

## LONG-RUN PERFORMANCE OF PRIVATE-EQUITY-BACKED INITIAL PUBLIC OFFERING IN THE SOUTHEAST ASIAN MARKETS

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*Abstract— Over the past decade, the number of private-equity (PE) investments grew across the Southeast Asian markets, which was due to its rapid economic growth and lesser competition. However, while some believe that this has a positive impact to the economy, the real contribution of PE-backed transactions is unclear, as there is no study yet observing the nature of these transactions that specifically focuses on the Southeast Asian markets. This 6-month study examines the long-run stock performance of PE-backed initial public offering (IPO), by examining the historical data from the period of 1996 to 2016. This research uses market-adjusted and risk-adjusted returns to calculate the long-term stock returns. The result indicates although the performance of PE-backed IPOs differs in every market, generally, it underperforms almost all indices. However, it is less underperformed than the paired non-PE-backed IPO. This study aims to give an outlook of how a PE-backed IPO performs in the market. The finding is hoped to deliver some insights for financial sponsors, issuing firms, underwriters, and investors regarding the nature of the transactions in the Southeast Asian markets.*

*Keywords: private equity, initial public offering, capital market, security performance, Southeast Asia.*

### Introduction

Private equity has grown exponentially in the Southeast Asia. Over 2000-2015, Asia-Pacific multiplies its total private-equity investment by about ten times (see Figure 1). Along with that, through a survey conducted by PwC in 2015, Asia has the second highest attractiveness level, after the US, for private-equity investment over the next five years (see figure 2). What makes Southeast Asia more interesting is the fact that the economic slowdowns in China has caused the foreign direct investments started to move from China to the ASEAN-5 countries (Indonesia, Singapore, Malaysia, The Philippines, Thailand) (see Figure 3).

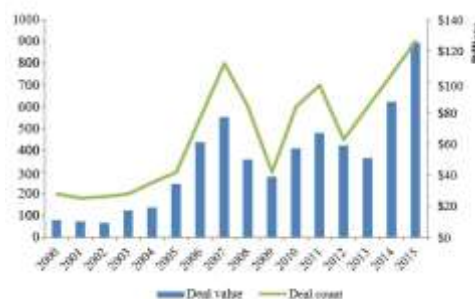


Figure 1. Asia-Pacific private-equity investments (AVCJ, 2016)

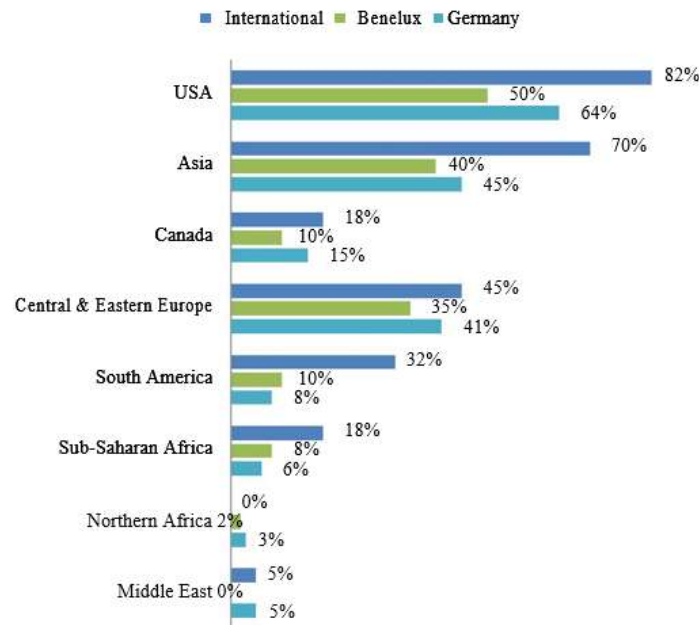


Figure 2. Attractiveness level of regions for private equity investment over the next five years based on survey (PwC, 2016)

The Southeast Asian markets have produced many great private-equity investments. In Indonesia, there was the infamous private-equity investment of Adaro Energy by Saratoga Capital, which profited nearly US\$250 million from just an initial investment of US\$50 million in 7 years (Adaro, 2014). CVC Capital Partners, a British private-equity firm, also successfully turned Matahari Department Store into profitable, and reaped a sizeable return from the divestment (Van der Schaar, 2013).

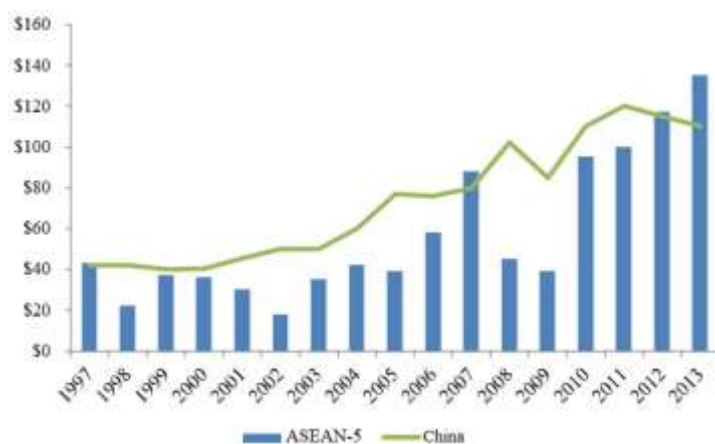


Figure 3. Foreign direct investments on ASEAN-5 (Indonesia, Singapore, Malaysia, The Philippines, and Thailand) and China (Bank of America Merrill Lynch, 2014). However, the fortune story is only echoed from one side. While the private-equity firm pocketed huge profit, the IPO performance of Adaro slipped down for -245% in less than a year, which indicates a massive overvaluation. Moreover, several Malaysian companies, which were assisted by venture capital, one of private-

equity business categories, also yielded disastrous IPO returns which caused them to be delisted from the board.

Many questions arise because of that: Are private-equity and the issuing firms the only parties who are benefited from the investment? Does buying the private-equity backed initial public offering as a citizen-investor bring a sure investing catastrophe in the long run? Is it better to stay away from private-equity backed initial public offering and invest in other company in similar industry instead?

Several empirical studies have been conducted to figure the long-run performance of private-equity backed initial public offering, but none cover the Southeast Asian markets. Composing a new study is necessary as the result could be dissimilar due to the unique social, political, and cultural characteristics of the region (Bhalla, Harris, Khanna, Wu & Dolya, 2013). The aim of this study is to understand the major trend of the private-equity backed initial public offering's performance by comparing it to the market and the non-private-equity backed initial public offering. The analysis would provide empirical evidence regarding private-equity backed initial public offering. Thus, investors, private-equity firms, issuing firms, and underwriters can use this study for future reference.

## **Literature Review**

A company who is in need of capital can seek funding through capital market in which the company could either raises equity capital through initial public offering (IPO) or debt capital through bond issuance (Jenkinson & Ljungqvist, 2001). However, they need to go public to do so, which sometimes can be very complicated and expensive. The other option that a company can opt is through private equity. Private equity is an ownership of equity or debt securities on companies that are not publicly traded (BVCA, 2016), which basically an investment to private company. Private equity offers variety of products that fulfill many different capital needs of different stages of business. For example, private-equity firm offers venture capital for early start-ups, mezzanine capital and growth capital for growing business, leveraged buyout for mature business, and distressed securities for distressed companies (Lerner, 2000).

Private-equity firms have their own role in the capital providing industry. However, their business incentives are questioned whether they really add up values to the whole process or they simply hit for profit while impairing the others (Ljungqvist, 2016). A study of private-equity backed companies' performances are needed to justify the notion. However, private-equity backed companies' performances are mostly concealed. As private companies, they do not have to disclose their performances to public. Fortunately, as private-equity firms can also divest their investment through initial public offering, several performances of those private-equity backed IPO can be attained.

### *IPO Underperformance*

Stock performance can represent the real company performance (Fidelity, 2016). A company that performs well is demanded by investors causing an upward price movement, and vice versa. Thus, evaluating the company's stock performance is a valid indicators of analyzing company's performance. IPO are known for its consistent underpricing and underperformance, especially in developing countries' markets (Ritter, 1991; Moshiran, Ng & Wu, 2010; Sullivan & Unite, 1998; Emasari & Tamara, 2012). However, several studies show an opposite finding on the private-equity backed IPOs; they outperform the market (Cao & Lerner, 2006; Chou, 2001; Brav & Gompers, 1997; Drathen, 2007; Bourrat & Wolff. 2013). Unfortunately, none covers the Southeast Asian markets. It is often hard to evaluate the long-run stock performance of the IPO firms due to uncertainty in

choosing appropriate methodology. However, there are five key factors in determining the outcome of long-run stock performance analysis, which are metrics, benchmark, methodology, time, and test statistics.

It is important to use metrics in measuring abnormal returns, as the results may differ depending on which metrics used, for instance buy-and-hold abnormal returns (BHAR), cumulative abnormal returns (CAR), or wealth relatives (WR). The choice of benchmark also decides the results of the stock performance. Examples of the benchmark include the selection of a certain equity market index and the choice of a specific asset pricing model. Moreover, the methodology for the sectional aggregation, such as equal-weighted, value-weighted, or median abnormal returns, is also crucial in determining the outcome of the stock performance. Furthermore, analysis carried in an event time or a calendar time may also result in stock performance discrepancy. Lastly and the most importantly, the method and test statistics should be carefully selected, as to determine its statistical significance.

	Factor	Example
Key factors in determining IPO performance	Metrics	BHAR, CAR, WR
	Benchmark	Market Index, Other Control Group
	Methodology	Value-weighted, Equally-weighted
	Time	Calendar-time, Event-time
	Test Statistics	One sample t-test, Paired sample t-test

#### *Samples & Analyses*

The research conducts several analyses. The first analysis analyzes the event-time performance of private-equity backed IPO and the second analysis analyzes the calendar-time long-run performance of private-equity backed IPO, .



Figure 2 Research breakdown

65 private-equity backed IPOs are found on January 1996-June 2016 period, gathered from Thomson Reuter's database. The sample gathering is following these criteria: the paired IPO should be issued within 24 months before or after the PE-backed IPO, the firm IPO's sector, or at least its general industry, should be similar with that of the PE-backed IPO, and the market capitalization lies within one fifth to five times of the LBO-backed IPO's.

## **Results and Discussions**

Emasari (2010) finds that Indonesian IPOs significantly underperformed the market three and five years after their first offering from 1996 to 2001. A possible explanation would be that there are mismatch valuations between the issuance companies and the investors due to informational asymmetry. However, varying findings are found in other stock markets of the Southeast Asian countries; IPO underperformance in Singapore (Moshirian, Ng, & Wu, 2010), outperformance in Malaysia (Ahmad-Zaluki, Campbell, & Goodacre, 2007) underperformance in the Philippines (Sullivan & Unite, 1999), outperformance in Thailand (Allen, Morkel-Kingsbury, & Piboonthanakiat, 1999). There is no evidence on Vietnam's long-run IPO performance (Tran, 2014).

The existence of private-equity firm assisting an IPO company may lessen the mismatch valuation from the issuing companies and the investors. Since IPO is one of PE firm's exit strategies, offering reasonable IPO price is necessary for their business sustainability. The idea is proved by several studies in the US and European markets (Schober, 2008; Drathen, 2007). Yet, there is no research focusing on the Southeast Asian markets. This study fixates on IPO transactions in the Southeast Asian markets comparing PE-backed IPO to a control group of non PE-backed IPOs. The performance is assessed under several measurements, including buy-and-hold, market-adjusted (BHAR), and risk-adjusted (Jensen's alpha) returns in calendar and event time.

### *Event Time*

The IPO performances are measured using buy-and-hold returns, market-adjusted returns, and Jensen's alpha with a timeframe based on the event occurrences. The buy-and-hold return calculates the percent change of the stock price after a certain period of time. The market-adjusted return subtracts the buy-and-hold return to the benchmark index return—to calculate the excess return the investors gain by not investing on the index. Jensen's alpha is measured by using time-series regression of the stock daily excess return (to the risk-free investment) on the index daily excess return (to the risk-free investment). It measures the security's abnormal return over the expected theoretical return from the capital asset pricing model.

The analysis is based on event-time with holding periods of 12, 24, 36, 48, and 60 months. The prices are determined from the closing price of the first-day transaction until the closing price of June 30th, 2016 transaction. However, there is several data unavailability; thus, the analysis uses the first available closing price, instead. For the significant test, the study applies statistical paired-sample t-test. The research determines the mean buy-and-hold returns of 65 PE-backed IPOs stay on the negative area over four years, but rebounds in the fifth (see Table 1). The raw return is -6.82% in the first year, -5.92% in the second, -5.44% in the third, -8.31% in the fourth, and 8.39% in the fifth. Unfortunately, most data fail to pass the significance test, with the only statistical significant result is in the second year. Therefore, there is not enough evidence to state whether PE-backed IPO outperforms non PE-backed IPO in the long run, in term of buy-and-hold return.

When market factor is taken into account, the mean returns remain negative over the observation period. Apparently, the return is getting worse every year. However, the test results are not statistically significant also. It cannot be concluded whether the PE-backed IPO is underperforming the matched IPO in the long run. The Jensen's alphas are positive in all observed years. This implies PE-backed IPO perform better toward its benchmark. The IPOs have consistent positive abnormal return (alpha) with an average 0.06% per day. Moreover, the analysis has one significant result in the 60-month categories. However, since most alphas produce insignificant statistical results, the notion of PE-backed IPO outperformance cannot be approved, yet.

#### *Event Time Wealth Relative*

The performance is compared to different benchmarks. The benchmark used is based on the IPO origin's market index; JKSE for Indonesian companies, KLSE for Malaysian companies, PSEI for The Philippines companies, SET for Thailand companies, STI for Singapore companies, HNX and VNI for Vietnam companies. The returns of both IPO and its index are calculated using buy-and-hold performance. The measurement uses three and five year holding period and equally weighted from all IPOs.

The IPO calculation starts from its first day's closing price to the closing price at the end of the expected time period. Subsequently, the index return is calculated using the closing price of the same period of the IPO. Wealth relative measures the IPO return relative to its benchmark. A wealth relative higher than 1 equals an underperforming IPO, while less than 1 wealth relative explains the opposite. From Table 2, almost all IPOs show an underperformance to their index, yet, the private-equity backed IPO is less underperformed than the non PE-backed IPO. Even though the performance of PE-backed IPO in the third year underperforms the market with a wealth relative of 0.78, these IPO outperforms the non PE-backed IPO who has lower wealth relative of 0.65. In the fifth year, the PE-backed IPO also slightly beats the matched portfolio with a 0.74 wealth relative compared to 0.73. Most countries are consistently outperforming the benchmarks, but Indonesia and Thailand. In third and fifth year, Indonesia underperform its benchmark in term of wealth relative. Thailand only underperforms in fifth year.

#### *Cohort Year*

To see the pattern of the PE-backed IPO performance, a yearly cohort performance is analyzed. The study is following Loughran & Ritter (1995) explanations regarding the correlation between the year of an IPO listing date and the stock price underperformance. The analysis uses buy-and-hold returns for both the IPO and index returns calculation. It compares the PE-backed IPO to non PE-backed IPO. A wealth relative calculation is provided on each year to show the IPO performance relative to its index. A wealth relative above 1 indicates that the IPO outperforms the market, and vice versa.

Table 3 displays the IPO performance based on listing year. Over a three-year performance, PE-backed IPOs outperforms the market for 4 years in 1998, 1999, 2006, and 2007—which consist of 17 IPOs. On the other hand, the 1999 (consist of 5 IPOs) is the only year non PE-backed IPO outperforms the market. Furthermore, over a five-year performance, the number of outperforming year increases. There are 5 listing years of PE-backed IPO that outperform the market, which are in 1998, 1999, 2007, 2009, and 2010 (20 companies). On the same period, non PE-backed IPO outperforms the market in 1999, 2007, and 2011 IPOs (or 14 companies). There is a probable correlation between the PE-backed IPO performance and listing date. The year 1999 is the most profited cohort year, and year 2007 comes second. In both years, there were big financial

downturns happening. The 1999 is in the period of Asian financial collapse (coupled by the dot com bubble burst), while 2007 is in the period of global financial meltdown (due to the housing bubble burst). It shows that IPO in the Southeast Asian markets is performing better when crises arise which is consistent with the study of King & Banderet (2014) in the US market.

#### *Calendar Time*

The IPO performance can also be analyzed based on calendar time. The problem with event time tests is the arising potential biases from different IPO issuing dates between the PE-backed IPO and its paired IPO. Same-sized companies in the same industry often show a correlation in calendar time. The event time tests do not regard that factor; in consequence, the results may overstate the actual return from each year. Hence, a calendar time analysis can be implemented to address this correlation issue.

#### *Wealth Relative*

The analysis operates as if someone holds a portfolio consisting of PE-backed IPO only. The investment starts from January 1<sup>st</sup>, 1996 until December 31<sup>st</sup>, 2015. The invested value of each IPO is equally weighted and rebalanced daily. The IPO is discarded from the portfolio once it has performed five-year. The returns are compounded overtime using buy-and-hold return and compared to their market benchmark. The wealth relative is calculated to examine whether the return outperforms the market.

Table 4 shows that the returns of the PE-backed IPO and the non PE-backed IPO are trailing each other. The PE-backed IPO has better performance on the earlier years, but the non PE-backed IPO soon caught up and surpassed the PE-backed IPO returns on the middle observation period. On the latter period, both IPOs start to deliver similar results with the PE-backed IPO performs slightly better. At the end of the observation, the performance is reducing and causing an underperformance toward the market. However, the return of the PE-backed IPO portfolio is still higher than its control portfolio.

#### *Jensen's Alpha*

The Jensen's alpha is analyzed to determine the risk-adjusted return of the portfolio. The measurement is based on Jensen's alpha model, which calculates the abnormal return relative to the expected theoretical return from the capital asset pricing model. The portfolio return is subtracted by the risk-free asset of each country (based on 10Y government bond of each country) and then regressed toward the excess market return. The result shows the alpha and beta along with its p-value and t-stats. The observation numbers and the adjusted R-squared values are also presented in the table. The regression delivers a statistically significant PE-backed IPO's outperformance to the market. The PE-backed IPO portfolio has an alpha of 0.06% per day, or 1.50% per month, and a beta of 0.69 (significant at 1% level). The result is corresponding with Drathen (2007) finding, which discovers a statistically significant alpha of 1.46% per month in his PE-backed IPO research of Germany stock market. However, the adjusted-R<sup>2</sup> is considerably low with only 12% explaining that the portfolio doesn't act much like the index. The non PE-backed IPO test also produces a satisfactory outcome. The alpha is 0.05% per day at 1% level significance. The beta is 0.66 which is also statistically significant. Unfortunately, the result also falls into the same drawback as the PE-backed IPO in which its adjusted R<sup>2</sup> is very low at only 15%.

## Conclusion

The thesis analyzes the long-run performance of private-equity backed IPOs in the Southeast Asian markets. The lack of current understanding toward PE-backed IPO in the Southeast Asian markets has raised many questions regarding its long-run performance, especially by the investors who want to invest in those IPOs but are still not convinced due to the negative reputation of the IPO. From 65 samples of private-equity backed IPOs between 1996 and 2016, it can be concluded that: Based on event time, the PE-backed IPO outperforms the non PE-backed IPO in three-year performance with a mean return of -5.44%. However, when the return is adjusted to the market, the analysis shows no significant results. Jensen's alpha model also displays a statistical significant abnormal return of 0.11% per day in a five-year performance horizon. (See Table 1).

Table 1 Event Time Performance of PE-backed IPOs

	12 Months	24 Months	36 Months	48 Months	60 Months
N	65	64	62	58	54
Raw Return	-6.82% (1.00)	-5.92% (0.17)	-5.44% (0.09)	-8.31% (0.31)	8.39% (0.59)
Market- adjusted Return	-8.34% (0.90)	-15.53% (0.29)	-24.56% (0.26)	-33.35% (0.41)	-37.98% (0.77)
Jensen's Alpha	0.00% (0.42)	0.05% (0.55)	0.07% (0.26)	0.08% (0.21)	0.11% (0.09)

Note. The sample consists of 65 PE-backed IPOs between January 1996 and June 2016. The one-tailed significance levels reported in parentheses below are based on the one-sample t-test.

The PE-backed IPO underperforms almost all indices, except the Thai SET Index, in three and five-year performance, which is similar with IPO in general. However, the PE-backed IPO is less underperformed than the paired non PE-backed IPO. (See Table 2).



Table 2 Event Time Performance Vs Benchmarks

Benchmark	PE-Backed				Non PE-Backed			
	N	IPO Returns	Index Return	Wealth Relative	N	IPO Return	Index Return	Wealth Relative
Five year performance vs benchmark								
JKSE								
(Indonesia)	8	-27.88%	189.69%	0.25	8	-13.56%	150.73%	0.34
KLSE								
(Malaysia)	13	-6.92%	34.14%	0.69	13	-37.69%	45.46%	0.43
PSEI (The Philippines)	2	-62.38%	-47.47%	0.72	2	-87.50%	-54.56%	0.28
STI								
(Singapore)	15	15.86%	29.63%	0.89	15	-4.29%	17.58%	0.81
SET								
(Thailand)	10	59.85%	19.41%	1.34	10	110.12%	28.83%	1.63
VNI								
(Vietnam)	10	-4.47%	0.78%	0.95	10	-12.45%	14.12%	0.77
Combined	58	6.10%	43.32%	0.74	58	2.39%	41.05%	0.73
Three year performance vs benchmark								
JKSE								
(Indonesia)	10	-17.08%	65.48%	0.50	10	6.46%	51.96%	0.70
KLSE								
(Malaysia)	13	21.57%	25.02%	0.97	13	-34.17%	33.62%	0.49
PSEI (The Philippines)	2	-1.98%	-30.39%	1.41	2	-73.08%	-34.86%	0.41
STI								
(Singapore)	18	-6.56%	16.13%	0.80	18	-26.51%	6.41%	0.69
SET								
(Thailand)	11	-8.13%	5.47%	0.87	11	-16.07%	1.79%	0.82
VNI								
(Vietnam)	10	-35.83%	-8.74%	0.70	10	-45.69%	-4.03%	0.57
Combined	64	-7.19%	18.48%	0.78	64	-25.57%	15.34%	0.65

Note. The sample consists of 65 PE-backed IPOs and 65 paired non PE-backed IPOs between January 1996 and June 2016. The first section displays five-year performance vs benchmarks, while the second displays three-year performance vs benchmarks.

The performance of PE-backed IPOs differs in every market. Indonesia and Thailand have underperforming PE-backed IPO compared to its paired non PE-backed IPO. On the opposite, the PE-backed IPO in Malaysia, the Philippines, Singapore, and Vietnam consistently outperforms its paired IPO. (See Table 2). The performance of PE-backed IPO gets better in the long run. There were 17 PE-backed IPOs that outperform the market on three-year performance basis. The number increases to 20 when the basis is changed to five-year performance. (See Table 3).

Table 3. Three Year Performance by Cohort Year Vs Benchmark

Year	PE-Backed				Non PE-Backed			
	N	IPO Returns	Index	Wealth Relative	N	IPO Returns	Index	Wealth Relative
Three year buy-and-hold return								
1996					1	-84.43%	-31.66%	0.23
1997	1	-59.52%	-31.20%	0.59	1	-61.73%	-38.06%	0.62
1998	1	55.56%	-29.57%	2.21				
1999	3	26.10%	-23.76%	1.65	5	-29.63%	-35.82%	1.1
2000	2	-55.78%	-19.32%	0.55	2	-3.12%	22.31%	0.79
2001	3	-51.03%	110.30%	0.23	1	-10.71%	104.96%	0.44
2002	2	-46.09%	85.64%	0.29	2	12.28%	90.46%	0.59
2003	3	-72.76%	16.38%	0.23	1	-28.33%	44.16%	0.5
2004	8	18.53%	39.58%	0.85	6	-34.36%	52.79%	0.43
2005	7	14.74%	32.10%	0.87	6	4.74%	25.15%	0.84
2006	5	42.48%	6.26%	1.34	9	-36.36%	2.00%	0.62
2007	8	-10.01%	-13.20%	1.04	4	-5.41%	-3.88%	0.98
2008	4	-14.07%	22.66%	0.7	6	32.89%	42.16%	0.93
2009	3	11.31%	41.14%	0.79	3	-52.86%	-9.56%	0.52
2010	5	-23.67%	9.91%	0.69	4	-70.46%	8.54%	0.27
2011					2	-17.56%	28.09%	0.64
2012	6	-17.15%	16.29%	0.71	3	-31.51%	2.26%	0.67
2013	3	-33.17%	-8.91%	0.73	4	-38.92%	-0.61%	0.61
Five year buy-and-hold return								
1996					1	-97.23%	-58.33%	0.07
1997	1	-96.98%	-45.89%	0.06	1	-77.78%	-50.79%	0.45
1998	1	-27.78%	-49.05%	1.42				
1999	3	284.50%	30.47%	2.95	5	188.85%	6.08%	2.72
2000	2	-50.24%	11.18%	0.45	2	33.96%	151.70%	0.53
2001	3	-66.30%	292.34%	0.09	1	-61.90%	241.98%	0.11
2002	2	-25.79%	200.87%	0.25	2	-8.50%	209.42%	0.3
2003	3	-82.89%	4.14%	0.16	1	0.00%	83.22%	0.55
2004	8	-14.89%	21.19%	0.7	6	-50.45%	18.50%	0.42
2005	7	-3.98%	34.08%	0.72	7	12.58%	27.93%	0.88
2006	5	10.56%	64.93%	0.67	8	-33.29%	33.07%	0.5
2007	8	8.84%	-2.74%	1.12	5	51.50%	12.37%	1.35
2008	4	-27.51%	52.44%	0.48	5	-7.67%	79.27%	0.52
2009	4	67.36%	59.04%	1.05	4	-34.77%	24.59%	0.52
2010	4	22.23%	11.47%	1.1	3	-57.41%	11.18%	0.38
2011					2	81.25%	27.41%	1.42

Note. The sample consists of 65 PE-backed IPOs and 65 paired non PE-backed IPOs between January 1996 and June 2016.

PE-backed IPO portfolio performs really well in calendar time. A portfolio of PE-backed IPO can consistently outperform the market in five year holding periods. (See Table 5). The alpha of the portfolio statistically significantly outperforms the markets. The 0.06% daily or 1.5% monthly alpha is significant at 1% level. (See Table 6)

Table 5 Regressions of Five Year Calendar-Time Portfolio Return

	CAPM			
	PE-Backed		Non PE-Backed	
Alpha	0.06%	***	0.05%	***
	-2.94		-2.88	
Beta	0.69	***	0.66	***
	-22.12		-25.24	
Observations	3653		3653	
Adjusted R-Squared	0.12		0.15	

Note. The sample consists of 65 PE-backed IPOs and 65 paired non PE-backed IPOs between January 1996 and June 2016. The robust t-statistics are reported in parentheses. One, two and three asterisks indicate significance at the 10%, 5% and 1% level, respectively.

Table 6 Calendar Time Portfolio Performance Vs Benchmark

Year End	Long PE-Short Non PE				Short PE-Long Non PE			
	N	IPO Returns	Index	Wealth Relative	N	IPO Returns	Index	Wealth Relative
Five year buy-and-hold return								
2001	19	-82.97%	-24.17%	0.22	19	-79.79%	-24.17%	0.27
2002	21	-87.52%	-41.46%	0.21	21	-79.56%	-41.46%	0.35
2003	22	-96.92%	-9.85%	0.03	22	-9.43%	-9.85%	1.00
2004	38	-65.84%	-8.91%	0.38	38	-57.02%	-8.91%	0.47
2005	40	-61.10%	-12.45%	0.44	40	-44.38%	-12.45%	0.64
2006	52	-64.87%	45.12%	0.24	52	-26.06%	45.12%	0.51
2007	58	-38.83%	69.72%	0.36	58	-46.36%	69.72%	0.32
2008	66	-26.17%	115.17%	0.34	66	-54.62%	115.17%	0.21
2009	56	-12.89%	86.50%	0.47	56	-59.06%	86.50%	0.22
2010	51	-0.15%	-20.50%	1.26	51	-63.35%	-20.50%	0.46
2011	39	10.81%	22.76%	0.90	39	-64.47%	22.76%	0.29
2012	36	12.11%	18.16%	0.95	36	-63.12%	18.16%	0.31
2013	33	6.44%	17.96%	0.90	33	-60.25%	17.96%	0.34
2014	27	-3.81%	187.54%	0.33	27	-43.12%	187.54%	0.20
2015	20	22.42%	68.00%	0.73	20	-45.99%	68.00%	0.32

Note. The sample consists of 65 PE-backed IPOs and 65 paired non PE-backed IPOs between January 1996 and June 2016. The samples are constructed into portfolios under the 'long-short' idea.

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