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以競價拍賣新股上市資料驗證新股折價與承銷商市場佔有率關係

研究成果報告(精簡版)

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中 文 摘 要 ： 本文利用台灣獨特的競價拍賣新股上市資料來討論承銷商在競價拍賣新股上市中的角色，結果發現：(1)承銷商的市場佔有率與所承銷案件的折價程度呈現正向關係，(2)承銷商後續承銷案件的期初報酬並不會愈來愈低，(3)承銷商相關的自營生交易並不會影響新股上市的長期績效。承銷商在競價拍賣新股上市中並沒有分配股數及訂價的權利，是以承銷商沒有動機去穩定股價。

中文關鍵詞： 競價拍賣，新股上市，折價，自營商，拍賣次數

英 文 摘 要 ： Taiwan has 90 IPO auctions during 1995-2003. It is one of only a few reasonably large samples of IPO auctions in the world, since most of the more than 20 countries that have used this method have dropped it relatively quickly. The dataset allows us to examine how underwriters behave to keep their market shares: (1) Unlike book building IPOs, in auction IPOs, the relationship between underwriter market share and IPO's underpricing is positive, the higher underpricing, the larger market share. (2) There is evidence that initial return of an underwriter's high order IPO will be lower. (3) Underwriters' affiliated dealer did not trade to push up IPOs' long run return. In summary, underwriters of auction IPOs behave differently from underwriters of book-building IPOs. Since underwriters in auction IPOs have no pricing or allocation discretion ability, they do not have incentive to stabilize IPOs' performance.

英文關鍵詞： auction, IPO, underpricing, dealer, auction order

Underwriters pricing off the line lose no clients – evidence from auction IPOs

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Abstract

Taiwan has 90 IPO auctions during 1995-2003. It is one of only a few reasonably large samples of IPO auctions in the world, since most of the more than 20 countries that have used this method have dropped it relatively quickly. The dataset allows us to examine how underwriters behave to keep their market shares: (1) Unlike book building IPOs, in auction IPOs, the relationship between underwriter market share and IPO's underpricing is positive, the higher underpricing, the larger market share. (2) There is evidence that initial return of an underwriter's high order IPO will be lower. (3) Underwriters' affiliated dealer did not trade to push up IPOs' long run return. In summary, underwriters of auction IPOs behave differently from underwriters of book-building IPOs. Since underwriters in auction IPOs have no pricing or allocation discretion ability, they do not have incentive to stabilize IPOs' performance.

Keywords: IPO, Auction, Market Share, Underpricing, Auction Order, Affiliated Dealer

1. Introduction

Underwriters in auction IPOs have no discretion or pricing ability. They seem have no obligation or incentive to stabilize auction IPOs' performance. According to Beaty and Ritter (1986), in book-building IPOs, underwriters will gain less market share if they set a lower offering price. There is a negative relationship between underwriter's market share and IPOs' initial return. The reason behind this is that, with higher underpricing, issuing firms will receive lower proceeds. This will make the underwriter less attractive to potential issuing firms. Will underwriter in auction IPOs follow the same strategy? That is the first issue I want to test in this paper. For auction IPOs, if the relationship between market share and underpricing is positive, it means that underwriters will try to attract more informed traders to bid, and later auction's initial return will be higher. If the relationship is negative, underwriters will attract more uninformed investors to bid and the initial return for later auction will be lower. The second objective in this paper is that I therefore want to test the performance of frequent underwriters. If underwriters have the obligation and incentive to stabilize IPO's performance, they will try every method to push up IPO's return. I test whether trade from underwriters' affiliated dealers can affect an IPO's long run return or not.

Beatty and Ritter (1986) find that abnormal first-day returns have a negative effect on investment bank market share. However, Beatty and Welch's (1996) document a changing relationship between underwriter prestige and initial returns (negative in the 1980s, positive in the 1990s). In particular, high underpricing underwriters appear to be gaining prestige as they gain market share. Hoberg (2007) argues that more underpricing underwriters attract more institutional clients. Based on information compensation theory, underwriters will lower offering price to compensate investors for providing information to underwriters. Therefore,

underwriters continue to underprice to attract more informed clients and to make sure the subscription will be fulfilled. Hoberg argues this underwriter persistence is indeed driven by information asymmetry.

However, there will be a different story for auction IPOs. Underwriter with previous high initial return will attract more bidders in later auctions. However, underwriters attract more individual bidders rather than institutional bidders. Based on Sherman (2005) and Chiang, Qian, Sherman (2009), more individual bidders' entry will push up clearing price and therefore lower initial return. So, higher previous initial return attracts more clients, while most are individual investors, and gain more market shares. More entry of individual bidders lowers initial returns in later auctions. Lower initial returns become less attractive to investors, and then harm underwriter's market shares. This is also one of the reasons that auction approach becomes less popular in IPO market.

The effect underwriters' pricing strategy on market shares between book-building and auction IPOs can be described as below.

For book-building IPOs, with higher previous initial returns, underwriters will attract more informed traders to subscribe and to provide information. The result is that underwriters will gain more market share and higher initial return for later IPOs.

For auction IPOs, with higher previous initial returns, underwriters will attract more individual bidders. They will therefore gain more market share, however, lower initial returns because they attract more individual bidders (Chiang, Qian, and Sherman 2010)

In the paper, I will examines the effect of several factors on the market share of investment banks that act as book managers in initial public offerings using Taiwan's

auction IPO data. The objectives of this paper are as follows:

1. Test the relationship between underwriters' market share and auction IPOs' underpricing.
    a. Follow Beatty and Ritter (1986) to examine the relationship between initial return and market share.
    b. Follow Hoberg (2007) to define an underwriter quality measure to examine how this factor affecting underwriters' market share. We will follow Hoberg's procedure and use the same variables to test whether Hoberg's information asymmetry hypothesis holds for auction IPOs.
    c. We then use our RFS paper's measurement and variables to test Hoberg's information hypothesis.
2. Test the performance of frequent underwriters. We count underwriters' auction order and compare average return for different auction order.
3. We test whether underwriters' affiliated dealer can trade to affect auction IPOs' long run return.

I trace how underwriters' market share change is related to the underwriter's previous IPOs' underpricing. Either following Beatty and Ritter (1986) or following Hoberg (2007), our results show that the relationship between underwriters' market share and auction IPOs' underpricing is positive. This implies that the higher underpricing, the larger market share the underwriter will get. Unlike in book-building IPOs, underwriters have obligation to stabilize price for IPOs, underwriters in auction IPOs have no obligation to do so. They therefore tend to underprice auction IPOs. This makes them easier to sell IPO shares. One drawback of this strategy is that larger underpriced IPOs may attract more uninformed investors to participate in IPO auctions. As shown by Chiang, Qian, and Sherman

(2010), with more participants from uninformed investors, winning prices will be bided up and make the initial return to be lower.

Our next test is therefore to test the performance of frequent underwriters. I order an underwriter's samples into 1st, 2nd, 3rd, etc. I then calculate average return for each auction order. Our results show there is a decreasing trend in average return for higher auction orders. However, t-test and sign rank test show there is no significantly difference for average return and median return between different auction orders. This means that there is no constraint on underwriters for them to set a lower offering price and attract more uninformed investors to bid. Their major objective for an underwriter is to sell out all IPO shares.

We then test whether underwriters will us affiliated dealers to stabilize IPOs' performance. We separate all dealers trading into leading underwriters' affiliated dealers, co-underwriters' affiliated dealers, and other dealers. Our results show that these dealers' trading can not affect an IPO's long run return. It implies that underwriter will not use affiliated dealer's trading to affect an IPO's long run return.

In summary, for auction IPOs, underwriters have no discretion or pricing ability. They do not have obligation or incentive to stabilize IPOs' performance. Their main objective for an underwriter is to sell out shares even attracting more uninformed investors to participate in auctions.

This paper is organized as follows: Section 2 discuss the relationship between underwriters' market share and auction IPOs' underpricing. Section 3 tests frequent underwriters' performance. Section 4 discusses whether underwriters' affiliated dealer can trade to affect an auction IPO's long run return. Section 5 concludes.

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2. The Relationship between Market Share and Underpricing

(a) Follow Beatty and Ritter (1986) to Test auction IPOs

Following Beatty and Ritter (1986), we trace how underwriters' market share change is related to the underwriter's previous IPOs' underpricing. Beatty and Ritter (1986) argue that investment banks that cheat on the underpricing equilibrium by persistently underpricing either by too little or by too much, will be penalized by the marketplace. They defined a new variable, absolute standard average residual (ASAR), to measure the degree of mispricing. Underwriters with higher ASAR in the first sub-period, will lose market share in the second sub-period.

We use auction IPOs to test the above argument. This issue is interesting because underwriters have no pricing or allocation discretion.

1. I first divide sample into two sub-period samples. Each subsample has 41 observations.
2. Use sample in the second sub-period to estimate a return regression.

a. Following our RFS paper, estimate entry regression for samples in the second sub-period to estimate unexpected entry of institutions and unexpected entry of individuals. Result is shown on Table 3.

b. Plug in unexpected entry of institutions and unexpected entry of individuals, premiums, and other variables to run return regression for the second sub-period. Result is on Table 4.

c. Run entry regression for the first sub-period to estimate unexpected entry of institutions and unexpected entry of individuals.

d. Retrieve coefficients from return regression of the second sub-period, plug in variables of samples in the first sub-period to estimate predicted initial return for samples in the first sub-period.

e. For samples in the first sub-period, we follow Beatty and Ritter (1986) to measure mispricing by using the "absolute standardized average residual". We also try "average residual" and "standardized average residual". Table 5 shows the average residual is 0.091, the median is 0.059, and the standard deviation is 0.2939. The variation is large. This is consistent with Sherman's (2005) prediction that return variation in auction IPOs is large.

3. We choose underwriters managed or co-managed at least 3 IPOs during the first sub-period. For each underwriter, we calculate its "average residual", "standardized average residual", and "absolute standardized average residual".

$r_{ij} = rh_j - E(rh_j)$ i:underwriter, j: auction

Average residual = $\bar{r}_i = \dfrac{\sum_{j=1}^{N_i} r_{ij}}{N_i}$ (AR)

Standardized average residual= $\dfrac{\bar{r}_i}{\dfrac{\sigma_i}{\sqrt{N_i}}}$ (SAR)

Absolute Standardized average residual= $\left|\dfrac{\bar{r}_i}{\dfrac{\sigma_i}{\sqrt{N_i}}}\right|$ (ASAR)

Table 6 shows each underwriter's residual. Table 7 further shows that although residuals for auction have positive and negative numbers, average residuals for underwriters show only one negative for one underwriter. Underpricing is a common strategy of underwriters in auction IPOs.

4. Market share

We follow Beatty and Ritter (1986) to calculate market shares of underwriters in the

first and in the second sub-period, and calculate the difference.

Market shares are computed by allocating a fraction of on-half or one-third to each co-manager of an IPO if 2 or 3 co-managed an offering. Marker share computations are based upon all 41 firms going public during the first and the second sub-period. We choose underwriters with at least 3 IPOs in the first sub-period.

Market shares are calculated by dividing the net number of IPOs of underwriters i by the total number of offerings in each sub-period. (41 and 41 in our sample) If an underwriter had IPOs at the first sub-period, but had no IPOs at the second sub-period, we still keep this sample, and assign 0 market share at the second sub-period. Table 8 shows mean market share at the first sub-period was 0.019, but the mean market share for the second sub-period decreased to 0.017. Auction IPOs became less popular, and issuing firms tended to use fixed-price offerings.

5. OLS results with % change in market share as dependent variable.

(1) Use average residual (AR) as explanatory variable

$$mschange_i = \beta_0 + \beta_1 AR_i + \varepsilon_i$$

(2) Use standardized average residual (SAR) as explanatory variable

$$mschange_i = \beta_0 + \beta_1 SAR_i + \varepsilon_i$$

(3) Use absolute standardized average residual (ASAR) as explanatory variable

$$mschange_i = \beta_0 + \beta_1 ASAR_i + \varepsilon_i$$

Table 9 shows the relation between market share and residual. At the first glance, these results are "strange", because they are inconsistent with Beatty and Ritter's results. Beatty and Ritter predict that with higher degree of mispricing, market share will decrease. However, our results show that with higher degree of underpricing, underwriters will gain more market shares latter. Perhaps, underwriters have no pricing and allocation discretion in auction IPOs. When an underwriter's previous

IPO has higher initial return, they can attract more investors to bid in the next auction IPO and make it more successful. This behavior can help underwriters to gain more business latter.

(b) Test Hoberg's hypothesis following his procedure and variables.

I also try to test Hoberg's (2007) information hypothesis using auction IPO data. First, I follow Hoberg's definition, procedure, and variables to run the tests. Second, I use the procedure, and variables in Chiang. Qian, and Sherman (2010) to test Hoberg's hypothesis. Results show no matter using which model, underwriter quality defined by Hoberg (2007) can not explain underwriter's market share. Underwriters with high previous initial return continue to gain more market share.

3. Frequent Underwriters' Performance

I first check the performance of frequent leading underwriters.

I use *auction order* to measure underwriters' experience. Each underwriter-auction is assigned an *auction order.* An auction is an underwriter's first (second, third, etc.) auction if the underwriter has 0 (1, 2, etc.) previous IPO auctions. Thus, auction order is an underwriter's number of past auctions plus one. A given auction may be one co-underwriter's third auction but another co-underwriter's first auction. An auction is counted as a previous auction if its first non-hit day occurs before the current auction's auction date (so that we can compute the initial return from the previous auction).

The average initial return for frequent leading underwriters is shown on Table 12.

At the first glance, we see the initial return for later auction is smaller than the previous one. Ex. The average initial return for the 2nd auction order is 0.0743, smaller than that in the 1st auction order, 0.1721. Similarly, the third auction order is even smaller at -0.0226. However, when I conduct t-test for the mean difference and sign rank test for the median difference, I find no significance evidence for the median difference and for the median difference.

There is no significant evidence for the leading underwriters to have lower initial return for later auction IPOs. I further check this for co-underwriters. An underwriter can participate in as many as auction IPOs as they can. I then test the performance of frequent co-underwriters. The more times underwriters participating in auction IPOs, the higher average initial return the underwriter have. Underwriters' IPO returns steadily increase as they participate in more auctions. Figure 5 shows times of co-underwriter participate in auction IPOs. I want to test:

H0:The more times underwriters participating in auction IPOs, the higher average initial return the underwriter have.

The dependent variable is the average initial return of underwriters' auction IPOs. Table 13 shows there is a trend for higher and higher initial return when underwriters participate in more auction IPOs. It supports that the more times that underwriters participate in auction IPOs, the higher average initial return the underwriters will have. It seems that underwriter will have larger initial return for later auction IPOs when they gain more experience.

I conclude this section that underwriters did not get less initial return for later auctions. They should not afraid to have lower later initial return if they attract more individual investors to participate in auctions.

4. Using Underwriters Affiliated Dealers' Trading to Predict long Run Return

TEJ provides a database for dealer's trading. The frequency of the data is week. I use this weekly data of dealers' trading to trace whether underwriters will use affiliated dealers' trade to support an IPO's long run performance.

I calculate average net buy of the first two weeks after IPOs. I calculate the average net by for dealers affiliated to the leading underwriters, dealers affiliated to all co-underwriters, and other dealers. I also have average net buy for all dealers.

I want to test whether this average net buy account can be used to predict an IPO's long run returns: 6 months after the 20^{th} trading day, 1-yaer after the 20^{th} trading day, and 2-year after the 20^{th} trading day.

Results are show on Table 16. Results show that there is no significant impact of average net-buy on an IPO's long run return. This implies that underwriters did not use affiliated dealers' trading to support an IPO's long run return.

An underwriter in an auction IPO cares only about large underpricing, and then the IPO is easier to be successful. Once the IPO is successful, underwriters have no obligation or incentive to support an IPO's long run return, because this will not affect the underwriter's market share.

5. Conclusions and Suggestions

In this paper, I test three hypotheses to investigate whether underwriters in auction IPOs care about IPO performance or not. Since underwriters in auction IPOs have no discretion or pricing ability, I conjecture that underwriters have no incentive to stabilize IPO performance. They care only about selling out shares, and they do not care large underpricing.

First, empirical results show that the relationship between underwriter's marker

share and IPO underpricing is positive. This implies that underwriters will lower offering price (the reserved price in auction IPOs) to attract more individual investors. With more individual investors, the more likely the IPO will be successful.

The second result is that underwriters' later IPO case does not necessary get lower initial return. If underwriters' later IPO gets lower initial return, it means that the positive relationship between market share and underpricing can not last long. Our results support that the relationship between market share and underpricing will hold for later IPOs. This supports that underwriters in auction IPOs will continue to have large underpricing.

The third test is whether underwriters' affiliated dealer can trade to affect an IPO's long run return. My result shows this not the case. Underwriter, either the leading underwriter, or co-underwriters, did not use affiliated dealer's trade to affect IPO's long run return. This evidence again support that underwriters in auction IPOs will not support an IPO's performance.

After 2003, there was only on auction IPOs in 2008. Auction IPO is dying. Currently, in Taiwan, most IPOs are using -. Based on our results, I argue that underwriters in auction IPOs do not care about the performance of IPOs. They care only about how to sell shares out. With higher initial return, they get no punishment from issuing firms, but they can attract more individual investors to participate and make the IPO be more likely to be successful. Therefore, there is a need to compare the results in this paper with those for book-building IPOs. I conjecture that, in book-building IPOs, underwriters will try hard to stabilize IPO performance.

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Table 1 Summary statistics

Variable	Description	Number of observation	Mean	Median	Standard Deviation	Minimum	Maximum
IR		989	0.107	0.048	0.246	-0.335	0.994
Price Update		989	0.634	0.600	0.430	0.048	4.216
UWpremium		851	-0.007	0.012	0.123	-0.309	0.929
wms2		904	1.077	0.625	1.166	0.027	5.727
overhang		989	17.931	12.552	14.321	8.999	107.333
INVprice		989	0.018	0.017	0.010	0.002	0.052
logsize		989	16.189	16.118	1.093	13.855	19.483
ner		989	1096.470	564.000	1195.360	32.000	4286.000
nser		989	47.423	30.000	48.456	0.000	197.000
nder		989	1049.050	552.000	1155.110	31.000	4094.000
VCB		989	0.710	1.000	0.454	0.000	1.000
Price UpdateP		989	1.000	1.000	0.000	1.000	1.000
Price UpdateN		989	0.000	0.000	0.000	0.000	0.000
mkt3m		989	0.024	0.029	0.098	-0.401	0.262

Table 2 Underwriter characteristics

und	UWpremium_Mean	Market share	Number of IPOs	Average IPO size	Average # of bidders	Average # of institutional bidders	Average # of individual bidders	Average initial return	Average Price Update
74	-0.122	0.474	9	42948.556	891.889	41.111	850.778	0.126	0.524
101	-0.093	0.223	4	78741.750	1836.250	115.500	1720.750	0.134	0.503
102	-0.145	0.234	4	15010.500	1523.500	65.250	1458.250	-0.021	0.783
103	0.121	0.141	3	12273.333	957.667	27.333	930.333	0.270	0.469
104	-0.165	0.218	4	17723.250	1754.250	62.000	1692.250	0.152	0.493
105	0.068	0.891	16	32844.438	1395.375	55.625	1339.750	0.185	0.491
107	-0.107	1.504	24	25296.833	1145.333	45.042	1100.292	0.082	0.627
109	0.000	0.217	4	84807.750	1392.500	74.500	1318.000	0.029	0.304
110	-0.118	0.530	10	14515.800	1171.400	37.000	1134.400	0.210	0.573
112	-0.002	0.485	6	16262.000	1563.667	40.500	1523.167	0.149	0.556
115	-0.116	0.797	13	15835.308	1388.000	44.000	1344.000	0.152	0.564
116	-0.031	1.473	21	26770.619	1154.333	51.000	1103.333	0.128	0.694
118	-0.186	0.233	4	85799.750	2186.000	81.500	2104.500	0.002	0.463
119		0.019	1	289431.000	4286.000	192.000	4094.000	-0.078	0.048
120	-0.035	1.351	17	28703.706	925.000	41.059	883.941	0.087	0.549
121	0.125	0.582	10	41841.000	1120.100	41.700	1078.400	0.163	0.561
122	-0.007	1.295	14	29632.500	869.571	37.429	832.143	0.016	0.494
123	-0.078	0.549	10	15631.200	1209.000	46.900	1162.100	0.072	0.607
124	-0.309	0.090	2	147983.000	2653.500	131.500	2522.000	-0.123	0.621
125	-0.028	0.778	15	34378.067	1556.467	64.200	1492.267	0.147	0.533
126	0.108	1.240	20	28618.200	1116.350	43.550	1072.800	0.160	0.476
127	-0.007	5.977	54	14588.889	841.722	39.111	802.611	0.101	0.759
128	-0.048	0.366	8	52784.000	2159.875	75.625	2084.250	0.121	0.606
131	-0.228	0.119	2	13150.000	546.500	54.000	492.500	0.077	0.344
134		0.036	1	20000.000	905.000	79.000	826.000	0.122	0.142
137	0.285	0.384	7	14430.286	1108.429	57.000	1051.429	0.272	0.437
139		0.033	1	25204.000	972.000	53.000	919.000	0.071	0.760
140	0.197	0.613	7	11136.429	758.571	32.714	725.857	0.205	0.626
207	-0.030	2.936	40	18542.150	957.350	46.650	910.700	0.124	0.626
208		0.019	1	289431.000	4286.000	192.000	4094.000	-0.078	0.048
211	-0.025	0.407	9	45828.333	1872.333	62.333	1810.000	0.093	0.601
212	-0.113	0.111	3	20460.000	1523.333	43.000	1480.333	0.084	0.634

218	-0.092	0.730	14	35293.857	1349.143	50.857	1298.286	0.131	0.460
219	0.126	0.619	10	15272.400	1107.400	43.200	1064.200	0.214	0.498
501		0.083	1	4719.000	410.000	18.000	392.000	-0.100	0.661
508	-0.070	0.630	8	14160.625	1038.125	35.375	1002.750	0.070	0.574
509	0.012	0.932	8	6605.625	421.875	23.750	398.125	-0.025	0.716
511	-0.034	0.630	10	40461.000	1562.700	57.700	1505.000	0.078	0.659
515	-0.011	2.456	29	20997.069	907.379	41.966	865.414	0.156	0.541
518	-0.037	0.187	5	72983.800	2241.400	74.000	2167.400	0.149	0.526
523	0.001	5.035	43	15337.814	894.233	39.442	854.791	0.126	0.728
526	0.090	0.291	4	78590.000	1333.250	65.750	1267.500	0.064	0.408
527	-0.012	3.006	31	20607.839	996.419	46.742	949.677	0.118	0.586
528	-0.261	0.358	5	15395.600	1154.000	37.400	1116.600	-0.018	0.755
529	0.059	3.201	28	10596.714	889.321	31.964	857.357	0.123	0.681
538	0.217	1.324	12	6628.833	543.500	37.833	505.667	0.148	0.853
550		0.019	1	289431.000	4286.000	192.000	4094.000	-0.078	0.048
551	0.041	1.975	24	23427.250	1008.542	51.500	957.042	0.128	0.658
555	0.063	4.282	42	17303.000	938.548	46.952	891.595	0.113	0.796
556		0.125	1	6182.000	1199.000	82.000	1117.000	-0.097	2.362
558	-0.201	0.167	4	83465.500	1595.250	65.500	1529.750	0.070	0.521
565	-0.048	2.454	23	23516.478	932.043	40.565	891.478	0.106	0.624
572	0.000	5.541	49	14795.735	904.224	40.592	863.633	0.057	0.759
582	0.052	2.335	25	22974.000	945.840	40.040	905.800	0.115	0.595
585	-0.051	3.530	34	19475.588	962.147	39.176	922.971	0.086	0.709
592	-0.036	2.893	28	21345.643	1081.893	42.607	1039.286	0.153	0.641
616		0.019	1	289431.000	4286.000	192.000	4094.000	-0.078	0.048
629	-0.054	0.234	2	5592.500	229.500	10.000	219.500	-0.094	0.311
634	0.114	1.436	18	25690.222	813.222	52.722	760.500	0.099	0.574
648	-0.029	0.160	4	84041.500	2599.000	98.250	2500.750	0.057	0.531
653	-0.100	0.671	6	54521.833	1022.333	51.833	970.500	-0.038	0.527
679	0.044	0.300	3	8372.667	353.000	20.667	332.333	0.053	0.599
691		0.019	1	289431.000	4286.000	192.000	4094.000	-0.078	0.048
700	-0.047	0.371	4	81979.000	1336.000	66.000	1270.000	-0.006	0.445
703	-0.066	0.726	8	44598.625	931.250	41.500	889.750	0.021	0.580
718	-0.079	0.144	2	146465.500	2442.000	104.000	2338.000	-0.132	0.783
737	-0.093	0.435	5	8636.000	734.400	47.600	686.800	0.142	1.003
739	-0.033	0.262	3	7324.000	499.667	37.667	462.000	-0.055	0.505
779	0.129	0.379	7	56194.857	1368.857	51.571	1317.286	0.211	0.289
841	-0.120	1.293	15	30381.933	1074.067	43.933	1030.133	0.025	0.648

842	-0.028	0.262	3	13563.333	297.333	22.333	275.000	0.007	0.406
844	0.021	0.662	7	8270.571	790.571	46.143	744.429	0.162	0.454
845	0.017	1.205	17	29297.706	1476.647	54.294	1422.353	0.052	0.732
861		0.019	1	289431.000	4286.000	192.000	4094.000	-0.078	0.048
862	-0.287	0.215	3	100315.333	1812.333	88.000	1724.333	-0.129	0.630
864		0.091	1	8735.000	391.000	19.000	372.000	-0.010	0.557
869	0.592	0.325	2	4043.500	905.000	64.000	841.000	0.288	2.474
870	-0.151	0.210	2	10301.500	605.500	37.500	568.000	-0.047	0.796
873	-0.127	0.609	7	47474.286	1153.571	59.714	1093.857	-0.070	0.733
874	-0.067	0.278	4	80903.250	1765.250	97.750	1667.500	-0.020	0.931
876		0.067	1	10870.000	639.000	29.000	610.000	0.085	0.908
889	-0.030	1.887	25	22431.480	1262.320	48.720	1213.600	0.153	0.690
930	0.126	0.400	8	52950.875	1738.000	64.250	1673.750	0.227	0.466
997	0.015	0.100	2	16430.000	1511.000	65.000	1446.000	0.046	0.778
999	0.038	4.096	44	16923.136	969.136	44.932	924.205	0.120	0.615

Table 3 Use sample in the second sub-period to estimate a return regression.

I follow Chiang, Qian, and Sherman (2010) to estimate entry regression for samples in the second sub-period to estimate unexpected entry of institutions and unexpected entry of individuals. The dependent variable is the log of number of bidder.

Panel A, Institutional bidders.

Parameter	Estimate	Error	t Value	Pr > |t|
Intercept	-2.36286	2.447066	-0.97	0.3401
logasset	0.57549	0.145687	3.95	0.0003
VC	0.795086	1.706473	0.47	0.6438
PE	-0.00545	0.0069	-0.79	0.4342
industry	1.258939	0.472887	2.66	0.0111
excotc	0.283307	0.374103	0.76	0.4533
relativesize	0.426354	7.40659	0.06	0.9544
p3mrmv	-32.0544	87.93033	-0.36	0.7174
prevrh	1.881736	1.339076	1.41	0.1677

Panel B, Individual bidders

Parameter	Estimate	Error	t Value	Pr > |t|
Intercept	2.376952	1.76785	1.34	0.1863
logasset	0.42757	0.100031	4.27	0.0001
VC	0.414195	0.954564	0.43	0.6667
PE	0.003765	0.00539	0.7	0.4889
industry	0.788395	0.382774	2.06	0.046
excotc	0.452096	0.354611	1.27	0.2097
relativesize	1.486886	5.10147	0.29	0.7722
p3mrmv	-73.132	65.40282	-1.12	0.2702
prevrh	2.069488	0.824463	2.51	0.0162

Table 4, Return regression for the second period

This table shows the results of plugging in unexpected entry of institutions and unexpected entry of individuals, premiums, and other variables to run return regression for the second sub-period.

Parameter	Estimate	Error	t Value	Pr > |t|
Intercept	0.230078	0.590841	0.39	0.6991
logasset	0.018927	0.039383	0.48	0.6335
VC	-0.247	0.245752	-1.01	0.3211
PE	-0.00211	0.001633	-1.29	0.2048
industry	0.110226	0.096368	1.14	0.2597
excotc	-0.08417	0.108755	-0.77	0.4436
relativesize	0.460528	1.677465	0.27	0.7851
p3mrmv	-19.8367	21.02999	-0.94	0.3514
res5	0.137073	0.054074	2.53	0.0154
premins	-0.31093	0.423698	-0.73	0.4674
res6	0.0041	0.090862	0.05	0.9642
premind	0.29086	0.477671	0.61	0.5461
prevrh	-0.09745	0.539218	-0.18	0.8575

Table 5, Absolute Standardized Average Residual

For samples in the first sub-period, we follow Beatty and Ritter (1986) to measure mispricing by using the "absolute standardized average residual". I also try "average residual" and "standardized average residual".

n	ID	rh	E(rh)	residual
3	8502	0.255687823	-0.05443491	0.310122737
4	8503	0.993796753	0.04192839	0.951868363
5	8504	0.387296638	-0.27079776	0.6580944
6	8505	0.180735901	0.091019125	0.089716776
7	8506	0.219981096	-0.03820225	0.258183342
8	8507	0.478787582	0.276028134	0.202759447
9	8508	0.122123555	0.191258898	-0.06913534
10	8509	0.172705613	0.09449569	0.078209923
11	8510	0.237533581	0.041342354	0.196191227
12	8511	0.632672037	0.281917263	0.350754775
13	8601	0.02144481	0.166306223	-0.14486141
14	8602	0.17627187	0.043982147	0.132289723
15	8603	-0.13963645	0.011512999	-0.15114945
16	8604	-0.1057943	0.189412821	-0.29520712
17	8605	0.041304601	-0.56857317	0.609877776
18	8606	0.045549498	-0.21388107	0.25943057
19	8607	0.28588115	0.074097537	0.211783613
20	8608	0.291888731	0.116979206	0.174909525
21	8609	0.071298962	0.012899051	0.058399911
22	8610	-0.04167708	-0.0382825	-0.00339458
23	8611	-0.27374437	-0.0379072	-0.23583716
24	8612	0.026683937	0.098481061	-0.07179712
25	8613	0.014578363	-0.04486305	0.059441418
26	8614	0.03268163	-0.04413264	0.076814266
27	8615	-0.27349047	0.066294863	-0.33978533
28	8616	-0.09962174	0.009444962	-0.10906671
29	8617	-0.11318703	0.012643804	-0.12583083
30	8618	0.049017729	0.026502289	0.02251544
31	8619	0.12643572	-0.02107398	0.147509701
32	8701	0.939091472	0.078866322	0.86022515
33	8702	0.014677115	-0.03201124	0.046688356

34	8703	0.068101506	-0.03498951	0.103091011
35	8704	-0.10330986	0.042351622	-0.14566148
36	8705	0.028408706	0.038754946	-0.01034624
37	8706	0.038670247	-0.02081601	0.059486257
38	8707	-0.15247395	0.12684898	-0.27932293
39	8708	-0.15600791	0.254327974	-0.41033588
40	8709	0.00992738	-0.12552129	0.13544867
41	8710	0.132764345	-0.14719168	0.279956022
42	8711	-0.01001408	-0.01276366	0.002749581
43	8712	0.010732668	0.230444414	-0.21971175
Average				0.090855479
Median				0.059486257
Stddev				0.293957
Min				-0.41034
Max				0.951868

Table 6, Underwriter's Residual

underwriters	No of auctions	Residual Mean	Residual StdDev	Residual Min	Residual Max
74	7	0.160776	0.333598	-0.12583	0.860225
101	1	0.07821		0.07821	0.07821
102	2	-0.00967	0.140561	-0.10907	0.089717
103	2	0.416502	0.341663	0.17491	0.658094
104	4	0.074643	0.131135	-0.06914	0.196191
105	12	0.210005	0.305576	-0.12583	0.951868
107	19	0.078336	0.244172	-0.33979	0.860225
109	2	0.163322	0.164945	0.046688	0.279956
110	9	0.21062	0.319618	-0.12583	0.951868
112	5	0.197929	0.292271	-0.14486	0.658094
115	12	0.116833	0.113616	-0.12583	0.310123
116	12	0.146059	0.351142	-0.27932	0.951868
118	1	0.089717		0.089717	0.089717
120	14	0.090926	0.249608	-0.14566	0.860225
121	7	0.231456	0.329659	-0.00339	0.951868
122	8	0.068452	0.127902	-0.10907	0.310123
123	10	0.02653	0.168759	-0.33979	0.211784
125	10	0.135263	0.342232	-0.33979	0.951868
126	14	0.222586	0.354987	-0.14486	0.951868
127	29	0.134262	0.310782	-0.33979	0.951868
128	6	0.128888	0.076075	0.022515	0.211784
131	2	0.003839	0.103202	-0.06914	0.076814
134	1	-0.06914		-0.06914	-0.06914
137	7	0.192306	0.352645	-0.0718	0.951868
139	1	0.0584		0.0584	0.0584
140	7	0.12872	0.383496	-0.41034	0.860225
207	26	0.149269	0.284881	-0.21971	0.951868
211	8	0.095421	0.215702	-0.33979	0.310123
212	3	0.09245	0.165631	-0.0718	0.259431
218	11	0.135681	0.385642	-0.33979	0.951868
219	7	0.156782	0.397253	-0.27932	0.951868
501	1	-0.10907		-0.10907	-0.10907
508	6	0.061189	0.133574	-0.0718	0.310123
509	1	0.14751		0.14751	0.14751

511	8	0.085355	0.160873	-0.14486	0.259431
515	15	0.289268	0.306955	-0.06914	0.951868
518	3	0.17427	0.084235	0.089717	0.258183
523	19	0.138249	0.332574	-0.33979	0.951868
527	17	0.117183	0.291615	-0.41034	0.951868
528	3	-0.07175	0.162793	-0.23584	0.089717
529	19	0.11398	0.308946	-0.29521	0.951868
538	4	0.1942	0.452363	-0.14566	0.860225
551	11	0.222657	0.315566	-0.10907	0.951868
555	25	0.100136	0.281537	-0.33979	0.951868
558	2	0.158292	0.141268	0.0584	0.258183
565	9	0.165433	0.201675	0.00275	0.658094
572	25	0.033998	0.285444	-0.41034	0.951868
582	16	0.228964	0.319041	-0.14566	0.951868
585	19	0.163919	0.27421	-0.33979	0.951868
592	18	0.212415	0.297079	-0.23584	0.951868
629	1	0.00275		0.00275	0.00275
634	10	0.097581	0.296057	-0.21971	0.860225
648	3	0.103587	0.217473	-0.14486	0.259431
653	2	-0.00511	0.198775	-0.14566	0.135449
679	1	0.022515		0.022515	0.022515
700	1	0.046688		0.046688	0.046688
703	6	0.075466	0.35556	-0.29521	0.658094
739	1	0.135449		0.135449	0.135449
779	6	0.291167	0.446564	-0.27932	0.951868
841	10	0.021516	0.184322	-0.33979	0.259431
842	1	0.046688		0.046688	0.046688
844	3	0.416058	0.210152	0.279956	0.658094
845	13	0.064526	0.176723	-0.33979	0.259431
864	1	0.00275		0.00275	0.00275
870	2	-0.00511	0.198775	-0.14566	0.135449
873	1	-0.27932		-0.27932	-0.27932
889	17	0.12966	0.306601	-0.33979	0.951868
930	6	0.223008	0.366604	-0.06914	0.951868
997	2	-0.04323	0.143727	-0.14486	0.0584
999	26	0.130255	0.315807	-0.41034	0.951868

Table 7 Residual in the First Period

This table shows "absolute standardized average residual", "average residual", and "standardized average residual" for the underwriters in the first sub-period.

Variable	No of underwriters	Mean	Median	Stddev	Minimum	Maximum
AR	49	0.142173	0.134262	0.080906	-0.07175	0.416058
SAR	49	1.725942	1.513742	0.966572	-0.76341	4.149964
ASAR	49	1.757102	1.513742	0.907453	0.369141	4.149964

Table 8 Market share

We follow Beatty and Ritter (1986) to calculate market shares of underwriters in the first and in the second sub-period, and calculate the difference.

Variable	N	Mean	stddev	Minimum	Maximum
Market shares at the first sub-period	49	0.019391	0.014353	0.002706	0.05752
Market shares at the second sub-period	49	0.017666	0.022825	0	0.083955
% change in market share	49	-0.22599	0.856956	-1	3.382404

Table 9 Regression with % change in market share as dependent variable.

Model 1: Use average residual (AR) as explanatory variable:

$$mschange_i = \beta_0 + \beta_1 AR_i + \varepsilon_i$$

Model 2: Use standardized average residual (SAR) as explanatory variable

$$mschange_i = \beta_0 + \beta_1 SAR_i + \varepsilon_i$$

Model 3: Use absolute standardized average residual (ASAR) as explanatory variable

$$mschange_i = \beta_0 + \beta_1 ASAR_i + \varepsilon_i$$

	Model 1	Model 2	Model 3
Intercept	-0.63390	-0.64829	-0.71002
	-2.61 **	-2.64 **	-2.73 ***
AR	2.86914		
	1.93 *		
SAR		0.24468	
		1.97 *	
ASAR			0.27548
			2.09 **
R^2	0.0734	0.0762	0.0851
N	49	49	49

Table 10 IPO characteristics versus underwriter quality quartile

I follow Hoberg to run regression: variable=b1*logsize+b2*logsize^2+b3*industry+e. Then calculate residual, average residual for each quartile.

Panel A,

	IR	Price Update	size	# of bidders	# of ins bidders	# of ind bidders	# of obs.
Lowest Uwpremium	0.1797	0.5724	29783.96	1355.23	52.35	1302.88	212
Quartile 2	0.0711	0.7372	22479.00	784.21	39.77	744.44	214
Quartile 3	0.0516	0.6824	29443.08	896.46	48.03	848.43	212
Highest Uwpremium	0.0475	0.6471	23617.26	1100.31	46.55	1053.77	213

Panel B,

	IR	Price Update	size	# of bidders	# of ins bidders	# of ind bidders	# of obs.
Lowest Market share	0.1988	0.5521	26809.69	1541.07	54.87	1486.19	226
Quartile 2	0.1032	0.6176	26242.49	1144.53	46.25	1098.28	226
Quartile 3	0.0475	0.6525	26236.58	858.00	42.70	815.29	226
Highest Market share	0.0428	0.7728	24459.61	768.15	45.66	722.48	226

Panel C, Residual IR, Price Update, from the regression as Hoberg's model.

	IR	Price Update	# of obs.
Lowest Uwpremium	0.0643	-0.0025	212
Quartile 2	-0.0274	0.0491	214
Quartile 3	-0.0481	0.0108	212
Highest Uwpremium	-0.0576	-0.0165	213

Panel D,

	IR	Price Update	# of obs.
Lowest Market share	0.0857	-0.0101	226
Quartile 2	-0.0155	0.0096	226
Quartile 3	-0.0566	0.0008	226
Highest Market share	-0.0443	0.0256	226

Figure 1 Underwriter 999, 44 IPOs. Average UWpremium= 0.02770. IR>median: 45.45%, IR<median: 54.55%. Price Update>median: 52.27%, Price Update<median: 47.73%

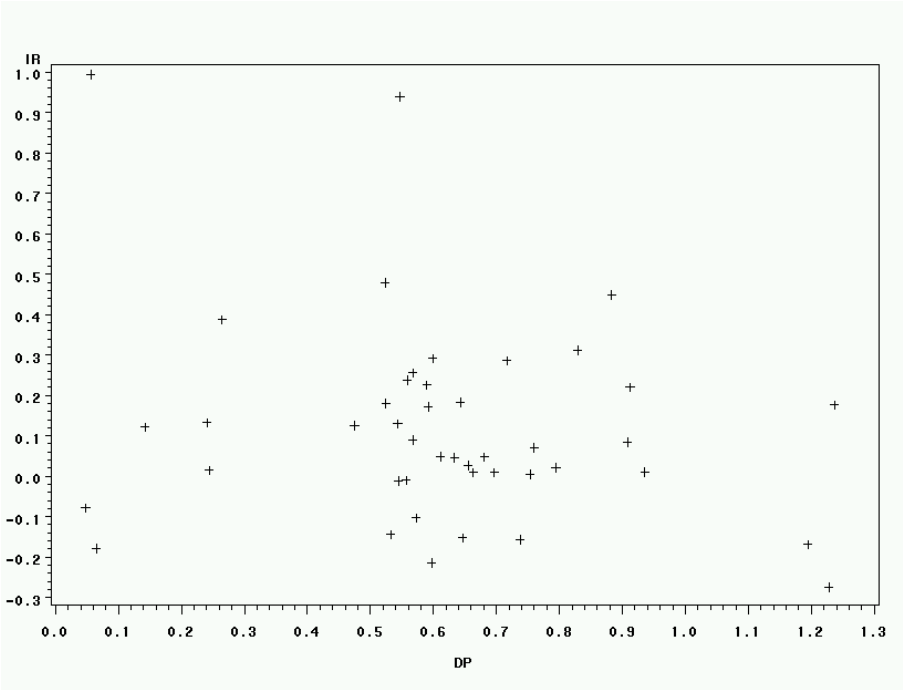


Figure 2, Underwriter 127, 54 IPOs. Average UWpremium=-0.01274. IR>median: 55.56%, IR<median: 44.44%. Price Update>median: 42.59%, Price Update<median: 57.41%.

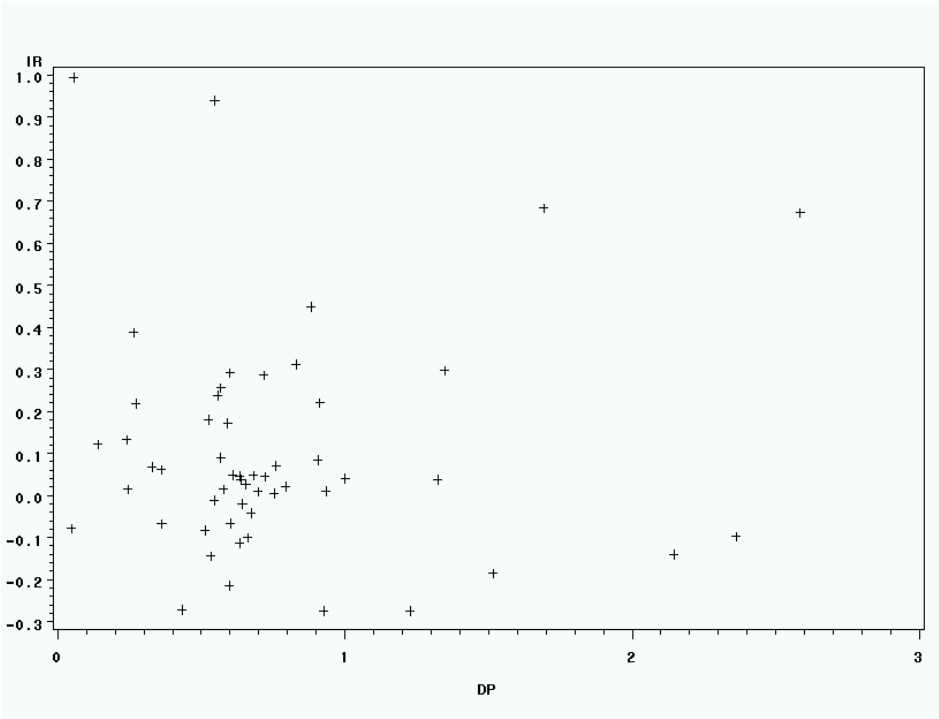


Table 11 Test Hoberg's hypothesis following Chiang, Qian and Sherman (2009, RFS) procedure and variables.

Panel A, Summary statistics

Variable	Number of observation	Mean	Median	Standard Deviation	Minimum	Maximum
IR	989	10.65%	4.83%	24.63%	-33.48%	99.38%
Price Update	989	63.45%	59.97%	42.98%	4.82%	421.57%
uwpremium	851	-0.01	0.01	0.12	-0.31	0.93
Market share	904	1.08	0.62	1.17	0.03	5.73
overhang	989	17.93	12.55	14.32	9.00	107.33
INVprice	989	0.02	0.02	0.01	0.00	0.05
logasset	989	8.47	8.05	1.51	5.84	13.00
VC	989	0.12	0.05	0.14	0.00	0.69
P/E	989	18.78	17.68	12.86	4.76	102.58
High-tech dummy	989	50.25%				
TSE dummy	989	78.87%				
% of shares auctioned	989	0.07	0.07	0.03	0.01	0.10
p3mrmv	989	0.01	0.01	0.00	0.01	0.03
Number of all bidders	989	1096.47	564.00	1195.36	32.00	4286.00
Number of institutions	989	47.42	30.00	48.46	0.00	197.00
Number of individuals	989	1049.05	552.00	1155.11	31.00	4094.00
Unexpected entry of all bidders	970	0.008	0.089	0.590	-1.712	1.871
Unexpected entry of institutions	970	-0.013	-0.036	0.756	-2.094	2.545
Unexpected entry of individuals	970	0.010	0.120	0.595	-1.726	1.815

Panel B, Underwriter characteristics

und	UWpremium_Mean	Market share	Number of IPOs	Average IPO size	Average # of bidders	Average # of institutional bidders	Average # of individual bidders	Average initial return	Average Price Update
74	-0.122	0.474	9	42948.556	891.889	41.111	850.778	0.126	0.524
101	-0.093	0.223	4	78741.750	1836.250	115.500	1720.750	0.134	0.503
102	-0.145	0.234	4	15010.500	1523.500	65.250	1458.250	-0.021	0.783
103	0.121	0.141	3	12273.333	957.667	27.333	930.333	0.270	0.469
104	-0.165	0.218	4	17723.250	1754.250	62.000	1692.250	0.152	0.493
105	0.068	0.891	16	32844.438	1395.375	55.625	1339.750	0.185	0.491
107	-0.107	1.504	24	25296.833	1145.333	45.042	1100.292	0.082	0.627
109	0.000	0.217	4	84807.750	1392.500	74.500	1318.000	0.029	0.304
110	-0.118	0.530	10	14515.800	1171.400	37.000	1134.400	0.210	0.573
112	-0.002	0.485	6	16262.000	1563.667	40.500	1523.167	0.149	0.556
115	-0.116	0.797	13	15835.308	1388.000	44.000	1344.000	0.152	0.564
116	-0.031	1.473	21	26770.619	1154.333	51.000	1103.333	0.128	0.694
118	-0.186	0.233	4	85799.750	2186.000	81.500	2104.500	0.002	0.463
119		0.019	1	289431.000	4286.000	192.000	4094.000	-0.078	0.048
120	-0.035	1.351	17	28703.706	925.000	41.059	883.941	0.087	0.549
121	0.125	0.582	10	41841.000	1120.100	41.700	1078.400	0.163	0.561
122	-0.007	1.295	14	29632.500	869.571	37.429	832.143	0.016	0.494
123	-0.078	0.549	10	15631.200	1209.000	46.900	1162.100	0.072	0.607
124	-0.309	0.090	2	147983.000	2653.500	131.500	2522.000	-0.123	0.621
125	-0.028	0.778	15	34378.067	1556.467	64.200	1492.267	0.147	0.533
126	0.108	1.240	20	28618.200	1116.350	43.550	1072.800	0.160	0.476
127	-0.007	5.977	54	14588.889	841.722	39.111	802.611	0.101	0.759
128	-0.048	0.366	8	52784.000	2159.875	75.625	2084.250	0.121	0.606
131	-0.228	0.119	2	13150.000	546.500	54.000	492.500	0.077	0.344
134		0.036	1	20000.000	905.000	79.000	826.000	0.122	0.142
137	0.285	0.384	7	14430.286	1108.429	57.000	1051.429	0.272	0.437
139		0.033	1	25204.000	972.000	53.000	919.000	0.071	0.760
140	0.197	0.613	7	11136.429	758.571	32.714	725.857	0.205	0.626
207	-0.030	2.936	40	18542.150	957.350	46.650	910.700	0.124	0.626
208		0.019	1	289431.000	4286.000	192.000	4094.000	-0.078	0.048
211	-0.025	0.407	9	45828.333	1872.333	62.333	1810.000	0.093	0.601
212	-0.113	0.111	3	20460.000	1523.333	43.000	1480.333	0.084	0.634
218	-0.092	0.730	14	35293.857	1349.143	50.857	1298.286	0.131	0.460

219	0.126	0.619	10	15272.400	1107.400	43.200	1064.200	0.214	0.498
501		0.083	1	4719.000	410.000	18.000	392.000	-0.100	0.661
508	-0.070	0.630	8	14160.625	1038.125	35.375	1002.750	0.070	0.574
509	0.012	0.932	8	6605.625	421.875	23.750	398.125	-0.025	0.716
511	-0.034	0.630	10	40461.000	1562.700	57.700	1505.000	0.078	0.659
515	-0.011	2.456	29	20997.069	907.379	41.966	865.414	0.156	0.541
518	-0.037	0.187	5	72983.800	2241.400	74.000	2167.400	0.149	0.526
523	0.001	5.035	43	15337.814	894.233	39.442	854.791	0.126	0.728
526	0.090	0.291	4	78590.000	1333.250	65.750	1267.500	0.064	0.408
527	-0.012	3.006	31	20607.839	996.419	46.742	949.677	0.118	0.586
528	-0.261	0.358	5	15395.600	1154.000	37.400	1116.600	-0.018	0.755
529	0.059	3.201	28	10596.714	889.321	31.964	857.357	0.123	0.681
538	0.217	1.324	12	6628.833	543.500	37.833	505.667	0.148	0.853
550		0.019	1	289431.000	4286.000	192.000	4094.000	-0.078	0.048
551	0.041	1.975	24	23427.250	1008.542	51.500	957.042	0.128	0.658
555	0.063	4.282	42	17303.000	938.548	46.952	891.595	0.113	0.796
556		0.125	1	6182.000	1199.000	82.000	1117.000	-0.097	2.362
558	-0.201	0.167	4	83465.500	1595.250	65.500	1529.750	0.070	0.521
565	-0.048	2.454	23	23516.478	932.043	40.565	891.478	0.106	0.624
572	0.000	5.541	49	14795.735	904.224	40.592	863.633	0.057	0.759
582	0.052	2.335	25	22974.000	945.840	40.040	905.800	0.115	0.595
585	-0.051	3.530	34	19475.588	962.147	39.176	922.971	0.086	0.709
592	-0.036	2.893	28	21345.643	1081.893	42.607	1039.286	0.153	0.641
616		0.019	1	289431.000	4286.000	192.000	4094.000	-0.078	0.048
629	-0.054	0.234	2	5592.500	229.500	10.000	219.500	-0.094	0.311
634	0.114	1.436	18	25690.222	813.222	52.722	760.500	0.099	0.574
648	-0.029	0.160	4	84041.500	2599.000	98.250	2500.750	0.057	0.531
653	-0.100	0.671	6	54521.833	1022.333	51.833	970.500	-0.038	0.527
679	0.044	0.300	3	8372.667	353.000	20.667	332.333	0.053	0.599
691		0.019	1	289431.000	4286.000	192.000	4094.000	-0.078	0.048
700	-0.047	0.371	4	81979.000	1336.000	66.000	1270.000	-0.006	0.445
703	-0.066	0.726	8	44598.625	931.250	41.500	889.750	0.021	0.580
718	-0.079	0.144	2	146465.500	2442.000	104.000	2338.000	-0.132	0.783
737	-0.093	0.435	5	8636.000	734.400	47.600	686.800	0.142	1.003
739	-0.033	0.262	3	7324.000	499.667	37.667	462.000	-0.055	0.505
779	0.129	0.379	7	56194.857	1368.857	51.571	1317.286	0.211	0.289
841	-0.120	1.293	15	30381.933	1074.067	43.933	1030.133	0.025	0.648
842	-0.028	0.262	3	13563.333	297.333	22.333	275.000	0.007	0.406

844	0.021	0.662	7	8270.571	790.571	46.143	744.429	0.162	0.454
845	0.017	1.205	17	29297.706	1476.647	54.294	1422.353	0.052	0.732
861		0.019	1	289431.000	4286.000	192.000	4094.000	-0.078	0.048
862	-0.287	0.215	3	100315.333	1812.333	88.000	1724.333	-0.129	0.630
864		0.091	1	8735.000	391.000	19.000	372.000	-0.010	0.557
869	0.592	0.325	2	4043.500	905.000	64.000	841.000	0.288	2.474
870	-0.151	0.210	2	10301.500	605.500	37.500	568.000	-0.047	0.796
873	-0.127	0.609	7	47474.286	1153.571	59.714	1093.857	-0.070	0.733
874	-0.067	0.278	4	80903.250	1765.250	97.750	1667.500	-0.020	0.931
876		0.067	1	10870.000	639.000	29.000	610.000	0.085	0.908
889	-0.030	1.887	25	22431.480	1262.320	48.720	1213.600	0.153	0.690
930	0.126	0.400	8	52950.875	1738.000	64.250	1673.750	0.227	0.466
997	0.015	0.100	2	16430.000	1511.000	65.000	1446.000	0.046	0.778
999	0.038	4.096	44	16923.136	969.136	44.932	924.205	0.120	0.615

Panel C, IPO characteristics versus underwriter quality quartile

I follow Hoberg to run regression: variable=b1*logsize+b2*logsize^2+b3*industry+e. Then calculate residual, average residual for each quartile.

	IR	Price Update	size	# of bidders	# of ins bidders	# of ind bidders	res4	res5	res6	# of obs.
Lowest Uwpremium	0.1797	0.5724	29783.96	1355.23	52.35	1302.88	-0.0620	-0.1051	-0.0566	212
Quartile 2	0.0711	0.7372	22479	784.21	39.77	744.44	0.0644	0.0902	0.0632	214
Quartile 3	0.0516	0.6824	29443.08	896.46	48.03	848.43	0.1357	0.1065	0.1359	212
Highest Uwpremium	0.0475	0.6471	23617.26	1100.31	46.55	1053.77	-0.0187	-0.0455	-0.0142	213

	IR	Price Update	size	# of bidders	# of ins bidders	# of ind bidders	res4	res5	res6	# of obs.
Lowest Market share	0.1988	0.5521	26809.69	1541.07	54.87	1486.19	-0.08966	-0.13431	-0.08366	226
Quartile 2	0.1032	0.6176	26242.49	1144.53	46.25	1098.28	0.029588	0.011693	0.033073	226
Quartile 3	0.0475	0.6525	26236.58	858	42.7	815.29	0.055095	0.009832	0.055598	226
Highest Market share	0.0428	0.7728	24459.61	768.15	45.66	722.48	0.058251	0.105086	0.056994	226

Panel D, Residual IR, Price Update, from the regression as Hoberg's model.

	IR	Price Update	# of obs.
Lowest Uwpremium	0.0643	-0.0025	212
Quartile 2	-0.0274	0.0491	214
Quartile 3	-0.0481	0.0108	212
Highest Uwpremium	-0.0576	-0.0165	213

	IR	Price Update	# of obs.
Lowest Market share	0.0857	-0.0101	226
Quartile 2	-0.0155	0.0096	226
Quartile 3	-0.0566	0.0008	226
Highest Market share	-0.0443	0.0256	226

Figure 3

Underwriter 999, 44 IPOs. Average UWpremium= 0.02770

IR>median: 45.45%, IR<median: 54.55%.

Price Update>median: 52.27%, Price Update<median: 47.73%

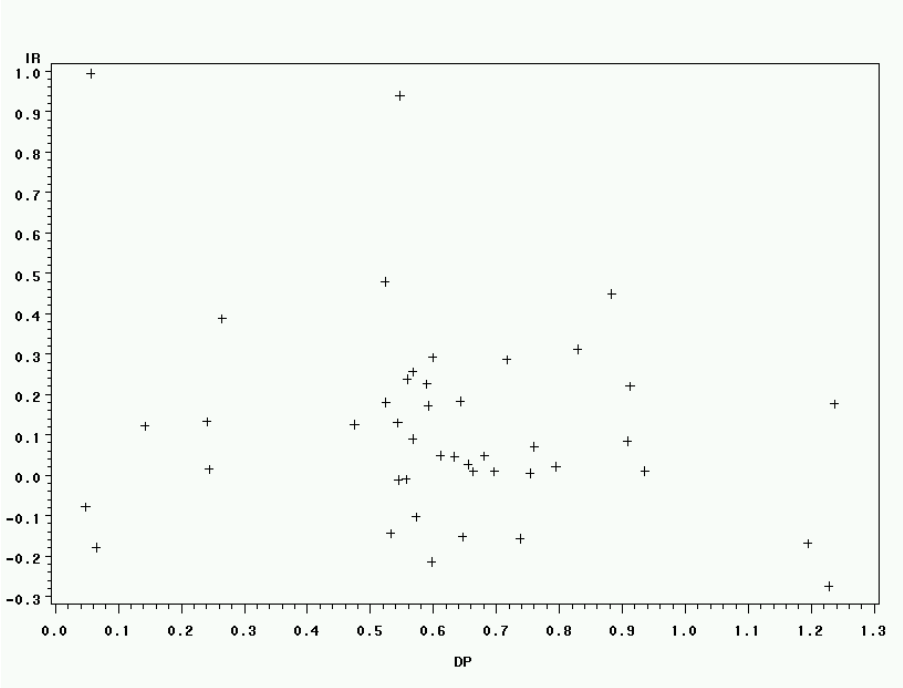
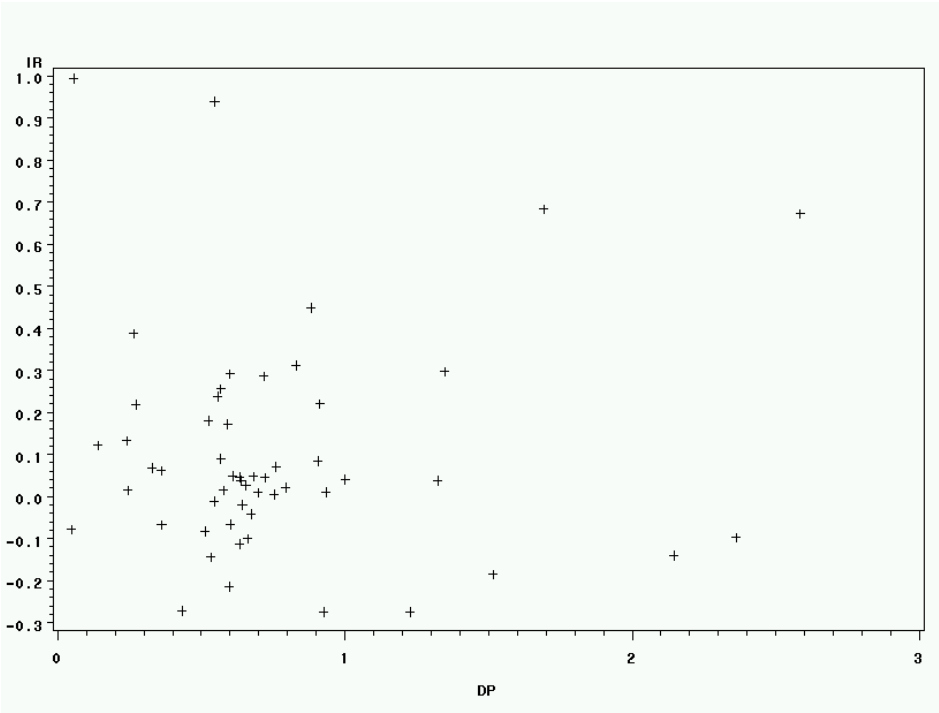


Figure 4,

Underwriter 127, 54 IPOs. Average UWpremium=-0.01274

IR>median: 55.56%, IR<median: 44.44%. 0.04832

Price Update>median: 42.59%, Price Update<median: 57.41% 0.5997249



Panel E, using Hoberg's variables, Y=IR

	(1)		(2)	
	Estimates	t-value	Estimates	t-value
Intercept	0.114	(3.22) ***	0.502	(0.96)
uwpremium	-0.362	(-1.43)	-0.359	(-1.41)
wms2	-0.025	(-1.70) *	-0.026	(-2.26) **
overhang			-0.001	(-0.93)
logsize			-0.015	(-0.49)
INVprice			-6.161	(-2.21) **
VC			-0.184	(-1.11)
R2	6.17%		13.36%	
N	851		851	

Panel F, using our variables, Y=IR

	(3)		(4)	
	Estimates	t-value	Estimates	t-value
Intercept	-1.042	(-2.61) **	-1.325	(-2.77) ***
uwpremium	-0.091	(-0.87)	-0.112	(-1.23)
wms2	-0.004	(-0.51)	-0.009	(-1.19)
logasset	0.046	(2.45) **	0.064	(2.92) ***
VC	-0.105	(-0.76)	-0.081	(-0.64)
PE	-0.003	(-2.81) ***	-0.004	(-2.82) ***
industry	0.176	(3.40) ***	0.210	(4.15) ***
excotc	-0.169	(-2.29) **	-0.185	(-2.56) **
relatives	2.447	(1.65)	3.029	(2.09) **
p3mrmv	27.511	(1.81) *	30.247	(2.10) **
res5			0.097	(2.67) ***
premins			0.525	(2.06) **
res6			-0.125	(-2.36) **
premind			-0.478	(-1.94) *
year	yes		yes	
R2	44.51%		54.02%	
N	851		843	

Panel G, Y=IR, uwPrice UpdateP=high/low uwpremium * Price Update

	Estimates	t-value
Intercept	-1.371	(-2.80) ***
uwpPrice Updatep	-0.033	(-2.22) **
logasset	0.065	(2.83) ***
VC	-0.073	(-0.59)
PE	-0.004	(-3.07) ***
industry	0.225	(4.43) ***
excotc	-0.193	(-2.70) ***
relatives	3.251	(2.28) **
p3mrmv	32.385	(2.34) **
res5	0.091	(2.44) **
premins	0.598	(2.35) **
res6	-0.140	(-2.46) **
premind	-0.555	(-2.26) **
year	yes	
R2	59.48%	
N	962	

Panel H, Y=market share

	Estimates	t-value
Intercept	2.029	(3.00) ***
uwpremium	0.634	(1.92) *
logasset	-0.120	(-2.99) ***
VC	0.261	(1.23)
PE	0.003	(0.89)
industry	0.187	(2.44) **
excotc	-0.199	(-1.73) *
relatives	-1.842	(-0.90)
p3mrmv	46.964	(2.39) **
res5	0.063	(1.01)
premins	0.292	(0.76)
res6	-0.110	(-1.40)
premind	0.102	(0.24)
year	yes	
R2	40.69%	
N	843	

Table 12 Leading underwriters' mean return by auction order

This table shows average return for the leading underwriters who have underwrite 1 IPO, 2 IPOs, 3 IPOs, etc.

Sequence	N	Mean	Median	Stddev	Minimum	Maximum
1	22	0.1721	0.1474	0.2855	-0.1443	0.9938
2	17	0.0743	0.0379	0.2125	-0.2737	0.4788
3	10	-0.0226	-0.0425	0.1572	-0.2134	0.2859
4	9	0.0855	0.0377	0.3380	-0.2735	0.9391
5	7	0.0801	0.0099	0.2686	-0.0826	0.6728
6	7	-0.1583	-0.1560	0.1184	-0.3348	0.0091
7	6	0.0728	0.0477	0.1258	-0.0660	0.2856
8	3	-0.0454	-0.0453	0.0912	-0.1367	0.0457
9	1	0.1300	0.1300	.	0.1300	0.1300
10	2	0.1748	0.1748	0.1934	0.0380	0.3116
11	1	0.0048	0.0048	.	0.0048	0.0048
12	1	-0.0119	-0.0119	.	-0.0119	-0.0119
13	1	0.0483	0.0483	.	0.0483	0.0483
14	1	0.0583	0.0583	.	0.0583	0.0583
15	1	-0.1684	-0.1684	.	-0.1684	-0.1684
16	1	0.2967	0.2967	.	0.2967	0.2967
17	4	0.0489	0.0496	0.1894	-0.1411	0.2375

Figure 5, Times of co-underwriter participate in auction IPOs.

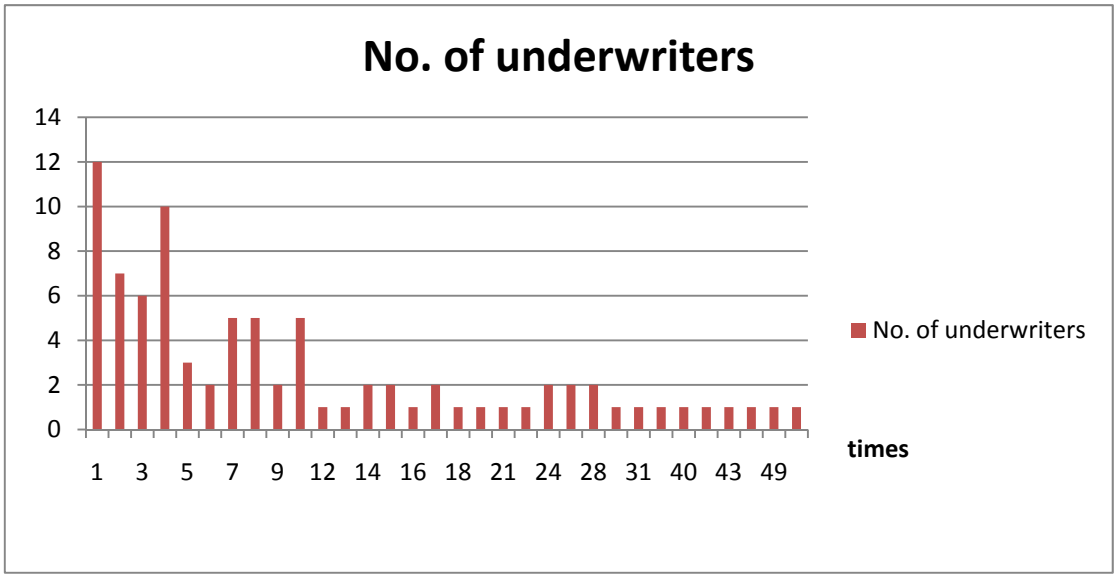


Table 13 Co-underwriter returns by auction order

This table shows an co-underwriter return in each auction. We count each underwriter in an underwriting syndicate. *Auction order* is defined as follows: an auction is an underwriter's 1st (2nd, 3rd, etc.) auction if the underwriter has 0 (1, 2, etc) previous IPO auctions.

Auction order	Mean return
1	0.196404
2	0.239249
3	0.238598
4	0.127258
5	0.132616
6	0.184791
7	0.09567
8	0.107275
9	0.038642
10	0.062194
11	0.097118
12	0.036096
13	0.085265
14	0.053482
15	0.025728
16	-0.01548
17	0.018977
18	-0.03454
19	0.117482
20	0.150824
21	0.029685
22	0.000236
23	0.049503
24	0.016473
25	0.09007
26	-0.00606
27	0.052507
28	-0.00486
29	0.093243
30	-0.00118

31	0.060389
32	0.168417
33	-0.10737
34	0.0363
35	0.174175
36	0.090105
37	0.078441
38	0.236921
39	-0.05257
40	-0.11506
41	-0.03997
42	0.04833
43	0.196095
44	0.055969
45	0.243617
46	-0.14846
47	0.189972
48	0.109303
49	-0.18417
50	-0.18554
51	-0.07806
52	-0.08259
53	-0.21338
54	-0.27106

Table 14 Dependent variable: average initial return of underwriters' auction IPOs

Variable	Estimate	t-value
Intercept	0.04004	(2.85)***
No of times participating	0.00266	(3.23)***
R^2	0.1117	
N	85	

Table 15 IPO long run return predicted by dealers' trading

This table shows how underwriters' affiliated dealers trade affect IPOs' long run return. *Averagenetbuye1* is the average net buy of leading underwriter's affiliated dealer during the first two weeks after IPO. *Averagenetbuye2* is the average net buy of co-underwriter's affiliated dealer during the first two weeks after IPO. *Averagenetbuye3* is the average net buy of dealers not affiliated to the leading underwriter or the co-underwriters during the first two weeks after IPO. *Averagenetbuye1* is the average net buy of all dealers during the first two weeks after IPO.

Panel A, Dependent variable is 6-month return

Variable	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value
Intercept	0.1114	(2.28) **	0.1109	(2.26) **	0.1090	(2.16) **	0.1105	(2.24) **	0.1067	(2.04) **	0.1649	(0.36)
averagenetbuy1	0.0000	(-0.04)							-0.0002	(-0.17)	0.0001	(0.05)
averagenetbuy2			0.0001	(0.13)					0.0001	(0.15)	0.0001	(0.08)
averagenetbuy3					0.0002	(0.19)			0.0003	(0.24)	0.0009	(0.67)
averagenetbuy4							0.0001	(0.14)				
logasset											-0.0511	(-0.77)
Debtratio											0.0604	(0.18)
relativesize											1391.2932	(0.56)
PE											0.0046	(1.08)
VC											0.7082	(2.22) **
insider											-0.0263	(-0.08)
excotc											0.0927	(0.61)

Panel B, Dependent variable is 1-year return

Variable	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value
Intercept	0.1498	(2.03) **	0.1533	(2.07) **	0.1288	(1.70) *	0.1497	(2.01) **	0.1137	(1.46)	1.1931	(1.71) *
averagenetbuy1	-0.0007	(-0.41)							-0.0020	(-1.04)	-0.0030	(-1.36)
averagenetbuy2			-0.0004	(-0.29)					-0.0002	(-0.19)	0.0002	(0.11)
averagenetbuy3					0.0019	(1.16)			0.0028	(1.53)	0.0043	(2.05) **
averagenetbuy4							0.0001	(0.17)				
logasset											-0.1610	(-1.60)
Debtratio											0.0220	(0.04)
relativesize											-792.6728	(-0.21)
PE											0.0034	(0.52)
VC											0.3389	(0.70)
insider											0.1882	(0.36)
excotc											0.0420	(0.18)

Panel C, Dependent variable is 2-year return

Variable	Estimate t-value	Estimate t-value	Estimate t-value	Estimate t-value	Estimate t-value	Estimate t-value
Intercept	0.0014 (0.08)	0.0013 (0.07)	0.0044 (0.24)	0.0023 (0.13)	0.0035 (0.18)	0.0365 (0.21)
averagenetbuy1	-0.0001 (-0.34)				-0.0001 (-0.14)	-0.0001 (-0.23)
averagenetbuy2		0.0001 (0.29)			0.0001 (0.35)	0.0002 (0.73)
averagenetbuy3			-0.0002 (-0.56)		-0.0002 (-0.44)	-0.0005 (-0.86)
averagenetbuy4				0.0000 (-0.22)		
logasset						-0.0084 (-0.33)
Debtratio						0.0698 (0.54)
relativesize						-1276.540 (-1.35)
PE						0.0015 (0.93)
VC						0.0498 (0.41)
insider						0.0733 (0.55)
excotc						0.0420 (0.72)

國科會補助計畫衍生研發成果推廣資料表

日期:2011/07/31

國科會補助計畫	計畫名稱: 以競價拍賣新股上市資料驗證新股折價與承銷商市場佔有率關係
	計畫主持人: 姜堯民
	計畫編號: 99-2410-H-004-065- 學門領域: 財務

無研發成果推廣資料

99 年度專題研究計畫研究成果彙整表

計畫主持人：姜堯民	計畫編號：99-2410-H-004-065-
計畫名稱：以競價拍賣新股上市資料驗證新股折價與承銷商市場佔有率關係	

成果項目			量化			單位	備註（質化說明：如數個計畫共同成果、成果列為該期刊之封面故事...等）
			實際已達成數（被接受或已發表）	預期總達成數(含實際已達成數)	本計畫實際貢獻百分比		
國內	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%		
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力（本國籍）	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		
國外	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%	章/本	
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力（外國籍）	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		

其他成果 (無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)	無

	成果項目	量化	名稱或內容性質簡述
科教處計畫加填項目	測驗工具(含質性與量性)	0	
	課程/模組	0	
	電腦及網路系統或工具	0	
	教材	0	
	舉辦之活動/競賽	0	
	研討會/工作坊	0	
	電子報、網站	0	
	計畫成果推廣之參與（閱聽）人數	0	

國科會補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

■達成目標

□未達成目標（請說明，以 100 字為限）

□實驗失敗

□因故實驗中斷

□其他原因

說明：

2. 研究成果在學術期刊發表或申請專利等情形：

論文：□已發表 ■未發表之文稿 □撰寫中 □無

專利：□已獲得 □申請中 ■無

技轉：□已技轉 □洽談中 ■無

其他：（以 100 字為限）

已完成論文初稿，將投稿研討會及與在美國的朋友討論，以改進文章。
最終是要投稿期刊。

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）（以 500 字為限）

本文就競價拍賣新股上市的承銷商角色做探討，尤其是討論承銷商(1)會不會偏向折價發行，(2)會不會所承銷的案件，有學習效果，及後續的案子的期使報酬會愈來愈高，及(3)會不會利用集團內自營商交易來拉抬新上市股的長期股價。結果發現，因為承銷商在競價拍賣新股上市中沒有分配及訂價的權利，她們沒有動機去穩定新股上市的股價，她們只想賣掉發行股數就算了。(1)承銷商折價程度愈高，其後續市場佔有率愈高，(2)承銷商後續承銷的案件報酬率不會愈來愈低，(3)承銷商集團內自營商的買賣並不會影響新上市股的長期報酬。