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IPO trends and factors that affect IPO decisions for Chinese companies during last 10 years

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by

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Abstract

With the development of Chinese Economic, more and more Chinese companies are willing to go public. The reasons that support those companies to go list vary from companies to companies. The most important of them are generating money for companies' expansion and increasing the reputation among the industry and its customers. Listing location is an essential ingredient for the success of the IPO. Different listing locations have different listing requirements. For example, the they may have specific requirements on the profit and market capitalization on companies. What's more, the company can choose the most suitable location for its situation and strategy.

This research copes with the factors affect the IPO valuation for Chinese companies during the last ten years. Multiple regression has been used to investigate the impact of companies' financial ratios on stock prices. By comparing the P-value of variables, I propose that the companies' Return on Equity will have a positive impact on the stock prices. In addition, the research also tries to find the factors that affect the increase of IPO volume for Chinese companies. However, unfortunately, the increase percent of IPO volume for Chinese companies cannot be credit to the Interest rate and GDP growth rate.

Key words: IPO, listing requirements, listing location, Financial ratios, Interests rate, GDP growth rate

1 Introduction

Nowadays, Initial Public Offering (IPO) plays an increasingly important role in today's money market. Additionally, with the development of Chinese economics, more and more companies go public. The growth of the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange justify the active IPO activities in the Chinese money market. Besides, as noted by Xinhua (2019), Chinese companies are one of the major contributors to IPO in the US money market during the last ten years. There are numerous reasons for IPO activities. The most common reasons are raising the capital for the development of the companies and increasing the reputation in its industry to gain some advantages.

The United States, as the financial center of the world, attracts lots of worldwide companies' IPO. The Hang Kong money market is famous as the financial center of Asia, which also appeals lots of international companies. Since the increasing amount of companies are choosing to go public in SSE and SZSE, the Chinese money market is becoming increasingly important in the world. However, different money markets have different requirements for the listing process. China has the strictest requirement listing process, which has some specific profit requirements. Meanwhile, a good relationship with Chinese government is essential for the success of IPO (Chenyu Yin, 2018). Hang Kong and the United States have comparative less strict requirements for IPOs. Hence, lots of Chinese companies go public in the United States and Hong Kong.

The success of an IPO's valuation has several factors, of which companies' financial performance is one of the most important. For example, strong profit growth capability will definitely attract lots of investors. Other factors, such as companies' structure complexity,

leverage, and expected dividends yield also have an impact on the success of IPO's valuation.

In the analysis and finding part, I try to find the trend for Chinese companies that have done IPO during the last ten years to predict the future trend of IPO. To investigate how do companies' financial performance and other factors affect the valuation of IPO, I use regression methodology to analysis the impact of Debt to Equity ratio, Return on Equity, and P/E ratio on the stock prices.

2 Literature Review

2.1 The Trend of IPO for Chinese company during last ten years.

The growth of Shanghai Stock exchange (SSE) and Shenzhen Stock Exchange (SZSE) are the best indicators for the Trend of IPO for Chinese companies. SSE and SZSE were launched in 1990. At the same time, the Hong Kong Exchange (HKSE) was still on a small scale, with few companies listed. As time goes by, however, those three Exchanges play more and more important roles in the world money market. As noted by Ernst and Young (2011), these three Exchanges become the major market for IPO activities in the world. In 2010, the Hong Kong Stock Exchange, the Shenzhen Stock Exchange, and the Shanghai Stock Exchange ranked first, third and fourth respectively in terms of funds raised through initial public offerings. Chinese companies definitely make an indispensable contribution for the growth of the SSE and SZSE. According to the National Bureau of Statistics of China, there are only 1718 companies go public in SSE and SZSE. in 2009. However, at the end of 2018, 3584 Chinese companies go public in those two Stock Exchanges. The total market value that the Chinese companies contributed increased from 2.4 trillion in 2009 to 4.3 trillion in 2018.

In today's age, the capital market and economies become more integrated, More and more companies seek to raise capital, link with global capital markets. Listing on exchanges outside their home market is growing rapidly (Ernst, 2012). According to the National Bureau of Statistics of China, there are 159 Chinese companies go public outside of China in 2009 and 267 Chinese companies go public outside of China in 2018.

2.2 The reasons for companies to do IPO

The reasons for companies to go public vary from companies to companies. As noted by Adam (2010), one of the main reasons for companies to go public is that obtaining financing without getting loan from banking systems and reducing debt. Going public lower the overall cost of capital and puts companies in a stronger position to negotiate with banks for the interest rates on companies existing debt. The most common reason for companies to do IPO is to raise money and spread the risk among shareholders. As the companies grow, spreading risk in increasingly vital for the success of the companies, with the original shareholder's cash in a portion of profits meanwhile holding a percentage of the company (Ernst, 2012).

Companies have realized that the best way to raise equity financing is to get the best return by issuing shares directly on the most competitive exchanges. In addition to raise capital and reduce the risk, some companies choose to go public outside of the homeland for other reasons. Baker et al. (2002) assert that companies can maximum visibility through listing on New York Stock Exchange or London Stock Exchange. On the one hand, raising the reputation will be beneficial for companies to enter a new market quickly. On the other hand, Baker et al. (2002) noted that better visibility will enhance the reputation of the

company in its industry. Hence, increasing the visibility of the company will put it into a strong position when negotiating with its suppliers.

2.3 Requirements in different IPO locations

2.31 The Requirement for IPO in mainland China

During the last ten years, more and more companies have done IPO in the Chinese money market. However, the requirements for IPO in SSE and SZSE are strict. (Xiuchao Yin, Ye, Chen, and Wang, 2018) noted that the total pre-issue capital stock of the mainboard and SME applicants must exceed 30 million RMB. Additionally, The ChiNext board applicant must have a total post-issue share capital of more than 30 million RMB. According to Yuyin Chen (2018), companies need above 10% profit margins for three consecutive years for government approval to list on a mainland exchange. According to the National Bureau of Statistics of China, it will take about 18 months from the time the feasibility report is prepared for listing to the time when it is approved for listing. The listing process is tedious and time-consuming for Chinese companies who plan to go public in SSE and SZSE.

2.32 The requirement for IPO in Hong Kong and US

Hong Kong is an internationally recognized financial center, with a large number of Chinese mainland enterprises and multinational companies listed on the stock exchange to raise funds. Hong Kong's legal system, which is based on British common law and has a sound legal system, has laid a solid foundation for companies to raise capital and boosted investor confidence (lUfuk Güçbilmez, 2015). According to HKSE, the companies that have the plan to go public in HKSE must have a 3-year operating record with a total profit of HK$50 million in the past 3 years with the same management team. The expected market value of the new applicant at the time of listing shall not be less than HK $100 million (lUfuk

Güçbilmez, 2015). Compared with the requirements for listing in SSE and SZSE, the requirement in HKSE is obviously less strict. The companies do not need 10% profit margins for three consecutive years. Yuyin Chen (2018) wrote that the listing process in Hong Kong is easier than Mainland China because IPOs in Hong Kong do not need approval from the government. Besides, Hong Kong is near to Mainland China. Hence the investors in Hong Kong are familiar with Chinese companies.

The New York stock exchange (NYSE) requires companies to have 1.1 million publicly available shares with a total market value of at least $100 million. Nasdaq requires companies to have 1.25 million publicly traded shares, with a total market value of $45 million. Both the NYSE and the NASDAQ stock exchange require a minimum listing price of $4 a share (Huadong Liu, 2018). The listing requirements of capital in the US money market are stricter than listing requirements of capital in the Chinese money market. According to NYSE, a company must meet one of the following requirements. One is that aggregate pre-tax income of $10million for the previous three susceptive years, with at least $2 million in both of two recent years. The other is that the market capitalization of the company surplus $200 million. Compared with listing in China, some special companies can go public in the US money market without profit in previous years. Additionally, the listing process in NYSE and NASDAQ will last from one to two months (Chenyu Yin, 2018).

2.4 Background information of Valuation

Valuation is an estimate of the value of a business, property, antique, or any asset (Krishna Palepu, Paul, 2013). Valuation plays an essential role in finance field for a variety of reasons. For example, corporate control deals, such as management buyouts and hostile takeover, are calling for equity valuations (Gary Koop,2001). Some valuing methods are used by companies. Such as the Dividend Discount Model (DDM), Discount Free Cash Flow

(DFCF) and other valuation methods. Marc Deloof, Wouter, Koen (2009) conducted a research and the result shows that DDM tends to underestimate the value, while DFCF produces unbiased value estimation.

2.41 The Impact of companies' financial performance on the valuation

There are numerous factors affect the valuation of the company. One of the most important is the companies' financial performance. Jens Kengelbach (2018) conducted research about the factors affect the IPO valuation. He found that intuitive factors, such as strong revenue growth and above-average margins, do matter. The tendency to overbid was positively correlated with active IPO income management in auctions where "the pricing process is dominated by the uninformed individual investor", but not in bookkeeping IPOs with institutional investors (Larry DuCharme, Paul, Stephen, 2001).

2.42 Other factors affect IPO valuation

The IPO valuation greatly depends on the supply and demand for stocks. Besides, the valuation of companies' competitors also will have an impact on the companies' valuation. As Gray Koop (2001) noted, the investors are more willing to pay a similar or comparable valuation for a new company. Additionally, Jens Kengelabch (2018) found that some less obvious factors, such as organization complexity, leverage, and expected dividend yield, have a strong impact on the valuation of IPO. IPO investors seem to prefer simple organization. As noted by Jens Kengelabch (2018), Because it is easier for investors to understand their operations and set expectations for their performance. Matteo Bonaventura, Stefano, Vincenzo, Giancarlo, (2018) found that although the investors do not receive dividends after the IPO date, the dividends yield also influence IPO valuation.

3. Methodology and Data

3.1 Discuss of Data Set

My third research question is how do companies' financial performance and other factors affect the valuation of IPO. To be more specific, I want to explore the relationship among stock price, P/E ratio, Debt to Equity ratio, and Return to Equity ratio.

1. The stock prices can be used to stand for valuation of IPO. P/E ratio is a powerful tool to show whether the company is overvalued or undervalued. It shows the dollar amount an investor have to pay in order to receive one dollar of that company's earning. As inventors, people always want to gain more dividends form companies' stock prices. Hence, I assume that the P/E ratio will have a positive influence on IPO Valuation.

2. Debt to equity ratio means the company's debt relative to its net asset. If the company can generate more income by using the debt than the cost of the debt, it will be beneficial for its shareholders. Otherwise, the shareholders have to be responsible for the loss. Higher Debt to Equity ratio often refers to higher risk of the company. Hence, I assume that the Debt to Equity ratio will have a passive impact on stock prices.

3. Return on Equity is the quotation of income and asset and it is a measure of how efficient the manager uses companies' asset to generate the revenue. It's reasonable for inventors to believe that a company with a higher return on Equity ratio will have better performance in the future. Thus, I assume that Return on Equity has a positive influence on stock prices.

To answer the last research question, what factors affect the IPO decision. I decided to investigate the effect of GDP wroth rate and Interest rate on IPO volume for Chinese companies that issued in China and America. Because GDP growth rate is an accurate indicator of that country's economic. Health economic condition creates conducive environment for investment. In that situation, companies are more willing to expand their

business. Hence, I assume that the High GDP growth rate is associated with high IPO volume increase rate.

3.2 Discuss of Sample Selection.

For my third research question – the impact of companies' P/E ratio, Return on Equity and, Debt to Equity ratio on the stock prices. Ten Chinese technology companies' five years financial ratios and quarterly stock prices have been selected as my sample. They are Alibaba, Jing Dong, Wei Ping hui, Wuba, Baidu, Trip, Tour, Sina, 51 Jobs, and Wei Bo. Those companies are Chinese technology companies that have relative a big amount of market capitalization. The time period that I choose for my stock price is from 2014 January to 2018 December.

To find the impact of GDP Growth rate and Interest rate on IPO volume increased percent for Chinese companies that issued in China and America. From 2000 to 2018, 19 consecutive years' American and Chinese GDP Growth Rates have been selected. 19 consecutive years' Shibor and Nibor to stand for the interest rate of China and America, respectively. Besides, IPO increased percent for Chinese companies that issued in China and America from 2000 to 2018 are investigated.

3.3 Discuss of Methodology

Regression is a statistical method used to study the relationship between two or several continuous quantitative variables. In this technique, independent variables are used to predict the value of a dependent variable. First, I use the regression to find the impact of

P/E ratio, Debt to Equity ratio, and Return on Equity on the stock prices. Secondly, the regression methodology will be used to explore the impact of GDP growth rates in China and America, Chinese and American Interest rates on the IPO volume increase percent for Chinese companies that issued in China and America.

3.4 Discuss of Models and Hypothesis

Model 1: **IPO price = α+ β_1 * P/E ratio + β_2 * Debt to Equity ratio + β_3 * Return on Equity ratio**

Choosing P/E ratio, Debt to Equity ratio, and Return on Equity ratio as independent variables and IPO prices as Dependent variable, this model used to find the impact of P/E ratio, Debt to Equity ratio, and Return on Equity ratio on stock prices.

Hypothesis:

1. P/E ratio does affect the stock prices

2. Debt to Equity ratio does affect the stock prices

3. Return on Equity ratio does affect the stock prices

Model 2: **IPO Volume increase percent = α+ β_1 *GDP Growth rate + β_2 *Interest rate**

This model is designed to find the effect of American and Chinese GDP Growth rate and Interest Rates in America and China on IPO volume increased percent for Chinese companies that issued in China and America.

Hypothesis:

1. The GDP Growth Rate and Interest rate does affect the IPO volume Increase percent for Chinese companies.

4 Analysis and Finding

4.1 The IPO trend for Chinese companies

With the development of Chinese Economic environment, more and more companies are willing to go public. IPO locations play an indispensable role in today's money market. Because there are some advantages and disadvantages for Chinese companies to go public both in Mainland of China and outside of Mainland, different companies have different preference for their IPO locations. The table 1 shows the trend for Chinese companies to go public in Mainland and outside of Mainland.

From the Table 1, we can see that Chinese companies' IPO trends in those two locations are increasing. But the average increasing percentage for companies issued in China is greater than the average increasing percentage for companies issued outside of China. Besides, the number of companies that issued in China is much greater than the number of companies that issued outside of China. We can conclude that although Chinese money market has more restricted requirements, the benefits of doing IPO still attract lots of companies. Besides, we can predict that more Chinese companies are willing to do IPO in mainland China than outside of China in the future.

Table 1 Trend of Chinese companies to go public

	IPO companies number (Issued in China)	Increasing percentage (Issued in China)	IPO companies number (Issued in America)	Increasing percentage (issued in America)
2009	1718		159	
2010	2063	20.08%	165	3.77%
2011	2342	13.52%	171	3.64%
2012	2494	6.49%	179	4.68%
2013	2498	-0.2%	185	3.35%
2014	2613	4.98%	202	9.19%
2015	2827	8.19%	229	13.37%
2016	3052	7.96%	241	5.24%
2017	3485	14.19%	252	4.56%
2018	3584	2.84%	267	5.95%
Average	**2667**	**8.67%**	**205**	**5.97%**

4.2 Descriptive statistics and analysis

Table 2 Descriptive statistic for ten Chinese technology companies

	Obs	Mean	Std. Dev	Min	Max
Stock prices	200	65.75	54.25	9.34	188.26
ROE	200	5.95	19.72	-31.56	33.64
P/E ratio	200	20.80	41.26	-5.38	131.22
Debt to Equity ratio	200	29.27	19.35	0.37	5.86

From the Table 2, we can see that the average stock price is 65.75, average P/E ratio is 5.95%, the average Debt to Equity is 20.80%, and the average Return on Equity is 29.27%. The Std. Dev of stock prices is 65.75, which is the most fluctuated Std. Dev among those four variables.

4.3 Regression result and analysis

Number of Obs =200 R-squared= 0.6140 Adj R-square= 0.6202

Table 3 Regression results for ten Chinese technology companies

Stock Prices	Coef	Std. Err	t	P-value	95% conf.
ROE	2.60565	1.28679	2.02493	0.082573	-0.43712
P/E ratio	0.30196	0.47801	0.63171	0.54764	-0.82834
Debt to Equity ratio	-2.01515	1.49288	-1.3498	0.21908	-5.54524

According to the analysis results, the fitness of this model is 61.40%. It indicates that in this model, P/E ratio, Return on Equity, and Debt to Equity ratio explain 61.40% of the stock price change in this sample, and thus the regression result is acceptable. The coefficients of Return on equity and of P/E ratio are positive, which are consistent with our assumption that the relationship among stock price, ROE, and P/E ratio are positive. The coefficient of ROE is 2.61, which means that when ROE increase 1%, the stock price will increase 2.61%. The coefficient of P/E ratio is 0.301, which means that when P/E ratio increases 1%, the stock price will increase 0.301%. However, the coefficient of Debt to Equity ratio is -2.05, which shows that when Debt to Equity ratio decreases 1%, the stock prices will increase 2.05%.

The P-value of P/E ratio and Debt to Equity ratio are 0.548 and 0.219 respectively. Hence, I cannot reject my null hypothesis that the P/E ratio and Debt to Equity ratio do not affect the stock prices. Because the P-value of Return on equity is 0.0825, I will reject the null hypothesis that the Return on Equity does not affect the stock prices.

In conclusion, the relationship among stock prices, ROE, and P/E ratio are positive. The relationship between stock prices and Debt to Equity ratio is negative. Because of its P-value, Return on Equity has a strong power to explain the changes in stock prices. However, the P/E ratio and Debt to Equity ratio are account for changes in stock prices less significantly.

Table 4: Regression result for Chinese companies that issued in China

Number of Obs =19 R-squared= 0.05 Adj R-square= -0.064

IPO volume increased Percent for Chinese companies that issued in China	Coef	Std. Err	t	P-value	95% conf.
Chinese GDP growth rate	0.0303	0.1608	0.1889	0.8525	0.3713
Shibor	1.2246	1.2975	0.9438	0.3593	3.9753

According to the table 4, the R-squared of this equation is 0.05, which means the IPO volume increased percent for Chinese companies that issued in China cannot be well explained by the Chinese GDP growth rate and Shibor (Shanghai interbank offered rates). The coefficients of Chinese GDP growth rate and Shibor are positive. However, the P-value of Chinese GDP growth rate and Shibor are 0.8525 and 0.9435. Both of them are far more excessive than 0.1. It means the I cannot reject my null hypothesis 4. Thus, Chinese GDP growth rate and Shibor does not significantly affect the Increased percent for Chinese companies that issued in China.

Table 5: Regression result for Chinese companies that issued in America

Number of Obs =19 R-squared= 0.1392 Adj R-square= 0.0315

IPO volume increased Percent for Chinese companies that issued in America	Coef	Std. Err	t	P-value	95% conf.
American GDP growth rate	1.3383	1.0446	1.2812	0.2183	3.5527
Nibor	0.0316	1.2496	0.0253	0.9801	2.6808

From the table 5, the R-squared is 0.1392 and Adj R-square is 0.0315, which means the Increased percent for Chinese companies that issued in American cannot be fully credit to American GDP growth rate and Nibor (New York interbank offered rate). The coefficients of American GDP growth rate and Nibor are positive, which is insistent with my previous assumption. However, the P-value of American GDP growth rate and Nibor are 0.2183 and 0.9801, which means I cannot reject my null hypothesis 4. Therefore, there is no significant relationship among American GDP growth rate, Nibor and IPO volume increased present for Chinese companies that issued in America.

5 Conclusion

With the development of Chinese economic, Initial Public Offering plays an increasingly important part for Chinese companies in today's money market. The reasons for Chinese companies to go public vary from companies to companies. However, the most important reasons are to raise money for the development of the company and increase its reputation in its industry (Chenyu Yin, 2018). Besides, different listing locations have different list requirements. Chinese money market has the strictest requirements. According to SSE (Shanghai Stock Exchange), for the companies that want to go public in China, they must exceed 30 million RMB and have above 10% profit margins for three consecutive years. Besides, according to the National Bureau of Statistic of China, these companies need to

wait about 18 months from the time the feasible financial reports are prepared to the time when it is approved for listing. HK money market is near to the Chinese mainland money market, attracting lots of Chinese companies. Compared to listing process in China, listing in HK is easier. Because it only requires a total profit of HK$50 million in the past 3 years with the same management team. Finally, the listing requirements of capital in the US money market are stricter than listing requirements of capital in the Chinese money market. But since the US money market is more vigorous, it attracts lots of Chinese famous companies.

The research has two main findings. Firstly, the Return on Equity has an impact on Chinese companies' stock prices. However, the Debt to Equity ratio and P/E ratio cannot explain the change the stock prices. Therefore, for companies that want to increase their stock prices, they should pay closely attention to their Return on Equity ratio. Secondly, trends for Chinese companies that go public in China and America are both up. What's more, the annual increase percentage of IPO volume for Chinese companies that go public in China is greater than that for Chinese companies that go public in America. However, the GDP growth rate and Interest rate do not impact the increased percent of IPO volume for Chinese companies.

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Appendix

Appendix A

The first picture is my multiple regression result for the impact of P/E ratio, Debt to Equity ratio, and Return on Equity ratio on the stock prices.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.614044634
R Square	0.377050813
Adjusted R Square	0.11007259
Standard Error	48.5530323
Observations	200

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	9987.988072	3329.329357	1.412290519	0.31723332
Residual	7	16501.77862	2357.396946		
Total	10	26489.76669			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	102.9485732	36.75936324	2.800608174	0.026501079	16.02649137	189.870655	16.0264914	189.870655
ROE	2.605656006	1.286790537	2.024926304	0.082528304	-0.437120104	5.64843212	-0.4371201	5.64843212
P/E ratio	0.301964041	0.478007689	0.631713774	0.547641265	-0.828344533	1.43227262	-0.8283445	1.43227262
Debt to Equity ratio	-2.015154447	1.492875575	-1.349847557	0.219084087	-5.545244236	1.51493534	-5.5452442	1.51493534

Appendix B

The second picture is the ten Chinese technology companies' average monthly stock prices and financial ratios for the last 5 years.

	Monthly Average Stock Price	ROE	P/E ratio	Debt to Equity ratio
Alibaba	127.94	24.79	30.70	29.07
Jing Dong	30.82	-9.16	-2.25	27.42
Wei Ping Hui	13.08	33.64	33.64	56.86
Wuba	56.68	-2.71	-2.86	1.03
Baidu	188.26	23.62	17.44	36.54
Trip	56.93	3.17	131.22	48.06
Tour	9.34	-31.56	-5.38	0.37
Sina	66.17	-9.16	3.00	15.99
51 Jobs	52.40	11.91	1.48	28.34
Wei bo	55.88	14.96	1.07	49.02
Average	**65.75**	**5.95**	**20.80**	**29.27**

Appendix C

The second picture is the trend for Chinese companies that issue in America and China during the last 30 years.

	IPO companies number (Issued in China)	Increase presenatge for Companies issued in China	IPO Compaines number (Issued outside of China)	Increase presentage for Companies issues outside of Mainland
2009	1718		159	
2010	2063	20.08%	165	3.77%
2011	2342	13.52%	171	3.64%
2012	2494	6.49%	179	4.68%
2013	2489	-0.20%	185	3.35%
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2015	2827	8.19%	229	13.37%
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2017	3485	14.19%	252	4.56%
2018	3584	2.84%	267	5.95%
	2667	8.67%	205	5.97%