



Master Thesis Finance

The underpricing of IPOs in the Chinese tourism industry and an international comparison

**Name: Jieyun Lou
Anr: 842560**

**Supervisor: Dr. Michel van Bremen
Second reader: Prof. Paul Sengmuller
August 2012**

Tilburg University

Faculty of Economics and Business Administration

MSc. Finance CFA Track

Name: Jieyun Lou

Anr: 842560

Topic: The underpricing of IPOs in the Chinese tourism industry and an international comparison

Date of defense: 30 August 2012

Supervisor: Dr. Michel van Bremen

Second reader: Prof. Paul Sengmuller

Acknowledge

This thesis is the result of my one-year study in MSc. Finance at Tilburg University. Firstly, I would like to appreciate my supervisor Dr. Michel van Bremen who gave me a lot of key suggestions during the process of writing. He gave me quick responses, although he had busy work. I cannot finish my thesis smoothly without his help. Then, I would like to thank my parents, my girlfriend and my classmates who encourage me all the time. I also would like to thank the staffs in the library and Mr. Rob who helped me to use the Datastream and Thomoson One. At last, I would like to express my happiness in the Netherlands during this year, and I love this country and friendly Dutch people.

Abstract

This study tests the underpricing of initial public offerings (IPOs) in the Chinese tourism industry and United States tourism industry, using data from 1996 to May 2011. To find the reasons of IPOs underpricing, this study mainly investigate the three information asymmetric hypotheses, which are winner's curse, ex-ante uncertainty and signaling hypotheses. United States has a well-developed stock market and a mature tourism industry, therefore this study uses U.S. as a comparison. In Chinese tourism industry, the winner's curse and ex-ante uncertainty hypotheses are supported by empirical results, however signaling hypothesis is rejected. When it comes to U.S. tourism industry, all three hypotheses find significant empirical support.

Key words: IPO underpricing; tourism industry; SPO; information asymmetry

Contents

Acknowledge.....	1
Abstract.....	4
1. Introduction.....	6
1.1. Background.....	6
1.2. Chinese stock market.....	7
1.3. Analytical framework.....	8
2. Literature review and Hypotheses.....	8
2.1. Literature review.....	8
2.1.1. Literature review of winner's curse hypothesis.....	8
2.1.2. Literature review of ex-ante uncertainty hypothesis.....	9
2.1.3. Literature review of signaling hypothesis.....	9
2.1.4. Literature review of tourism industry's IPOs.....	9
2.2. Hypotheses.....	10
2.2.1. Hypothesis of winner's curse.....	10
2.2.2. Hypotheses of ex-ante uncertainty.....	10
2.2.3. Hypotheses of signaling.....	12
3. Data summary and methodologies.....	13
3.1. Data summary.....	13
3.2. Methodologies.....	15
3.2.1. Methodologies of winner's curse.....	15
3.2.2. Methodologies of ex-ante uncertainty.....	16
3.3.3. Methodologies of signaling.....	16
4. Empirical results.....	17
4.1. Empirical results of winner's curse.....	17
4.2. Empirical results of ex-ante uncertainty.....	18
4.2.1. Chinese tourism industry.....	18
4.2.2. United States tourism industry.....	19
4.3. Empirical results of signaling.....	20
4.3.1. Chinese tourism industry.....	20
4.3.2. United States tourism industry.....	20
5. Results comparison with literature.....	21
6. Conclusions.....	22
Reference.....	23

1. Introduction

1.1. Background

Initial public offering (IPO) is defined as the first public funds raising by companies to boost their development. IPO is needed when a company faces attractive investment opportunities, tends to expand their businesses abroad or imports strategic investors to improve their management and operation. Tourism industry is also a large industry with a lot of sub-industries such as tour & travel, airlines, catering, hotel, gaming, etc. In China, tourism industry, which is seemed as a sunrise industry, is facing unprecedented opportunities and challenges. In the history of Chinese reform and opening-up, tourism industry has played an important role in the national economy and become an important source of foreign exchange earnings. Comparing with developed countries, China as an emerging economy is also facing numerous problems during the process of tourism development.

IPO underpricing is a well-documented topic, which is subject to the reasons of higher initial returns worldwide. However, few researches focus on certain industries. Tourism industry is a high risk industry and has different risk type for different sub-industries. Hotels, airlines and catering are the sub-industries with high proportion of fix assets, while tour & travel is facing a great number of accidents. To discover the specific characteristics of IPOs of tourism industry, this study compares the degree of IPOs underpricing of tourism industry with that of whole IPOs market, and makes a comparison between U.S. tourism industry and Chinese tourism industry.

This study bases on the previous researches, and specifically detects Chinese tourism industry's IPOs and compares with the United States tourism industry. The main task of this study is to test three classic information asymmetric hypotheses, which are winner's curse, ex-ante uncertainty and signaling. Then this study also tries to give investors, especially the uninformed investors, some angle of views in tourism investment.

Table 1 depicts the rank or situation of tourism industry around the world at present. Since 2008 Olympic year, Chinese tourism industry is facing a new golden period; hence it is unsurprising that the competitiveness index of Chinese tourism industry exceeds 8 countries or economies during 2009 and 2011. An interesting reality is that almost all developed countries or economies are ranking in the first group (top 20), and the development of tourism industry in developed countries is processing with the leading technics and is based on the principle of sustainable development, while the development of developing countries like China are still facing a lot of environmental problems.

Table 1**Travel & Tourism Competitiveness Index in 2009 and 2011**

Country/Economy	Rank		Country/Economy	Rank	
	2011	2009		2011	2009
Switzerland	1	1	Ireland	21	18
Germany	2	3	Japan	22	25
France	3	4	Belgium	23	22
Austria	4	2	Cyprus	24	21
Sweden	5	7	Estonia	25	27
United States	6	8	Malta	26	29
United Kingdom	7	11	Italy	27	28
Spain	8	6	Barbados	28	30
Canada	9	5	Greece	29	24
Singapore	10	10	United Arab Emirates	30	33
Iceland	11	16	Czech Republic	31	26
Hong Kong SAR	12	12	Korea, Rep.	32	31
Australia	13	9	Slovenia	33	35
Netherlands	14	13	Croatia	34	34
Luxembourg	15	23	Malaysia	35	32
Denmark	16	14	Montenegro	36	52
Finland	17	15	Taiwan, China	37	43
Portugal	18	17	Hungary	38	38
New Zealand	19	20	China	39	47
Norway	20	19	Bahrain	40	41

This table reports the travel & tourism competitiveness index of 40 countries and makes a comparison between 2009 and 2011. The information is from World Economic Forum's "2011 Travel & Tourism Competitiveness Report"

1.2. Chinese stock market

The stock market in China emerged in the context of reform and opening-up. Shanghai Stock Exchange and Shenzhen Stock Exchange were founded in December 1990 and April 1991, respectively. At beginning, Chinese stock market is served as a platform for state-owned companies to enlarge their sizes and improve their efficiency on management and operation. As the developing of the reform and opening-up, more and more private companies perceive the functions of stock market and participate into it. As of December 2011, after 20 years development, there are 2342 companies listing in the Shanghai Stock Exchange and Shenzhen Stock Exchange with a total market value, which ranks at top three in the world, about 21.48 trillion Chinese Yuan. Chinese stock market is increasingly becoming a major capital market in Asia and even in the world.

The main categories of shares traded in the Shanghai Stock Exchange and Shenzhen Stock Exchange at first are A-shares and B-shares. A-shares are the shares only can be traded by domestic investors. In 1992, to attract the foreign investors, B-shares as a

special security type priced in Chinese Yuan and traded in the currency of Hong Kong dollar in the Shenzhen Stock Exchange and U.S. dollar in the Shanghai Stock Exchange. B-shares only can be traded by foreign investors before 2001, but after that B-shares market allows domestic investors to participate.

1.3. Analytical framework

As it will be stated in the part 2.1. (Literature review), this study will shed more light on the three information asymmetric hypotheses (winner's curse, ex-ante uncertainty and signaling), and try to find empirical evidence of these information asymmetric hypotheses in Chinese tourism industry and compare with the U.S. tourism industry. China as an emerging market has its unique characteristics about IPO, and tourism industry as a promising industry in China deserves special concern. This study is organized as follows: Section 2 is literature review and hypotheses; Section 3 is data summary and methodologies; Section 4 is empirical results; Section 5 concludes.

2. Literature review and hypotheses

2.1. Literature review

2.1.1. Literature review of winner's curse hypothesis

Rock(1986) divides investors into two groups: the informed investors and the uninformed investors. According to his model that the uninformed investors will encounter a risk called winner's curse when they win all shares they subscribed, which means that they will overpay for the new issues. If low-quality firms IPO, the informed investors are able to recognize the issues being overpriced and then quit the primary market, while after the leaving of informed investors, the uninformed investors will receive all shares they subscribed; If high-quality firms IPO, the uninformed investors are only allocated to part of shares which are extremely lower than the shares they subscribed. Considering two kinds of result above, winner's curse makes IPOs less attractive to uninformed investors, then the subscriptions of IPOs will insufficient without the participation of uninformed investors. To attract the participation of uninformed investor, issuers will artificially underprice new issues and insure uninformed investors to get adjusted returns approximately equal to risk-free returns. Yu and Tse (2006) find serious winner's curse problem in China. They document two main reasons. Firstly, Chinese stock market is dominated by the individual investors who do not have efficient ways to get access to the new information and do not have professional knowledge in investing; secondly, Chinese stock market mechanism inherently has many shortages in information distribution.

2.1.2. Literature review of ex-ante uncertainty hypothesis

Beatty and Ritter(1986) argue that the ex-ante uncertainty of the issuer is positively correlated with the degree of underpricing, which means that the issuer have to enhance the initial return to attract and compensate potential investors. The higher uncertainty or risk of the issues, the higher initial returns should be. Ritter (1991) finds an empirical result that younger companies and companies going public with large IPO size do worse than average. That is to say, these companies will face severe IPO underpricing. Mok and Hui (1998), using the IPOs in Shanghai, document the relationship between the degree of IPO underpricing and the time elapsed between offering and listing. In the early stage of IPOs in China, investors observed the number of days between offering date and listing date before listing on the exchanges. To further understand Mok and Hui's result, a reality should be known first, which is that the information distribution in China is inherently deficient; the longer elapse between offering date and listing date will certainly increase uncertainty, however in the United States that may be a different story. Su and Fleisher (1999) find positive relationship between the degree of IPO underpricing and the volatility of future returns in China. In other words, IPOs with higher degree underpricing generate larger volatilities of returns in the few months after first trading day. Yu and Tse (2006) also find significant empirical results about ex-ante uncertainty in China.

2.1.3. Literature review of signaling hypothesis

Welch(1989) assumes low-quality firms tend to pretend high-quality firms through underpricing, but only the high-quality firms can afford larger signaling costs (larger extent of IPO underpricing) and recoup signaling costs through SPOs. Once low-quality firms realize high-quality firms' possible behavior, low-quality firms won't artificially underprice their new issues and voluntarily reveal their true value. Allen and Faulhaber (1989) document that firms themselves best know their prospects and firms with promising prospects willing to signal their quality through underpricing. At the same time, investors realize that only the high-quality firms can recoup the cost of underpricing from SPOs, so investors view IPO underpricing as a signal of issuers' quality. Su and Fleisher (1999) find issuers in China with larger IPO underpricing are more likely to raise larger amounts through SPOs, and find weak evidence supporting that issuers with larger IPO underpricing do SPOs more quickly than issuers with smaller IPO underpricing. Yu and Tse (2006) use the returns in 400 trading days after first trading day to test the market feedback which is a signal of investors' valuation, but signaling does not have any explanation power in China in their study.

2.1.4. Literature review of tourism industry's IPOs

Su-Jane Chen and Ming-Hsiang Chen(2010) test the underpricing of IPOs in the

Chinese tourism industry. They find winner's curse and ex-ante uncertainty significantly explain the underpricing of IPOs in the Chinese tourism industry, while the signaling hypothesis does not. Canina(1996) finds the initial returns of the U.S. hospitality is relatively higher than the whole market on average, because the underwriters view tourism as an industry that is more risky than other industries. D.H. Chen and C.D. Chen (2004) find that the degree of Taiwan Tourism industry's IPO underpricing is small than the overall IPO markets in Taiwan. Libison(2010) do research about IPOs underpricing in the tourism industry in India. The author finds the initial returns in tourism industry is relatively higher than other industry on average, but the winner's curse does not hold in India.

Based on the literatures above, this paper finds some interesting empirical results on three information asymmetric hypotheses. Firstly, winner's curse exists in the tourism of China and U.S.; secondly, although the ex-ante uncertainty is a key determinant of market adjusted initial returns, different proxies of ex-ante uncertainty make contributions to market adjusted initial returns in the tourism of two countries; thirdly, I cannot find any clue about signaling in Chinese tourism, which is found in United States.

2.2. Hypotheses

2.2.1. Hypothesis of winner's curse

Hypothesis 1: The 1-day initial return, adjusted for ration and market, yields a return which equals to risk-free rate.

Winner's curse is a well-known phenomenon and comes from auction originally. Rock (1986) uses this term as a reason of IPOs underpricing. Rock divides investors into two groups: informed investors and uninformed investors. Informed investors are able to discover the true value of new issues and subscribe selectively, while uninformed investors cannot. Uninformed investors who get high proportion of shares are winners, but they lose due to the overpricing of new issues (curse). Unfortunately IPOs would be under-subscribed if informed investors participate only. To attract the uninformed investors, issuers and underwriters must move the "curse" out and give uninformed investors adjusted returns approximately equal to risk-free rates.

2.2.2. Hypotheses of ex-ante uncertainty

Hypothesis 2: Ex-ante uncertainty is a key determinant of the degree of IPO underpricing. Ex-ante uncertainty represents risks that investors bear when buying new shares through IPOs, so the issuers and underwriters should balance the risks and returns by adjusting the degree of underpricing.

Hypothesis 2a: The larger firm size the lower market adjusted initial return. To some extent, firms' size is an increasing function of the investors' familiarity to companies, even for private firms. Because larger size companies usually have more news than smaller companies, which leads to less information asymmetry between issuers and investors.

Hypothesis 2b: IPO size is positively correlated with market adjusted initial return. IPOs with large size normally will encounter more stringent scrutiny relative to IPOs with small size. The stringent scrutiny will reduce the degree of information asymmetry and reduce the degree of underpricing.

Hypothesis 2c: The higher market adjusted initial return the higher volatility of stock return after listing. IPOs with higher degree underpricing will confuse investors about the true value of shares. In other words, the investors will have divergence about companies' true value which leads to large volatility of daily returns after first trading day.

Hypothesis 2d (1): In China, the longer lag between IPO date and listing date the higher market adjusted initial return. The IPO date in China is the first subscription date online or offline with a certain IPO price. As mentioned above, in the early stage of IPOs in China, investors observed the number of days between offering date and listing date before listing on the exchanges. Long lag will make investors question about companies' situation and require compensations.

Hypothesis 2d (2): In United States, the longer lag between an IPO filing date and its listing date the lower market adjusted initial return. On the IPO filing date a firm will deliver IPO registration statement S-1 usually with red herring which includes a range of IPO price. Then, SEC (U.S. Securities and Exchange Commission) will require issuers to revise S-1 after IPO filing date. This procedure will make the information about issuers more detailed or increase new information about issuers, which reduces the uncertainty of issuers.

The different lags used in China and United States are the results of different IPO mechanisms between China and United States.

Hypothesis 2e: The longer history before IPO the lower market adjusted initial return. Firms with longer history will have more opportunities to let investors know through advertisements, news, and products, and reduce the degree of information asymmetry.

Hypothesis 2f: State-owned companies encounter less uncertainty than private companies in China, which results in lower market adjusted initial return. China was a planned economy before reform, and the main resources controlled by Chinese government. Nowadays Chinese government still has significant influence in the

Chinese economy and potentially supports and guarantees the operation and management of state-owned companies.

Hypothesis 2g: The number of the ways to use the proceeds is a decreasing function of ex-ante uncertainty. Details of the ways to use proceeds will reduce the uncertainty of companies' future performance and enable investors to judge the true value of companies appropriately.

2.2.3. Hypotheses of signaling

Hypothesis 3: IPO underpricing is a signal of company's quality.

Hypothesis 3a: Firms with larger MAIRs or MAIR365s are more likely to incur secondary public offerings (SPO).

MAIR is actually a cost to signal the quality of issuer. Issuers try to signal their confidence about firms' quality to investors by large extent underpricing and their ability to recoup the cost of signaling by secondary public offering. MAIR365 is a market feedback of companies' performance and a market judge about companies' true value after one year listing. If a company leaves a favorable and promising impression in the eyes of investors after one year, the management of the company would view this signal as an opportunity to SPO.

Hypothesis 3b: Firms with larger MAIRs or MAIR365s tend to incur SPO more quickly. The main function of MAIRs is to signal firms' quality, after that the firms will recoup signaling cost as soon as possible by SPOs. MAIR365s are the market feedbacks, so the managements will have motivation to incur SPOs quickly once they get optimistic market feedbacks.

Hypothesis 3c: Firms with larger MAIRs or MAIRs tend to incur larger size SPOs relative to IPOs' size.

As stated before, MAIRs signal firms' quality and MAIR365 reflect market feedback of firms' value. Firms' with huge signaling costs and favorable market feedback tend to incur SPOs to recoup signaling costs and hold refinancing opportunities when they are facing favorable market environments.

3. Data summary and methodologies

3.1. Data summary

This study uses the industry “travel and leisure” in the Datastream. The sub-industry in the “travel and leisure” includes tour & travel, airlines, catering, hotel, gaming and transportation.

The Chinese sample consists of 38 tourism companies’ A-share IPOs from 1996 to May 2011 at Shanghai Stock Exchange and Shenzhen Stock Exchange. The IPOs data collected from the Datastream, the website of Shanghai Exchange and the website of Shenzhen Exchange.

The U.S. sample consists of 44 IPOs tourism companies’ IPOs from 1996 to May 2011 at Nasdaq or NYSE. The U.S. data is retrieved from the Thomson One, Datastream, EDGAR online, IPO database of Jay R. Ritter and the website of Nasdaq Exchange. One thing needs to be mentioned here that three tourism companies listing on the AMEX was included in U.S. sample initially, however they excluded finally due to their IPOs were the result of spin-off from other companies.

Table 2a and table 2b represent the 1-day, 1-week, 4-week and 1-year initial returns of tourism IPOs in China and U.S., respectively. The initial returns of Chinese tourism IPOs are obviously larger than that of U.S. tourism IPOs. Comparing with the whole IPO market’s 1-day initial returns in China and United States in the table 2c, Chinese and U.S. tourism average 1-day initial returns are a bit lower than that of the whole markets’ IPOs. The results are accordance with the results of D.H. Chen and C.D. Chen (2004) in Taiwan; however the dot-com bubble in the 1999 and 2000 raises the underpricing of U.S. up substantially. The average underpricing of U.S. IPOs, getting rid of 1999 and 2000, is 14.56% which is lower than the underpricing of U.S. tourism IPOs.

$$IR_i = \frac{P_i - P_0}{P_0}, i=1\text{-day, 1-week, 4-week or 1-year}$$

Table 2a
Summary of Chinese tourism IPOs’ IRs

Initial return	1-day	1-week	4-week	1-year
Mean	138.10%	132.70%	125.17%	116.85%
Max	380.81%	380.63%	354.61%	437.14%
Min	21.68%	-0.71%	6.43%	-58.02%

This table represents the initial returns of Chinese tourism industry IPOs. The initial returns include 1-day, 1-week, 4-week and 1-year initial returns which are IPOs returns adjusted by corresponding 1-day, 1-week, 4-week and 1-year market returns.

Table 2b
Summary of U.S. tourism IPOs' IRs

Initial return	1-day	1-week	4-week	1-year
Mean	25.69%	30.38%	33.85%	38.02%
Max	331.25%	369.53%	654.69%	411.33%
Min	-26.04%	-22.21%	-36.40%	-69.86%

This table represents the initial returns of U.S. tourism industry IPOs. Four kinds of initial return have the same definition in the Table 2a.

Table 2c
1-day Initial returns in China & United States

China			U.S.		
year	Obs.	1-day IR	year	Obs.	1-day IR
1996	194	283.1%	1996	688	17.2%
1997	192	211.1%	1997	485	14%
1998	93	183.4%	1998	318	20.2%
1999	93	113%	1999	485	69.8%
2000	129	148.3%	2000	381	56.3%
2001	67	123.8%	2001	79	14.2%
2002	58	154.1%	2002	70	8.6%
2003	50	74.9%	2003	67	12.3%
2004	50	78.7%	2004	183	12.3%
2005	8	61.1%	2005	168	10.1%
2006	66	90.27%	2006	162	11.9%
2007	126	193.07%	2007	162	13.8%
2008	77	114.87%	2008	21	6.4%
2009	97	75.03%	2009	43	10.6%
2010.9	257	42.8%	2010	101	9%
			2011	82	13.2%
1996-2010.9	1557	144.48%	1996-2011	3495	26.78%
			1996-1998 & 2001-2011	2629	14.56%

This table presents the 1-day initial returns of entire IPOs markets in China and United States. Chinese data period is from 1996 to September 2010 and U.S. data period is from 1996 to 2011. The U.S. data collected from IPO database of Jay R. Ritter and Chinese data collected from Chen, Choi and Jiang (2007) and Yi (2011). The 1-day initial returns of U.S. during 1996-1998 & 2001-2011 aim at excluding the effect of dot-com bubble.

Table 3
Summary of two samples

	China	U.S.		China	U.S.
age			IPO size		
mean	3.94	24.14	mean	635.56	240.74
median	2.26	16.50	median	301.00	158.89
max	17.93	88.00	max	4589.20	1323.53
min	0.00	1.00	min	44.80	9.00
lag			firm size		
mean	21.95	122.84	mean	590.30	859.31
median	19.00	91.50	median	102.50	347.00
max	69.00	554.00	max	9433.21	10270.70
min	8.00	17.00	min	35.00	14.40
Obs.	38	44			

This table reports the summary of key variables of companies. Age in years is the years between foundation and listing; lag in days is the days between IPO date and listing date in China, and days between IPO filing date and listing date in U.S.; IPO size and firm size are measured by million Yuan or Dollar, and Yuan is the Chinese currency unit.

3.2. Methodologies

3.2.1. Methodologies of Winner's curse

In Chinese tourism industry, function 1 is used to test winner's curse hypothesis.

$$1. \text{ Excess return} = \left(\frac{P_1 - P_0}{P_0} \right) * \text{Ration} - \frac{I_1 - I_0}{I_0} - R_f$$

Ration is a ratio of shares that issuer issues over the total shares that investors subscribe. $\frac{I_1 - I_0}{I_0}$ is the market return between IPO date and first trading date.

I_1 is the average closing price of Shanghai A-share index and Shenzhen A-share index on the first trading day. I_0 is the average closing price of Shanghai A-share index and Shenzhen A-share index on the IPO date. R_f is 3-month relending rate. Relending rate is the rate used when central bank lends money to commercial banks.

However, Rock (1986) said that it is hard to obtain the evidence on the degree of rationing in the United States. An alternative is to describe the frequency of exercises of overallotment options. In this study, the information about exercises of overallotment options since 2002 is collected from database Thomson One.

3.2.2. Methodologies of ex-ante uncertainty

Functions 2 and 3 used to test the ex-ante uncertainty in China and U.S., respectively.

$$2. MAIR = \beta_0 + \beta_1 \ln firmsize + \beta_2 \ln iposize + \beta_3 SD + \beta_4 lag + \beta_5 age + \beta_6 stateown + \beta_7 s * age + \xi$$

$$3. MAIR = \beta_0 + \beta_1 \ln firmsize + \beta_2 \ln iposize + \beta_3 SD + \beta_4 lag + \beta_5 age + \beta_6 usage + \xi$$

MAIR is the market adjusted initial return. $MAIR = \frac{P_1 - P_0}{P_0} - \frac{I_1 - I_0}{I_0}$

SD is the standard deviation of daily return during the 90 days after listing; *lag* is the duration between IPO date and first trading day; *stateown* is a dummy variable which equals to 1 if the shareholders of a company are state or other state-owned companies; *s*age* is a product of state-owned dummy and age; *usage* is the number of the ways to use IPO proceeds.

3.2.3. Methodologies of signaling

Functions 4, 5 and 6 are used to test hypotheses 3a, 3b and 3c, respectively.

(1) Logit model:

$$4. SPOdummy = G(\beta_0 + \beta_1 MAIR + \beta_2 MAIR365 + \beta_3 \ln iposize + \beta_4 age + \xi)$$

SPOdummy is a dummy variable which equals to 1 if SPO exists and 0 otherwise; *MAIR365* is the one year market adjusted initial return.

$$MAIR365 = \frac{P_{365} - P_0}{P_0} - \frac{I_{365} - I_0}{I_0}$$

(2) Tobit model right-censored at 2.79 for China and at 1.67 when it comes to U.S.:

$$5. \ln spogap = \beta_0 + \beta_1 MAIR + \beta_2 MAIR365 + \beta_3 \ln iposize + \beta_4 age + \xi$$

spogap is the year sized time gap between IPO and SPO.

(3) *SPOIPO* is the ratio of SPO size over IPO size. Tobit model left-censored at 0 for China and U.S.:

$$6. spoipo = \beta_0 + \beta_1 MAIR + \beta_2 MAIR365 + \beta_3 \ln iposize + \beta_4 age + \xi$$

4. Empirical results

4.1. Empirical results of winner's curse

Table 4a

t-test result of winner's curse in Chinese tourism

Company	ER	Company	ER
Overseas Chinese Town	-0.0172	Hangzhou Songcheng Tourism	0.0204
Nanjing Zhongbei	-0.0059	China Southern Airlines	0.0426
Huatian Hotel Group	-0.0504	Huangshan Tourism Development	-0.1228
Zhang JIA JIE Tourism Group	0.0833	China Eastern Airlines	-0.0138
Xi 'An Tourism	-0.0586	China Cyts Tours Holding	0.0688
Hainan Donghai Tourism Centre	0.0339	Hainan Airlines	0.0520
Xi 'An Catering	-0.0534	Beijing Capital Tourism	-0.0312
Beijing Jingxi Tourism	-0.0501	China United Travel	0.0588
Emei Shan Tourism	-0.0495	Beijing Bashu Media	0.0894
Science City	-0.0381	Shanghai Nine Dragon	-0.0395
Guilin Tourism	0.0476	Jiangxi Changyun	0.0116
Lijiang Yulong Tourism	0.0469	Zhejiang WHWH Industry	-0.0132
Yunnan Tourism	0.0669	Dalian Sun Aisa Tourism	0.0152
Wuhan Sante Cableways Group	0.0177	Shanghai Haibo	-0.0862
China Quanjude Group	0.0470	Tibet Tourism	-0.2841
Beijing Xiangqing	-0.0239	JIN Jiang International Hotels	-0.1928
Sichuan Fulin Transportation	-0.0136	Jinling Hotel	-0.0920
Chongqing New Century Cruise	0.0050	Air China Limited	-0.0147
Shenzhen Tempus Global Travel	-0.0557	China International Travel	-0.0428
Mean	-0.0169		
Std. Dev.	0.0741		
t-statistic	-1.4064		
p-value	0.1679		

This table depicts the excess returns of tourism companies in the Chinese sample and the results of t-test of ER. ER is the excess return represented in the function 1.

The results, $t=-1.4064$ and $p\text{-value}=0.1679$, show that ER is insignificantly different from 0, which lends strong support to the winner's curse hypothesis in the Chinese tourism industry. The existence of winner's curse means issuers or underwriters will deliberately underprice shares, but another reality needs to be considered is that the shortage supply of shares during the early stage of Chinese stock market which means that the uninformed investors are not necessary to the new issues.

Table 4b
Testing for allotdummy in U.S.

	allotdummy
mean	0.5806
Std. Err.	0.0901
t-statistic	6.4450
p-value	0.0000
obs.	31

This table represents the t-test results of allotdummy. allotdummy is a dummy variable which equals to 1 if an underwriter exercises the overallotment option and equals to 0, otherwise.

The result above rejects the null hypothesis (H_0 : allotdummy=0), which means that the high likelihood or percentage an underwriter to exercise overallotment option and a large proportion of IPOs after 2002 need to ration. This result further explains that issuers and underwriters will artificially underprice IPOs' prices to attract uninformed investors to subscribe. In short, the winner's curse exists in the tourism industry of United States.

4.2. Empirical results of ex-ante uncertainty

4.2.1. Chinese tourism industry

The results of regression (1) in the table 5 lend strong support to the hypothesis 2b to all companies in the sample and support to the hypothesis 2e when it comes to state-owned companies. To state-owned tourism companies, the coefficient of age equals to -0.0943 which in accordance with hypothesis 2e. IPO size is the key proxy of ex-ante uncertainty due to the stringent scrutiny to the large size IPOs. Regulatory body usually attaches great care to the investors when encounter large size IPOs and protects investors from false information. Considering the high positive correlation between firm size and IPO size, I run regressions (2) and (3) to further manifest the coefficients of *Infirmsize* and *Iniposize*. The regression results of *Infirmsize* in (2) are accordance with (1). The insignificant coefficient of *Infirmsize* in the regression (3) is the result of omitting *Iniposize*.

Another hypothesis needs special concern is hypothesis 2f. Zhaohui Chen, Jongmoo Jay Choi and Cao Jing (2007) find an agency story about stated-owned companies in China, "ceteris paribus, if a CEO underprices the IPO by one more standard deviation, his or her change of promotion is increased by 72.6 percent relative to the benchmark". So the positive relationship between the market-adjusted initial return and the state-owned dummy in the regression (1) may be caused by the agency story above.

4.2.2. United States tourism industry

According to the regression results of United States in the table 5 (4), hypothesis 2b and hypothesis 2d (2) are testified. The regulators in United States will also take more stringent scrutiny on the IPOs with large size. The coefficients of *Lnfirmsize* and *Lniposize* are insignificant in the regression (5) and regression (6), which are the result of omitting important variable. In other words, firm size is a crucial control variable when I test the relationship between IPO size and market adjusted initial returns, and vice versa. Lag between IPO filing date and first trading day is negatively correlated with market adjusted initial returns. In other words, a long time lag will generate an appropriate IPO price relative to its true value and lead to a less degree of underpricing.

Table 5
Regression results of ex-ante uncertainty

	China			United States		
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Lnfirmsize	0.2592 (2.46)**		-0.0052 (-0.07)	0.1574 (1.95)*	0.0145 (0.45)	
Lniposize	-0.5551 (-3.66)***	-0.3175 (-2.70)**		-0.1923 (-1.91)*		-0.0233 (-0.62)
SD	-5.2946 (-0.43)	-1.6651 (-0.13)	12.7142 (1.10)	0.3786 (0.11)	0.3275 (0.08)	-0.4206 (-0.11)
Lag	-0.0043 (-0.62)	-0.0093 (-1.05)	-0.0117 (-1.05)	-0.0012 (-3.74)***	-0.0011 (-3.55)***	-0.0012 (-3.52)***
Age	0.1410 (3.09)***	0.1313 (2.72)**	0.1530 (3.21)***	-0.0018 (-0.81)	-0.0027 (-1.19)	-0.0022 (-1.01)
Stateown	1.1220 (2.35)**	1.2884 (2.67)**	1.8341 (4.32)***			
s_age	-0.2353 (-3.6)***	-0.2175 (-3.23)***	-0.2447 (-3.64)***			
Usage				0.0203 (0.85)	0.0327 (-1.25)	0.0321 (-1.23)
Obs.	38	38	38	42	42	42
R-squared	0.4873	0.4329	0.3576	0.2698	0.1871	0.1897

*This table represents ex-ante uncertainty's regression results of China and United States. The numbers in the parentheses are t values. All regressions use robust standard error to avoid heteroscedasticity. IPO size and firm size are measured by million Yuan or Dollar, and Yuan is the Chinese currency unit; SD is the standard deviation of daily returns during 90 days after listing; lag in days is the days between IPO date and listing date in China, and days between IPO filing date and listing date in U.S.; age in years is the years between foundation and listing; usage is the number of ways using IPO's proceeds. Note: *significant t-statistics at 10% level; **significant t-statistics at 5% level; ***significant t-statistics at 1% level.*

4.3. Empirical results of signaling

4.3.1. Chinese tourism industry

The empirical results in the table 6 show that signaling does not have any explanation power in SPOs of Chinese tourism industry. These results are consistent with S.J. Chen and M.H. Chen (2010) and Yu and Tse (2006). Market feedback is not a determinant or signal of SPOs as well.

In conclusion, The SPOs in Chinese tourism industry do not depend on aftermarket performance. There are several reasons in this phenomenon. Firstly, Chinese stock market is an immature capital market. In the early stage of its development, it was a special financing platform for state-owned companies, which was guaranteed by the government and was not have sufficient motivation in improving management and operation to win the opportunities of SPOs. Secondly, the scrutiny body controlled the supply of shares. People in China trusted state-owned companies and had strong demand for shares issued by state-owned companies. The disequilibrium demand-supply relationship brought about significant IPO underpricing. Thirdly, there are a great many speculators in Chinese stock market since the stock market came into being, so the significant positive MAIR365s do not represents favorable feedbacks.

4.3.2. United States tourism industry

The results in the table 6 lend strong support to the signaling hypotheses. In the regression (4), MAIR is positively significant at 10% level, namely firms with larger MAIRs are more likely to incur SPOs. In the regression (5), market feedback is testified and negatively significant at 5% level. Firms with favorable market feedback tend to incur SPOs quickly. The results in the regression (6) show that firms with smaller IPO size are inclined to issue larger SPOs relative to IPO size. Although MAIR and MAIR365 are not significant in the regression (6), their coefficients carry the signs consistent with respective projections. The empirical results of U.S. give investors several key ideas. Firstly, MAIR can be used as a signal of issuers' quality and a possibility to incur SPO; secondly, MAIR365 can be used as a weather vane of the time gap between IPO and SPO.

Table 6**Regression results of signaling**

Variables	China			United States		
	(1)	(2)	(3)	(4)	(5)	(6)
	SPOdummy	Inspogap	spoipo	SPOdummy	Inspogap	spoipo
MAIR	-0.5211 (-0.89)	0.1974 (2.10)*	-0.4962 (-0.26)	2.856 (1.78)*	0.0623 (0.21)	0.3213 (1.52)
MAIR365	0.3956 (-0.61)	-0.0563 (-0.52)	0.4438 (0.19)	0.3975 (0.54)	-0.56 (-2.19)**	0.2201 (1.40)
Inposize	-0.1691 (-0.42)	-0.0654 (-0.85)	-0.714 (-0.77)	0.0269 (0.08)	-0.1423 (-1.40)	-0.1872 (-2.14)**
age	-0.1404 (-1.05)	-0.0298 (-1.57)	-0.1443 (-0.29)	-0.0091 (-0.54)	0.0032 (0.46)	0.009 (1.78)*
Obs.	38	14	14	44	32	32
Pseudo R2	0.081	0.5127	0.0055	0.1203	0.1241	0.3002

*This table represents signaling hypotheses' regression results of China and United States. The numbers in the parentheses are t values in the (2), (3), (5) and (6) and z scores in the (1) and (4). All regressions use robust standard error to avoid heteroscedasticity. MAIR and MAIR365 are the 1-day and 1-year market adjusted initial returns; age in years is the years between foundation and listing. Note: *significant t-statistics at 10% level; **significant t-statistics at 5% level.*

5. Results comparison with literatures

In this study, the empirical result of winner's curse hypothesis is accordance with the result in the Yu and Tse (2006), who find significant result in the entire IPO market in China. The result of winner's curse hypothesis in this study is also similar to the result in the Su-Jane Chen and Ming-Hsiang Chen (2010), who use the data of Chinese tourism IPOs from 1993 to 2006 and find that investors can get risk-free rates adjusted by market returns and ration.

Ex-ante uncertainty hypothesis is documented in many papers and is positively correlated with IPO initial returns in most papers, but they find different significant proxies for ex-ante uncertainty. Ritter (1991) finds age and IPO size are significant proxies for ex-ante uncertainty in United States. Mok and Hui (1998) find lag is an important proxy of IPO underpricing in Shanghai Stock Exchange; Su and Fleisher (1999) find positive correlation between the degree of IPO underpricing and the volatility of future returns in China. Su-Jane Chen and Ming-Hsiang Chen (2010) also find the same result of Su and Fleisher (1999) in Chinese tourism industry, but firm size, age, IPO size and lag are insignificant in their results. In this study, IPO size is a key determination of IPO underpricing for China and United States, which is consistent with Ritter (1991); age is significant only for Chinese stated-owned companies; lag is significant for United States.

Signaling is a disputable hypothesis in Chinese IPOs market. The results in this study are consistent with the results of Tu and Tse (2006) and M.H. Chen (2010), while Su

and Fleisher (1999) find the evidence of signaling hypotheses in China. Su and Fleisher (1999) find the results in China that issuers with large degree IPO underpricing are more likely to raise large amounts by SPOs; however, Su-Jane Chen and M.H. Chen (2010) do not find any significant empirical results of signaling in Chinese tourism industry; Yu and Tse (2006) also do not find any clue about signaling in the Chinese entire IPO market.

6. Conclusions

This study investigates the three classic information asymmetric hypotheses in the Chinese tourism industry and compares the Chinese empirical results with the results of United States.

Firstly, winner's curse hypothesis is testified in the two countries. In Chinese tourism industry's IPOs, issuers and underwriters move the "curse" out and balance the risks and returns of uninformed investors. In United States tourism industry's IPOs, according to the data after 2002 there is a high proportion of IPOs ending up with the exercises of over-allotment option. The exercises of over-allotment option represent the high frequency of rationing which further mirrors the underpricing behaviors of issuers and underwriters.

Secondly, ex-ante uncertainty hypothesis is testified in the two countries as well. In China, IPO size is a key determinant of MAIRs, and age is another determinant of state-owned companies' MAIRs. In United States, IPO size and lag between IPO filing date and listing date are the significant factors to determine MAIR.

Thirdly, signaling hypothesis's empirical evidence is insignificant in the Chinese tourism industry's IPOs. For this reason, investors should not view IPO underpricing as a signal of firms' quality. In contrast, signaling hypothesis is significant in the U.S. tourism industry. On the one hand, MAIR is a hinge to signal firms' quality and firms' possibility to incur SPOs; on the other hand, MAIR365 is a key indicator to signal firms' time gap between IPOs and SPOs.

In conclusion, findings in this paper provide several implications to investors who interested in Chinese or U.S. tourism industries. IPO size is an ideal proxy of ex-ante uncertainty in two countries, age is a significant proxy of ex-ante uncertainty in China, and lag is another key proxy of ex-ante uncertainty in United States. Large degree of IPO underpricing in U.S. tourism industry is a signal of firm's good quality.

REFERENCES

- Allen F. and Faulhaber G.R. (1989), 'Signaling by Underpricing in the IPO Market', *Journal of Financial Economics*, Vol. 23, pp. 303-323
- Beatty R.P. and Ritter J.R. (1986), 'Investment Banking, Reputation, and the Underpricing of Initial Public Offerings', *Journal of Financial Economics*, Vol. 15, pp. 213-232
- Canina L. (1996), 'Initial Public Offerings in the Hospitality Industry -Underpricing and Overperformance', *Cornell Hospitality Quarterly*, Vol. 37, NO. 5, pp. 18-25
- Chen S.J. (2010), 'The Underpricing of Initial Public Offerings in the Chinese Tourism Industry', *Tourism Economics*, Vol. 16, pp. 647-663
- Dar-Hsin Chen and Chun-Da Chen (2004), 'Initial public offerings in the tourism industry: and international analysis of Taiwan', *The Journal of Hospitality Financial Management*, Vol. 12
- Kalok Chan, Junbo Wang and K.C. John Wei, 'Underpricing and long-term Performance of IPOs in China', *Journal of Corporate Finance*, Vol. 10, pp. 409-430
- Libison K.B. and Narasimham N.V. (2010), 'Initial Public Offerings (IPOs) from Tourism Industry in India: An Analysis of Short Run Secondary Market Performance', *Economics, Management and Tourism*, pp. 31-42
- Mok H.M.K. and Hui Y.V. (1998), 'Underpricing and Aftermarket Performance of IPOs in Shanghai China', *Pacific-Basin Finance Journal*, Vol. 6, pp. 453-474
- Rock K. (1986), 'Why New Issues are Underpriced', *Journal of Financial Economics*, Vol. 15, pp. 187-212
- Dongwei Su and Belton M. Fleisher (1999), 'An empirical investigation of underpricing in Chinese IPOs', *Pacific-Basin Finance Journal*, vol. 7, pp. 173-202
- Tian L.H. (2011), 'Regulatory Underpricing: Determinants of Chinese Extreme IPO Returns', *Journal of Empirical Finance*, Vol. 18, pp. 78-90
- Ting Yu and Y.K. Tse (2006), 'An empirical examination of IPO underpricing in the Chinese A-share market', *China Economic Review*, Vol. 17, pp. 363-382

Welch I. (1989), 'Seasoned Offerings, Imitation Costs, and the Underpricing of Initial Public Offerings', *The Journal of Finance*, Vol. 44, No. 2, pp. 432-449

Yi Sun (2011), 'Research on IPO underpricing in Chinese A-share Market', Master thesis of East China Normal University

Zhaohui Chen, Jongmoo Jay Choi and Cao Jiang (2007), 'Private Benefits in IPOs: Evidence from State-owned Firms', Second Singapore International Conference on Finance 2008