

LOT WINNING RATE AND THE CLASSIFICATION OF SEASONED EQUITY OFFERINGS: EVIDENCE FROM TAIWAN

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ABTRACT

This paper classifies two types of improved Season equity offerings (SEO) and regular SEO to investigate whether there are differential cumulative abnormal returns (CARs) around the announcement date of SEO in Taiwan. We find that regular SEO experiences negative CAR whereas improved SEO receive positive CAR during announcement period. The performance of regular SEO with large size firms and high B/M ratio is worse than that of improved SEO with small size firms and low B/M ratio.

JEL: G14, G32

KEYWORDS: Seasoned Equity Offering (SEO), Regular SEO, Improved SEO

INTRODUCTION

Seasoned equity offering (SEO) is a popular approach for listed firms to raise funds from capital markets. Firms can improve scales of economy, retain earnings, increase investment opportunity or capital inflow as well as improve their market returns through funds from SEO. Wang et al. (2014) points out that SEO events lead to increased stock shares outstanding, equity amounts, and asset size. Thus, a firm frequently issues SEO to raise their capital after going public. According to the reports of annual statistical data issued by Taiwan Stocks exchange (TSE) in 2015, the dollar amount of new SEO issues have increased when in bull stock markets. In contrast, when the Taiwan stock market experienced the global financial crisis in 2008 and the Eurozone debt crisis in 2012, SEO experienced a phenomenon of adjusting downward.

Generally, SEO announcements in Taiwan result in positive effects on the stock market (Lee and Lin, 2001). Chen et al. (2001) investigate the effect of Taiwan SEO announcements by using the Fama-French model and find that most SEO issuers can run-up the stock price on SEO announcements owing to growth potential. Nevertheless, in the U.S., most SEO cannot effectively enhance the performances of the issuing firm, because most of SEO issuers are not growing firms and do not have high M/B ratios, thus presenting an image of deterioration of future operation of profits of the issuing firms (DeAngelo, 2010). Moreover, Chan et al. (2012) classify U.S. SEOs into two types, improved SEO and regular SEO, and find that regular SEO firms with low relative offer size, low share price, and high average B/M ratio exhibit negative and significant announcement effects on the offer date. Improved offerings record significantly positive price reaction on the offer date.

In this study, we analyze the abnormal returns of 506 issuing firms listed on the TSE from 2006-2012. We classify the SEO into improved SEO and regular SEO. This classification is similar with that of Chan et al. (2012) for U.S. SEO. Our classification differs from Chan et al. (2012) because they define SEO offers as Improved if the offering proceeds exceed the amount filed at registration, and the complement as regular. Nevertheless, the SEO process in Taiwan equals the amount filed initially at registration on TSE data. We use the lot winning rate in the Taiwan stock market, which can reflect the demand for stocks. If investors increasingly subscribe the stocks of SEO firms, the lot winning rate would decrease, indicating undervaluation of SEO firms (Chen, 2001). This study classifies the SEO based on Lot Winning Rate. If

the lot winning rate of SEO is lower than the median of our sample and the stock of SEO firm experiences price appreciation, we classify the SEO as Improved, otherwise it is classified as Regular.

The findings of this paper are as follows. We find the classification of SEO announcements in Taiwan can clearly distinguish the motivation of firms issuing SEO. That is, improved SEO experience positive abnormal returns whereas regular SEO generate negative returns. Moreover, improved SEO are clustered in small firms because small firm intends to issue SEO to seek funds for growth needs. Regular SEO, clustered in the majority of large firms, produces negative abnormal returns at the announcement date. This study contributes a different classification on SEO, which combines both Lot Winning Rate and market price reaction to disclosed revised proceeds. This classification can clearly distinguish the motivation of firms issuing SEO in Taiwan. The remainder of this paper is organized as follows. The next section discusses the relevant literature. The data and methodology section describes the data and defines the variables. In the results and discussion section, we show the regression results. The conclusion comments section provides our closing statements.

LITERATURE REVIEW

In the US, SEO announcements are associated with significant negative effects. If overvalued firms necessarily issue SEO for financing, the managers may reveal negative information at pre-announcement by selling overvalue stock. Overvaluation of firms would drift a negative announcement effect (McLaughlin, 1996). Chan et al. (2012) examine the offer-size decision of U.S SEO issuers and classify an observation as Regular if the offering proceeds complete the amount filed initially at registration. They show that Regular issuers experience significantly negative stock price returns during their respective registration periods. Improved issuers, on the contrary, make relatively positive stock price reaction when the offering proceeds exceed the amount filed initially at registration. In the same vein, research on Taiwan markets have documented that listed and Over-The-Counter (OTC) firms have negative abnormal stock returns when issuing SEOs (Chiang, 2004). They suggest that CAPM theory is a parsimonious powerful model to capture time-varying systematic risks. Zhou and Elder (2004) document that issuing firms are associated with short-run overvaluation in their seasoned offerings because the SEO allows them to have higher announcement return.

Gombola et al. (1999) record that insider buying influences the market reaction to positive announcements of the SEO. Hill and Snell (1989) support that when institutional investors hold more shares than external investors. The signal of institutional investors represents the bullish prospects of the firm and willingly issues equity to push development. Chen et al. (2001) employ the Fama-French model to measure the cumulative abnormal return during the SEOs period. They show that both growth potential and insider buying are the main factors for influencing the stock price upward. They support that the growth potential can drive a positive price reaction to SEO announcements. In Hong Kong, investors also believe that positive abnormal returns to SEO announcements are conditioned on the purchase actions of insiders (Ching et al., 2006).

DATA AND METHODOLOGY

The source of the SEO firms for the sample is listed and OTC firms chosen from public subscription announcements on the Taiwan Stock Exchange (TSE). We delete firms in the finance and insurance industries due to their unique nature of financial reporting and to avoid survivorship bias (Kothari et al., 1995). The sample period is from January 2006 to December 2014. We set the announcement date to be the resolution of the board of director, to examine whether the announcement of SEO has the influence on the stock price. This study focuses on the open market (public) and classifies SEO firms in Taiwan into the Improved SEO and Regular SEO based on lot winning rate. When the demand for SEO stock is more than the offers during the subscription period, TSE could use a lottery to let investors acquire the stock of SEO firms fairly. Thus, we construct the SEO firm sample as Improved SEO if its lot winning rate is lower than the median rate and its stock price experiences appreciation during the registration period, and Regular SEO otherwise.

We use the market-adjustment model to calculate abnormal returns. Significant results indicate that price fluctuation of the stock with the event is different from the performance without the event, thus creating abnormal returns. The announcement day is defined as day 0, -t as t trading days before announcement day, and t as t days after the announcement day. The test period is chosen two days before the announcement day to five days after, totaling 8 trading days. The model is presented as follows.

$$ARjt = Rjt - Rmt \tag{1}$$

$$CARi = \sum_{t=b}^{e} AR_{jt}$$
(2)

where Rjt is actual returns rate of sample stock j on day t during the event period; Rmt is the market return of the value weighted index on day t during the event period; ARjt is abnormal returns rate of sample stock j on day t during the event period; CARi is the cumulative abnormal returns rate of sample stock i in the event window; b is the starting date of the event window; e is ending date of event window. This study performs different t-tests to determine whether the average CAR for the improved SEO, regular SEO in SEO event varies significantly. We also estimate non-diagonal variance-covariance matrix as in Chiou et al. (2003) as shown in Equation 3.

$$T test = \frac{\overline{CAR_1(t_b, t_e) - CAR_2(t_e, t_b)}}{\sqrt{\frac{Var(\overline{CAR_1(t_e, t_b)})}{n_1} + \frac{Var(\overline{CAR_2(t_e + t_b)})}{n_2}}}$$
(3)

We use OLS regression to measure the effect of classification of SEO on CAR around the SEO event. The independent variables are improved variable (*ID*), SEO firm size (*size*), Book-to-market (B/M), return on equity (*ROE*) and Leverage. Table 1 presents the definition of those variables.

Variable Names	Variable Definitions
CAR	The sum of the differences between the raw return and the return predicted by the market model
ID	ID is the dummy variable that sets for measuring the classification of improved SEO and regular SEO. If sample firm is audited by 1, which are improved SEO for sample firm and is 0, which are regular SEO for sample firm.
SIZE	Size is the market value of equity at the previous year-end of SEO. It is defined as the number of common equity shares outstanding multiplied by the stock price on previous year-end SEO. B/M is the natural logarithm of the most recent market-to-book ratio. It defined as book value of equity divided
B/M	by the market value of equity on previous year-end SEO.
ROE	ROE is the return on equity on previous year-end SEO. It defines as net income at the end of prior year of SEO divided Return on Equity on previous year-end SEO.
Leverage	Leverage is the debt-to-equity ratio on previous year-end SEO. It defines as total liabilities at the end of prior year of SEO divided total asset on previous year-end SEO.

Table 1: Variables and Definitions

Table 2 presents summary statistics for various measures of the full sample of 506 SEOs in Panel A. Panels B and C show the classification of 140 improved versus 366 regular SEOs respectively. As shown in Panel A, the mean (median) of ID is 25.3% (0.0%) indicating that there is 25.3% of improved SEO to trade during the period of the SEO event. Meanwhile, the average market value (size) is 7,306.4 (in millions of NT dollars); the average B/M ratio is 0.08%, the average ROE is 8.16%, and the average leverage is 48.51%.

Variables	N	Mean	Median	S.D.	Min.	Max.	
Panel A: Full Sample	of SEO Firm	1					
SIZE(million)	506	7306.4	30640	13808	53.000	11000	
B/M ratio (%)	506	0.0008	0.0006	0.0011	0.00003	0.0175	
ROE (%)	506	8.1656	10.020	18.33	-85.300	76.020	
Leverage (%)	506	0.4851	0.4994	0.1663	0.0086	0.9467	
Panel B: Improved SEO Firm							
SIZE(million)	140	4351.5	2397.5	6341.9	203.00	46426	
B/M ratio (%)	140	0.0007	0.0005	0.0005	0.00006	0.0029	
ROE (%)	140	8.1009	10.395	17.416	-41.190	76.020	
Leverage (%)	140	0.4569	0.4869	0.1728	0.0086	0.7909	
Panel Č: Regular SEC	Panel Č: Regular SEO Firm						
SIZE(million)	366	8,306.9	3,348.5	15,424	53.000	119,500	
B/M ratio (%)	366	0.0008	0.0006	0.0012	0.00003	0.0175	
ROE (%)	366	8.1875	9.9150	18.651	-85.300	64.010	
Leverage (%)	366	0.4946	0.5062	0.1631	0.0364	0.9467	

Table 2: Summary Statistics of ID, SIZE, B/M Ratio, ROE and Leverage

The sample contains 506 Seasoned Equity Offerings conducted by Taiwan listed and OTC firms. The classification includes 140 improved SEO and 366 regular SEO for the year 2006-2014. Data is from Taiwan Economics Journal (TEJ) database. ID is a dummy variable that takes the value of 1 if the sample firm is improved SEO, 0 otherwise. Size is the market value of equity at the previous year-end of SEO. B/M ratio is the book value of equity divided by the market value of equity on previous year-end SEO. ROE is the net income at the end of prior year of SEO divided Return on Equity on previous year-end SEO. Leverage is the total liabilities at the end of prior year of SEO divided total asset on previous year-end SEO.

The comparison between two types of SEO firms show that the mean (median) of size for improved SEO and regular SEO are 4,351.5 (2,397.5, in million of NT dollars) and 8,306.9 (3348.5, million), respectively. Meanwhile, the mean (median) B/M ratio for improved SEO and regular SEO are 0.07% (0.05%) and 0.08% (0.06%); the mean (median) leverage ratio for improved SEO and regular SEO are 45.69% (48.69%) and 49.46% (50.62%). Thus, most of firms of improved SEO with low M/B ratio and low leverage ratio conduct an SEO because of fund investment. That is, improved SEOs may be in the growth-stage with an associated need for capital as posited by Harry et al. (2010).

Table 3 presents a comparison of CAR based on full sample and subsamples of improved versus regular SEO. In the full sample of SEO, the mean of CAR from two-days prior to announcement to five-days after the announcement is -69.58%. The negative impact of SEO announcement on stock return is inconsistent with Lee and Lin (2001). SEOs tend to occur when stock prices are high (Hovakimian et al., 2001) and on average firms are selling overvalued seasoned equity (DeAngelo, DeAngelo, and Stulz, 2010; Dong, Hirshleifer, and Tech, 2012), the SEO announcements therefore would result in stock prices to fall.

Table 3: Summary Statistics for CAR (-2, 5) Relative to Classification between Improved SEO and Regular SEO

	CAR(-2,5) Of	CAR(-2,5) Of	CAR(-2,5) Of
	Full Sample	Improved SEO	Regular SEO
Mean	-0.6958	0.3802	-1.0603
Median	-1.1089	-0.8746	-1.2380
S.D	7.3019	7.5541	7.1883
Min.	-24.087	-15.998	-24.087
Max.	36.519	21.552	36.519

This table shows empirical results of summary statistic of the cumulative abnormal returns (CAR) for improved SEO and regular SEO firms. The time series is from prior two-days of the announcement date (the date of the resolution of board of director) to five-days after.

When SEO firms are classified into improved SEO and regular SEO, there is a significant difference between them. The mean of CAR is positive (38.02%) in improved SEO firms whereas regular SEO firms encounter negative mean value of about -1.06%, which is consistent with Chan et al. (2012) for U.S SEO. Therefore, it suggests that improved SEO are more likely to fund capital needs. Positive returns during SEO period occur for improved SEO. Regular SEO should be the market timer.

RESULTS AND DISCUSSION

Table 4 shows the average CAR and difference between the average CAR for improved SEO. It also shows the average CAR for regular SEO from two-days prior to the announcement date to five-days after

SEO announcement. In the event window (-2, 5), the average CAR for improved SEO are 87.23%, which is positive and significant at 10% level. In contrast, the average CAR for regular SEO presents -124.8%, which is negative and significant at 1% level. Moreover, the average CAR for improved SEO is greater than that for regular SEO by 282.3%, which is significant at 1% level, suggesting that improved SEO encourages the SEO announcement and produces a positive market reaction.

Table 4: Average CAR Difference T Test between Improved SEO and Regular SEO

Event	Improve	Improved SEO		ar SEO	Difference
window	Average	P value	Average	P value	
(-2, 5)	0.8723*	0.0941	-1.2482***	0.0003	2.8203***
(0, 1)	0.5102*	0.0789	-0.6407***	0.0005	2.8168***
(0, 3)	0.7006*	0.0778	-1.2820***	0.0006	3.4801***
(0, 5)	1.0796**	0.0332	-1.5691***	0.001	3.9509***

This table indicates the empirical results of the average CAR difference T test between improved SEO and regular SEO during SEO announcement period. ***, **, and * denote significant at 1%, 5%, and 10% level.

Improved SEO also shows a gradually growth of average CAR from announcement day to five-days after, which is 51.02% in event window (0, 1), 70.06% in event window (0, 3), and 107.9% in event window (0, 5). Conversely, regular SEO presents significantly opposite returns after an announcement, which is - 64.07% in event window (0, 1), -128.2% in event window (0, 3) and -156.9% in event window (0, 5) significant at the 1% level, respectively. According to Chen et al. (2012), positive SEO returns can be an outcome of increased demand for external investors (e.g., institutional investors) in response to the issuer's road-show. Therefore, our results suggest that improved SEO enjoy better market returns through funds of SEO to enlarge the scale of economy. Figure 1 provides the CAR of improved SEO and regular SEOs during the announcement period. We find that improved SEO experiences negative CAR before announcement, but revises positive at announcement day as well as the following five days after. Conversely, regular SEO shows positive CAR before an announcement, but becomes negative CAR after SEO announcement.





The figure shows the comparison of CAR for improved SEO and regular SEO firms. The sample spans 2006-2012. Day 0 is defined as the announcement day.

In Table 5, we run the regression to examine whether the CAR is affected by two types of improved SEO and regular SEO. According to Fidrmuc et al. (2006), we control for other determinants (size, B/M ratio, ROE and leverage) that may influence the CAR in announcement period.

$$CAR_{i} = \alpha_{1} + \alpha_{2}ID_{i} + \beta_{3}SIZE_{i} + \beta_{4}BM + \beta_{5}ROE_{i} + \beta_{6}Leverage_{i} + \varepsilon_{i}$$
(4)

We identify the dummy variable (ID), which equals one if SEO announcement is an improved SEO, and regular SEO as zero. Table 5 presents that the coefficient of ID shows significantly positive at 10% level in event window (-2, 5), significant at the 1% level, in event (-1, 0) and at 5% level in event (0, 5). This result confirms that the firms issuing SEO for growth need a positive price reaction in the announcement period. Firms with less growth potential experience negative market reaction. Thus, we argue that SEO firm with

growth opportunity start showing significantly positive CAR on the announcement day.

	Constant	ID	Size	B/M Ratio	ROE	Leverage	Adj. R-sq
Panel A: Impr	oved SEO and Reg	gular SEO					
CAR(-2,5)	-1.0860	1.4556*	0.0005	-96.786	-0.0130	0.3577	-0.0012
	(0.3212)	(0.0554)	(0.8307)	(0.7504)	(0.4723)	(0.8586)	
CAR(-1,0)	-0.0859	0.450***	-0.000001	-1.7720	-0.0026	2693***	0.7929
	(0.4793)	(0.0076)	(0.9702)	(0.9788)	(0.5071)	(0.00003)	
CAR(0,1)	-0.0509	0.2334	-0.00004	57.033	-0.0079	-0.6431	-0.0066
	(0.9317)	(0.5711)	(0.7459)	(0.7301)	(0.4188)	(0.5556)	
CAR(0,3)	-1.2325	0.8820	-0.000001	-244.15	0.0004	1.1331	-0.0009
	(0.1561)	(0.1431)	(0.3120)	(0.3120)	(0.9746)	(0.4770)	
CAR(0,5)	-1.7447*	1.4260**	-0.000001	153.71	0.0076	0.7925	0.0009
/	(0.0824)	(0.0406)	(0.5011)	(0.5815)	(0.6440)	(0.6667)	

 Table 5: Regressions of Classification on Cumulative Abnormal Returns

This table presents the regression results on CAR. The main independent variables are the classification dummy variable of improved SEO and regular SEO. The regression dependent variable is the cumulative abnormal return (CAR). ID is a dummy variable that takes the value of 1 if the sample firm is improved SEO, 0 otherwise. Size is the market value of equity at the previous year-end of SEO. B/M ratio is the book value of equity divided by the market value of equity on previous year-end SEO. ROE is the net income at the end of prior year of SEO divided Return on Equity on previous year-end SEO. Leverage is the total liabilities at the end of prior year of SEO divided total asset on previous year-end SEO. *, **, and *** indicate significant levels at the 10%, 5%, and 1% level.

CONCLUDING COMMENTS

This study classifies the SEO events in Taiwan during 2006-2014 into improved SEO and regular SEO to observe the CAR around the SEO announcement period. We find the classification of SEO announcements in Taiwan into two types of SEO can clearly distinguish the motivation of firms issuing SEO. That is, improved SEO experiences positive abnormal returns whereas regular SEO generates negative returns in the event period (-2, 5). Moreover, improved SEO are clustered in small firms because small firm intends to issue SEO to fund growth needs. Regular SEO, clustered in the majority of large firms, performs negative abnormal returns at announcement date. Our results indicate that regular SEO is associated with high B/M ratio and high leverage ratio. It may lead to a low market valuation and a low growth prospect, which is consistent with DeAngelo et al. (2010).

REFERENCES

Chan, K., N. Nayar, A.K. Singh and W. Yu (2012) "Market Reaction, Revised Proceeds, and The Classification of Seasoned Equity Offerings." Working Paper, National Chengchi University.

Chen, A., W. L. Li and R. C. Y. Chen (2001) "The Announcement Effect of Seasoned Equity Offerings with Respect to The Growth Potential and Insider Trading." Journal of Financial studies, vol. 9(1, March) p. 1-25.

Chiang I. S. (2004) "The Long-Run Return of IPO in Taiwan." Working Paper, National Central University.

Ching, K. M. L., M. Firth and O. M. Rui (2006) "The Information Content of Insider Trading around Seasoned Equity Offerings." Pacific Basin Finance Journal, vol. 14(1, January) p. 91-117.

DeAngelo, H., L. DeAngelo and R.M. Stulz (2010) "Seasoned Equity Offerings, Market Timing, and The Corporate Lifecycle." Journal of Financial Economics, vol. 95(3, March) p. 275-295.

Dong, M., D. Hirshleifer and S.H. Teoh (2012) "Overvalued Equity and Financing Decision." Review of Financial Studies, vol. 25(12, December) p. 3645-3683.

Fidrmuc, J.P., M. Goergen and L. Renneboog (2006) "Insider Trading, News Releases, and Ownership Concentration." *Journal of Finance*, vol. 61(6, December) p. 2931-2973.

Gombola, M. J., H. W. Lee and F. Y. Liu (1999) "Further Evidence on Insider Selling prior to Seasoned Equity Offering Announcements: The Role of Growth Opportunities." *Journal of Business Finance & Accounting*, vol. 26(5-6, March) p. 621-649.

Hill C. W. L. and S. A. Snell (1989) "Effects of ownership structure and control on corporate productivity." *Academy of Management Journal*, vol. 32(1, March) p. 25-46.

Hovakimian, A., T. Opler and S. Titman (2001) "The Debt-Equity Choice." *Journal of Financial and Quantitative Analysis*, vol. 36(1, March) p. 1-24.

Kothari, S.P., J. Shanken and R.G. Sloan (1995) "Another Look at The Cross-Section of Expected Stock Returns." *Journal of Finance*, vol. 50(1, March) p. 185-224.

Lee, J.Z. and T.H. Lin (2001) "The Effect on Wealth of Outside Stockholders Resulting from Adopting Bookbuilding when Seasoned Equity Offering." *Journal of Contemporary Accounting*, vol. 2(2, November) p. 127-146.

Mclaughlin, R., A. Safieddine and G. K. Vasudevan (1996) "The Operating Performance of Seasoned Equity Issuers: Free Cash Flow and Post-Issue Performance." *Financial Management* vol. 25(4, Winter) p. 41-53.

Zhou, J. and R. Elder, (2004) "Audit Quality and Earnings Management by Seasoned Equity Offering Firms." *Asia Pacific Journal of Accounting and Economics*, vol. 11(2, March) p. 95-120.

Wang, J., Y. He and K.C.J. Wei (2014) "A Comprehensive Study of Liquidity Before and After SEOs and SEO Underpricing." *Journal of Financial Markets*, vol. 20(1, September) p. 61-78.

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