrinsic value though any way.

Earnings forecasts are voluntary disclosure of information, if we can establish the integrity of the distribution market mechanism to ensure that the issue of blue-chip companies in the profit-driven, voluntary disclosure of earnings estimates by real performance, excellent funding to determine their status, then the middle and inferior public listed companies would distinguish. It should also encourage voluntary information disclosure of listed companies to establish credibility mechanism.

Specifically, the measures as follows:

- (1) To encourage voluntary disclosure of listed companies, to build a combination system of disclosing information between the mandatory disclosure and voluntary disclosure. Nowadays, information disclosure system of listed companies is mandatory information disclosure; it would improve the quality of information disclosure of listed companies. Meanwhile, it should strengthen the voluntary disclosure of regulation, to improve the information disclosure, and to protect the benefits of investors.
- (2) The establishment of information disclosure of constraint system for listed companies. It would form the principal of "moral hazard" binding mechanism of effective prevention. The constraint system consists of three parts:

First, to increase investor demand constraints. Information needs reflecting the real information and value, excluding investors demand constraints, the information is only take an accounting tool or self-monitoring tool for managers and assets owned.

Secondly, it should punish the fraud information providers. When the information package to bring greater benefits to give the issuer, the information producers create fake information, the information is the motivation of fraud to obtain high returns from the market. So the market is the key to the formation of punishment mechanism. Third, the management level should increase the punishment of fraud. Information disclosure rules and norms as a general management and supervisor development, and its main function is to provide a set of information disclosure of listed companies for the public could understand standard information (such as financial statements of listed companies, etc.) and social information disclosure of listed companies to implement macro-supervision.

Third, we wish to foster rational investors' ability to make wise and rational decisions. Deviations from optimal investor behavior is important due to factors related to abnormal returns, and therefore it is necessary to improve the investor structure, develop and standardize institutional investors, protect small investors, increase understanding and investor knowledge, and reduce the information asymmetry between the main underwriters and investors.

Another goal is to develop and standardize institutional investors: to increase institutional investors help to reduce the information asymmetry. However, institutional investors in China are still many non-standard behaviors; minority investors utilize the advantage of capital to control the market. Institutional investors to play a stabilizing role of the market not only in its amount, and whether the behavior is norm or not, compare with foreign mature capital markets, there is a great difference in size, and it should continue to accelerate the development of norms for institutional investors,

We need to enhance institutional reform. In addition to improve the development of size and number of institutional investors, it also promotes the institutional investors in the "quality", so that institutional investors in the stock market become more rational.

In addition, we should expand financing channels for institutional investors; to improve resources to access long-run capital. For a long time, China's institutional investors had a serious shortage of their own funds, and lack of effective channels of external financing. In turn, there were the misappropriation of funds for clients' needs. Hence, we should expand and produce effective financing channels for institutional investors. Another desire is to improve the investment fund market evaluation system. To allow investors to judge and estimate investment returns; and to control the risk of misinformation associated with investment funds. Since fund performance evaluation should be based on comparison of the benefits and risks, the greatest difference between various types of funds is how to balance the risks and benefits. Therefore; one desires to establish an objective combination of risk and return assessment system to promote optimal behavior of institutional investors.

IPO markets are often asymmetric information markets, therefore, it is necessary to intervene in the security market, to eliminate information asymmetry and improve the effectiveness of market information and boost the effectiveness of the price, thereby increasing market efficiency of resource allocation issue. Strengthening of the regulatory authority, to prevent the lack of supervision will ensure the independence of regulators. A regulatory institution is the rule-makers and implementers to ensure the equality and open and fair treatment of all market participants. Therefore, we must change the existing administrative system and model respect and protect the internal mechanism of the market, truly maintain the Independence of regulation.

Additionally, strengthening the regulatory role played by the securities association. We should refer to the success experience of foreign countries, specifically the subject of several regulatory task and direction, and cooperate among the SFC, the Stock Exchange, industry associations.

China's securities market on the one hand there is the problem of poor supervision, excessive regulation on the other hand is another problem. Lack of supervision will lead to the prevalence of securities violations acts of dishonesty. The most effectively avoid over-regulation is to allow the market mechanism into full play the survival of the fittest, the government only give the necessary supervision when the market failure. The stock market should build a multi-level system so that the Stock Exchange incentives and constraints chosen to requirements of the listed companies in the competitive market, under the action of the market mechanism, the issue of auditing listed companies and stock exchanges into a selection process each other, to avoid the phenomenon of excessive regulation.

The samples came only from the Shanghai Stock Exchange, we did not investigate the Shenzhen Stock Exchange, in the future research, and it should also study the Shenzhen Stock Exchange. The last one is the event year; this paper examines the normal returns and excess returns over three years, it maybe exists the underperformance over five years, therefore, future study can examine the five years of excess returns.

References

- Aggarwal, R., & Hernandez, L. (1993). The Aftermarket Performance of Initial Public offerings in Latin America. *Financial Management*, 22(1), 42-53.
- Aggarwal, R., & Rivoli, P. (1990). Fads in Initial Public Offering market. *Finance Management*, (19), 45-57.
- Baker, M., & Wurgler, J. (2000). The equity share in new issues and aggregate stock returns. *Journal of Finance*, (55), 2219-2257
- Barber, B., & Lyon, J. (1997). Detecting long-run abnormal stock returns the empirical power and specification offset statistics. *Journal of Financial Economics*, (43), 341-372.
- Bayless, M., & Chaplinsky, S. (1996). Is there a window of opportunity for seasoned equity offerings? *Journal of Finance*, (51), 253-278.
- Brav, A., & Gompers, P. A. (1997). Myth or Reality? The Long—run Underperformance of Initial Public Offerings Evidence from Venture and Nonventure Capital—Backed Companies. *Journal of Finance*, (52), 1791-1821.
- Brav, A., Geczy, C., & Gompers, P. (2000). Is the abnormal return following equity issuances anomalous? *Journal of Financial Economics*, (56), 209-249.
- Cai, X. (2008). The long-run performance of initial public offerings and its determinants: the case of China. *Rev Quant Finance Acc*, (30), 419-432.
- Carter, R. B., & Dark, F. H. (1998). A K Singh, Underwriter Reputation Initial Returns and the Long-run Performance of IPO stocks. *Journal of Finance*, 2(53), 285-311.
- Chaney, P., & Lewis, C. M. (1995). Earnings management and firm valuation under asymmetric information *Journal of Corporate Finance*, (1), 319-345
- Chaney, P., & Lewis, C. M. (1998). Income smoothing and underperformance in Initial public offerings. *Journal of Corporate Finance*, (4), 1-29.
- Chen, A., & Pan, K. L. (1999). An answer to the long-run performance puzzle of IPOs in Taiwan: an application of the Fama-French model working paper.
- Datta, S., Gruskin, M., & Iskandar-Datta, M. (2015). On post-IPO stock price performance: A comparative analysis of RLBOs and IPOs. *Journal of Banking & Finance*, (55), 187-203.
- Davis, J. L., Eugene, F., & Kenneth, F. (2000). Characteristics, Covariance's, and average returns: 1929 to 1997. *Journal of Finance*, (55), 389-406.
- De Bondt, W., & Thaler, R. (1987). Further evidence on investor overreaction and stock market seasonality. *Journal of Finance*, (4), 557-581.
- Drobtetz, W. (2005). Long-Run Performance of Initial Public Offerings: The Evidence for Switzerland. *Chmalenbach Business Review*, (57), 253-275.
- Egon, P. S. (1929a). The distribution of frequency constants in small samples from symmetrical distributions. *Biometrika*, (21), 356-360
- Esmeralda, O. L., Zychowicz, E. J. (2003). The performance of new equity offerings in Hungary and Poland. *Global Finance Journal*, (14), 181-195.
- Fama E., & French, K. R. (1993). Common risk factors in returns on stocks and bonds. *Journal of Financial Economics*, (33), 3-56.
- Fama, E. (1998). Long-term returns, and behavioral finance. *Journal of Financial Economics*, (49), 283-306.
- Fama, E., & French, K. (1996). Multifactor explanations of asset pricing anomalies. *Journal of Finance*, (51), 55-84.
- Fama, E., and K. French (1995) Size and book-to-market factors in airings and returns, *Journal of Finance* (50):131-156
- Firth, M. (1997). An analysis of the stock market performance of new issues in New Zealand. *Pacific Basin Finance Journal*, (5), 63-85.
- Firth, M. (1997). An analysis of the stock market performance of new issues in New Zealand. *Pacific Basin Finance Journal*, (5), 63-85.

- Forester, S. G., & Karoly, A. (2000). The long-run performance of global equity offerings. *Journal of Financial and Quantitative Analysis*, (35), 499-528.
- Gompers, P., & Lerner, J. (2004). The really long-run performance of initial Public offerings: The Pre-Nasdaq Evidence. *Journal of Finance*, (4), 1355-1392.
- Hartog, B. D. (2016). Post IPO-Performance: A Comparative Analysis between the US and China, *working paper*.
- Hirschleifer, D. (2001). Investor psychology and asset pricing. *Journal of Finance*, (56), 1533-1597
- Ibbotson, R. G. (1975). Price performance of common stock new issues. *Journal Financial Economics*, (3), 235-272.
- Ibbotson, R. G., Sindelar, J., & Ritter, J. R. (1988). Initial public offerings. *J. Appl. Corp Finance*, (1), 37-45.
- Jain, B. A., & Kini, O. (1994). The post-issue operating performance of IPO firms. *Journal of Finance*, (49), 1699-1726.
- Jakobsen, J. B., & Sorensen, O. (2001). Decomposing and testing long-term returns an application on Danish IPOs. *European financial management*, (3), 393-417.
- Jing, C. (2005). The performance and long-run characteristics of the Chinese IPO market. *Pacific Economic Review*, (10), 451-469.
- Kahle, K. M. (2000). Insider trading and the long—run performance of new security Issues. *Journal of Corporate Finance*, (6), 25-53.
- Keloharju, M. (1993). The winner's curse legal liability and the long-run performance of initial public offerings in Finland. *Journal of Financial Economics*, (34), 251-277.
- Kothari, S. P., & Warner, J. (1997). Measuring long horizon security price performance. *Journal of Financial Economics*, (43), 301-339.
- Lee, I. (1997). Do firms knowingly sell overvalued equity? *Journal of Finance*, (52), 1439-1466.
- Lee, P., Taylor, S., & Walter, T. (1996). Australian IPO underpricing in the Shortened long-run. *Journal of Banking and Finance*, (20), 1189-1210.
- Levis, M. (1993). The long-run performance of initial public offerings: The U.K Experience 1980-88. *Financial Management*, (22), 28-41.
- Ljungvist, A. P. (1994). Underpricing and Long-Term Performance of German Initial Public Offerings: 1970-1993. *Working Paper*, University of Oxford.
- Loughran, T., & Ritter, J. (1995). The new issues puzzle. *Journal of Finance*, (50), 23-51.
- Loughran, T., & Ritter, J. (2000). Uniformly least powerful tests of market efficiency. *Journal of Financial Economics*, (55), 361-390.
- Loughran, T., Ritter, J., & Rydgvist, K. (1994). Initial public offerings International insights, *Pacific Basin Finance Journal*, (2), 165-199.
- Lowry, M. (2003). Why does IPO volume fluctuate so much? *Journal of Financial Economics*, (67), 3-10.
- Lyon, J., Bard, M. B., & Tsai, C. L. (1999). Improved methods for tests for long run abnormal stock returns. *Journal of Finance*, (2), 165-201.
- Michaely, R., & Shaw, W. H. (1994). The pricing of initial public offerings Tests of adverse selection and signaling theories. *Review of Financial Studies*, (7), 279-319.
- Mikkelsen, W., Partch, M., & Shah, K. (1997). Ownership and operating performance of companies that go public. *Journal of Financial Economics*, (44), 281-307.
- Miller, E. M. (2000). Long run Underperformance of Initial Public Offerings an Explanation. *Working Papers*.
- Purnanandam, A., & Swaminathan, B. (2004). Are IPOs really underpriced? *Rev Finance Study*, (17), 811-848.
- Ritter, J. (1998). Initial public offerings. *Contemporary Finance Digest*, 2, 5-30.
- Ritter, J. R. (1984). The “hot issue” market of 1980. *Journal of Business*, (57), 215-240.
- Ritter, J. R. (1991). The long-run performance of initial public offerings. *Journal of Finance*, (42), 365-394.

- Ritter, J., & Welch, I. (2002). A review of IPO activity, pricing and allocations. *Journal of Finance*, (57), 1795-1828.
- Schlag, C., & Wordrich, A. (2000). Has there always been underpricing and long-run performance? IPOs in Germany before World War I. *Working paper*.
- Schultz, P. (2003). Market Timing and the Long-Run Underperformance of IPOs. *Journal of Finance*, (4), 483-517.
- Schultz, P. H. (2003). Pseudo market timing and the long-run performance of IPOs. *Journal of Finance*, (58), 483-518.
- Spiess, K., & Affeck-Graves, J. (1995). The long-run performance following seasoned equity issues. *Journal of Financial Economics*, (38), 243-267.
- Tech, S., Hong, I. W., & Wong, T. J. (1998). Earnings Management and the long-run Market Performance of Initial Public Offerings. *Journal of Finance*, (53), 1935-1974.
- Teoh, S., Wong, T., & Rao, G. (1998). Are earnings during initial public offerings opportunistic? *Rev Account Study*.

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).