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Merger and Acquisitions of IPO firms in Taiwan

Jean Yu[1] and Shiow-Ying Wen[2]

Abstract

There have been great efforts in the finance literature to enhance the understanding of companies experiencing substantial growth. IPOs and mergers and acquisitions (M&As) are very important restructure options for firms growing with complexity arises from internally and externally. Solution-driven strategies should be desirable for firms go public, especially in emerging economics regime, such as Taiwan. In this study, we examine the key predictions, short-run and long-term performance of merger and acquisition activities of Taiwan IPO firms. Implications on investigating the effects of the long-term performance for newly listed firms that become subsequent bidder draw attention for investors seeking global investment strategy.
The results show that the performance of IPO acquirers is significantly different from IPO non-acquirers measured in abnormal returns and cumulative abnormal returns. Moreover, from the cross-sectional regression analysis, IPO acquirers outperform non-acquires. After controlling for the effect of different deal and firm characteristics, the multiple regression results confirm the significant negative size effect, leaving age, proceeds, market to book ratio insignificant. Overall, our results regarding the takeover activity of IPOs help explain IPO underperformance.

JEL classification numbers: G34, G14, G15
Keywords: Initial Public Offerings (IPOs), Merger and Acquisition (M&As)

1 Introduction

There have been great efforts in the finance literature to enhance our understanding of companies experiencing substantial growth. Penrole (1959) emphasizes the process and limits of firm growth and categorizes three potential limits to growth. These limits include managerial liability (conditions within the firm), product or factor markets (conditions outside the firm), and uncertainty and risk (combination of internal and external

[1]Department of Banking and Finance, National Chiayi University, Taiwan.
[2]Department of Industrial and Business Management, Chang Gung University, Taiwan.

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conditions). Given initial public offerings (IPOs) and mergers and acquisitions (M&As) are essential restructure options for firms growing with complexity arises from internally and externally, one would consider the strategies should be solution-driven. Brau and Fawcett (2006) suggest public share is one of the most important reasons for the IPO. Celikyurt et al. (2010) show the result that 31% of IPO firms conduct at least one acquisition within one year and 74% complete an acquisition in their first five years as a public company, suggesting that M&A activity is an important motive to go public.

Existing studies offer several reasons why firms choose to go public. In theory, IPOs firms access new resources of capital, provide investors portfolio and flexibility of asset allocation, perceive safer credit risk and create publicity, offer liquidity and enhance valuation accuracy with potential synergies evaluations in M&As, and increase transparency abiding by the capital market discipline. Though there are numbers of literature done on IPOs, the empirical study on why firms go public remains indeterminate, especially after Loughran and Ritter (1995) find long-run underperformance of IPOs in the US. Most of M&A bidders experience negative abnormal returns in the long run. However, Thomadakis et al. (2012) present positive performance results. Brau et al. (2012) show that the M&As of IPO firms explain the long-run performance of U.S. firms. Bessler and Zimmermann (2011) present the evidence of superior long-run performance of European acquiring IPO firms. Refsgaard (2013) investigates the long-run performance of 726 European IPOs. The above mentioned international empirical results are inconclusive. Therefore, it is interesting to investigate whether the M&A motivation to go public is related to the long-run performance of IPOs in emerging market. I contribute to the existing literature by examining the issues of merger and acquisition activities of IPO firms in Taiwan. Implications on investigating the effects of the long-term performance for newly listed firms that become subsequent bidder draw attention for investors seeking global investment strategy. Whether Taiwanese firms engage in M&As after they go public and how they perform in the stock market remain interesting issues.

The remainder of the paper proceeds as follows. Section 2 discusses literature review. Section 3 describes the data and the methodology. Section 4 presents the results, and section 5 concludes.

2 Literature Review

Existing theories suggest that IPO may facilitate future acquisitions. Managers resolve the problems of uncertainty of valuations when firms go public. After knowing the value of takeover gain and the true value of the firm, an IPO offers an opportunity to exercise acquisitions optimally. IPO firms will use more cash and stock to pay for acquisitions after reductions with uncertainty of valuation. For example, Schultz and Zaman (2001) document many internet firms go public and engage in a significant amount of post-IPO acquisition activity. Ritter and Welch (2002) show the primary motivation for most IPOs is to be able to raise equity capital for the firm and create market for the founder and shareholders to tender their wealth for cash. Lowry (2003) finds firm's demand for capital and investor sentiment are the most essential determinants of IPO volume. Boehmer and Ljungqvist (2004) show the private Germany firms conduct IPOs by taking advantage of investment opportunities and valuations. Rosen et al. (2005) document the causes and consequences of banks choose to go public are treacherous. Kim and Weisbach (2008)

reach a conclusion that international firms benefit from potential overvaluation in IPOs and equity offers. Chemmanur et al. (2010) find that larger and more rapidly growing firms are more likely to go public due to the greater productivity and high market share. Helwege and Packer (2009) show that firms choose to stay in private due to control benefits serve as the most significant inventive. Hsieh et al. (2011) provide real-options based model to associate the going public decision and subsequent ability of firms to involve in acquisitions.

To alleviate the asymmetric information problem private bidders may decide to go public in order to conduct a stock merger (Fishman (1989) and Eckbo et al. (1990)). These information-asymmetry-based theories explain the link between IPOs and stock acquisitions. Almost half of acquisitions in the last thirty years use cash or mix of cash and stocks. Publicly traded stock created from IPOs serve as a form of payment for acquisitions. Information asymmetry between managers, investors and potential targets enhanced the need of acquiring firms to issue overvalued stock to pay by conducting an IPO. Mikkelson et al. (1997) document how firm conducts IPOs as a means to obtain cash. Purnanandam and Swaminathan (2004) show the most overvalued IPO firms have the greatest IPO underpricing. IPO firms are more likely to undertake acquisitions by using stocks to take advantage of information asymmetry. Pangano et al. (1998) document capital structure rebalancing for Italian firms to go public to correct misevaluation.

There are varying abnormal performance of IPO firms considering different country, benchmark and methodology of sample data applied. Ritter (1991) shows the US IPOs firms from 1975 to 1984 underperform a control matched sample firms for a three-year holding period. Data from non-U.S. markets is not conclusive due to the cross sectional correlation between returns of U.S. and IPOs in other market. Levis (1993) presents UK IPO firms underperform over the longer-term. Loughran et al. (1994) find international IPO firms with mostly negative market-adjusted three-year abnormal returns. However, the datasets are typically very small, therefore, the results concerning IPO performance are not uncontroversial. Brav et al. (1997) show that IPO firms do not perform worse than benchmark firms matched on the basis of size and book-to-market ratios. They also find that the underperformance result is sensitive to the method used to evaluate abnormal performance. Ritter and Welch (2002) indicate that IPOs would on average underperform the market significantly for three-year holding-period returns. Moreover, Chahine (2008) presents the post-issue performance of IPOs issued in France. Stehle et al. (2000) show an underperformance for German firms generally are less extreme than the underperformance in the US studies. Common economic shocks or sentiment potentially drive these correlations. If firms managers successfully time their IPO with cost of equity is assumed to be low, subsequent low returns for investors is evident.

3 Data and Methodology

We obtain data for Taiwanese firms on IPO firms from the Securities Data Company (SDC) New issues and Mergers and Acquisitions databases, respectively. The IPO data covers 1995 to 2009. The reason is that from 1995, most of price information for IPO is available. Since we examine the decision to go public and its role in facilitating subsequent merger activity, we collect the data on acquisitions that take place within a five-year period following the firm's IPOs. Merger data are available through the end of 2014. Stock returns are analyzed in the long run over a horizon of three, and five years.

Data on subsequent capital raising and acquisition transactions come from the SDC New Issues and Mergers and Acquisitions databases. Taiwan Economic Journal (TEJ) is used to collect IPO-related financial and stock market variables. We also construct a control sample of non-acquirers IPO firms matched in size and market to book value to serve as benchmark in measuring abnormal and cumulative abnormal returns. A non-acquirer IPO firm is a firm that has issued an IPO in the same year with the acquiring firm.

Given that the sample includes IPO firm bidders, the conventional method of event study, often attributed to Brown and Warner (1985), which requires a long time series of pre-event returns that is free from the influence of the event under investigation, cannot be applied. The magnitude of the long-run abnormal is very sensitive to the methodology used and the benchmarks applied. Fama (1998) documents the measured abnormal returns tend to disappear or become marginal when applying different models and statistical approaches. Therefore, we estimate the announcement period excess return with a modified market model defined as

$$AR_{it} = R_{it} - R_{mt} \tag{1}$$

Where AR_{it} is market adjusted abnormal return for security i over time t, R_{it} is the return at time t on security i, R_{mt} is market return. Following Barber and Lyon (1997), cumulative abnormal returns (CAR) given in equation (2) measure investors' total return period summing over τ periods, and then equally weighted as an average of n IPOs in equation (3) representing a monthly rebalancing portfolio.

$$CAR_{i\tau} = \sum_{t=1}^{\tau} AR_{it} \tag{2}$$

$$CAR_{\tau} = \frac{1}{n} \sum_{i=1}^{n} CAR_{i\tau} \tag{3}$$

Similar to previous long-run studies, the variable we use to measure underperformance is the abnormal buy-and-hold return to three (and five) years after the IPO. Buy-and-hold abnormal return (BHAR) is calculated as monthly compounded as in equation (4) and then calculated by subtracting the return of IPO firm from the return of market index benchmark as in equation 5.

$$BH_{it} = \prod_{t=1}^{\tau} (1 + R_{it}) \tag{4}$$

$$BHAR_{i\tau} = \prod_{t=1}^{\tau} (1+R_{it}) - \prod_{t=1}^{\tau} (1+R_{mt}) \tag{5}$$

The usefulness of this Event study methodology is based on the market efficiency hypothesis meaning all available and relevant information is fully reflected in the daily stock prices. (Fama, 1970). The abnormal changes in the valuation of firm are caused by the underline event. However, in measuring activity such as IPOs enduring for a period of time, the merits of using short-run event studies method might be limited. This reason leads to numerous studies implementing the long-run performance measures of IPO firms with subsequent M&As. We also run a cross sectional analysis analyzing the factors that might affect the long-term performance of IPOs. The regression equation is set as follows:

$$BHAR = \alpha + \beta_1 IPO\_Acquirer + \beta_2 In(1+Age) + \beta_3 Size + \beta_4 Proceeds + \beta_5 U\_Pricing + \beta_6 Bubble\_P + \beta_7 Hot\_Period \quad (6)$$

The dependent variable is the three- and five-year BHAR. Variable IPO_Acquirer, equals 1for IPOs that acquire at least 1 firm within 5 years from going public. Firm age (ln (1+Age)) is depicted by finding the natural logarithm of 1 plus the number of years from founding the firm prior to IPOs. The variable Size is measured by the market value. Proceeds and U_Pricing variables capture the IPO deal size. Dummy variables Bubble_P and Hot_Period are included to catch the effect of IPO issued in 1999 to 2000 and 1998 to 2000 and 2005 to 2007.

4 Results

Table 1 presents the descriptive statistics for various measures of acquisition activity for the sample of initial public offering between 1995 and 2009. A number of firms become acquirers within 2 to 3 years following the IPOs. In the sample of 773 IPO firms, 31 (4%) completed at least one acquisition in the five years after the IPO. Our results suggest that IPOs firms in Taiwan are not likely to enter the market as acquirers for corporate control. Firms make an average of 1.53 mergers. The median number of time from the IPOs to the first merger is 2.50 years, while the average number of time is slightly over 2 years (2.24). Although the median IPO ($12.70 million) is larger than the median merger ($10.46 million), the size of an average merger ($167.65 million) exceeds that of an average IPO ($58.66 million). Our results are consistent with that of Hovakimian and Hutton (2010) suggest that IPO proceeds may not serve as a sole funding source for these post-IPO mergers.

This table reports summary statistics for the sample. Time to first merger is the number of years between the IPO date and effective merger date. Merger size is transaction value net of fees and expenses. IPO size is IPO proceeds net of fees and expenses. Medians are reported in parentheses.

Table 1: Summary statistics for various measures of acquisition activity of IPO

Number of IPOs	773	
Firms with first merger completed within 6 months of IPO	4	[12.90%]
Firms with first merger completed within 1 year of IPO	2	[6.45%]
Firms with first merger completed within 2 years of IPO	9	[29.03%]
Firms with first merger completed within 3 years of IPO	9	[29.03%]
Firms with first merger completed within 4 years of IPO	6	[19.36%]
Firms with first merger completed within 5 years of IPO	1	[3.23%]
Number of merger per firm within 5 years of IPO	1.53	
Time to first merger (years)	2.24	(2.50)
Merger size ($MM)	167.65	(10.46)
IPO size ($MM)	58.66	(12.70)

During the 90's, industry in Taiwan has developed into more information technology-centered structure and the number of IPOs in Taiwan has steadily increased. Table 2 presents returns for IPO merger and non-merger firms in Taiwan for the first day.

A closer look at Table 2 suggests that the number of IPOs increases during the late 1990s to early 2000s, while the mean first-day IPO returns during the same period are low relatively. The reason for lower mean returns possibly is due to the 1997 -1998 Asian financial and the Internet bubble. Ritter (2011) presents that a low level of average underpricing is inconsistent with asymmetric information theories are in recent decades in the U.S. and in international countries. Furthermore, the initial returns for firms in the late 2000s are much higher. Chang (2011) suggests that the reason for the higher IPO returns is that IPOs have been exempt from the 7% daily price limit regulation for the first five trading days after going public since March 1, 2005.

This table presents the number of IPOs in Taiwan and the average first-day IPO returns for IPO-acquirers (IPO_a) and IPO Non-acquirers firms (IPO_{na}). IPO data is from SDC. The first-day returns on IPOs= (the closing price on the first day an IPO goes public−the offer price of IPOs) / the offer price of IPOs.

Table 2: First-day returns and the number of IPOs in Taiwan

Year	IPO_a	IPO_{na}	M&As	Returns of IPO_a	standard deviation	Returns of IPO_{na}	standard deviation
1995	4	44	9	0.067	0.002	0.0567	0.1519
1996	1	42	1	n/a	n/a	0.0183	0.1499
1997	0	20	0	n/a	n/a	0.1126	0.4234
1998	1	34	1	n/a	n/a	0.0530	0.1489
1999	1	46	1	n/a	n/a	0.0944	0.3584
2000	4	49	5	(0.006)	0.059	0.0072	0.1141
2001	2	58	3	0.068	0.000	0.0467	0.0479
2002	1	59	2	n/a	n/a	0.0498	0.1054
2003	1	99	1	n/a	n/a	0.0221	0.1112
2004	2	94	2	0.004	0.089	0.0170	0.0667
2005	4	56	4	(0.052)	0.026	0.1254	0.2801
2006	3	44	4	0.625	0.395	0.5541	0.5659
2007	1	51	4	n/a	n/a	0.5954	1.4132
2008	3	38	4	0.392	0.32	0.3027	0.3158
2009	3	35	4	1.034	0.458	0.7031	0.4943
Total	31	773	47				

Table 3 reports test statistics for short-term abnormal returns and cumulative abnormal returns for Taiwan IPO acquirers. The first-day average abnormal return for IPO acquirers is 23.69%, suggesting that the first trading day of IPO acquirers in Taiwan exhibits significant positive AAR and CAAR, which is expected for IPOs. For example, Chang et al. (2014) show that the first-day trading for IPO from 2005-2011 has an average of 55.3%. The cumulative returns remain positive for the first month after listing with slight volatility.

Table 3: Short-term abnormal returns and cumulative abnormal returns for IPO acquirers

t	AR_t	*t-statistic* (AR_t)	CAR_t	*t-statistic* (CAR_t)
1	23.69	3.32***	23.69	3.32***
2	0.91	0.82	24.60	3.70***
3	0.56	0.62	25.17	3.88***
4	1.08	1.45	26.25	3.88***
5	-0.05	-0.07	26.20	3.74***
6	0.98	1.32	27.18	3.78***
7	0.44	0.60	27.61	3.77***
8	0.41	0.56	28.02	3.68***
9	0.99	1.44	29.01	3.72***
10	-0.12	-0.21	28.89	3.65***
11	-0.54	-1.29	28.35	3.61***
12	0.78	1.12	29.13	3.70***
13	0.03	0.07	29.17	3.69***
14	-0.18	-0.38	28.98	3.60***
15	0.78	1.41	29.78	3.58***
16	1.45	2.47**	31.22	3.71***
17	1.01	1.73*	29.78	3.58***
18	-0.07	-0.12	31.22	3.71***
19	0.31	0.59	32.23	3.77***
20	0.12	0.19	32.16	3.65***
21	0.02	0.04	32.47	3.65***
22	0.12	0.20	32.59	3.73***
23	-0.49	-0.84	32.73	3.83***
24	-0.09	-0.18	32.16	3.74***
25	1.10	1.88*	33.26	3.86***
26	-0.04	-0.08	33.21	3.77***
27	-1.18	-2.19**	32.03	3.71***
28	- 0.36	-0.74	31.68	3.68***
29	0.05	0.10	31.72	3.71***
30	-0.23	-0.49	31.49	3.70***

Notes:***Significant at a 1% level, **Significant at a 5% level, *Significant at a 10% level.

Table 4 presents the results of the comparison of IPO underpricing for IPO acquirers and non-acquirers. The abnormal returns for portfolio of IPO acquirers are significantly higher than those of portfolio formed with IPO non-acquirers for the first day. However, the returns show reversal in the next few days. The significant negative cumulative returns stay persistent after 10 days through the rest of month.

Table 4: Short-term abnormal returns for IPO acquirers and non-acquirers

t	*IPO_A* AR_t *(%)*	*IPO_N* AR_t *(%)*	ΔAR_t *(%)*	*t-statistic*	ΔCAR_t *(%)*	*t-statistic*
1	23.69	21.59	2.10	2.22**	2.10	0.41
2	0.91	2.64	-1.72	-1.83*	0.37	0.07
3	0.56	2.21	-1.65	-1.75*	-1.28	-0.25
4	1.08	2.23	-1.15	-1.22	-2.42	-0.48
5	-0.05	1.41	-1.46	-1.55	-3.89	-0.77
6	0.98	1.63	-0.65	-0.68	-4.53	-0.90
7	0.44	1.57	-1.13	-1.20	-5.66	-1.12
8	0.41	2.34	-1.92	-2.04**	-7.58	-1.50
9	0.99	1.94	-0.96	-1.01	-8.54	-1.69
10	-0.12	0.82	-0.94	-1.00	-9.48	-1.87*
11	-0.54	1.18	-1.72	-1.82*	-11.20	-2.21**
12	0.78	0.53	0.26	0.27	-10.94	-2.16**
13	0.03	1.71	-1.68	-1.78*	-12.62	-2.50**
14	-0.18	1.38	-1.56	-1.66	-14.19	-2.80***
15	0.79	0.62	0.17	0.18	-14.01	-2.77***
16	1.45	0.43	1.01	1.08	-13.00	-2.57**
17	1.01	1.33	-0.32	-0.34	-13.32	-2.63**
18	-0.07	-0.13	0.06	0.07	-13.26	-2.62**
19	0.31	014	0.17	0.18	-13.09	-2.59**
20	0.12	-0.09	0.20	0.22	-12.89	-2.55**
21	0.02	0.45	-0.42	-0.45	-13.31	-2.63**
22	0.12	0.27	-0.15	-0.16	-13.46	-2.66**
23	-0.49	-0.72	0.24	0.25	-13.22	-2.61**
24	-0.09	0.13	-0.22	-0.23	-13.44	-2.66**
25	1.10	0.76	0.34	0.36	-13.10	-2.59**
26	-0.04	1.12	-1.16	-1.23	-14.27	-2.82***
27	-1.18	-0.33	-0.85	-0.90	-15.11	-2.99***
28	- 0.36	-0.90	0.55	0.58	-14.57	-2.88***
29	0.05	0.14	-0.09	-0.10	-14.66	-2.90***
30	-0.23	0.63	-0.86	-0.92	-15.52	-3.07***

Notes: ***Significant at a 1% level, **Significant at a 5% level, *Significant at a 10% level.

Table 5 shows the first-month average abnormal return for IPO acquirers is 27.74%. The cumulative returns increase though the third year for IPO acquirers. Therefore, the IPO acquirers in Taiwan perform better than the market both in short term and long term.

Table 5: Long-term abnormal returns and cumulative returns for IPO acquirers

t	AR_t	*t-statistic* (AR_t)	CAR_t	*t-statistic* (CAR_t)
1	27.74	4.03***	27.74	4.02***
2	8.53	1.85*	36.27	3.98***
3	-1.93	-0.51	34.34	4.16***
4	-1.26	-0.60	33.08	3.54***
5	5.86	2.08*	38.95	3.86***
6	-2.06	-0.74	36.88	3.44***
7	8.05	4.06***	44.93	4.08***
8	2.51	1.00	44.43	4.23***
9	4.82	1.62	52.25	4.26***
10	-2.11	-0.70	50.14	3.99***
11	1.29	0.45	51.44	4.15***
12	3.56	1.56	55.00	4.66***
13	-1.50	-0.72	56.18	4.78***
14	1.41	0.45	54.68	4.40***
15	1.33	0.76	56.08	4.02***
16	-0.85	-0.35	57.41	4.00***
17	-2.13	-0.95	56.56	3.94***
18	2.87	1.15	54.43	3.78***
19	2.08	0.89	57.29	3.99***
20	-0.35	-0.18	56.94	3.94***
21	2.27	0.76	59.21	3.89***
22	2.71	1.22	61.91	4.25***
23	-0.01	-0.01	61.90	4.49***
24	-1.90	-0.98	59.99	4.17***
25	-1.85	-0.94	58.15	4.05***
26	1.25	0.62	59.40	3.86***
27	1.04	0.39	60.44	3.84***

Notes: ***Significant at a 1% level, **Significant at a 5% level, *Significant at a 10% level.

Table 6 reports the results IPO underpricing for IPO acquirers and non-acquirers in the long term. Noticing that the abnormal returns for IPO non-acquiring portfolio are significantly higher than those of IPO acquiring one for the first year. Investors could possibly benefit from identifying whether IPO firms take corporate control of M&A in forming portfolios.

Table 6: Long- term abnormal returns for IPO acquirers and non-acquirers

t	*IPO_A* AR_t *(%)*	*IPO_NA* AR_t *(%)*	ΔAR_t *(%)*	*t-statistic*	ΔCAR_t *(%)*	*t-statistic*
1	27.74	52.33	-24.60	-3.90***	-24.60	-3.67***
2	8.53	2.46	6.07	0.96	-18.53	-2.76**
3	-1.93	2.22	-4.15	-0.66	-22.68	-3.38***
4	-1.26	1.44	-2.70	-0.43	-25.38	-3.79***
5	5.87	-1.23	7.09	1.13	-18.28	-2.73**
6	-2.06	4.18	-6.24	-0.99	-24.53	-3.66***
7	8.05	2.27	5.78	0.92	-18.75	-2.80***
8	2.51	3.01	-0.50	-0.08	-19.25	-2.87***
9	4.82	5.81	-1.00	-0.16	-20.25	-3.02***
10	-2.11	-1.49	-0.62	-0.10	-20.87	-3.11***
11	1.30	-5.47	6.76	1.07	-14.11	-2.11**
12	3.56	5.60	-2.04	-0.32	-16.15	-2.41**
13	1.18	-3.88	5.06	0.80	-11.09	-1.66
14	-1.50	-4.53	3.03	0.48	-8.06	-1.20
15	1.40	-1.29	2.70	0.43	-5.36	-0.80
16	1.33	-0.59	1.92	0.30	-3.44	-0.51
17	-0.85	-0.65	-0.20	-0.03	-3.64	-0.54
18	-2.13	4.18	-6.32	-1.00	-9.96	-1.49
19	2.87	3.52	-0.65	-0.10	-10.61	-1.58
20	-0.35	1.98	-2.33	-0.37	-12.95	-1.93*
21	2.27	1.40	0.87	0.14	-12.08	-1.80*
22	2.71	-3.39	6.10	0.97	-5.98	-0.89
23	-0.01	-1.77	1.75	0.28	-4.32	-0.63
24	-1.90	4.90	-6.80	-1.08	-11.03	-1.65
25	-1.85	0.57	-2.43	-0.38	-13.46	-2.01*
26	1.25	-2.01	3.27	0.52	-10.19	-1.52
27	1.08	2.34	-1.30	-0.21	-11.49	-1.71*

Notes: ***Significant at a 1% level, **Significant at a 5% level, *Significant at a 10% level.

The results of regressions in table 7 show factors that influence the long-run performance of IPOs for the whole sample. The dependent variable is the three- and five-year

buy-and-hold abnormal return using the market index benchmark. The main variable of interest, IPO acquirer, is statistically significant, showing that there is difference in the long-run performance of acquiring and non-acquiring IPOs. The IPO firm size is significantly negative. However, the overall models are not statistically significant.
This table reports three-year and five-year buy and hold abnormal returns for all sample. IPO_ Acquirer equals 1 for IPOs that acquire at least 1 firm within 5 years from going public. *LN(1+Age) is* the natural logarithm of 1 plus number of years before company goes IPO. *Size* is measured by the market value. *M/B* is the market to book value. *U_Pricing* is the underpricing of the firm. *Proceeds* is the amount of gross proceeds of the IPO offer. *Bubble_P* is 1 when the IPO year is 1999-2000, otherwise 0. *Hot_Period* is one when the IPO year is 1998-2000 or from 2005-2007, otherwise 0.

Table 7: Multiple - regression results

Variables	3-year returns	5-year returns
Intercept	0.2184	0.7491
IPO_ Acquirer	1.6946*	2.5343**
LN (1+age)	-0.3940	-1.0884
Size	-1.4582	-1.8850*
M/B	-1.3566	-0.9405
U_Pricing	-0.3687	-1.2980
Proceeds	1.1567	1.5450
Bubble_P	0.9526	0.8655
Hot_Period	1.2443	0.5618
R^2	0.13	0.18
Adj- R^2	-0.00	0.05
F-statistic	0.95	1.39
N	60	60

Notes: ***Significant at a 1% level, **significant at a 5% level, *significant at a 10% level. The dependent variable is the three-year and five-year BHAR using the control firm approach as benchmark.

5 Conclusion

Using data for the market in Taiwan, we examine both the short-run and long-term performance after IPO firms and their subsequent M&As. The performance of IPO acquirers is significantly different from that of IPO non-acquirers measured in AR and CAR. Moreover, from the cross-sectional regression analysis, IPO acquirers outperform non-acquires. After controlling for deal and firm characteristics, the multiple regression results confirm the significant negative size effect, leaving age, proceeds, market to book ratio insignificant. Overall, our results regarding the takeover activity of IPOs help explain IPO underperformance. The lack of significance in the results underlines the importance of larger sample size considering the limitation in estimating returns and classifying post - IPO merger activities.

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