An Empirical Study of the Bidding Behave under the Bookbuilding Mechanism

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Keywords: Inquiry Object, Winner's Curse, Institutional Reform.

Abstract: In this paper, we set up the difference of average biddings of inquiry object with information superiority and inquiry object with disadvantage by analysing 45630 detailed biddings of 443 companies from 2010 to 2012 in A share of our country and test the Winner Curse in three-factor model of A share market in the inquiry system.

1 INTRODUCTION

It is wildly accepted that the participation of institutional investor in securities market can improve market information efficiency and thus improve asset allocative efficiency and enhance the stability of financial market. Since 2006, the pricing mechanism of new share has been carried out that IPO of China's A share enquires institutional investor to determine price range and issuer and underwriter get initial bidding distribution from Road show. Obviously, the biddings of institutional investors participating inquiry of new stock issue have significant impact on new stock pricing.

The most influencing literature on inquiry mechanism is Benveniste and Spindt (Benveniste and Spindt, 1989), Benveniste and Wilhelm (Benveniste and Wilhelm, 1990). They believe underwriter can get access to the evaluation of new stock and demand information from informed investor by inquiry mechanism in financial markets with asymmetric information. Cornelli and Goldreich (Cornelli and Goldreich, 2001) and Ljungqvist and Wilhelm (Ljungqvist and Wilhelm, 2002) show that when underwriter has oversubscribed shares distribution right, free rider phenomenon during inquiry will drop and issuance pricing efficiency will improve if more equity is allocated to native IPO investors and institutional investors frequently involving IPO inquiry.

2 HYPOTHESIS

This paper assumes that issuer can't perfectly forecast the market price of new stock and investor has information on new stock price (Winner Curse of Rock, 1986). When informed that one new stock is of investment value, investors with information superiority will improve declaration value and number to squeeze the one with information disadvantage out the issuing market. The specificity of Chinese stock market result the simultaneous processing of online and offline subscription and institutional investor can only choose one method. Moreover, offline subscription will undergo inquiry and the inquiry and subscription amount impact issuing price and final allocated number a lot. Online retail investors and the rest institutional investors subscribe new stock on the offline inquiry, which won't have real impact on issue price. This differs with the hypothesis of asymmetric information of institutional investor and retail investor (Hanley and Wilhelm, 1995). In this paper, we think it a reasonable assumption that information divide also exists among institutional investors. Firstly, different institutional investors hold different message on new stock. Secondly, investment experience and background can also influence information capacity. Thirdly, the relationship with principal underwriter determines. In this allocation system, institutional investors with information superiority improve offline subscription price to squeeze institutional investors with information disadvantage out of

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effective price range so as to improve lot winning rate, while institutional investors with information disadvantage judge the investment value and price at the average expectation. To sum up, we bring out the research hypothesis.

H: the difference of average biddings of institutional investors with information superiority and information disadvantage is in direction proportion to offline over-subscription ratio.

The common way to divide information among investors in empirical are (1) Institutional investors are with information superiority while retail investors with information disadvantage. (2) Domestic investors are with information superiority while foreign investors with information disadvantage. These ways can't test winner curse when allotment of shares differs among stocks with different underpricing rate. What's more, Chinese inquiry objects are highly concentrated in territory and proportion of foreign investors QFII is super low. Thus the investor information can't be distinguished according to the way in classical documents.

3 DATA AND MODLE DESIGN

The data are listed companies with IPO of A share from November 2010 to October 2012 with deletion of individual major financial insurance companies and few individual investors' biddings. The final research sample contains 463 listed companies and 45630 biddings and subscriptions of institutional investors.

We use total amount of subscription as measurement index of institutional investor participating subscription. In the sample, total subscriptions of fund company, security company, insurance company, safe company, finance company, recommended institutional investors and QFII account for separately44.75%, 25.44%, 12.34%, 9.11%, 4.62%, 3.55% and 0.19%. Recommended institutional investors account for 47.44% of total institutional investors in number but only 3.55% in total subscription total amount.

When divided by territory, there are 85 institutional investors in Beijing, about 19.41% of the total number, 106 in shanghai accounting for 23.93%, 92 in Guangdong accounting for 20.77% and 160 in the rest areas of the country, about30.62%of the total number. The paid-in subscription of institutional investors in Beijing, Shanghai, Guangzhou and the rest areas separately accounts for 21.75%, 32.49%, 21.49% and 24.26%. Offline institutional investors are concentrated in both category and territory.

We differ institutional investors by involvement level of inquiry object and whether is underwriter. We rank inquiry object by subscription amount and selection the top 9 as information superiority institutional investors and the last 30% as information disadvantage institutional investors. There are total 398 latter inquiry objects, accounting for 30% of the total subscription amount. Moreover, we regard recommended institutional investors as information superiority investors and others as information disadvantage investors. The two explaining variables diffp1 and diffp2 are constructed by computing the difference of average biddings of information superiority and disadvantage institutional investors.

2. We select ln offline subscription multiple as explaining variable of offline subscription popular degree.
3. company characteristics in the research sample is controlled by net margin per share, issuing scale, total assets one year before issuing, asset-liability ratio one year before issuing, company age. The impact of intermediary to IPO pricing is controlled by introducing underwriter fame, the dummy variable.

The research hypothesis H describes the relation of bidding differences of good and bad institutional investors with IPO underpricing rate. We set up the following model with Underpricing and Dumunderpricing as the explained variables and Inolmeanp and recommendmeanp as explaining variables.

$$\text{diffp1}=ß_0+ß_1\text{lnoffline}+ß_2\text{Size}+ß_3\text{Plev}+ß_4\text{Age}+ß_5\text{neps}+ ß_6\text{underwriter}+ß_7\text{sentiment}+ß_8\text{Pprice}+ ß_9\text{MSM} \quad (1)$$

$$\text{diffp2}=ß_0+ß_1\text{lnoffline}+ß_2\text{Size}+ß_3\text{Plev}+ß_4\text{Age}+ß_5\text{neps}+ ß_6\text{underwriter}+ß_7\text{sentiment}+ß_8\text{Pprice}+ß_9\text{MSM} \quad (2)$$

If $ß_1$ is significantly positive in model (1) and (2), the research hypothesis H is stated, or it is not stated.

4 EMPIRICAL RESULTS

Firstly, rank the offline over-subscription ratio according to categories with highest 30% company as Group high and lowest 30% as Group low. And then conduct mean test to the high subscription group and low subscription group: diffp1and diffp2. From the mean test result shown in Table 1, we can see that the average bidding difference of inquiry objects diffp1, when distinguishing information according the proportion of single institution subscription in total

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Table 1: Inter-block Mean Value Analysis when Grouping as Under-pricing Rate.

GEM diffp1				GEM diffp2			
	Obs	mean	std.		Obs	mean	std.
High	63	0.513	2.19	High	60	-0.56	2.92
Low	63	-0.58	2.32	Low	60	0.47	2.78
diff	63	1.097	3.12	diff	60	-1.03	4.07
mean(diff) = mean(high - low)				mean(diff) = mean(high - low)			
Ha: mean(diff) > 0	Pr(T > t) = 0.004			Ha: mean(diff) > 0	Pr(T > t) = 0.004		
SME diffp1				SME diffp2			
	Obs	mean	std.		Obs	mean	std.
High	57	0.737	2.43	High	56	-0.07	2.07
Low	57	-0.63	3.22	Low	56	0.55	2.7
diff	57	1.37	3.92	diff	56	-0.62	3.17
mean(diff) = mean(high - low)				mean(diff)=mean(high-low)			
Ha:mean(diff) > 0	Pr(T > t) = 0.004			Ha:mean(diff) > 0	Pr(T > t) = 0.004		

subscription, locates at GEM and SME, and the average of high subscription group is significantly higher than the low one.

Table2 shows the regression result of Hypothesis 1. As for GEM, estimated coefficients of lnoffline in the models of diffp1 with and without control variables are separately 0.341and 0.358 and both are significant at the level 10% and 5%. This explains that diffp1 is in positive correlation with lnoffline. However, estimated coefficients of lnoffline in the models of diffp2 with and without control variables are separately -0.209 and -0.2569 and are significant at the level 10%. Meanwhile, as for SME, estimated coefficients of lnoffline in the models of diffp1 with and without control variables are separately0.744 and0.529 and are significant at the level 1% and 5%. This explains that diffp1 is in positive correlation with lnoffline. However, estimated coefficients of lnoffline in the models of diffp2 with and without control variables are separately-0.446 and -0.526 and are non-significant at the level 10%.

The above regression analysis shows that diffp1 is positive correlated with the offline over-subscription ratio of new shares in the research sample. This means that recommended inquiry institution can't be investors with information superiority. The above analysis support the hypothesis H1: average bidding difference of information superiority and information disadvantage institutional investors is in direct proportion to offline over-subscription ratios. Therefore, we test the winner curse hypothesis by bidding data of inquiry object in Chinese A share.

5 CONCLUSIONS

We select 463 A share IPO companies form November 2011 to October 2012 as the sample and analyze offline bidding characteristics of inquiry object. The result shows that when dividing information quality by new share inquiry involvement level, the difference of average biddings of institutional investors with information superiority and information disadvantage is in direction proportion to offline over-subscription ratio. Therefore the Winner Curse of Rock is supported in inquiry object bidding of Chinese A share. Thus, further reasonable adjustment on new stock issuing mechanism is needed. Autonomous placing right of underwriter in offline issuing and detailed release of placing situation should be focused. Enhancing direct financing supply and punishment on false disclosure, improving

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responsibility of related financial intermediaries and market pricing efficiency of new stock are needed.

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Table 2: Regression Result of Hypothesis.

Start-up Board								
	Uncontrolled variable		Controlled variable		Uncontrolled variable		Controlled variable	
Explained variable	diffp1		diffp1		diffp2		diffp2	
Parameter	Coef.	t value	Coef.	t value	Coef.	t value	Coef.	t value
Constant term	0.968*	-1.83	-3.82	-0.82	0.634	0.89	4.098	0.69
lnoffline	0.341*	1.93	0.358**	1.97	-0.209	-0.84	-0.256	-1.15
neps			-0.0165	-0.74			0.02	0.8
sentiment			137.13**	2.04			-128.19*	-1.69
size			0.11	0.24			0.005	0.01
plev			-0.014	-1.37			-0.007	-0.55
age			0.113	0.53			-0.169	-0.57
underwriter			0.794***	2.49			-1.059**	-2.57
Pprice			0.0485	1.43			-0.069*	-1.71
Sample value	212		212		202		202	
Adjusted R2 value	0.213		0.3692		0.1012		0.3674	
F（Wald） value	3.87		3.58		2.55		2.84	
VIF			1.21				1.23	

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Table 2: Regression Result of Hypothesis (cont.).

SME Board								
	Uncontrolled variable		Controlled variable		Uncontrolled variable		Controlled variable	
Explained variable	diffp1		diffp1		diffp2		diffp2	
Parameter	Coef.	t value	Coef.	t value	Coef.	t value	Coef.	t value
Constant term	-1.85***	-3.25	-4.23	-0.78	1.521***	3.26	4.089	0.72
lnoffline	0.74***	3.41	0.529**	2.33	-0.446	-1.75	-0.526	-1.38
neps			-1.375	-1.12			-0.343	-0.47
sentiment			0.05	1.64			-0.046*	-1.89
size			0.214	0.41			-0.179	-0.33
plev			-0.004	-0.24			-0.034	-0.14
age			0.564**	2.16			-0.945**	-2.44
underwriter			0.273	0.63			-0.945**	-2.44
Pprice			-0.039	-0.99			0.008	0.17
Sample value	190		190		188		188	
Adjusted R2 value	0.113		0.3485		0.1306		0.2875	
F（Wald）value	11.63		20.68		2.55		2.84	
VIF			1.47				1.46	

Note: t value is got by the standard deviation of Whiterobust. *** is significant at the level of 1%;** is significant at the level of 5%;* is significant at the level of 10%. VIF is variance inflation factor. Coef. means coefficients

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